PLENARY SESSION

Presentation By

Judith Stelian
Beaumont Birch Company
Pennsauken, New Jersey

OPENING REMARKS

Ladies and gentlemen, I am pleased to welcome you to historic Atlantic City, and to New Jersey, a state that has always been a leader in waste management. New Jersey can rightfully boast about its accomplishments on how waste-to-energy, MRFs, and recycling can work hand-in-rand to reduce our dependency on landfilling. One of America's first waste-to-energy plants is located in Warren County and one of the first MRFs is sited in Camden.

One nice thing about our industry is that you can fit most of the real experts and true pioneers in one room. As I glanced over the advance registration list last week I saw the names of many old friends, and those of solid waste industry leaders from around North America and the world. And so this is not just a waste conference. This is a conference of waste industry leaders.

Several years ago the rumor was that all the landfills would be closing and creative, integrated waste management would become the order of the day.

Many companies, and many of us personally, invested great time and energy developing innovations and new concepts in waste management. Some waste management companies staked their futures, and some of us staked our careers, on the promise of a brighter day of enlightened waste management.

In the meantime, we have more landfill capacity than in 1985. The landfills get fuller, and many creative ideas get shot down or sidetracked, and some of the best ideas get torpedoed by those who do not understand the complex political, economic, and technical issues.

Like many of you, I believe that a better day will come.

Perhaps the new day will arrive when the general public listens to the professionals, the engineers, and scientists and industry leaders who develop solutions the old fashioned way -- through hard work, honest research, and attention to immutable realities.

Perhaps the new day will appear when people realize that safety and public health, economics and local politics, science and engineering must all be given consideration, and that no single process or voice is a magic bullet.

Perhaps the new day will be with us when the politicians get tired of using waste management and environmental issues like a football to kick back and forth as a way of showing concern for their constituents.

But a new day <u>will</u> arrive, and you in this room will be instrumental in bringing it about. So hang in there, we'll ride out the tough times together, and hopefully we'll all be around when the sun begins to shine again on our industry.

We have an excellent conference planned for you, with over fifty technical papers, an exhibit representative of waste industry leaders, and some very interesting tours on Wednesday and Thursday, please let me know if there is anything I, or the conference committee, can do to the make your stay more enjoyable and productive,

PLENARY SESSION

Presentation By

John H. Skinner, Ph.D., President
International Solid Waste Association

INTERNATIONAL PROGRESS IN SOLID WASTE MANAGEMENT

INTRODUCTION: SOLID WASTE MANAGEMENT, THE ENVIRONMENTAL ISSUE OF THE 90'S

Solid waste management has moved to the forefront of the environmental agenda. The level of activity and concern by citizens and governments worldwide have reached unprecedented levels. Nations are considering restrictions on packaging and controls on products in order to reduce solid waste generation rates. Local and regional governments are requiring wastes to be separated for recycling, and some have even established mandatory recycling targets. Concerns about emissions from incinerators and waste-to-energy plants have resulted in imposition of state-of-the-art air pollution controls. Landfills are being equipped with liners, impervious caps and liquid collection systems, and gas and groundwater is being routinely monitored. There is wide scale public opposition to the establishment of new solid waste treatment and disposal facilities. As a result, the costs of solid waste management are increasing rapidly.

Previously considered a local issue, it is now clear that solid waste management has international and global implications. Concerns about transboundary shipment of hazardous waste has led to the adoption of the Basel Convention by the United Nations. Recognizing the interrelationship between solid waste standards and economic development, the European Community is moving forward to harmonize waste disposal requirements in member countries. Around the globe countries are discovering thousands of sites where hazardous wastes have been spilled, dumped or otherwise discarded resulting in contamination of soils, surface waters and ground water. The economic costs of clean-up these sites will stress national economies and at the same time offer enormous international business opportunities.

Solid waste management in countries with developing economies poses a special set of problems. In these countries quite often financing is not available for the construction of waste treatment facilities, and there is a lack of trained personnel to operate waste management systems. Also, there are generally no regulations or control systems, no administrative body responsible for solid waste control and no obligation for industry to dispose of wastes properly. The United Nations Environment Programme has focused on solid waste management in developing economies as a priority concern.

More than ever before, solid waste management policy makers world wide need sound and reliable information on the technical performance, environmental impact and costs of solid waste collection, recycling, treatment and disposal systems.

THE MISSION OF ISWA

The mission of ISWA is to promote and develop professional solid waste management world wide. Our goals include protection of human health, natural resources and the environment through effective and economically sound solid waste management practices. ISWA is a professional association open to members from all countries in the world. Its activity is solely in the public interest through professional development of its members; it does not pursue any commercial or political aims.

