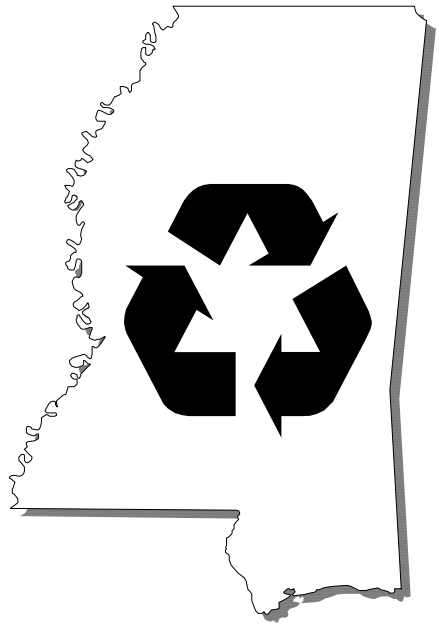
Report to the Mississippi Legislature



by the State Task Force on Recycling

December 31, 2004

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References and Acknowledgements

The following reports, periodicals, papers and organizations were utilized in developing information regarding this report on the various components of the state recycling system:

Annual Report of the RMDC, (November 1993), prepared by the Mississippi Recycling Market Development Council.

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I Executive Summary

The State Task Force on Recycling has spent the past five months reviewing recycling conditions in Mississippi and discussing possible ways that our state can enhance these conditions. During this time frame, the Task Force heard from local governments, private recycling companies, environmental and recycling organizations, State and Federal agencies and various other interested parties on the existing recycling programs and possible suggestions for improving our state's recycling system. This report contains the findings and recommendations developed by the Task Force for the consideration of the Mississippi Legislature. The report is organized into the four primary components of any successful recycling system. These components of the report include: The Benefits of Recycling, Recycling Education and Outreach, Collection of Recyclables, and Recycling Market Development. In addition, a summary of the recommendations from each recycling system component can be found at the end of this report.

Each of the primary components of the report contains the recommendations of the Task Force to improve recycling conditions in Mississippi. The Benefits of Recycling section describes the environmental, economic and quality of life benefits that our communities, state and nation experience from strong recycling programs. The recommendations found in this section center around how Mississippi can better evaluate and gauge our recycling rates and the environmental and economic results of our recycling programs. The section on Recycling Education and Outreach describes the importance of education in developing successful recycling programs and the current education programs and efforts in Mississippi. The recommendations of this part of the report focus on improving recycling education programs to various groups in the state including children and students, adult consumers, state agencies, commercial businesses and industries, and recycling companies and operations. The section on Collection of Recyclables focuses on various residential collection program models as well as the collection of recyclables at other public and private organizations and the collection of certain special wastes for recycling. The recommendations of this section center on how our state can enhance and better support collection services to our citizens and businesses. The final section of the report reviews the needed programs and services to grow and enhance current recycling markets in the State. The recommendations of this part of the report focus on various forms of assistance, actions and programs that the state should implement in order to stimulate and encourage the development and expansion of recycling businesses in Mississippi.

The Task Force does recommend that the Legislature re-visit the continuation or re-initiation of this Task Force on Recycling in the coming years. In its continuation, the Task Force would be expected to review our state's overall progress towards enhancing recycling conditions in Mississippi and to ensure that this report's recommendations have been considered and where possible, implemented.

The desires of the Task Force in producing this report were to minimize the creation of additional paper wastes. Therefore, limited copies of this report have actually been

printed and distributed in hard copy. The report is available in electronic format and can also be downloaded from the web page of the Task Force on Recycling at the following address:

http://www.deq.state.ms.us/MDEQ.nsf/page/SW_MississippiTaskForceonRecycling?OpenDocument

II Background Information

The Task

The Mississippi Legislature created a State Task Force on Recycling in the 2004 Legislative session. According to the enabling legislation, House Bill 818, the Task Force was created to develop a comprehensive plan to establish a system to recycle household items. In addition, the Task Force was to serve as a consensus group designed to coordinate efforts by the state, counties, and municipalities to create an effective recycling system in the state. The Task Force was assigned to the Mississippi Department of Environmental Quality (MDEQ), under the legislation, for administrative purposes. MDEQ has assisted in facilitating the meetings and this report to the Legislature by the Task Force.

The duties of the Task Force as described in House Bill 818 included the following: (a) Undertake a statistical and qualitative examination of the benefits of recycling in Mississippi; (b) Develop a comprehensive plan to recycle household items; and (c) Report to the Mississippi State Legislature by December 31, 2004, with a system to allow counties and municipalities to collect items to be recycled.

Under the provisions of the bill, there were 13 organizations designated in the law to have representatives on the Task Force. In addition, there were six appointees of the Governor representing various recycling sectors that served on the Task Force. Membership in the task force was voluntary and no member was compensated or reimbursed with state funds related to the discharge of duties associated with the task force. The organizations named in the law as members of the Task Force and the persons that served as the designees of those organizations were as follows:

(a) Mississippi Municipal League: Mr. George Lewis;
(b) Mississippi Association of Supervisors: Mr. Joel Yelverton;
(c) Department of Corrections: Mr. Fred Storey;
(d) Department of Environmental Quality: Mr. Richard Harrell;
(e) Cooperative Extension Service: Ms. Carolyn Lott and Dr. Larry Oldham;
(f) Sierra Club: Mr. Louie Miller;
(g) Keep Mississippi Beautiful: Ms. Barbara Dorr;
(h) Mississippi Malt Beverage Association: Mr. Richard Brown;
(i) Mississippi Soft Drink Association: Mr. Ron Aldridge;
(j) Mississippi Retail Association: Mr. Crowell Armstrong;
(k) Mississippi Manufacturer's Association: Mr. Derek Easley;
(l) Mississippi Petroleum Marketers and Convenience Stores Association: Mr. Robert Carleton; and
(m) Mississippi Farm Bureau Federation: Mr. Brent Bailey and Ms. Meredith Broyles.

There were six (6) members, under the law, appointed by the Governor from various recycling industry sectors. The Governor’s appointees were as follows:

(a) Plastic recycling: Mr. Larry Lambiotte, Poly Vulc, USA, Inc.;
(b) Metal recycling: Mr. Phil Morris, Morris Recycling, Inc.;
(c) Paper recycling: Mr. Don Bishop, Georgia Pacific Corporation;
(d) Glass recycling: Ms. Renee' Howell, Columbus Air Force Base;
(e) Household and highway hazardous waste recycling: Ms. Kathy Avis, Greenville Iron and Metal; and
(f) Solid waste disposal: Mr. Gregory Greene, BFI Waste Industries.

The Process

The meetings of the Task Force were subject to the State Open Meetings Law and members of the public were invited to attend the meetings. In order to publicize the Task Force activities, the scheduled meetings were listed on the MDEQ web site on a special web page created for Task Force information. This web site can be found at the following address:

http://www.deq.state.ms.us/MDEQ.nsf/page/SW_MississippiTaskForceonRecycling?OpenDocument.

The minutes of each of the Task Force's meetings along with other information can be found on the web site. In addition, the meetings were also disclosed to the public through newsletters from MDEQ. Also, in accordance with the Open Meetings Law, notices of the Task Force meetings were posted in the lobby of the MDEQ's Southport Center Office. Through these efforts, the Task Force attempted to advise and involve the public of its actions. The Task Force was interested in receiving information from members of the public related to recycling and to the development of a comprehensive system in the state to facilitate recycling of household items.

The Task Force held its initial meeting on August 18, 2004 at the Southwest Ramada Inn in Jackson, Mississippi. At that meeting, the group elected its officers and began to have general discussions about the requirements of the bill and the current recycling efforts in our state. Mr. Phil Morris of Morris Recycling, Inc. was elected as President of the Task Force. Ms. Barbara Dorr of Keep Mississippi Beautiful was elected as Vice-President and Mr. Richard Harrell of the Mississippi Department of Environmental Quality was elected as Secretary. At its second meeting, the Task Force invited state Legislators to meet and discuss the provisions of the law and the Legislative intent and interests in the contents of the final report. Three members of the State House of Representatives, Representative Jamie Franks, Representative Pat Montgomery and Representative Preston Sullivan, met with the Task Force and held discussions about the directives of the law and the interests of the legislators with respect to the desired contents of the report. Legislators indicated their intent that the report, while focused on recycling residential wastes, should be broadened to also address recycling of business and commercial wastes.

The Task Force held its next meeting on September 29, 2004 at the office of the Department of Environmental Quality and, at that meeting, heard presentations from various local governments in the state on existing local government recycling programs. Local government officials reported on the successes, failures, and needs of their programs. Each presenter also discussed actions that local officials would like to see the State of Mississippi implement to encourage or enhance recycling conditions in the state. At the October 15th meeting of the Task Force, the group developed an outline of the proposed report to the Legislature and organized work groups around the four major components of the report. The Task Force agreed that each work group would develop their assigned parts for integration into the overall report.

The Task Force held its next meeting on October 27th in Tunica County, Mississippi in conjunction with the joint Fall Conference of the Mississippi Recycling Coalition and the Magnolia Chapter of the Solid Waste Association of North America. At this meeting, the Task Force heard from representatives of various private recycling companies in the state about their programs, services and needs. The group held an open discussion of the successes and the problems that exist with the current recycling system. The recycling company representatives also identified things that they felt were important for the State of Mississippi to implement to encourage recycling market conditions in the state and to make recycling a viable waste management option for local governments. The Task Force members used the two November meetings on November 5th and November 17th to separate into work groups and continue discussions and efforts on finalizing the draft components of the report. They also set a schedule for finalizing the work group drafts to MDEQ to have the information integrated and organized into a cohesive draft document.

The Task Force held its final meeting on December 16th to discuss the draft report and to develop a consensus on the information contained in the report. The revised draft report was then sent to Task Force members for their final review and comment.

Overview of Recycling Conditions in Mississippi

The State of Mississippi has a current state-recycling goal of twenty-five percent (25%). This goal was originally set in the Mississippi Multimedia Pollution Prevention Act, adopted by the State Legislature in 1990. This act, among other things, established state policy with regards to the role of pollution prevention and recycling in waste management. The law promoted recycling over waste disposal; required all state agencies to establish recycling programs; required state agencies to establish policies for the procurement of goods containing recycled content; fostered education to the public on recycling; established a cooperative state program for assistance in pollution prevention and recycling; encouraged local governments to implement recycling programs in their jurisdictions; and promoted the development of successful markets for recyclables. Another component of the Act was the creation of a Recycling Market Development Council to review and develop a report on improving market development conditions in the state for recyclables. This Council met for period of around two years and released a report in November of 1993 that contained various recommendations related to enhancing recycling market conditions.

Also in 1991, the Solid Waste Planning Act was adopted by the Legislature. This act required that each local government develop a solid waste management plan with a focus on meeting the waste collection needs of its citizens and minimizing the amount of waste going into landfills. The Act required that these local plans include a strategy for achieving the State's waste reduction goal of 25% and a schedule for implementing the strategy. Many local governments have moved forward and successfully implemented recycling and waste reduction programs. Other local governments, however, have been unable to feasibly implement a recycling program. Also in the 1991 session of the Legislature, the waste tire law of Mississippi and the lead-acid battery recycling law were established. These laws encouraged the development of waste-specific recycling programs for tires and batteries in the state.

Waste-specific recycling programs such as those that were adopted through legislative actions in 1991 have become very successful. The Task Force observed that these existing programs could serve as models in developing recommendations for the overall recycling system in Mississippi. One such program that has had a strong level of success is the waste tire program. Mississippi currently has a recycling rate for waste tires that exceeds 85%. Tires in Mississippi are collected by private haulers, local governments, tire retail outlets and other entities and are transported to facilities in the state that process the tire into a more usable form or into a tire derived product. Some of the uses of Mississippi waste tires include molded rubber products such as air conditioning pads, mobile home pads and floor mats, crumb rubber products that are used in tire derived asphalt and in the production of new tires, tire derived fuel sources, and chipped rubber for play ground, athletic and equestrian facility use. In addition, other smaller scale forms of waste tire recycling include the manufacture of horse swings, belted floor mats, and bush hog tires. Recycling of waste tires has been aided by the availability of funding support from waste tire recycling grants and local government collection grants as well as policies and regulations that encourage recycling of the tires.

Another successful waste-specific recycling program in the state has been the pesticide container recycling program. In Mississippi, it is estimated that some 2 million plastic pesticide containers are used annually for agricultural purposes. In the past, many of these containers were landfilled, illegally dumped, or burned. However, in 1989, the state of Mississippi, through a cooperative effort of the MDEQ, the Mississippi Department of Agriculture and Commerce and a private recycling company, developed the pesticide container recycling program. In 2003, some 700,000 pounds of plastic pesticide containers were recycled through the program. From 1989 through 2003, a cumulative total of almost 6.5 million pounds of plastic pesticide containers were recycled. Although recent changes in the packaging of pesticides has affected the amounts of plastic container recycling, this recycling program has continued to flourish. Recycling of these plastic pesticide containers has been aided by the partnership of government (both state environmental, state agricultural, and local officials) and private enterprise.