ISWA is truly an international organization in that its governing body, the General Assembly, is made up of National Members from 20 countries around the world. Most countries with an established solid waste management infrastructure hold National Membership in ISWA. National Members must be national organizations representing all professional activities related to solid waste management in the member country. Pending the establishment of a fully functioning National Member organization, countries may join as Development Members. ISWA also has over 700 Individual and Organizational members in over 70 countries. It is this international network of national, organizational and individual members that provides ISWA the ability to reach thousands of solid waste professionals throughout the world.

INTEGRATED SOLID WASTE MANAGEMENT

Most solid waste management professionals recognize that there is no single, simple solution to solid waste problems. Instead an integrated approach is necessary combining the elements of several techniques. Integrated solid waste management is a comprehensive strategy involving four key elements applied in a hierarchial manner:

1. Reducing the volume and toxicity of the solid waste that is generated,

2. Recycling or reusing as much as possible of what is generated,

3. Recovering energy from the remaining waste through combustion systems equipped with the best available pollution control technology, and

4. Utilizing landfills with adequate environmental controls.

In the following sections each of the elements of this strategy will be discussed in turn.

WASTE REDUCTION

Waste reduction activities are important to halt or slow down the increasing rate of waste generation per-capita. For example, the most recent data from the U.S. indicates that from 1988 to 1990, the per capita generation rate increased from 1.82 to 1.95 kg. per person per day. In 1990, ISWA published data on municipal solid waste generation rates in 15 countries which showed rates ranging from a low of 0.6 kg. per person per day to a high of 2.6 kg. per person per day. [1]

Waste reduction has several aspects, all of which should be addressed. One is toxicity reduction, in which the nature of waste is changed by reducing manufacturer's use of toxic materials in consumer products. Another is volume reduction--cutting the amount of waste generated by using less material in the first place. A prime example of this is a reduction in packaging. Waste reduction also includes encouraging the production of products that can be recycled more easily, such as shifting from multi-material to one-material packaging. Other options to reduce wastes include the redesign of products, material use changes, and restrictions on specific product types.

The approach to reducing waste must be broadly based incorporating actions that can be taken by industries, individuals, commercial enterprises and governmental agencies. Industry can reduce waste through raw material substitution and redesign of products and processes. Individuals, commercial enterprises and agencies can use their purchasing power to create a demand for low waste products or items produced from recycled materials. Governments should investigate the use of economic and other incentives to encourage waste reduction. Waste reduction efforts also need to focus on consumer behavior. Education and information dissemination programs can be effective means of causing desired behavioral and attitudinal changes.

There are many cases of successful reduction of wastes produced by industrial processes. Experience has shown that modifications to industrial processes that reduce waste also result in lower raw material, energy and waste disposal costs. Productivity is often enhanced and liabilities related to release of hazardous substances are reduced. The fact that waste reduction quite often pays has been demonstrated repeatedly.

RECYCLING

There are two basic approaches to recycling solid wastes. The first involves separating recyclable materials by the waste generator and separately collecting and transporting these materials to recycling markets. The second involves collecting mixed wastes or commingled recyclable materials and separating them at a central processing facility. The highest recycling rates, reported in 15 countries in 1990, were in the range of 10 to 18 percent. There are many good examples of successful recycling programs in countries throughout the world.

Prior separation of recyclable materials has the advantage that the materials are not contaminated by other wastes. However, this requires the waste generator (e.g. householder) to separate the wastes correctly and store them in separated form. Also, the generator needs to transport the separated material to recycling centers or separate or compartmentalized collection vehicles need to be used. Key factors in success of pre-separation efforts are the cooperation and willingness of the generator to participate in the program over the long term, and the additional collection and transport costs that may be required.

Mixed solid waste can be separated for recycling at local processing centers or materials recovery facilities. Some plants process segregated recyclable materials; others separate mixtures of glass bottles, aluminum cans and steel cans; still others process mixed residential or commercial wastes, separating the recyclable materials. The success of these plants depends on the processing costs and the quality of the recyclable material produced.

A major recycling impediment is the question of continued viability and availability of secondary materials markets. It is important to understand that separation of materials from the solid waste stream in itself does not constitute recycling. Recycling only occurs when these materials are incorporated into products that enter commerce. Therefore requirements to separate certain fractions of materials from waste may produce a supply of materials, but these requirements in themselves will not ensure recycling. In fact, if markets for these materials are not found, and the materials are subsequently disposed of, all of the costs of recycling are experienced with none of the benefits. Similarly, requirements to incorporate separated waste materials in products will not result in recycling unless these products are of a quality and price that they successfully compete in the marketplace.

A major factor affecting recycling economics is the difference in cost between disposal and recycling. In many locales this cost difference is narrowing. To analyze the economic feasibility of recycling one must consider the price received for the recycled material, the solid waste collection and disposal costs avoided and the costs of separation, collection and processing the separated materials. In making these cost comparisons it is important that all environmental costs and benefits are internalized. Also, the benefits to future generations in terms of natural resources conserved or landfill space conserved must be considered. Any virgin raw material subsidy that artificially drives down the price must be accounted for so that virgin materials and recycled materials compete in an equitable manner. Similarly, procurement specifications that arbitrarily discriminate against recycled materials should be eliminated.

COMBUSTION WITH ENERGY RECOVERY

Waste-to-energy facilities employ the controlled combustion of solid waste for the purposes of reducing its volume. Municipal waste-to-energy facilities produce a number of benefits to a waste management system. Combustion can destroy bacteria

and viruses in wastes as well as harmful organic compounds. Combustion can reduce the volume of solid waste by up to 90 percent thereby conserving landfill space. It also offers the possibility of recovery of energy in the form of steam or electricity. Modem solid waste-to-energy facilities burn wastes at high temperatures with residence times necessary for efficient combustion. There are several decades of experience with this technology and research and technological developments have significantly advanced the state-of-the-art and practice. There are hundreds of examples of well designed and operated municipal waste combustion systems around the world.

In some countries, waste combustion is used to treat a very high percentage of the solid waste stream. In Denmark, Switzerland and Luxembourg over 75 percent of the municipal solid waste stream is treated by combustion with energy recovery. In Sweden the percentage is 60 percent, in France 43 percent, in the USA 17 percent and in Germany 38 percent. Japan uses waste combustion to treat over 70 percent of the waste remaining after recycling. This attests to the compatibility of waste-to-energy and recycling.

Environmental management of municipal waste combustion facilities include the control of air emissions and the management of ash residues. Standards for control of air emissions incorporate good combustion practices, emissions monitoring and highly efficient air pollution control systems to control organic emissions (dioxin and furans), metals, acid gases and other pollutants. In many countries there has been a substantial financial investment to control air emissions from municipal waste combustion systems. In the USA it is estimated that in 1994 the national costs of such air emission controls will be over $470 million a year.

With respect to management of ash from municipal waste combustion facilities, technologies are available to safely dispose of these residues. These include specially designed landfills for ash disposal and technologies to chemically extract metals or to solidify and stabilize the ash. The added costs of these techniques can be offset if the ash is treated to the extent that it can be used safely as an aggregate or building material.

SANITARY LANDFILLS

The disposal of waste on the land continues to be a predominant method used world wide. The 1990 ISWA report indicates that the percentage of waste disposed of by landfill ranged from 20 to over 90 percent for the 15 countries reported. It is important here to distinguish here between sanitary landfill and uncontrolled open dumping. The open dumping of waste on the land without adequate controls can result in serious public health, and safety problems and severe adverse environmental impacts. However a sanitary landfill is an engineered structure that is designed and operated to protect public health and the environment.

Sanitary landfill technology has advanced very rapidly over the past decade. Today's state-of-the-art landfills are equipped with leachate collection systems, liner systems, systems for control of landfill gas, groundwater monitoring, closure and post-closure care and much more. The objective is to ensure that landfilling is performed in a manner that greatly reduces the chance of release of contaminants to the environment--and also, to assure that any release that does occur is quickly detected and corrected. Since land disposal of solid waste is practiced on such a wide scale basis it is important that the best available technologies be used.

A STRATEGY FOR CONTINUOUS IMPROVEMENT IN THE FUTURE

Any discussion of solid waste management policies for the future must refer to Agenda 21, adopted at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992. Agenda 21 addresses the pressing environmental problems of today and aims at preparing the world for the environmental challenges of the 21st Century.

Agenda 21 deals explicitly with solid waste management in two chapters: Chapter 20 on the environmentally sound management of hazardous waste, and Chapter 21 on the environmentally sound management of solid wastes. Agenda 21 tells us that humanity stands at a defining moment in history. We are confronted with a perpetuation of disparities between and within nations, a worsening of poverty, hunger, illness and illiteracy and the continuing deterioration of ecosystems on which we depend for our well being. However, it holds out the hope that sustainable development, that integrates environmental protection and economic development, will lead to the fulfillment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more prosperous future. It sounds a clarion call for active contributions to this effort by international, national, regional and sub-regional organizations with the broadest participation and involvement of the public and nongovernmental organizations.