Other programs that have seen successful recycling rates include used automotive batteries and used appliances (or white goods). Used automotive batteries nationally have a recycling rate of around 95% due to the value of the materials in the battery that can be reclaimed. In Mississippi, this recycling rate is aided by the fact that state law bans the landfill disposal of such batteries and requires that retailers of lead acid batteries accept a battery in return for a battery sold, if offered by the customer. The retailer also is required to recycle the automotive batteries. Used appliances have historically been a problematic waste to manage. Due to the bulkiness of these wastes they are difficult to collect and to dispose. Recycling is the management option that is most successful. Recycling markets for these "white goods" are very strong currently, therefore, the existing programs in the state are experiencing current success. The majority of county governments in Mississippi have established white goods collection programs. Many of these programs have been developed with the assistance of grant funding from the MDEQ.

Electronic wastes, in particular computer wastes, are posing a significant waste management problem for our state and nation. The problem is compounded by the increasing volume of electronic wastes and by the varying amounts of toxic metals contained in these wastes. Computer monitors for instance contain an average of 4.5 pounds of lead in the cathode ray tube and usually are characterized as hazardous wastes due to the toxicity of the lead. Because of the toxicity issues with these wastes, recycling or reuse has become the preferred method to manage computer wastes over disposal. Mississippi has implemented various programs to assist with recycling computer wastes. MDEQ supports a joint project with the Hinds County Board of Supervisors and the Hazardous Materials Management program in Jackson State University's Department of Technology to collect and refurbish discarded computer wastes in the Jackson metropolitan area. JSU's program trains disadvantaged young people to disassemble and refurbish the computers for reuse. The refurbished computers are donated to low income families and to non-profit and charitable organizations for continued use. In addition, a joint effort between the Mississippi Department of Corrections, the Mississippi Department of Education and the MDEQ collects state agency computers for refurbishment by female inmates. After refurbishment, the computers are donated to school districts around the state for continued use. In addition, in the spring of 2003, MDEQ received a grant from the Dell Computer Corporation and in partnership with several organizations sponsored computer waste collection events in several central Mississippi counties. The computers were collected by a private recycling company and were recycled out of state. The Task Force noted that while these efforts in the state are helpful, the existing programs fall short of comprehensively addressing the state's computer and electronics waste problems.

While recycling is a long-term solution to potential, solid waste management problems, some significant barriers inhibit successful recycling in Mississippi. The lack of financial resources to fund collection poses a significant threat to recycling success. Fluctuating market prices for recyclable goods and insufficient infrastructure also contribute to less than successful recycling conditions in our state. Another significant barrier to recycling, however, is the lack of education on the importance and the benefits of recycling. Our

citizens, local governments, institutions and businesses often lack the knowledge of the benefits of recycling or even of the availability of recycling.

Many communities see recycling as costly or cumbersome without knowing that recycling could increase profitability or defray costs. Wayne County, in the southeast region of Mississippi, was able to overcome barriers to recycling and utilized various readily available, low-cost options to develop and implement a workable recycling program that fit the county's needs. Wayne County officials were able to decrease the costs of waste management by utilizing inmate labor, selling recyclable goods and reducing waste transportation and landfill disposal costs. Wayne County, with a population of approximately 21,000 people, has shown that recycling can be a revenue-inducing option for rural areas. Another example of a successful local recycling program presented to the Task Force was a program implemented by the Panola County School District. The Panola County School District created an additional revenue stream for the school district by establishing a successful cardboard recycling program. In addition to the Panola County Schools, other schools across the state have implemented successful programs to recycle inkjet cartridges, cellular phones, aluminum cans, cardboard and other items.

Although recycling can be a profitable venture for school districts, agencies and institutions, individuals are not generally motivated by revenue to recycle. Motivation for individuals to recycle stems from a desire to help improve the environment or to create waste management sustainability. The general public often is unaware of the opportunities for recycling in their community. In addition, outside of those programs offering curbside collection, the local recycling programs that are available often times can be complicated or inconvenient for the public to use. When market prices are low, the limited participation of individuals willing to put forth the extra effort to drive to randomly located collection points does not make recycling cost effective.

A National Recycling Perspective

From a national policy perspective, recycling of solid wastes has been driven by the U.S. Environmental Protection Agency (EPA) and by the efforts of individual states. The U.S. EPA in late 2002, created the Resource Conservation Challenge (RCC). This national challenge represents an effort to find flexible, yet protective ways to conserve our national resources. One of the major challenges of the RCC is to prevent pollution and to promote the recycling and reuse of materials. The RCC supports six different program elements that reflect a lifecycle, multimedia approach to improving our environment. These elements serve as the framework for numerous partnerships and projects that make up the RCC. The RCC also includes a challenge to the nation to achieve a recycling goal of 35%. EPA reports that the nation has already attained a 30 percent recycling rate.

EPA has launched several national recycling or waste reuse programs and partnerships including: "America's Marketplace Recycles," "Plug-In to e-Cycling," "Waste Wise," and the "Coal Combustion Partnership." "America's Marketplace Recycles" is a recycling program aimed at shopping centers and their retail tenants and employees. The

"Plug-In to e-Cycling" program is a program that is aimed at reclaiming the thousands of tons of electronics wastes that we discard annually. The "Waste Wise" program is a partnership program that focuses on waste reduction and prevention. Finally the Coal Combustion Partnership is an organization that promotes the legitimate re-use and recycling of coal combustion by-products. The creation of these programs by EPA and the challenging recycling goal set by the agency indicates that EPA's focus and plans for recycling will be long term.

EPA's long-term commitment to emphasizing and increasing recycling across the nation was recently echoed by a senior official with the agency. Thomas Dunne, acting assistant administrator for EPA's Office of Solid Waste and Emergency Response stated that after almost 30 years of a "command and control" system of regulating solid waste disposal, the federal government needed a dramatic policy makeover. He indicated that EPA's days of simply composing and writing regulations were just about over and that that job was almost completed. EPA in the future will be focusing much more of its efforts on recycling and re-use of solid wastes. The State of Mississippi would benefit in partnering with EPA in these recycling programs.

III The Benefits of Recycling

"Why should Mississippians recycle?" That is certainly a central question that our state must ask as we look closer at enhancing the recycling system in Mississippi. In fact, the legislation that created the Task Force, House Bill 818, specifically required that the report to the Legislature include a component that described the benefits of recycling. Recycling is about much more than simply collecting bottles and cans at the curb, but many policy makers and opinion leaders often do not comprehend the complete recycling picture. Residential collection programs are simply one piece of a much bigger puzzle. When all the pieces of that puzzle are put together, the benefits of recycling become clearer. While many communities may be re-evaluating and some even canceling certain recycling activities, these decisions do not always take into account the comprehensive environmental and economic benefits of recycling. For instance, New York City, in 2002, cancelled or curtailed many of the city's recycling activities hoping to save money due to record budget deficits. The recycling suspensions did not yield nearly the monetary savings expected due to the increased solid waste disposal costs and other factors. In response, in 2004, the city reinstated much of its recycling programs and looked for ways to focus on improving efficiency within its recycling program. The reality is that in the United States today, there are more than 25,000 recycling programs offering 226 million Americans the opportunity to recycle a range of waste products.

In Mississippi, it can be shown, that where there is strong community support and sufficient outreach and education programs, and an appropriate collection system, recycling can be successful, even in a rural setting. One of the main factors to a successful recycling program appears to be having a person at the local level who is organized, motivated, and supported by the local officials, to spearhead recycling efforts. While it is true that some recycling programs may be less efficient than they could be, many local governments have demonstrated time and again that the primary benefit of providing recycling services is a reduction in their overall cost of solid waste management in addition to the other recognized benefits. Recycling is a true economic and environmental solution, both locally and globally.

Environmental Benefits of Recycling

a) Conserves Natural Resources

Recycling relieves pressure on dwindling natural resources and places the responsibility on the current generation, where it belongs, to be wise stewards of our resources for our children and grandchildren. America's aluminum, steel, and paper industries all rely significantly on recovered wastes for their raw material feedstock. The recycling of plastic containers, most notably beverage containers, has spawned new business ventures and has enabled manufacturers in industries such as textiles and carpeting to take advantage of a new feedstock. The same is true for scrap tires and a numerous other wastes.

In the paper industry alone, recycling has a major impact. Nationally, we now have three times as much wood available as we did eighty years ago due to an increase in tree farming. However Americans now consume fifteen times more paper products. A mere 5% of our natural forest ecosystem remains intact. Recycling just one ton of paper can result in saving 17 trees. Without paper recycling, we would need to increase timber harvesting by 80% just to keep up with demand in the next ten years. So even in a state rich in timber resources, recycling is important and beneficial.

In addition, for every ton of steel recycled there is a savings of 1.25 tons of iron ore, 0.7 tons of coal, 0.06 tons of limestone.

b) Conserves Energy

Recycling also results in energy savings. For example, recycling paper uses half the energy compared to producing paper from raw materials. Every pound of steel recycled saves 5,450 BTU's of energy, enough to light a 60-watt bulb for over 26 hours. Recycling used aluminum cans requires only about five percent of the energy needed to produce aluminum from bauxite, the raw material for aluminum. Recycling just one aluminum can saves enough electricity to light a 100-watt light bulb for 3.5 hours. In addition, recycling often produces better products than those made of virgin materials; for instance, the tin in metal cans is more refined (thus more valuable) after being processed for recycling.

Recycling used oil can also result in energy savings. Used motor oil can be reprocessed into fuel or re-refined into lubricating oils that will meet the same specifications as new or virgin motor oil thus conserving energy resources for the future. According to studies, recycling two gallons of used motor oil can provide enough energy to run the average household for about a day. Additionally, recycling a ton of glass saves the equivalent of nine gallons of fuel oil and recycling a ton of paper results in a 60% energy savings over the processing of virgin pulp.

c) Prevents Litter and Illegal Dumping

In many cases, it has been shown that a strong recycling program in conjunction with local, solid waste enforcement efforts can help reduce litter and illegal dumping. The majority of people, if given a choice, will choose to properly recycle or dispose of waste materials. However, if people are not provided with a legitimate and reasonably convenient outlet for recycling or disposal, they may often create an illegal one. At one of the early meetings of the Task Force, a local, solid waste enforcement officer from Wayne County, Mississippi spoke to the group on his county's recycling and enforcement efforts. He provided specifics regarding how his rural county with proper guidance, support, seed money, and MDEQ grants has effectively implemented a county wide recycling program, reduced illegal litter/dumps, and saved the county money.

d) Conserves Landfill Space

Another potential benefit of recycling is that it diverts solid wastes away from landfills and conserves valuable landfill space. One downside to landfilling is that it appears to simply extend the responsibility for and the potential costs of managing our wastes to future generations. The Federal design and operating criteria for landfills essentially result in creating a "dry tomb" for the wastes to remain on a long term basis. Therefore, the landfill and the wastes contained therein pose a potential ongoing problem and cost for many decades after the landfill has actually closed. In addition, the land and property values around any type of landfill or rubbish site may often be affected by the public's perception of landfill operations. Landfill location may also seriously hamper future development, commercial, industrial, and residential in that area, reducing the potential tax revenues and other land development opportunities in the long term

For Mississippi particularly, there are several issues with respect to landfills that may conflict with developing a successful recycling program. First, there is an abundance of landfill capacity in Mississippi. According to the 2003 annual report for municipal solid waste landfills, the 17 landfills in the state had over 500 years of capacity, for an average of approximately 30 years of life per landfill. While there are a couple of large landfills that may skew that average, Mississippi does not appear to have a problem of depleting landfill space in the near term. Furthermore, Mississippi appears to have an abundance of rural, relatively inexpensive and geologically suitable land available for development of additional landfills. These factors make the cost of landfill disposal of solid waste lower in Mississippi than in many states or regions around the country. The average cost for disposal in Mississippi is around $23-$26 per ton compared to almost $70 per ton in the northeast region of the U.S., about $35 per ton in the midwest and approximately $40 per ton in the west.

Secondly, many local governments collect a landfill host fee based upon the amount of waste accepted at the landfill. If significant amounts of material were diverted from landfill disposal it would reduce the amount of revenue generated for those local governments. This condition creates a fundamental conflict for local governments between developing a successful recycling program (which diverts wastes from landfills) versus continuing to receive additional host fees for the disposal of the waste at a landfill. The same can be said for many private companies that operate landfills. The goal of these landfill businesses is to maximize profits in operating the landfill, so the more waste they receive at the landfill, the more profitable the landfill companies can be. Therefore, it would appear that developing a successful recycling program would hinder the profitability of those in the solid waste disposal business, whether public or private. Public and private landfill owners certainly appear to have a higher profit margin by landfilling as much solid waste as possible, rather than diverting the wastes for recycling purposes.

e) Improves Management Options for Problematic or Special Wastes

There are many waste streams for which disposal in a landfill or incinerator is simply not a practical option. For example, it is not practical that we would place the thousands of tons of bulky scrap appliances (known as white goods) in landfills. These wastes can not be easily compacted or covered in a landfill setting. Therefore, recycling is the most practical management solution for these wastes. Similarly, recycling is the most practical management alternative for various other wastes such as computer wastes, compressed gas cylinders, used oil, automotive batteries and automotive tires. In reality without strong recycling programs, there would be no management outlets for these wastes and many of these items would likely be illegally dumped rather than recycled.

f) Improves Water Quality/Reduced Discharges to the Environment

Recycling can reduce a range of pollutants from entering the rivers, streams and other waters of our state. By decreasing the need to extract and process new raw materials from the earth, recycling can eliminate the pollution associated with the initial stages of a product's development: material extraction, refining and processing. These activities can pollute the air, land and water with toxic materials, such as ammonia, carbon monoxide, methane, and sulfur dioxides. Recycling of each ton of paper can save as much as 7,000 gallons of water and can reduce the potential contaminants that must be discharged. In a 2002 study by the State of Washington, that state determined that its recycling efforts had reduced the discharge of water pollutants by 7,600 tons in the preceding year.