In order to be consistent with sustainable development, solid waste management systems must meet the needs of the present without compromising the ability of future generations to meet their needs. This involves efficient management of today's wastes while conserving resources and protecting the environment for current and future generations.

Using Agenda 21 as a starting point, I would like to suggest ten principles or strategies for future solid waste management policies and programs. I offer these as a vision of solid waste management consistent with sustainable development.

Waste Prevention and Toxic Reduction as Strategies of Choice

Traditional waste management strategies have relied primarily on collection of wastes followed by treatment and disposal. A waste prevention strategy emphasizes not creating the waste in the first place, and reducing the use of toxic materials so that the wastes that are generated are less toxic or less hazardous. Waste prevention not only enhances environmental protection, it often involves economic benefits. Waste prevention is a very powerful concept that has significant potential for reconciling both environmental and economic goals. Waste prevention

should be the cornerstone of sustainable waste management policies.

Economically Sound Recycling and Recovery

Recycling and recovery of materials and energy from solid waste not only reduces the volume of waste for disposal but also conserves natural resources. However, in order for recycling to be consistent with sustainable development it must be economically feasible. Otherwise, resources are wasted not conserved.

In order to effectively carry out successful recycling programs, solid waste managers must operate in a business-like manner as raw material suppliers. They must treat the users of their materials as customers. This means they must produce recyclable materials meeting the customer's material quality requirements, and offer recyclable materials at a price competitive with other material supplies. They must operate their separation, collection and processing systems to produce competitively priced, quality materials at the lowest possible costs. The elements of success of a recycling operation are the same as for any successful business; staying close to the customer, understanding and meeting their quality needs and operating in a cost effective manner to produce a competitively priced product.

Product Stewardship

It is important to understand that wastes are simply discarded products and the design and use of a product can have a very significant impact on the nature of the waste that is produced. For example, waste prevention and toxic reduction can be accomplished by substituting raw materials, changing product designs, increasing process efficiencies, and extending product lifetimes. Recycling and reuse can be enhanced by designing products so that components and materials can be easily separated, by eliminating contaminating materials that inhibit recycling, and by using more recycled materials in the original product. Eliminating certain materials from products can also reduce the release of toxic materials to the environment during waste treatment and disposal.

Product stewardship involves taking responsibility for a product throughout its entire life cycle including responsibility of management of wastes after the product is discarded. While persons responsible for waste management can identify desirable changes in products from a solid waste management perspective, the responsibility for making such changes lies with product manufacturers.

We are beginning to see the implementation of this concept in laws that are being passed in various European countries requiring manufacturers to take-back discarded products and packaging for reuse or recycling. It is important that these programs produce strong economic incentives for manufacturers to reduce and recycle wastes and not just establish separate waste collection systems financed by a small hidden tax paid by consumers. Product stewardship will be encouraged when the full costs of managing the product as a waste, including all environmental costs, are reflected in the economic decisions of product manufacturers and consumers.

Establishment of Environmentally Sound Treatment and Disposal Facilities

Even with maximum feasible rates of waste reduction and recycling, there will still be a need for waste treatment and disposal facilities. The state-of-the-art of waste treatment and disposal has advanced rapidly in recent years, primarily due to requirements of environmental regulatory programs. Today, technologies are available to effectively treat and dispose of wastes in an environmentally sound manner.

It is important that new facilities employing these new technologies capable of meeting stringent regulatory standards are established and issued operating permits. Otherwise older, less environmentally sound facilities will continue to be used resulting in adverse environmental impacts and higher long term costs.

Rigorous Enforcement of Environmental Laws and Standards

The establishment of national regulatory control program with appropriate legislation, regulations, ordinances and licenses is an extremely important step in protecting human health and the environment from the mismanagement of solid wastes. Furthermore, in the absence of regulatory controls, adequate treatment and disposal facilities are not developed.

Environmental standards must be rigorously enforced in order to assure the public that our solid waste systems are operated in ways that protect human health and the environment. Enforcement must create an incentive for compliance with environmental standards. It must level the playing field so that violators are not at a competitive economic advantage to the good citizens that comply.