Recycling programs can also offer an outlet for the management of many highly polluting wastes such as used oil. Used oil can be a very damaging contaminant to the environment if not properly handled and recycled or disposed. Just one quart of used oil can create a two-acre oil slick on surface waters. Used oil is also harmful to aquatic life in various ways. For example, used oil kills many of the organisms in our rivers and streams that fish rely on for food. A gallon of used oil can contaminate up to one million gallons of fresh water. However, used oil, if recycled, can be a valuable commodity. Motor oil doesn't really deteriorate; it just gets dirty; therefore it has a fairly high recycling value. Through many distributors and processors, Mississippi has a fairly active used oil recycling program.

In addition, because contaminants such as used oil and illegally dumped solid wastes are removed from the environment through recycling, it will help Mississippi's urban areas meet the new federally mandated Phase II storm water regulations. Currently, Mississippi has 36 urbanized areas requiring permits to control the quality of their storm water runoff. Recycling combined with other efforts may help to keep these areas in compliance with their Phase II storm water permits and also will protect the quality of Mississippi's rivers, lakes and streams.

g) Improves Air Quality

According to national studies by the U.S. Environmental Protection Agency (EPA), recycling saves natural resources and prevents much more pollution than is created by the industry. Greenhouse gas emissions associated with the manufacture, distribution, use, and subsequent disposal of products are reduced as a result of the increased recycling. By 2005, recycling will reduce greenhouse gas emissions by 48 million tons, the equivalent of the amount generated by 36 million cars annually. Furthermore, EPA has identified waste prevention and recycling as some of the best strategies to combat global warming. The previously cited study in 2002 by the State of Washington indicated that that state's recycling efforts had reduced discharges to the air by 124,000 tons.

Recycling can also in some instances reduce our nation's reliance on fossil fuels. For instance, some industrial facilities can often use supplemental fuels in boilers and kilns that are made from recycled materials such as tire derived fuel (TDF) chips, wood chips, corrugated card board and other materials. These materials often burn cleaner than the raw materials they are replacing and often, as in the case of TDF, have a higher BTU value per ton than the raw material.

h) Reduces Toxics/Hazardous Materials

Recycling can also reduce the amount of toxic or hazardous constituents placed into the environment. Programs to collect and recycle more toxic wastes can remove these toxics from the environment by diverting such wastes from landfills and from being illegally dumped. The household hazardous wastes include items such as used oil and other automotive fluids, computer equipment and other electronic wastes, mercury containing lamps, and paints and other architectural wastes. Diverting the wastes from landfills also will potentially reduce the toxicity of the leachate removed from the landfill and generally disposed through publicly owned wastewater treatment facilities in the state.

In addition, on-site recycling or reuse by many industries in the state can significantly reduce the amount of hazardous or toxic wastes that must be disposed off-site. For example, Chevron in Pascagoula, one of the largest generators of hazardous waste in our state, has implemented numerous on-site or closed loop recycling activities that has reduced the plant's hazardous waste generation by over 50% in the last few years. Similarly many other facilities have found ways to re-use or recycle their wastes on-site and have achieved significant reduction in toxic materials being placed in the environment.

Economic Benefits of Recycling

In addition to the various environmental benefits, recycling also provides numerous economic benefits. Recycling businesses, like other businesses, positively impact our state's economy by creating jobs, making investments, and paying taxes. The economic

benefits of recycling were measured by The National Recycling Coalition in a study prepared in 2001 called the United States Recycling Economic Information (US REI) Study. This study measured various direct economic values that included the number of establishments; the employment of the establishments, the annual payroll; the annual receipts; and the annual throughput (for recycling categories).

The broader effect of recycling businesses and their employees on the economy was derived through economic modeling using direct data as inputs. This information included:

- Indirect economic values (purchases of commodities within the operations of the recycling industries);
- Induced economic values (personal spending by employees of direct and indirect establishments);
- Multipliers to calculate total economic values (the sum of direct, indirect, and induced) from direct economic values; and
- Tax revenues paid by the recycling industries

The nation's recycling industry is extremely diverse in terms of which recovered materials are utilized, the average establishment size, and the types of technologies that are employed. The recycling sector includes long-established sectors like paper, steel, and metal recycling, as well as new entrepreneurial ventures such as composting and plastic and rubber product manufacturers. The reuse and re-manufacturing sector encompasses a diverse mix of establishments including wood reuse (e.g. pallet re-builders, etc.), tire re-treaders and electronic appliance de-manufacturers.

While the Task Force was unable to determine Mississippi specific numbers, available data indicates that the United States currently has 56,061 recycling establishments that employ approximately 1.1 million people. These establishments include businesses, governmental entities and non-profit organizations generating an annual payroll of $37 billion, and gross $236 billion in annual revenues. The Task Force did hear some Mississippi specific information on the state's waste tire recycling program efforts. There are four large waste tire recycling facilities in the state that have plants that process and manufacture feedstock or products from waste tires. These four facilities employ over 100 persons with an annual payroll of $2.7 million. These figures do not include all of the waste tire haulers, collectors and interim processors that are employed and also salaried through the state's waste tire recycling efforts. However, the numbers do present some idea of the significant impact that recycling can have on our state's economy.

Employment by Recycling Sectors

The ultimate value of a good or service is represented by the sale price of that good or service. Sales revenues, in turn, are used to employ persons and pay their wages, make payments on equipment, provide a return to owners and investors, and pay upstream supplier establishments for the value of their goods or services. The cost (in terms of labor, equipment, and etc.) of performing a particular process is a measure of the value that is added by that particular process.

The progression in size from recycling collection to recycling processing to recycling manufacturing follows from the fact that those sectors are part of a chain where increasingly more value is added to the recovered material as it moves through the recycling chain. Initially, a relatively small amount of value is added by consolidation (collection). Processors invest significantly more expense (value) in the recovered material by sorting and densification. However, no transformation of the recovered material has yet occurred – the material has simply been concentrated and perhaps altered for ultimate use. The greatest value to our state and nation is added in the manufacturing of a new recycled-content product where wastes are transformed into useful products of considerable value.

From Collection to Manufacturing New Recycled-Content Products

The initial process in any recycling system is on recovering materials from commercial, industrial, and residential waste streams. This initial recovery process involves collection and processing of recyclables for shipment to the recycling manufacturing industry. These local collection and processing establishments include:

- Government staffed residential collection programs;
- Privately-staffed residential and commercial collection programs;
- Compost and miscellaneous organic products producers;
- Materials recovery facilities; and
- Recyclable material wholesalers.

Alternatively, establishments in the recycling manufacturing sector are the downstream consumers of these recyclables. These manufacturing establishments rely on local collectors and processors for their supply of materials. When the two groups are compared, local collection and processing make up approximately 20 percent of total recycling employment and receipts, whereas the downstream manufacturing makes up the remaining 80 percent of employment and receipts. This suggests that public policy to encourage recycling and discourage disposal, and public and private investment in local recyclables collection and processing infrastructure pays great dividends in supporting significant downstream private recycling economic activity.

The US REI study shows that the recycling manufacturing sector is the largest contributor to the economic benefits of recycling. Upon closer examination, over half of the economic activity for the entire recycling industry is accounted for by the following four recycling manufacturing sector categories:

- Paper, paperboard, and de-inked market pulp mills, which employ 139,375 people and gross nearly $49 billion in estimated annual receipts;
- Steel mills, which employ 118,544 people and gross $46 billion in estimated annual receipts;
- Plastics converters, which employ 178,700 people and gross nearly $28 billion in estimated annual receipts; and

- Iron and steel foundries, which employ 126,313 people and gross over $16 billion in annual estimated receipts.

These four categories alone account for 50 percent of all employees, 62 percent of wages, and 59 percent of total receipts. Figures 1 and 2 on Page 20 place this information into further perspective by showing how the sizes of the nation's major recycled content product manufacturing industries compare to each other. As the Figures show, ferrous metals recycling manufacturing leads the other material groups.

FIGURE 1:
Recycling Manufacturing Industry Employment
by Major Material Group

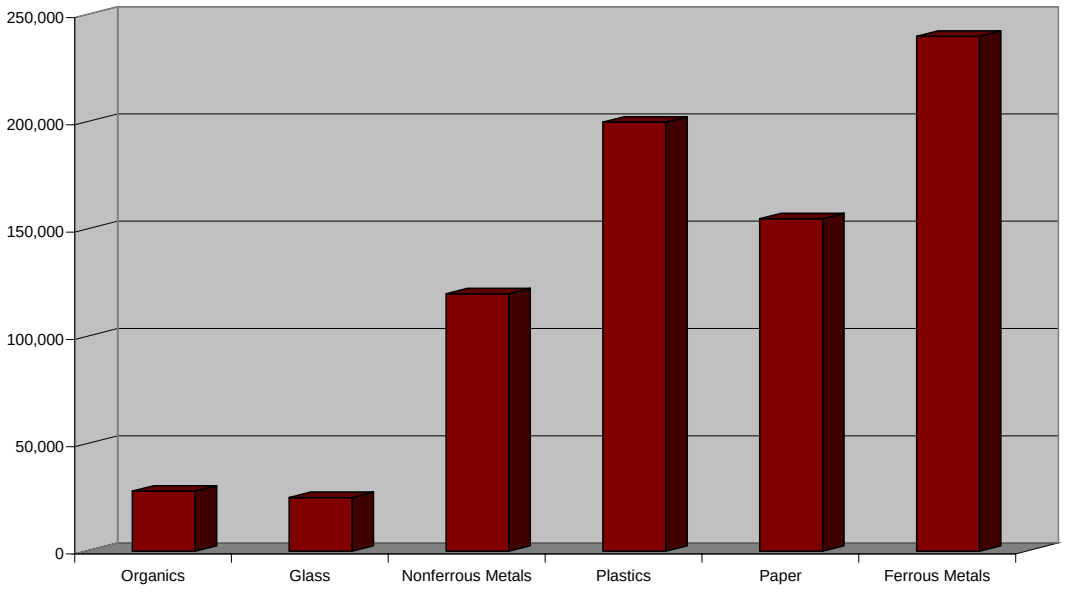
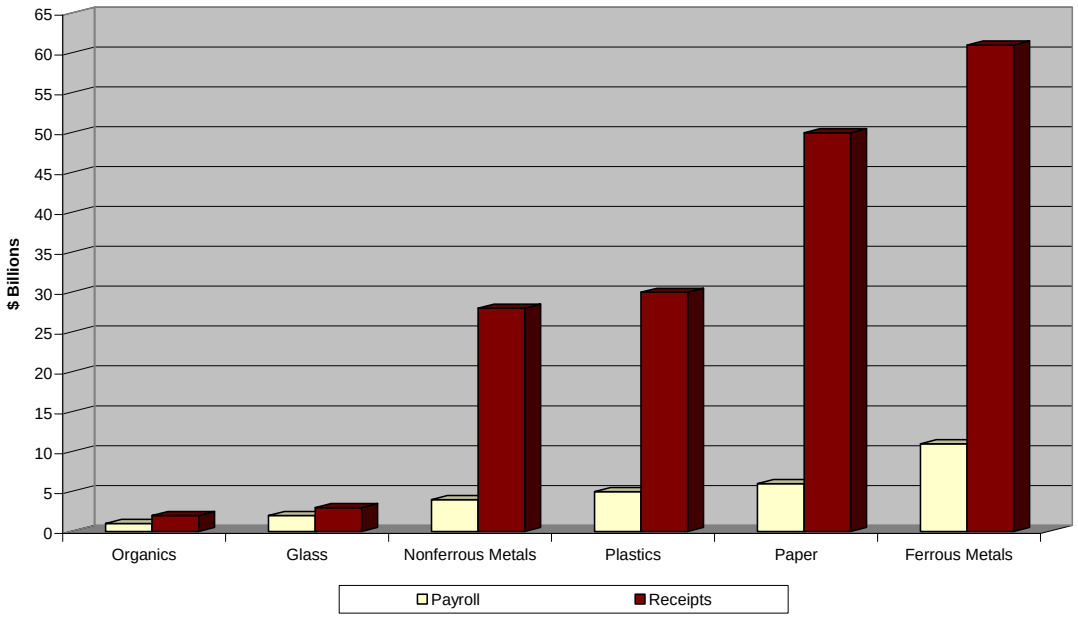


FIGURE 2:
Recycling Manufacturing Industry Payroll and Receipts
by Major Material Group



The amount of materials recycled, in combination with the value of each raw material, help explain why some major material groups shown in Figures 1 and 2 may rank higher than others. When large quantities of a higher value commodity are returned to the stream of commerce, the large value returned to the economy can support more jobs and economic activity than if a lower value commodity is returned to the stream of commerce.

Currently, plastics and non-ferrous metals are at the top end of the value scale, ferrous metals and paper are in the middle, and glass and compost are at the low end of the value scale. Major material group recycling amounts as estimated by this study include:

- Yard waste – 65 million tons (recycling of other organic materials is negligible);
- Glass – 3 million tons;
- Nonferrous metals – 7 million tons;
- Plastics – 3 million tons;
- Paper – 37 million tons; and
- Ferrous metals – 59 million tons.

When both amount recycled and value are considered together, the relative sizes of the various material groups can be explained. Similarly, estimates can be made of the economic impact that results from increased diversion of various materials.

The Recycling Industry in Perspective

Figures 3, 4, and 5 were developed from information in the US REI study. These figures depict how the nation's recycling industry compares to other select industries. These industries were chosen because they present alternatives to recycling (i.e., waste management and mining) or because they are considered to be important or preferred industries that are often targeted for support by economic developers.

FIGURE 3:
Comparison of Industry Employment

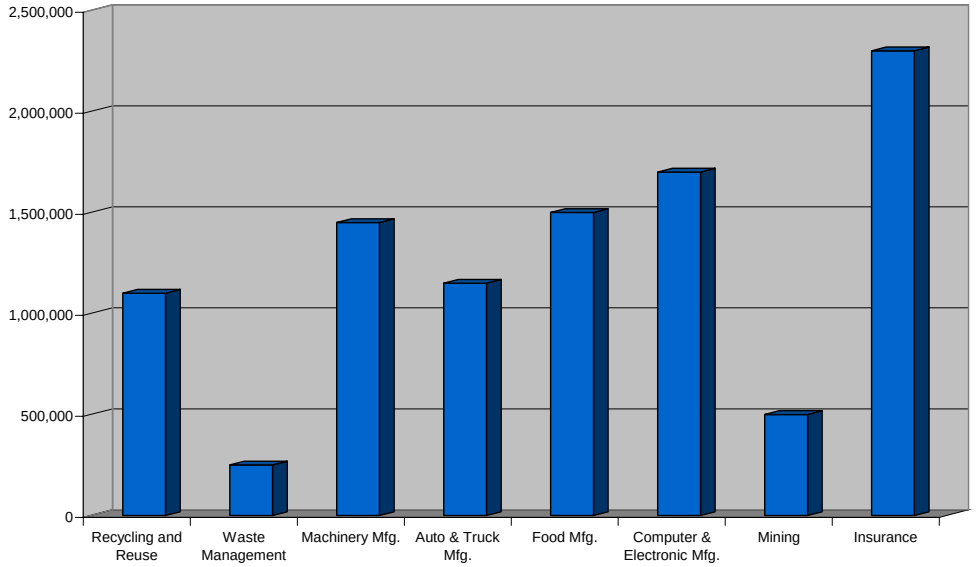


FIGURE 4:
Comparison of Annual Wages per Job

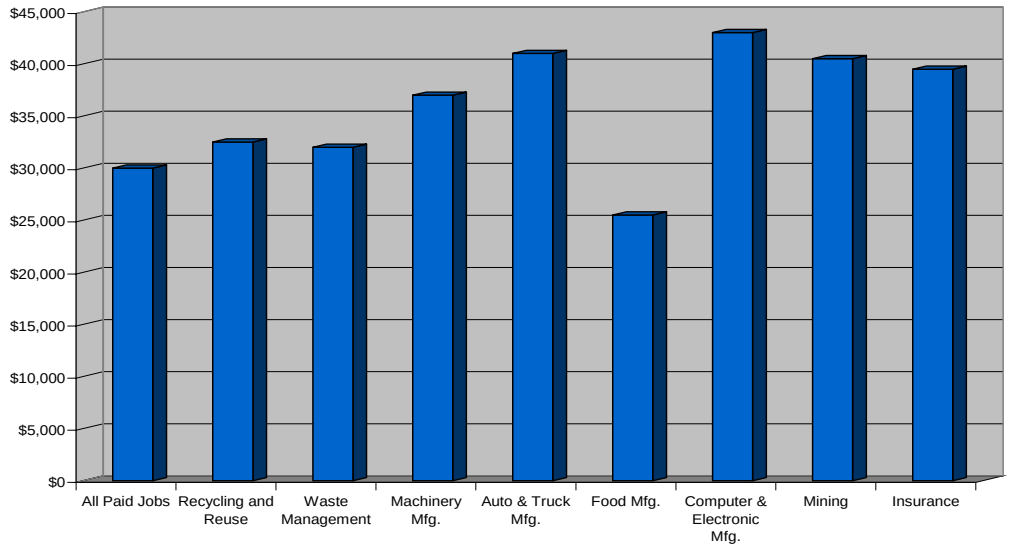
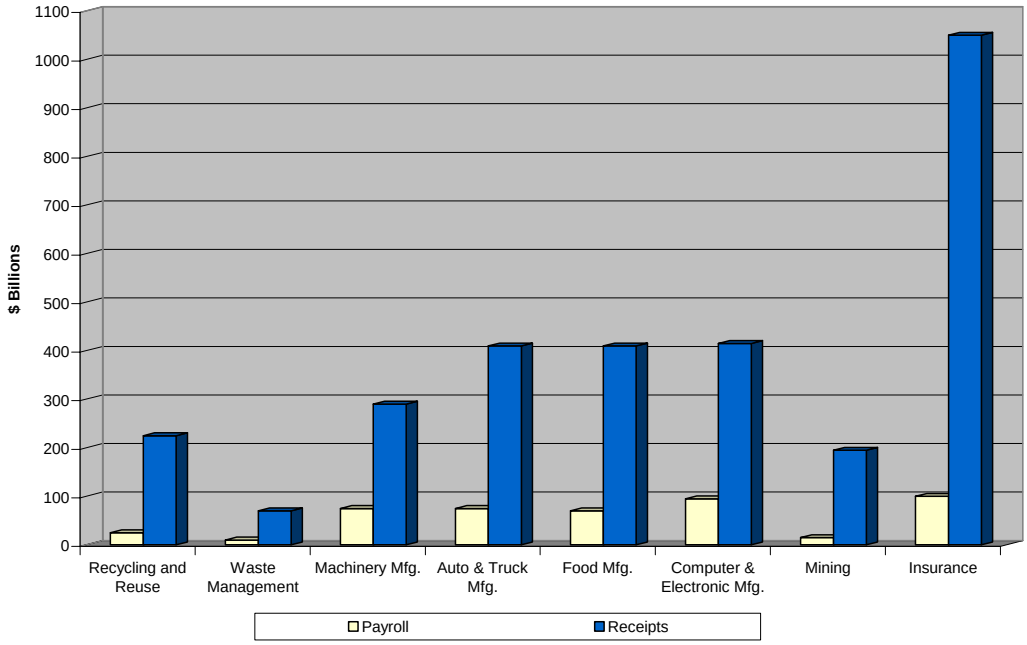


FIGURE 5:
Comparison of Total Wages and Sales



Other Economic Activity Produced

The data reviewed by the Task Force also indicated that other economic activity in the national economy that, was not directly part of the recycling industry, could be attributed to the recycling industry. In addition to the economic activity of the recycling industry itself, other economic activity is supported because the industry purchases goods and services from other types of establishments (such as office supply companies, accounting firms, legal firms, building and landscape maintenance firms, etc.). Economic modeling

estimated that nearly 1.4 million jobs are maintained in support businesses because of the recycling industry. These jobs have a payroll of $52 billion and produce $173 billion in receipts.

Employees of the recycling industry (and employees in other businesses that support the industry) also support another round of economic activity when they spend their wages in the economy. Economic modeling estimated that employee personal spending supports 1.5 million jobs with a payroll of $41 billion, and produces receipts of $146 billion.

Economic Benefits to Government

Tax Revenues

This U.S. REI study reviewed by the Task Force estimated government tax revenues arising from the recycling industry based on income levels and tax rates. The study estimated two levels of taxes paid by recycling industry establishments and their employees to various levels of government. The direct tax revenues would be those taxes paid directly by a recycling company or establishment and by their employees. The total tax revenue includes the direct taxes and all other taxes from additional economic activity as estimated by economic modeling.

The study also indicates that U.S. government tax revenues of almost $25 billion exceeds the combined revenues collected by state ($11.9 billion) and local governments ($9.4 billion) as a result of the recycling industry's economic activity. Individual federal income tax payments by employees in this industry make up over 70 percent of federal tax revenues, with corporate income taxes making up about half of the remainder. The State taxes primarily come from sales and individual income taxes. Local taxes come primarily from property taxes and miscellaneous fees.

A conclusion that can be drawn by comparing the local government revenues to local government expenditures on recyclables collection and processing services (estimated at over $3 billion per year) is that state and federal governments experience significant tax revenue benefits from local government investments in recycling programs. These benefits would seem to confirm the need for the State of Mississippi to assist local governments in investing in local recycling programs and assist start up and expanding private recycling companies.

Local Economic Benefits

Local governments also can see other economic benefits from implementing recycling programs. Such economic benefits to the local government are generated from the sale of recyclables and the savings on disposal costs. One example of a local government that has seen such benefits is Wayne County, a rural county in southeast Mississippi. The county has a solid waste enforcement officer who also oversees the county's recycling programs. Wayne County has proven that rural communities can successfully implement recycling programs with the support of local officials and available grant funding

support. In 2004 alone, the County recycled 107.5 tons of wastes, resulting in a profit of $7,161.15 and saving $3,977.50 in landfill disposal costs. The profit the county makes is used to buy equipment such as surveillance cameras for prevention of illegal dumping and littering. Wayne County also has a local illegal dumping and litter ordinance that fines people a minimum of $100 for such offenses.

Another example of how recycling can provide local economic benefit, is the recycling programs at the Columbus Air Force Base (CAFB) in Columbus, Mississippi. CAFB has a mandatory curbside recycling program for the base's residential housing area. The housing residents are provided a multi-cart for sorting their recyclables. The U.S. Department of Defense has a 40% diversion rate goal to meet by 2004. In 2004, CAFB has already exceeded this 40% recycling goal by 93%. CAFB saw a profit this year from recycling of approximately $38,000 per year. Participation in Military Family Housing is also high with 85% of the families involved in the recycling program. The residents of CAFB are from many different states and backgrounds and when they arrive at Columbus AFB, they expect to have recycling programs in which to participate.

Other Economic Benefits

There are at least two other economic benefits that do not garner a lot of attention but that do have the potential to offer economic benefits to companies that recycle. One such benefit is the decreased regulatory burden that accompanies recycling of certain special waste streams. A number of products, such as mercury-containing lamps and thermostats, various types of batteries, and certain pesticides, are regulated by the U.S. Environmental Protection Agency and the State of Mississippi under the Universal Waste Rule (UWR). The UWR is a subset of the Resource Conservation and Recovery Act. The wastes regulated under this rule are generally regulated as hazardous wastes and must be managed in compliance with the full spectrum of these federal and state hazardous waste rules, unless the wastes are recycled. When the wastes regulated under the UWR are recycled, generators are exempt from the hazardous waste manifesting requirements. The UWR allows the use of a record of shipment like any bill of lading for shipment. In addition, under the UWR, a generator may use a common carrier to transport the wastes rather than a certified hazardous waste transporter for shipment to a recycling facility. These regulatory exemptions afforded to recycling activities lower the shipping and management costs for these wastes. The State of Mississippi can assist more industries in gaining the benefits of reduced regulatory burdens by working to develop more recycling options in the state for industry and business.

Another economic benefit that has gained recent attention is the assertion that facilities that recycle wastes are actually safer work places. A recent survey was conducted by WasteCap Wisconsin indicating that sites with organized recycling programs appear to be safer than those without. WasteCap Wisconsin is a group that helps businesses in that state establish recycling programs. Business owners and contractors repeatedly told WasteCap in the survey that their work sites were more orderly and safer thanks to recycling efforts that promoted designated locations for reclaimable materials. A safer work site means fewer work place injuries to employees resulting in less lost work time.

The safer site ultimately means an increase in productivity and efficiency and lowered injury related health care costs for those businesses that recycle.

Summary of Economic Benefits

The recycling industry is an integrated system that fundamentally requires that the public and private sectors work together to collect wastes and to transform those wastes into useful products of value. Recycling solid wastes into commodities that are sold as products is a value-adding, job-providing, and economy-spurring activity. The study examined by the Task Force clearly indicated that the recycling industry is a significant contributor to the United States economy, providing large numbers of well paying jobs.

- The average wage paid by the recycling industry is $32,700 – approximately $3,000 per year more than the national average wage.
- The recycling industry supports 3.1 percent of the paid jobs in the United States – 0.9 percent through direct employment, and 2.2 percent (contributed equally) by industry and employee spending in the economy.
- Some 2.7 percent of the U.S. gross domestic product is attributable to the recycling industry, with 0.7 percent provided directly by the industry.