Control of Transboundary Waste Shipments and Elimination of Illegal International Traffic

Agenda 21 points out that illegal traffic of hazardous wastes may cause serious threats to human health and the environment and impose a special burden on the countries that receive such shipments. The prevention of illegal traffic in hazardous waste will benefit the environment and public health in all countries, especially developing countries. The Basil Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal controls transboundary movements of hazardous wastes through a system of prior notification and written consent.

Recognizing that simple elimination of transport of wastes is not sufficient for environmental protection, the Basil Convention also encourages efforts to reduce waste generation, develop national self sufficiency in hazardous waste disposal, and ensure environmentally sound treatment and disposal systems. Wide scale ratification and implementation of the Basil Convention is essential to control international shipments of hazardous waste and assure their proper treatment and disposal.

Building Institutions and Capacity Development

Many countries lack the national capacity to handle and manage solid wastes, primarily due to inadequate infrastructure. This includes inadequate facilities, lack of trained personnel, lack of information and monitoring systems, inadequate regulatory programs and insufficient financing. Therefore

establishment of an effective waste management system involves building institutions, training, development of human resources and in general, building the capacity to control and manage wastes.

Developing the capacity to carry out research and development programs is important to improve understanding of the environmental impacts of solid waste management systems and develop solutions. Research into the social and economic aspects of solid waste management is necessary to understand and better design economic incentives and information and education programs. The results of research programs must be transferred into the field as new and improved solid waste management systems are developed. Therefore, outreach efforts to apply the results of research are essential. Technology transfer to countries with developing economies is especially important.

Full Cost Accounting Consistent with the Polluter Pays Principle

Often the true economic costs of solid waste management are hidden and far removed from producer and consumer decisions. For example, some solid waste management costs are paid out of general tax revenues and are not apparent to the tax payer. Obviously this does not produce any incentive to reduce wastes. Improper disposal of wastes often requires future clean-up actions that are borne by other parties. Uncontrolled releases from solid waste management units can result in environmental damages with economic implications. All of these costs must be fully accounted for and paid for by the responsible parties. Economic and environmental efficiency depends upon the polluter paying for the costs of pollution and not subsidizing these costs in an indirect way through other parties.

While discussion of such issues tend to dote on economic theory, there are an number of practical approaches which begin to account for these costs and incorporate them into production, consumption and waste management decisions. Pay-as-you-throw programs, which charge waste generators for the amounts of waste discarded is one example which produces an economic incentive to reduce and recycle wastes. Liability standards for waste generators produce a very strong economic incentive for waste reduction and on-site waste treatment. Product labelling programs attempt to influence consumer purchases by identifying recyclable products or products made from recycled materials.

Market based economic incentives can be used as an alternate to regulation or as a means of making regulations more effective. Other economic incentives such as pollution charges and deposit systems should also be evaluated for future solid waste management policies.

Public Participation and Education

Providing data and information to those who make or influence decisions can lead to voluntary actions with significant environmental benefits. A good example is when various production facilities are required to inform the public of the release of certain toxic wastes to the environment. This can result in public demand for a reduction of such releases and encourage voluntary industry programs to reduce these wastes. Public information is a powerful tool which can stimulate real results and an informed public can be an effective force in environmental protection.

However, it is important to provide the public with accurate and scientifically sound information. Environmental education is very important and there is a need for (1) support for curriculum development on solid waste management and environmental issues, (2) assistance for teacher training, (3) scholarships and fellowships for educational programs, and (4) incorporating environmental and solid waste management issues into curriculum for students of engineering, law, science, business, economics and other disciplines. It is very important to increase environmental literacy to build public support for programs to train future generations of solid waste management and environmental professionals.

Integration of Waste Policies with Other International and National Policies

Many national and international policies can have a strong influence on solid waste management practices. Consider the effect of. (1) energy policy on the incentives for waste-to-energy facilities, (2) transportation policy on freight charges for recycled materials, (3) agricultural policy on the uses of sludge as fertilizers or soil conditioners. Other examples include the effect of financial policy on investment into environmental technologies and military policy's effect on clean-up of defense installations. Solid waste management professionals must play a role assuring the solid waste management implications of these policies are assessed in national and international forum.

In summary, there remains a tremendous opportunity to improve waste management practices. However, in order to accomplish this it will be necessary for solid waste professionals to augment their technical and engineering skills. Any vision for improvement of solid waste management practices, must include the development of a professional work force, in both the public and private sector, capable of dealing with issues such as waste and toxic reduction, product design, market development, public information and education, enforcement strategies, research and development, technology transfer, and economic incentives. It is my hope that ISWA can play an important role in defining solid waste management practices that are consistent with sustainable development, and in helping solid waste management professionals bring about continuous improvement in solid waste management world wide.