These economic benefits confirm that the investments made at the local and state level in education and outreach, and collection and processing of recyclables and the establishment at the state and federal level of public policies that favor recycling support large private sector investments in downstream processing and manufacturing. These large private sector investments create an economic stimulus that far outweighs the original investment of government and would appear to affirm that Mississippi needs to do more to support the growth of recycling in the state.

Quality of Life Benefits of Recycling

In addition to the environmental and economic benefits that recycling offers, a successful recycling program provides other benefits that improve and add to the quality of life for our state's citizens. These quality of life benefits will be discussed further in the following sections.

a) Aesthetics and Nuisances.

Recycling programs can help with aesthetics and potential nuisances by reducing litter and reducing the need for landfills. Studies have shown that the ten most common sources for littering are: 1) Pedestrians dropping waste in streets and gutters, 2) Motorists discarding waste out of windows, 3) uncovered loads of wastes, 4) household refuse and collection, 5) commercial refuse and disposal, 6) construction projects, 7) people at leisure, 8) entertainment events, 9) illegal dumping, and 10) intentional or habitual littering. It is amazing that while 94% of people identify litter as a major environmental problem, many of these same people continue to litter. Building a successful recycling program is one way to decrease

litter because it increases the amount of options that consumers have for managing solid wastes.

The Mississippi Department of Transportation (MDOT) has several different programs to collect litter on State highway right-of-ways. In one program involving Sheriff's inmate litter collection, ten (10) counties collected 4,530 bags in three months alone this year. Also the volunteers in MDOT's district one collected a total of 9,412 bags between July 1, 2003 to June 30, 2004.

Recycling also reduces the need for more landfills and more landfill expansions. While our state and nation can build successful recycling programs, it is apparent that we will still need landfills for other solid wastes. The modern day landfills now occupy huge tracts of land. The stringent permitting requirements for modern landfills often cause the sites to be permitted for hundreds of acres of land with additional land that is used for buffer zones around the landfill. The need for fewer landfills means that these properties can be used for other types of economic development projects. In addition, there will be fewer general public objections to facilities in the community and fewer complaints from citizens having to live near landfills about the nuisances and effects that landfills have on the quality of their lives. Increased recycling also means that we have fewer closed landfills that we have to address and manage after closure.

b) Community Pride and Attitude

With the simple act of recycling, every day Americans can help protect our ecosystem, reverse environmental damage, and ensure the health of our planet for future generations. According to the Environmental Protection Agency, recycling is one of the best environmental success stories of the late 20th century. Recycling turns materials that otherwise would be disposed in a landfill as waste into a valuable resource, diverting millions of tons from landfills each year. The average family generates approximately eight pounds of garbage each day. If given the option to recycle, citizens can truly divert enough items from disposal to make an impact. Recycling is a program that helps people feel that they are contributing to improve the environment, as well as the economy. Most people want to participate, if given the chance. Recycling is like a way of life.

An important part of solid waste management is to keep waste in its place. The Mississippi Department of Transportation spends $2 million a year on clean up efforts and immeasurable dollars in lost tourism and economic development. With the litter rate more than 30 percent higher than the national average, Mississippians need the option to recycle. We have previously cited the recycling and enforcement programs of Wayne County in this report. This County has proven that with the support of local officials, available grant funding support, and associated local enforcement, a recycling program can be successfully implemented in a rural county. The recycling programs have assisted Wayne County in cleaning up that county, reducing illegal dumping and litter and in giving citizens the option of recycling over disposal. Due to

the success of the recycling and clean-programs in Wayne County, community pride is outstanding.

Most states that have successful recycling programs have organizations that provide varying areas of support. In Mississippi, recycling support and assistance programs are found at organizations like Keep Mississippi Beautiful (KMB), the Mississippi Recycling Coalition and the Mississippi Department of Environmental Quality (MDEQ). In addition, the Mississippi Department of Transportation (MDOT) takes the lead in our state in promoting litter prevention and clean up. These various programs offer technical and outreach assistance, educational materials, and some grant monies to support recycling in the state. KMB takes great strides with various programs they offer such as the "Great American Clean up". This program is offered through local affiliates so communities can recycle, cleanup litter, and beautify areas. It has been proven that neighborhoods that have litter and graffiti have higher rates of crime.

c) Recycling Enhances the Tourism Experience, particularly "Ecotourism"

The importance of tourism in the growth of our state's economy is extremely important. Our state has also seen an increase in "ecotourism" particularly along our state's gulf coast. The Mississippi Coast Audubon Society has established a bird watching trail that extends through six (6) coastal Mississippi counties. In addition, other programs including the Sandhill Crane Refuge and the Least Tern nesting areas provide additional ecotourism opportunities. Recycling can help to preserve these areas by reducing the amount of solid wastes that enter the environment through litter and illegal dumping.

A study done on the impact of litter on Florida's economy shows that litter does interfere with the recreational experiences of individuals. While local citizens may adapt to degraded conditions, visitors on vacation are more demanding of the unpleasant environment and might choose a different vacation destination, if natural areas become littered and contaminated. According to the study, litter interfered more seriously with their wilderness experience than any other condition. Conditions noted in the study included damaged trees, vegetation loss, and various disturbances from nearby human activities, including rowdiness, drunkenness and loud radios. No matter how you look at it, litter looks bad and has a negative affect on tourism. Successful recycling programs have been shown to reduce litter and its effects.

Recommendations

a) The Task Force recommends that Mississippi develop a system of measuring and reporting for recycling activities to adequately quantify our recycling rate and to gauge the overall success of our state's recycling system. Currently, estimates place Mississippi's recycling rate at between 12 and 16 percent. However, these numbers are based on speculative information that is voluntarily given from various recyclers and local governments in the state. Mississippi does not have a formal,

comprehensive system of reporting or tracking the state's recycling rate. Consequently, we have no way of truly gauging the state's status in attaining the 25 percent recycling goal in state law. A comprehensive reporting system would provide the state with a truer indication of how recycling is helping our state environmentally and economically.

The Task Force recommends that this reporting be integrated into the annual evaluation already required of local governments for the local solid waste management plans. If Mississippi is to meet the current Federal initiatives (including a 35% recycling rate) and to mirror the successes of other states' recycling programs, we must have more accurate measurements of our state's recycling activities. This measurement will be an important step in helping Mississippi fully recognize the economic, environmental and quality of life benefits of recycling that are so often overlooked today.

b) The Task Force recommends that the State establish stronger programs for assisting and encouraging the integration of recycling programs by local governments into the local, solid waste management system.

- MDEQ should focus additional resources and attention on the quality and content of the recycling strategies, and the plans and implementation schedules of local governments required by state law to be included in the comprehensive local solid waste management plans.

- MDEQ should be provided adequate resources to provide additional support and/or enforcement to assist local governments with their obligations to develop and implement plans for achieving the state's 25 percent waste reduction goal.

Individual circumstances or arguments that recycling is more expensive than it is worth and that all recycling is a failure is akin to concluding the commercial airline travel should be abandoned because one carrier has suffered financial loss or filed bankruptcy. Such a simplistic analysis is not accurate or fair to those cities/counties that are properly supporting and managing a recycling program or to the industries and jobs supported by recycling.

Each successful local recycling program for which the Task Force was presented information appeared to have one primary thing in common. In successful programs, there is usually an active recycling coordinator who serves as a point person, point of contact, and a conduit for the local governments' recycling and associated solid waste management activities. If local government officials can become better educated, it will lend itself to offering more support and dedication to recycling efforts, thus in effect creating a more powerful local advocate and more credibility. The lack of support, structure and credibility given to many recycling programs and personnel hampers the ability to put cost savings strategies in place. If a 25 percent goal is to be met, in many cases, a dedicated position focused on recycling, collection efficiencies,

reducing processing costs and developing or finding stronger markets is needed for each major authority or entity.

c) The Task Force recommends that the State continue to study ways to resolve the fundamental conflict of landfill owners, both public and private, that need waste tonnage to keep their landfills profitable versus the state's desire to divert wastes for recycling. While it is important that we have environmentally safe landfills for disposal of certain solid wastes, successful landfill operations should not be allowed to hinder the progress of Mississippi's recycling programs.

IV Recycling Education and Outreach

A very important part of developing a successful recycling system in Mississippi is the implementation of appropriate recycling education and outreach programs. In order to educate Mississippians about the opportunities and benefits of recycling, the Task Force believes that additional resources should be focused towards developing an accurate, concise science and market-based curricula that positively reinforces attitudes towards recycling. Recycling, much like many of our day-to-day activities, must become a part of daily life in order for public and private recycling programs to be successful.

Background Information

As described in the Executive Summary of this report, the Mississippi Multimedia Pollution Prevention Act was adopted by the State Legislature in 1990. In adopting this act, the State Legislature recognized the importance of education and set recycling education and outreach as a priority of the law. One of the requirements of the law was that an educational curriculum was to be developed to promote pollution prevention and recycling in public schools. In addition, the law required that educational programs to the general public be developed to promote recycling. These provisions indicate the significance that education plays in the development and implementation of a successful recycling system in the state.

When implementing an education and outreach program to encourage recycling, the message delivered to the citizens of each county or municipality should be clear and concise. Too often efforts in the past have been unsuccessful because the recycling process was complicated. Due to the differences between counties across the state, a one-size-fits-all approach would yield unsuccessful results due to variations in available resources to dedicate to improving recycling efforts.

Ideally, partnerships should be formed between organizations interested in recycling to share and utilize readily available educational materials and resources. To fully implement a comprehensive recycling program, outreach material should be targeted to specific audiences. Organizations such as the Mississippi Association of Supervisors, Mississippi Municipal League, Keep Mississippi Beautiful, and the Mississippi State University Cooperative Extension Service could serve as potential conduits to disperse recycling outreach materials to various audiences in the state.

To help accomplish the goals set in the 1990 waste minimization law, the Legislature created a council in 1991 to study the market structure of the recycling industry and formulate a plan to increase recycling, mainly through incentives and market development. The Mississippi Recycling Market Development Council (RMDC) by law was required to include an educational component in the report.

The 1993 report outlined several key concepts that are central to the successful implementation of a recycling program that are still valid today. The RMDC realized that a driving force behind these concepts was to educate the citizens of Mississippi on

how to recycle, the options available, and the benefits of recycling. A few of the concepts outlined in the 1993 report are:

- In an effective recycling program, participation must be simple and repetitive.
- Incentives and rewards increase the likelihood of recycling.
- Citizens must feel that they have a reason to recycle, whether it is a cleaner environment or increased income.

The RMDC stressed that educational programs should be tailored to fit specific audiences. By recognizing key communication elements and key audiences for recycling education, the likelihood of developing and maintaining a successful recycling program greatly increases.

Current Education and Outreach Programs

Many steps have been taken throughout the state to improve recycling efforts. Outreach materials and programs currently exist, but recycling programs have experienced only limited success due to the lack of available supporting resources. Some programs, however, can be implemented with little effort and few resources and can create additional revenue for more rural areas. The key to developing a recycling program that will work for each local government is to provide education and training about the various options available and the extent of the success associated with each program.

State agencies and private organizations have made strides toward increasing recycling awareness within the state, but limited financial resources have hindered the ability to launch a comprehensive educational program. Currently, the Mississippi Department of Environmental Quality employs one person to facilitate recycling education throughout the state. That single employee is responsible for visiting classrooms and keeping the general public informed about available recycling options. To reach the largest audience possible, MDEQ has developed a fairly comprehensive web site dedicated to recycling. On that website, a substantial amount of information has been made available including information on starting various recycling programs, recycling directories, recycling profiles of various local communities, recycling periodicals and educational resources, and video clips of the "Recycle Guys."

Teachers also have been given a recycling guide to include in their classroom curriculums. MDEQ has also worked to obtain public service announcements on local television and radio using the "Recycle Guys," a promotional cartoon developed by the state of South Carolina, that features household recyclable items as characters. The commercials are currently being given air time on a few local television and radio stations in the state.

In addition, the MDEQ offers solid waste assistance grants to local governments. These grants can be used for a variety of programs including public education and outreach programs for solid waste management and recycling. So local governments do have some limited grant resources available to help with recycling education, if so desired. However, one problem that local governments have encountered in the past few years is

that moneys from these grant programs have been moved into the state general fund to help balance the state budget. These actions have limited the resources available to local governments even further as they seek to build successful recycling programs.

Another program that was cited in the 1993 report from the Mississippi Recycling Market Development Council is the "A-WAY WITH WASTE" program. This program was adapted from a program developed and implemented in Washington State. "A-WAY WITH WASTE" is an educational program for both adults and children that encompasses disposal, waste management, recycling and hazardous waste. "A-WAY WITH WASTE" could serve as a resource for future educational programs.

Keep Mississippi Beautiful (KMB) has, in conjunction with Keep America Beautiful (KAB), developed workbooks to assist in identifying and eliminating waste through recycling. Two such workbooks, "Waste in the Workplace" and "School Recycling Guide," are examples of targeting potential recyclers and offering solutions to each group's different situations. Workbooks developed by KMB and KAB could be widely used in the recycling education effort if more resources were provided to purchase and distribute the books. Keep America Beautiful also has a web-based lesson plan for recycling, called Clean Sweep U.S.A.

The Mississippi Recycling Coalition (MRC) is another organization, formed in 1996 that provides recycling education in the state. The MRC is a consortium of private recycling companies, local governments, trade associations, state and federal agencies, and end users of recyclables. The MRC provides a variety of recycling education services, including a speakers bureau for recycling education, support of development and implementation of recycling plans, recycling resource directories, and the sponsorship of educational workshops and seminars on recycling activities.

Voids and/or Barriers in Recycling Education and Outreach

During the months of reviewing the recycling conditions in Mississippi, the Task Force noted numerous voids or barriers to recycling education and outreach in the state that have hindered the state's progress in advancing recycling conditions. Some of the items noted were the lack of funding for education and outreach, the failure to fully implement existing directives on recycling education, and the low priority that recycling is given by many entities in the state.

One concern that developed during the Task Force's meetings was that the State of Mississippi does not today appear to be fully implementing the educational requirements of the Multimedia Pollution Prevention Act adopted in 1990. The primary reason for this is that the original curriculum that was developed is only available in a large, three-ringed binder, hard copy. The bulky hard copy does not appear to be used by many school districts or teachers in the state. In addition, the information in this report appears to be dated and has not been revised to reflect recent environmental conditions.

Another concern of the Task Force was that MDEQ does not appear to have sufficient resources overall to direct to recycling. This certainly affects the agency's ability to conduct appropriate recycling education and outreach campaigns. It also affects the agency's ability to assist local governments in a meaningful way in developing recycling programs. Currently, only one MDEQ staff person works predominantly on recycling issues and even part of his time is spent on other pollution prevention matters. In addition, due to budgeting issues at MDEQ, it does not appear that that agency will be directing any new resources to recycling at this time.

While MDEQ has arranged to use the "Recycle Guys" public education spots, these spots are running on local television very late at night when few viewers are watching. Consequently, the use of this popular recycling cartoon to reach the public does not appear to be very effective at this time.

There does not appear to be any formal recycling training or technical assistance for local governments offered by the state of Mississippi. Local governments, under state law, are required to have a recycling strategy submitted to MDEQ as a part of their overall solid waste management plan and are required to implement that strategy. However, there are few programs of technical assistance in place to help advance local government recycling programs. The Task Force did note that other states have formal certification programs for local government recycling coordinators. These types of certification programs are similar to Mississippi's landfill and wastewater operator certification programs and appear to provide needed technical assistance to local government personnel who oversee recycling systems in these states. As we have identified, the successful programs in our state today are those who have a point person locally who has the knowledge, the drive and the initiative to successfully implement recycling programs in their jurisdictions.

Based on the information received by the Task Force, there does not appear any formal type of program for training, education or technical assistance to private recycling companies. Originally, some of this technical assistance was provided by the Mississippi Technical Assistance Program (MSTAP) quartered at Mississippi State University. The MSTAP program provided environmental assistance on waste reduction and recycling to a variety of industry sector groups. The group also had a waste exchange that provided the opportunity for industry groups to exchange waste materials or byproducts that could be useful in the receiving industry's manufacturing processes. This technical assistance program no longer exists though, due to lack of funding and attrition of technical staff.

Recommendations

While there is no one-size-fits-all approach to successfully implementing an education and outreach program, some ideas can be employed to increase recycling awareness. A successful education and outreach program should be aimed at changing the attitudes and behaviors towards recycling. In order to accomplish this change in behavior, the benefits and options of recycling should be introduced at an early age. The Task Force has developed the following recommendations to increase recycling awareness in Mississippi:

1. **Schools, Colleges & Universities.** The Task Force recommends that comprehensive recycling education programs be developed and/or updated and integrated, as appropriate, into public education science curricula. As mentioned earlier, the State Department of Education (DOE) developed curriculum recommendations as required by the 1990 pollution prevention law. The DOE recycling curriculum, however, was not implemented in many schools due to its length and the cumbersome nature of the curriculum. The DOE should be given the necessary resources to update and develop an electronic recycling curriculum for easier access and use in the classroom. Teachers have also been given curriculum suggestions through Keep Mississippi Beautiful that are shorter and simpler to include in classroom lectures. A shorter, simpler and more user friendly lesson plan guide would be easier for teachers to implement.

   Teachers should not be expected, however, to carry the torch on recycling alone. Principals and other school administrators should encourage that recycling be included in lesson plans or performed as a "school-based community project." Teachers could also be encouraged to attend workshops hosted by Keep Mississippi Beautiful that teach a recycling curriculum by increasing the Continuing Education Units offered. Recycling curricula could also be offered through other associations and organizations.

   Another approach to offering recycling curriculum training is to train future teachers. The recycling curriculum could be taught in college courses or in special workshops to motivate teachers before they create their lesson plans. Teachers would be more likely to include recycling in their lesson plans if the importance of recycling was stressed during college. Community colleges could also promote recycling in hotel/restaurant management curriculums as well as some of the vocational technical certification programs the colleges offer. Task Force members also indicated their support for the integration of recycling technologies into engineering and architecture curricula. These efforts could incorporate some of the elements of EPA's "Green-Building" and "Design for Recycling" programs.

   Recycling programs have been successfully implemented in schools across the state. Some schools have established recycling bins for various recyclables and have been able to drastically decrease waste while supporting recycling. After the recyclables are collected, the school district maintenance staff may provide the labor of hauling the materials to a recycler. Profits from the sell of the recyclables may be used to assist in meeting school needs or to sponsor events for the student body. These recycling programs can be also used as an effective tool in teaching school children about the positive impacts of recycling.

2. **Adult Consumers.** The Task Force recommends that additional educational and outreach programs be developed and implemented by the State to encourage adult consumers to recycle. Recycling education efforts should not be aimed solely at school-aged children and teenagers. These consumer educational programs could

include increased public service announcements (utilizing Keep Mississippi Beautiful and other non-profit organizations) through print and television media. The State could also provide recycling education through organizations like the Cooperative Extension Service, the State Farm Bureau, and local governments. Local governments can conduct recycling education and outreach campaigns to their citizens through their local solid waste management programs. The MDEQ currently has solid waste assistance grant funds available to assist local governments in public education and outreach campaigns.

3. **Local Governments.** The Task Force recommends that recycling "best management practices" (BMP's) be developed and distributed to local governments. These recycling BMP's for local governments should include brief descriptions of programs that have worked for both rural and metropolitan areas. In Mississippi, for example, Wayne County, could be used as a case study for many rural counties since that county has utilized minimal resources to create a successful recycling program. Additional details of technical training for local governments have also been described in the recommendations contained in the "Collection of Recycables" section of this report.

4. **Local Law Enforcement Agencies and Officials.** The Task Force recommends that local law enforcement efforts against illegal dumping and littering be given increased priority and attention. During the weeks of the Task Force's studies, the group quickly learned that recycling programs are most successful when they are coupled with strong local enforcement programs to prevent litter and illegal dumping. This increased priority and attention can be met on the local level by the employment of a local, solid waste enforcement officer with MDEQ grant support. There are approximately 45 of these officers employed by cities and counties across the state. These officers can be educated on the potential for advancing recycling and how recycling can aid them in preventing illegal dumping. The Task Force also recommends that MDEQ should continue to work to increase the number of these officers across the state to assist in educating the public on recycling and proper solid waste management practices.

5. **Business and Industry.** The Task Force recommends that the Mississippi Technical Assistance Program (MSTAP) or another similar technical assistance program possibly at one of the universities or at an appropriate state agency be re-organized and re-initiated. This technical assistance program would provide needed technical assistance and outreach for private businesses and manufacturing companies seeking to recycle or reduce their wastes. In addition, the Task Force recommends that MDEQ staff be trained and tasked with assisting industry with evaluating and implementing recycling and waste reduction programs.

6. **Private Recycling Companies.** The Task Force recommends that technical assistance programs be offered to private recycling companies and to potential recyclers. The Task Force believes that such assistance is vital to sustaining current recycling companies and to encouraging their growth. These programs could be conducted through MDEQ or through the "revived" MSTAP program. MSTAP

could connect private recyclers with various recycling technology sources such as the National Recycling Coalition, Solid Waste Association of North America and the Institute of Scrap Recycling Industries.

The Task Force also recommends that a specific work force training program through the state's community college system be developed to cater to recycling companies and organizations. The training program would need to be flexible enough to retrofit the training to the specific needs of a particular recycling industry.

Summary

Through past legislation, reports, studies, research, and curriculum development, Mississippi has built a solid foundation upon which to build strong recycling programs. We must pull from these existing resources, dust them off, and move forward with a new sense of purpose and resolve. Government must partner with industry, special interest organizations, and institutions to educate citizens and encourage the recycling of solid wastes. The "command-and-control" system of solid waste disposal may actually sometimes serve as a deterrent to creating a positive perception of recycling. We must remember that a one-size-fits-all approach to recycling is not feasible. By educating our citizens on the various benefits of recycling of solid wastes and the availability of recycling, the State of Mississippi can make tremendous strides in developing a recycling system that will provide profits to private business and local governments. These recycling education programs will also instill a sense of pride and responsibility in those who participate.

V Collection of Recyclables

Another important component of developing a successful recycling system in the state is the collection of recyclables. Collection is particularly important in a rural state like Mississippi where there are many rural communities that are sparsely populated. Therefore, it is important that local governments evaluate the types of collection systems available before implementing a local system for collecting recyclables. Each city, county, or regional solid waste authority could conduct a simple survey or study before implementing a recycling program. The objective of the study is to determine the waste characteristics and the recycling behavior of its citizens. The knowledge gained from this study will provide needed information to the local government and allow its leaders to more effectively implement a recycling program specifically for its citizens. This waste characterization study is also required in each local government's solid waste management plan.

During the Task Force's review of the state's recycling system, the group had direct interaction with various local governments on their efforts to collect recyclables. These discussions indicated that the collection of recyclables has recently had varying degrees of success at communities in the state. For instance, the City of Jackson has recently expanded its curbside recycling programs to encompass the entire city. In addition, the City of Oxford has also recently implemented curbside recycling throughout that city. At the same time, the Task Force learned of other communities in the state that were curtailing or dissolving current curbside recycling programs, often due to costs or lack of participation by citizens. Local governments must give appropriate upfront analysis to the type of collection system that will best fit their community needs. The following discussion will present some of the methods and options that are available to local governments for collecting recyclables.

Another topic that was discussed at several meetings was the possible support for container deposit legislation to spur collection of beverage containers for recycling. However, the Task Force did not have consensus support for such legislation. Instead, the consensus of the Task Force was that our state should focus its efforts on developing a more comprehensive approach to improving collection of recyclables in Mississippi.

Collection of Residential Recyclables

Drop-Off Collection Methods

In reviewing current collection methods for recyclables, the Task Force heard from both rural and urban communities about the various recycling collection models that are being conducted in Mississippi. There are various collection systems employed in the state, largely dependent upon the characteristics of the local community. Some observations suggest that citizen drop-off programs for collecting recyclables in rural areas may work best. However, the success of these drop-off collection methods is often dependent upon the convenience and accessibility of the location of the drop-off centers. In addition, one

disadvantage to the drop off method is that the recycling bins may become a collection site for all types of trash or simply an illegal dump. Because these sites are often unsupervised, citizens often feel free to "dump" all forms of trash in this area, not simply items that should be recycled. This is often an added expense for a small rural community that may prevent the community from offering recycling services. In such cases, volunteers may be willing to donate time towards assisting with the recycling program. Some rural communities may be able to use volunteers from businesses or civic groups to "adopt" a recycling center to help police the centers and to clean around the drop off site.

Another way to discourage this all-inclusive dumping is to use 90 to 95-gallon, recycling carts with an opening in the top, sized specifically for deposit of the collected recyclable items. Because the opening would not be large enough for bags of trash, customers would be less likely to leave garbage and other non-recyclable items for pick up. The carts will be secured and made immobile to prevent theft of the carts. Another option is to locate drop-off centers at accessible sites where county employees are readily available to provide instruction and oversight to the use of the recycling bins. Additionally, a possible solution is to place a waste receptacle near the recycling bins with appropriate signage to direct placement of trash in the waste bin and recyclables in the recycling bins.

The local government may have to designate city personnel, volunteers, a recycling contractor or other suitable persons to be responsible for clean up and maintenance around the carts. For example, if a local school is designated as a drop-off site, the school's maintenance or custodial staff could be responsible. In some cases a recycling contractor may handle that responsibility under an arrangement with the local government. In the reports to the Task Force by local governments, the Task Force learned of such arrangements. For example, the City of Hattiesburg has Sumrall Recycling, a private recycling company, maintain the city's three collection sites and retrieve the recyclables from those sites. In other cases, local government personnel in the public works, zoning or solid waste divisions may be responsible for policing the sites and preventing or cleaning up dumping around the recycling sites. It is evident though that local governments do have a wide array of options in this area. In each instance, the local government should seek to develop collection programs that work well for their citizens.