REFERENCES

International Perspectives on Municipal Solid Wastes and Sanitary Landfilling, Joseph S. Carra and Raffaello Cossu, Academic Press 1990, included data for Austria, Canada, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, Poland, South Africa, Sweden, Switzerland, UK and USA.

PLENARY SESSION

Presentation By

Paul Varello
American Ref-Fuel
Houston, Texas

Good morning. It's my pleasure to kick off this ASME/NAWTEC conference with a brief overview of the waste-to-energy industry's past year and a look at what we see ahead.

It would be easy to say it was a slow year in the waste-to-energy industry, since there was limited activity in plant startups and new development. However, as the slogan says, "Heroes are made in the off season." There have been a number of people (many of whom are attending this conference) who have used the past months to create the kind of positive environment that will shape our industry for years to come. Their results include EPA's new MACT air quality standards, decisions opening the door for the beneficial re-use of ash, new safety initiatives and efforts toward developing new markets for the energy we generate.

The IWSA also used this period to refine our industry's focus by holding a strategic planning session. We learned a lot from that session, including the fact that our member companies were already very unified in our sense of overall goals and objectives.

We agreed, for example, that, as an industry, have a *very positive* message to take to the public in terms of the environmental soundness and reliability of our facilities. We also felt that our continued success (during a period of record levels of recycling) has proven that waste-to-energy and recycling are *compatible,* and not *competing,* strategies for managing solid waste.

On the energy side, we agreed we need to preserve our status as a clean and renewable source of power and we should be given a fair opportunity to develop markets for our energy output. This will help maintain *cost effectiveness,* (which was another one of the key messages we identified).

While we recognize that cooperation in our industry is limited to what can take place in a competitive market, we still found several areas where working together benefits us all.

For instance, at American Ref-Fuel, we've had the good fortune in the past two years to have all of our facilities named as "Star" worksites under OSHA's Voluntary Protection Program. The importance of safety is central to the culture of our company and we've thrown a big party to celebrate every time one of our plants was named as a VPP Star. We're now one of only *three companies in the country* to have all operating facilities attain the Star level. What it means to our employees is that their ideas for promoting safety, and their performance on the job, have brought recognition for our company that extends well beyond the commonplace goal of simply not getting people injured.

What it means for the industry is that we now have a valuable experience that we are sharing to promote this attitude with other companies in this business. It also shows that a win for one company can be a win for all of us all as we demonstrate that these plants are run by highly competent, professional people who genuinely care about the safety and quality of their facilities and the communities they serve.

This year, I'm serving as IWSA chairman for the second time since I joined American Ref-Fuel. I've also had the opportunity to see my counterparts at Ogden, Wheelabrator and Montenay hold this position. We each bring a slightly different perspective to the role. Where we are united, however, is in our belief is that we have a lot at stake in representing a $10 billion industry that manages nearly 20 percent of the nation's municipal waste stream. The Frost and Sullivan organization recently released a report which forecasts that waste-to-energy revenues will rise from $2.37 billion this year to over $3 billion in 2001 – an increase of roughly 27 percent. When you're talking 27 percent of numbers that are listed in *billions,* the revenue growth is significant -- especially in an industry that had not that long ago been described in the media as "dormant", or even "shrinking".

What has changed? The Frost and Sullivan report says, "The technology is simple, well-accepted and offers the least degree of risk in the near future." To which I repeat, what has changed? We've believed this description to be true of our industry for *the past two decades* of operation.

One thing that changed, however, is a lifting of some of the clouds of uncertainty that have existed on a number of regulatory fronts for many years. The Clean Air MACT rules governing municipal waste combustors were signed on October 31 of last year by EPA Administrator Carol Browner. These new standards will ensure than our industry will *represent less than one percent of all known dioxin sources.* Once states have had a chance to incorporate the intent of these standards in their own state implementation plans, their actions will clarify much of the regulatory picture on the air quality control side.

Long-awaited actions on ash have also taken place recently, both in the courts and in the legislative arena. IWSA recently settled a lawsuit with the EPA concerning the agency's preliminary decisions on ash testing and residue management. In return, EPA will provide a public process if it wants to change the current policy on ash. All indications are that few officials will want to initiate any new regulatory action on ash and, with budget cuts at EPA, we're not expecting any

initiatives in this area.

The possible re-use of ash holds the potential for a tremendous boost to the economics of waste-to-energy. We've talked about this for years. The definitive rulings we now have on ash management and the compromise reached with EPA (and the environmental interest groups) means that ash re-use will finally become a reality in the near future.