One other "drop-off" center option that can be considered for rural areas is the trailer or mobile unit system. In these types of programs, a special enclosed trailer is designed for collecting recyclables in separate bins that are labeled. The recyclables are loaded from one side of the trailer at the drop off site. This method appears simpler and less cumbersome to residents than a permanent drop-off site with the 90-gallon carts. Once the trailer is loaded it can be simply transported off site to a centralized collection center or to an end user or processor. Another advantage of this method is that a local government can make its collection centers mobile. So a county or city might have the collection trailer at a site in one district or area of the community two weeks of the month and then could move the trailer to another location for the remaining two weeks of the month. This collection option allows more flexibility in managing a drop-off center

program, but would likely require more public outreach to educate people on the dates and times that a collection trailer is available in an area. This method also appears less costly than a traditional drop off site. Drop-off trailers are used quite often in the state's local government waste tire collection programs. The state collects almost 20 percent of its tires for recycling purposes through the local government collection efforts. After collection, these tires are transported to recycling facilities in the state.

Another obstacle for rural as well as urban recycling collection is that single pass collection methods combine both solid waste and recyclables in one truck. Although the truck is equipped with dual sides, one for solid waste and the other for recyclables, only one driver is usually assigned the task. This is different from the normal curbside recycling as the sorting is done at a materials recovery facility (MRF). The truck would be emptied at separate facilities. This method generally produces a cost savings primarily because of the savings in vehicle and labor cost.

Curbside or Door to Door Collection

In addition to the various drop-off methods, there are local governments in the state that offer curbside or door to door collection services for recyclables. These methods are most often offered in municipalities as opposed to the more rural areas of our state. However, a past study in Addison County, Vermont has shown that even rural communities can employ successful curbside collection programs with proper education and participation by local citizens. This study of several small towns (less than 1000 population) in Vermont indicated that participation rates were significantly higher for curbside collection as opposed to drop off collection methods. When the cost per ton of the collection types were compared, the curbside recycling projects compared favorably and in some instances was even less expensive to conduct than the drop off programs. The Task Force did review several different curbside collection models.

The **"multi-bin" method** of recycling enables each residential customer to have more than one recycling bin per household. As the customer accumulates recyclable items, the customer sorts those items into the appropriate bins. For example, aluminum and steel cans can be kept separate from plastic or paper items. On the assigned collection day, the customer places the bins at the curb for pick-up, which means that the resident must make a number of trips to the curbside with the various bins.

One disadvantage to this method is the availability and expense of providing recyclable storage bins for each household. The local government officials must provide the bins to all customers, which generates an additional expense to the local government. In addition, there is often controversy over who is responsible for replacement bins if the bin is damaged or stolen, the homeowner, the local government, or the collection contractor? Another potential problem with this source separation method is that it often is more difficult for residents and some may be less likely to participate if they are required to separate their recyclables.

The **"curbside sorting" method** is slightly less expensive than the multi-bin method; less expensive because residents are given one bin for all recyclable products. The resident is not required to do pre-sorting of the recyclables. In this method, commonly, the recyclables are either sorted at a central materials recovery facility (MRF) or the collection vehicle driver sorts the items at the time of pick up into the designated areas of his/her truck. This method is convenient for residents and sometime preferred because they do not have to be concerned about having a lot of room to store several bins.

Cost and Participation

The overall cost of the local recycling program is contingent upon a variety of factors including: the type of collection service offered, the range of materials collected, the participation rates, and the proximity of the markets or end users of the materials to the local recycling collection center. The average cost for residential curbside recycling ranges from $2-$4 per resident, per month depending on the number of collections per week. The number of days the recycling bins will be collected is a critical point to consider. There is no ideal number of times, however, twice per week is generally accepted. Currently, most local governments offer a weekly collection even, which can result in tremendous cost savings to the local government. In most cases, the cost mentioned above does not cover the true cost of the program. The local government may often have to significantly supplement the cost of the recycling program.

There are several ways that local governments support the cost of recycling programs. Some local governments add a fee to the monthly garbage collection fees for residents. Other local governments may cover the cost of funding the recycling program directly out of the local governments general fund and then other local governments may cover recycling costs out of the allowed millage tax for managing solid waste.

Another type of funding program that is offered nationally is the Pay-As-You-Throw (PAYT) program. PAYT programs have been successfully implemented in over 2,500 communities across the nation. In communities with pay-as-you-throw programs (also known as unit pricing or variable-rate pricing), residents are charged for the collection of municipal solid waste—ordinary household trash—based on the amount they throw away. This creates a direct economic incentive to recycle more and to generate less waste. PAYT is an effective tool for communities struggling to cope with soaring municipal solid waste management expenses. Well-designed programs generate the revenues communities need to cover their solid waste costs, including the costs of such complementary programs as recycling and composting. Residents benefit, too, because they have the opportunity to take control of their trash bills. To date, Mississippi does not have a community that is conducting a true PAYT program. However, it is a financing option that communities may consider as they seek to reduce solid waste and encourage recycling.

Another factor that may influence the cost of the program is the rate of participation from local citizens. Studies show the participation rate for urban programs is 25-45% depending on social economic status of the community. The participation rate for rural programs is 10-25% depending on the population density of the community and the type

of program that is implemented (drop-off versus curbside). Mississippi communities that addressed the Task Force indicated that their participation rates fell generally within the national ranges described above. These communities also indicated that education and awareness were key elements to ensuring that participation rates among our state's citizens remain high.

Collection of Special Wastes for Recycling

There are many types of wastes that require special or extraordinary handling conditions to appropriately manage the wastes. Many of these special wastes are recyclable; however, persons interested in recycling the materials as well as local governments that are interested in integrating the collection of these special wastes into their programs must plan for how the special handling conditions will be addressed. There were several notable programs that the Task Force encountered in its research:

Cell Phones and Batteries. The Rechargeable Battery Recycling Corporation (RBRC) offers a program that can assist communities and public agencies start cell phone and rechargeable batteries recycling programs. The RBRC organization can assist local governments in sponsoring local collection events for these wastes that will be relatively low cost but that will remove heavy metals in these materials from landfills and will provide an option to citizens for wastes that are not readily recyclable.

In addition, the City of Jackson has established a recycling program at the City's Environmental Service Center to assist with the disposal of discarded cellular phones in the Jackson metropolitan area. Studies show that in the next five years, United States consumers will discard more than 300 million cell phones. The City of Jackson collects the discarded cell phones from residents and recycles the phones by reprogramming the phones and distributing them for 911 and emergency use by the elderly and victims of abuse.

Household Hazardous Wastes. The City of Jackson has also established a program for collecting and where possible, recycling household hazardous waste (HHW) specifically for the Jackson metropolitan area. At the ESC, the city collects a number of types of HHW items that it is able to recycle including paints and solvents, household pesticides, used oil, automotive batteries and discarded computers. The city has developed a successful program for reclaiming and selling the useable paint that it collects. The program offers cans of the recycled usable paint for $4.00 per can**.** According to city officials, the program has become so successful that the city is unable to keep the recycled paint products in stock.

Compressed Gas Cylinders. A number of local governments throughout the state have also had to implement programs to recycle compressed gas cylinders. These cylinders or canisters are bought or leased in various sizes primarily for residential propane use. These canisters can often explode if placed in the landfills and punctured by landfill compaction equipment. In addition, new laws were adopted in the last couple of years that require that certain sized gas canisters must be retrofitted with a protection device to

prevent overflow. That means that many canisters that are not retrofitted will now be unusable. Consequently, a large number of canisters are being disposed through the trash. Some communities have developed partnerships with private manufacturers or distributors of the gas canisters to collect and recycle the materials. However, these collection programs have not been easy to develop in the absence of a strong recycling infrastructure in many local communities.

Yard Waste and Wood Debris. A number of local governments in the state offer yard waste recycling programs. These programs vary in the manner and method of collection and processing. Some communities only offer recycling programs for natural vegetative wood debris. These communities will generally have the woody debris brought to a central location and will chip or grind the debris into a usable mulch product. The resulting mulch product is then generally used on city properties for landscaping purposes or given away to city residents for use in residential landscaping. Numbers of municipalities in the state have received grant support from MDEQ Solid Waste Assistance Grants to purchase the chippers. Other local governments may manage yard wastes through composting operations. The yard wastes are typically collected at curbside by the municipality on a special collection day, separate from the routine garbage collection days. The wastes are delivered to a central location for processing, blending and composting. Composting operations generally will use some grass clippings, leaves, and other small vegetative debris items. Yard waste recycling and composting programs such as these help to save landfill space, keep the costs of disposal down for local governments, and create usable landscaping products

These are examples of a few successful special waste recycling programs that can be implemented in other rural or urban communities in the state.

Collection at Other Public Entities

State agencies, universities, colleges, school districts and other local government entities generate fairly significant amounts of solid wastes. Under state law, all state agencies and state universities and colleges are required implement a recycling program. State agencies and institutions of higher learning have been encouraged to start recycling programs with simple and basic activities, such as recycling copy paper, aluminum cans, and printer cartridges. There are a number of private companies that may provide recycling services to state agencies. One such private recycling company is Allen Paper Processors of Yazoo City, Mississippi. This company already has arrangements with numbers of state agencies to collect recyclables. An obvious benefit of establishing simple recycling programs is that less trash is disposed in landfills, which ultimately results in savings in disposal costs to the State of Mississippi. Each agency should designate a point person or contact person to assume responsibility for its recycling program. Even with these benefits, information provided to the Task Force indicated that there are reportedly a number of state agencies that have failed to implement a comprehensive recycling program as the law requires.

In the case of local school systems, there are examples of both urban and rural school districts setting up drop off centers or recycling rooms at local schools. Basically, a recycling room is an indoor drop-off center, typically a 16-foot by 16-foot room with three to four 90-gallon carts. Each room would have labeled recycling bins so that school officials, administrators, teachers and students can conveniently deposit recyclable items. Once the bins are filled, a recycling contractor would collect and haul the materials to a proper recycling or processing facility site, unless the school has arrangements with the local government to integrate school recyclables in with other city or county collections.

Collection of Business Wastes for Recycling

Various businesses throughout the state have also developed collection programs for recyclables at the business and industrial complexes and parks. These programs vary from business to business depending upon the size of the company. Businesses generally are motivated to recycle because of the financial savings the company can realize. Most businesses that recycle will often collect office wastes such as paper, cardboard, inkjet cartridges and other office supplies for recycling. In addition, some businesses recycle a variety of cardboard, shrink wrap and other wastes from packaging and shipping activities. Businesses also collect and recycle cafeteria wastes including aluminum, steel cans, plastics and other materials. Finally, many businesses, particularly manufacturing businesses, are also recycling their process waste streams. Examples of this include the use of coal ash in road construction purposes, the use of wood ash and pulp mill sludge as soil amendments and the use of cement kiln dust as a solidification reagent at landfills in the state. The Task Force learned that MDEQ is currently in the process of modifying state regulations to better facilitate the legitimate beneficial use of certain nonhazardous industrial process wastes.

Businesses usually develop their own in-house recycling collection systems with drop off centers within the business or manufacturing complex. These businesses have the option of having a recycling company or collector come directly to the business and remove the materials for delivery to a processor or end user. Another option that is available in some communities is the option of the business depositing its recyclables through the local community recycling program. The business then can meet its own recycling needs while also helping to provide valuable recycling feedstock to local community programs.

Recommendations

1. The Task Force recommends sponsoring or developing collection efficiency workshops for local governments through MDEQ or one of the state universities. The workshop would focus on presenting options for collecting recyclables and ways that local governments can make those collection programs more cost effective.

2. The Task Force recommends that local government solid waste assistance grant funds, local government waste tire grant funds, and local government solid waste planning grant funds, provided by MDEQ, be preserved and protected from use

for other purposes. The availability of these funds is critical for local governments as they seek to advance local recycling programs in the state. Many of the successful recycling programs that have been implemented in the state have been dependent on funding from these assistance grants.

3. The Task Force recommends that appropriate state assistance agencies including the State's Planning and Development Districts, the Mississippi Development Authority and the Mississippi Department of Environmental Quality, provide resources and assistance to local governments to find "non-traditional" financial assistance resources outside of the normal environmental grants provided by state agencies.

   This funding would include various grants from the U.S. EPA, the United States Department of Agriculture, the Department of Education and other federal agencies. In addition, some non-profit organizations and private companies provide small grants to local governments and to school districts to assist with recycling programs. Weyerhauser has such a grants program as does the Dell Computer Corporation. In addition, the Georgia Pacific Corporation will assist communities in purchasing balers to begin recycling programs. In addition, trade organizations such as the American's Plastics Council and others may offer assistance programs for local governments seeking to develop or expand recycling collection for plastics. Other trade organizations may provide assistance for other recyclables. These are examples of programs that local governments can take advantage of with the proper assistance from state agencies.

4. The Task Force recommends that actions be taken to ensure that all state agencies and institutions of higher learning have the recycling collection programs in place and functioning as required by the Mississippi Multimedia Pollution Prevention Act of 1990.

5. The Task Force recommends that the Legislature give strong consideration to the development of a collection and recycling program for discarded electronics waste. While the Task Force believes that the current programs are helpful, they do not provide a comprehensive solution to our state's problems with electronics waste management.

6. The Task Force recommends that MDEQ coordinate with the U.S. EPA to conduct a specialized workshop for local government officials on the option of implementing Pay-As-You-Throw programs in Mississippi. This workshop will help local governments evaluate collection programs that provide an incentive to citizens to reduce and recycle wastes. The workshop could possibly be sponsored in partnership with the Mississippi Municipal League, the Mississippi Association of Supervisors and the Stennis Institute for Government.