The National Renewable Energy Laboratory and the U.S. Conference of Mayors are currently working on ash re-use projects. They have taken this research out of the limited realm of theory and are going to the market with actual demonstration projects in Florida, Maryland and Connecticut, to name a few.

As for the political climate, I can recall an IWSA annual meeting that took place shortly after the last presidential election (now nearly four years ago). The predictions at that time weren't very encouraging and, indeed the market was already slowing, yet we find ourselves (four years later) in relatively good health and optimistic about our future. Having gone through both the election of a Democratic administration in 1992 and the change to a Republican Congress in 1994, 1 can tell you that this industry is prepared to work with the political leadership of this country, *no matter who thinks they're in charge!* We know that waste-to-energy is an effective environmental solution and we will not be derailed by politics!

I applaud the NAWTEC sponsors for organizing on this conference to examine the current state of waste-to-energy and to see where it's going. The people you'll hear from this week represent the leaders and experts who help determine our direction.

That direction is important to me, as I'm sure it is to all of you. We already represent an industry with more than 120 installations in 30 states, serving 13,000 communities and we're poised to expand that market both domestically and internationally. To do this, we'll need to continue to prove that waste-to-energy can work in concert with other waste disposal options such as landfilling and recycling. And, we'll need to always reinforce the message that we represent a clean and renewable source of energy, while meeting the most stringent environmental standards in the nation, (and, with the new MACT standards, some of the most stringent in the world).

As the door begins to open on the potential for the beneficial re-use of ash, we're on the threshold of being the first solid waste option that makes valuable use of *all* the materials that come through our front doors. Waste will be transformed into energy, ferrous and other metals will be recycled and ash will be re-used.

As we now emerge from the market slowdown that took place while so many issues were sorted out in the early '90s, we have the opportunity to redefine ourselves in terms of the kind of industry we choose to be. Although most of us would have liked to have maintained the "gold rush" days of our early growth, I think we've found that our recent experience has given us *a focus and a resolve* that will ultimately serve us better in the long run.

Maria Zannes and the IWSA have begun to craft a message to get our points across. That message is reinforced by the technical support you'll find in the sessions of this conference. Together, they combine to take the soundness of our science and put it in a form that is useful on capitol hill and easily understood by the general public.

For example, when the court ruling on ash testing gave the mistaken impression that these plants were producing toxic residues, the IWSA produced a video that walked though the ash handling process step by step and showed the EPA that management of this material was safe for both workers and the environment. The EPA later responded with a more reasonable position on ash testing at our facilities.

More recently, the EPA called upon the industry to participate in a series of workshops on MACT standards where they filmed at our plants and interviewed our engineers and operators. This was the first time EPA has ever taken such a partnership approach with our industry. The workshops were a resounding success, reinforcing the message that these are tough but fair standards and that cooperation and education serves both sides. Several of our industry representatives will be taking place in a second workshop on April 1st, which you'll hear more about during this conference.

The people within the waste-to-energy business, individually and collectively, are constantly proving that we're up to challenges, that we have the *technical knowledge, the growing track record of success* and the *commitment of our membership* to put waste-to-energy on an even stronger footing in the years to come.

I'd like to take this opportunity acknowledge the contribution of our friend and colleague Lou Ward, who recently passed away. Our condolences go out to Lou's family. He was one of the true pioneers in our industry.

As you listen to the NAWTEC panelists, I think you'll agree that we can all be proud of the service that waste-to-energy provides. We trust that you'll continue to help us expand that success.

Thank you.

PLENARY SESSION

Presentation By

Durwood S. Curling
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I think one can say without fear of successful contradiction to use an old cliché, there is no single local government view present in our country today. To put it simply, local governments in regard to municipal solid waste management today are all over the place, from those that feel local governments should be completely in control of waste management including responsibility for ownership and the operation of all program aspects, to those who feel let the private sector do it, out of sight -- out of mind.

The real world is somewhere in between.

I believe that this real world is best expressed by the Guiding Principal of SWANA which is "local government is responsible for municipal solid waste management, but not necessarily the ownership and/or operation of municipal solid waste management systems." That the solid waste industry in the U.S. has been in a state of transition for more than the past decade is an understatement. This transition is characterized by, to mention a few, the passage of RCRA, the growth of the WTE industry, the recycling movement, the movement toward professionalism in the industry, Subtitle D, the Carbone decision, most recently the enactment of MACT rules for landfill emissions, and the acquisition frenzy now underway by the major companies of every small locally owned company that can be enticed to sell.

That the industry is going to continue to continue to evolve as we move into the 21 st century is a certainty. Two years ago SWANA established an ad-hoc committee consisting of six members from the U.S. and Canada to prepare a document to serve as a base for its International Board as it moved to develop SWANA's first Strategic Management Plan. This document is worth your reading and is available from the Association. It represents the only statement of where the waste industry is headed as opposed to where it has been that I know of.

Some of what it had to say is as follows:

1. Between now and the year 2020 the trend toward materials, rather than solid waste management, will continue.

2. We will have seen the establishment of national material use policies and goals for waste reduction by the Federal government.

3 . Large centralized megafills owned by multi-national private service providers will be used for much of the MSW not captured for recovery. Middle sized communities will be the principal users of these facilities.

4. Those local governments special purpose districts and authorities that stay in business will mirror private sector companies in competitiveness and flexibility.

5. Rate setting, thorough utility type commissions will be in place in many states.

6. Funding will be almost entirely on a user fee basis, rate payers will fully understand the real cost of integrated MSW management.

7. Licensing and certification of managers and operators of MSW systems will be the norm.

8. Regulations and controls will have limited the use of MSW as an energy source - I don't agree with this one.

9. Long distance rail haul from the urban to rural areas will be the dominant transportation form.

10. Composting will become the dominant management technology for organic materials.

Let's talk about flow control, the industry's most contentious issue.

There is a technical session scheduled later in this conference entitled "While You Were Sleeping." Well, while local governments throughout the U.S. were sleeping, the Carbone Supreme Court decision occurred and municipal solid waste management in the U.S. was changed forever.

The Carbone decision sent a wake up call to local governments, and since that decision operators of integrated systems have been assessing their programs to include ways to make them more competitive and to tell of the benefits to society that integrated solid waste management offers as opposed to merely the landfilling of MSW.

Those hit the hardest by this decision have been those communities who in the 1970's and 1980's built integrated solid waste management systems including all the components necessary to manage our solid waste in a sensible, environmentally acceptable, cost effective manner. These systems share the one common component of all recently developed, capital intensive programs, and that is relatively high debt amounts usually in the form of tax exempt revenue bonds.

The adverse impact of the Carbone decision on local governments and special purpose waste management agencies is still developing. At first it was thought by most that Congress would quickly enact legislation that would restore what L.G.'s and many others thought to be a right of local governments. As you may recall, they almost did in 1994 but for Senator Chaffee's failure to give his consent to have the already passed House Bill voted on during the last day of 1994 Senate session. Interestingly, Senator Chaffee was a sponsor of the 1995 Senate waste flow legislation which was passed by the Senate, there is a moral in that somewhere. I think many of you know what it is.

The debate presently occurring in our country over waste flow control and municipal solid waste management appears in many instances to be based on the presumption that municipal solid waste management is like any other commercial enterprise. There are those that advocate disassembling of the infrastructure of municipal solid waste management systems and they would like to convince our politicians and the public that municipal solid waste management is like selling gasoline at a service station or a loaf of bread at a quick stop. We all know that it isn't. Its a fundamental, public service like many other utilities such as electricity and gas. It is a fundamental public service which local governments must control to protect human health and the environment and to insure the implementation of integrated municipal solid waste management systems. It is a fundamental public service which is being regulated from the point of generation to final disposition and the free market approach in selling gasoline or bread works only the context of a decision maker and with someone in charge. The ability for someone to be in charge is waste flow control in our country and the element in our society that must be in charge is local government. Without some form of waste flow control much of our current municipal solid waste management infrastructure will collapse and this vital public service will in my opinion fall to protect the public interest.

There are many in the industry at present, particularly on the private side, saying that waste flow control is not needed to maintain sophisticated municipal solid waste management systems. They allege that there are other ways to pay for these systems without tipping fees or direct user charges. What they are really talking about are tax increases of one form or another to the general public so that these systems can be supported for those that want to use it, and at the same time, if there is a nearby megalandfills that will accept the waste from any given service area at a reduced price then the public should permit the collectors and haulers of waste to use such facilities even if it does destroy our recycling, waste-to-energy, yard waste composting infrastructure because those are the more expensive components of the waste management system. The one thing that we as solid waste professionals know is that an integrated solid waste management system cannot compete with a landfill only disposal option without subsidies from the taxpayer.

The WFC issue is going to be dealt with by local governments one way or another -- either through innovative approaches or new Federal legislation.