VI Market Development

Thus far, this report has addressed the educational needs and the collection needs of a successful recycling system. Another tremendously important component for the success of our state's recycling system is the development and growth of markets for recyclables, preferably new and expanded recycling companies in our own state. The goal of the market development strategy developed by the Task Force was to determine how Mississippi can best encourage and stimulate recycling market development in the state. The strategy that the Task Force developed included the following components:

1. Recognize that recycling is a significant and important industry in our state and should be treated similarly to other industries which are aggressively recruited for economic development purposes;

2. Increase the demand and development of long-term sustainable markets for recyclable and recycled materials and thereby increase our state's recycling and solid waste diversion rates;

3. Develop state and local policies which encourage the purchase of products manufactured from recycled materials; and

4. Develop, identify and provide financial and technical assistance, incentives and other support to encourage public and private recycling, product stewardship, and the manufacture and use of recycled materials in this state.

In the brief time this Task Force has heard from those involved in recycling throughout Mississippi, it is obvious that there is much being accomplished already in our state to divert solid wastes from landfills. These recycling programs can be successful by effectively utilizing the 3 R's of recycling – reduce, reuse and recycle. Numerous cities, counties, small towns, large and small businesses, non-profit groups, and public-private partnerships are actively pursuing this important environmental and economic necessity.

In addition, our state has numerous operations manufacturing or creating recycled materials and products, with some on the cutting edge of recycled-content food packaging as well as those using their artistic skills. The creativity, resourcefulness, and entrepreneurship of our citizens has never been our problem. Our ingenuity is not lacking, and it is the hope of this Task Force that our state will utilize our work as a stepping stone to initiate, develop and maintain an ongoing, coordinated effort and focus on the needs and future of this industry.

There are many markets already in place, with each particularly affected by market pricing and demand, the costs of labor, equipment, regulation and transportation, and the quality, processing and quantity of materials available. This task force is not the first attempt to expand our markets for recycling and recycled products. The Recycling Market Development Council (RMDC), created by the Mississippi Legislature in 1991

addressed this issue some years ago. However, by law, that body ceased to function after 1993.

It is obvious that, if our state is interested in creating and maintaining long-term sustainable markets, then our state must first also insure there is a consistent and continuous infrastructure and leadership in place, ready to assist, promote and develop our state's recycling industry. Our state must be committed to developing and providing the technical and financial resources needed by both the public and private sectors to move Mississippi's recycling industry to a level that truly impacts our state's economy and environment.

Overcoming Barriers to Market Development

A variety of recycling industries are finding it difficult to maintain a high quantity and quality of materials. Local governments trying to collect and process these materials cannot afford the significant cost of the processing equipment. Depending upon the location of markets, transportation costs can many times exceed the expected revenues from the sale of recycled materials. Once the recyclables have been collected, the time and methods used to process the material to maintain the high quality necessary to meet industrial standards further diminishes the profits which can be expected from the sale of recyclable materials.

Overcoming these barriers is a key to increasing the strength and stability of recycling markets in Mississippi. In addition, it will enable our state to create a thriving industry that has far reaching and positive environmental and economic impact on our people. Therefore, one of the first steps of market development is to improve the collection, processing and transportation systems for recyclable materials.

Recommendations

1. The Task Force recommends that the State organize and implement Regional Cooperative Marketing and Processing Programs to better market recyclables.

   Cooperative marketing refers to a group of local governments, sometimes in conjunction with private organizations or businesses, that voluntarily agree to work together to sell and/or process their recyclable materials. This program would seek to create one or more cooperative recycling programs among local governments and the private sector. Cooperatively collecting, processing and marketing recyclable materials will allow local governments and the private sector to obtain more competitive prices for this material which can ultimately be turned into a source of local revenue.

   The various issues and barriers to establishing such entities should be researched and identified and a process for establishing cooperatives should be developed. To assist in accomplishing this program, a series of informational sessions should be developed and held with local recycling coordinators and representatives of

local governments invited to attend. These sessions would provide assistance in identifying the issues and in establishing guidelines for organizing regional cooperative marketing and/or processing programs within the state.

2. The Task Force recommends implementing improvements for transportation of recycled materials.

   Transportation costs are one of the single most important factors inhibiting the cost effectiveness of recycling. In Mississippi, this is especially true given the size and rural nature of this state. A comprehensive look at how materials are transported and how improvements can be made to the system should be undertaken. This review would be expected to identify recommendations for changes in current transportation regulations or possibly other administrative and policy areas to assist in transporting recyclable materials to the marketplace.

3. The Task Force recommends prioritizing current state grant funding assistance for local government recycling.

   To encourage more cooperative regional efforts among local governments, a comprehensive review should be undertaken of the manner in which current state recycling and waste assistance grant funds are allocated. These efforts could include determining how grant proposals that involve the establishment or expansion of recycling programs can be given priority over other programs that simply clean up wastes or contamination.

   One suggestion made to the Task Force by an interested observer of the public was to establish a new recycling grants fund to be created and funded by an add-on tipping fee to the existing solid waste disposal fee. These funds would be channeled back into these communities for recycling program purposes. This suggestion was made by interested persons in the public who felt like an add-on fee could simply be included in the current landfill disposal fee of $1.00 per ton, since there is already a mechanism in place to collect that fee.

4. The Task Force recommends that the State consider the adoption of appropriate laws that offer liability protection for collectors and processors of recyclables.

   It was brought to the attention of Task Force members that a significant problem for private businesses and local governments that collect recyclables is liability protection for problems that may occur after delivery of the recyclables to an end user or private recycler. One example of this problem involved the recycling of automotive batteries. A private company in Mississippi had collected lead acid batteries for recycling, delivered the batteries to a company out-of-state that processed the batteries for recovery. That company caused contamination that ultimately had to be cleaned up by the Federal government. The Federal government then sought recovery of the clean up costs from all of the previous

companies and entities that had delivered batteries to the plant for recycling purposes.

Developing and Nurturing Recycling Businesses

The recycling industry is truly becoming a growing industry and can have the potential to have a tremendous impact on the economy and environment of Mississippi. We are home to numerous recycling businesses that manufacture a variety of material and products. These businesses have clearly demonstrated the positive effect they have on our state's economy. In addition, we are seeing new companies come to the state that have their foundation in recycling materials. A new plant by Trex Company, Inc. in Olive Branch, Mississippi will be that company's largest facility yet. The company recycles waste wood fibers and reclaimed polyethylene into residential and commercial decking and railing. In addition, a Kingsford plant in Corinth will produce char for charcoal production from wood wastes. The Kingsford facility will use upwards of 40,000 tons of wood waste a year. Consequently, our efforts also need to be focused on developing opportunities to attract and enhance recycling businesses within the state.

An example of the opportunities for success in assisting the growth of recycling businesses can also be seen in the State's waste tire recycling program. There are several examples of successful industries that sought and obtained state grant assistance to enhance their tire recycling business operations. Three such industries are Mac's Tire Recyclers in Saltillo, Poly-Vulc, USA, Inc. of Jackson and Vicksburg and Gulfport Tire Recycling, Inc. of Gulfport. These businesses collect millions of tires from Mississippi annually and convert those waste tires into products that are in turn sold across the southeast. These companies have been able to take advantage of a special state grants assistance program offered through MDEQ to develop these manufacturing plants for recycled rubber in our state. Due to their continued success, Mississippi now recycles more than 85% of our state's waste tires. In addition, businesses in our state collect tires from other states, convert the tires into products and then in turn sell those products back in the states where the tires originated. So the economic and environmental benefits of assisting start-up and growing recycling companies warrant additional investment by the state in the recycling industry.

Another possible option that the Task Force discussed was the possibility of providing tax incentives or relief for recycling companies that will locate or expand operations in Mississippi. The State of Arkansas has a program that offers tax credits for certain waste reduction, reuse or recycling activities. The program is managed through the Arkansas Pollution Control and Ecology Commission and offers tax credits of up to 30% of the costs of purchasing and installing new equipment employed in waste reduction, reuse or recycling. These state tax credits offer incentives to new companies seeking to install such equipment at start-up manufacturing plants or to existing companies seeking to expands operations. In addition, they apply to various other types of industries that may incorporate waste reduction or recycling equipment into their overall manufacturing operations.

Recommendations

1. The Task Force recommends that the State evaluate and expand financial assistance programs for recycling businesses. These assistance programs should include grants, loans and tax incentive programs.

   Any existing recycling financial assistance and tax incentive programs need to be reviewed and new programs created to insure that we are responsive to the realities of the current state of recycling and materials markets. In the past, small amounts of grant funding have been made available to private industry through the MDEQ's Pollution Prevention grants, but these funds have not been awarded in several years due to the loss of moneys in the state's general budget shortfall. Reviving these grants and making that program more sustainable could offer some assistance to start up and expanding recycling companies. In addition, assistance could include expanding the list of eligible materials permissible for funding or for tax incentives to additional recyclable commodities. The Arkansas program that offers tax credits for recycling equipment is another potential assistance program the state could consider. Other options could include: specific assistance to industry for product testing and research, and process assessment and development and expanding current economic development grant and incentive programs to include businesses involved in the recycling industry. The Mississippi Development Authority (MDA) and the State Tax Commission should review the economic development and tax incentive programs currently in place and develop recommendations on expanding these forms of financial assistance to recycling businesses.

2. The Task Force recommends that the State provide technical assistance programs specific to recycling business development.

   This special program could be designed to provide new and more specific assistance to the recycling industry, focusing on technology and a series of business plan development sessions involving current Planning and Development Districts (PDD's) and Small Business Development Centers (SBDC's). These sessions could meet on an "as needed" basis and offer recycling businesses in their formative stages of development access to "experts" in business plan development, recycling technology, public-private partnerships, and other major areas. The session members would critically review the plan presented by the recycling business and point out strengths and weaknesses. The business owner would then use the results of these meetings to strengthen their development plan prior to making any efforts to attract investors or other types of private capital to finance the venture. Another process is needed to match newly developed recycling technology or processes with industries that may be likely candidates to utilize a new technology.

3. The Task Force recommends producing a comprehensive recycling profile of the State of Mississippi to aid in recruiting new recycling businesses to the state and to aid expansions and growth of existing industries.

To enhance the continued growth and development of recycling, the Mississippi Department of Environmental Quality (MDEQ) and MDA should develop a state profile of recycling that would characterize the quantities, types, and locations of various recyclables within the state. This information would be used to assist in business recruitment, siting and expansion decisions by providing more precise information about the available levels of recyclable materials in a given area of the state.

4. The Task Force recommends the development, publication and distribution of an enhanced Recycling Market Development Directory.

   The MDEQ with support from MDA should design and produce an enhanced directory that provides a concise overview of state recycling assistance programs and government regulations. The current directory is helpful but additional information and useful tools could be incorporated into the enhanced directory. The directory could include:

   - the listing of recycling companies and contact information for each company;
   - the details of each recycling company's activities, the recycling feedstock they collect and the form in which they can deliver the materials;
   - information on local, state and federal financial and technical assistance programs;
   - a summary of state and federal environmental and transportation regulations applicable to recycling; and
   - training and outreach programs for recycling that is available.

   The directory could be used by local recycling officials, private industry, and others interested in locating or expanding a recycling or recycling related business within Mississippi. State regulations and programs should be continuously reviewed to insure they do not present a significant barrier to recycling.

Building Long-Term Sustainable Markets for Recyclables

In order to build a successful recycling system in Mississippi, it is critical that there are stable end-use markets for recycled materials. These end use markets can be encouraged through programs and efforts that promote the use of recycled content products by consumers, manufacturers, government, construction companies, and others. "Buy recycled" campaigns can also be used to increase awareness of recycled content-purchasing, leading to increased sales of value-added, recycled-content products and packages.

During the past few months, the Task Force identified barriers in the state that need to be addressed in order for market development efforts to be successful. These barriers included the lack of leadership from the state to develop recycling markets, the lack of education about recycled products, liability issues for companies that collect, process and

use recycled products, regulatory issues that inhibit the conversion of wastes to products, and the lack of technical and financial programs to support new recycling business startups and expansions.

Without significant state resources and leadership in the area of market development, new recycled product businesses will not develop and existing businesses will not grow or expand. Our state's focus must include a new vision and leadership towards recycling business development, research and financial assistance for emerging recycling technologies, marketing for Mississippi recycled content products, and analysis and alteration of statutory, regulatory and bureaucratic barriers to producing and using recycled products

Developing new and supporting existing recycled content product businesses reduces rate-payers' costs, creates jobs, protects resources, fosters innovation, increases our tax base and moves our state toward a more sustainable environment. These market development efforts are an integral component of a successful recycling system. The cycle of reuse begins with collection at a residence or business, transport of products to a processor, selling of a specific commodity for reuse, and the purchase of that item and its productive use. An example of the potential benefits to our state was a recent announcement by the Starbucks Coffee of Seattle, Washington that the company had gotten the approval of the U.S. Food and Drug Administration to utilize the first ever recycled-content beverage cups. Starbucks has developed a partnership with the Mississippi River Corporation (MRC) of Natchez to produce the "recycled" paper pulp that will be supplied to the paper board and cup manufacturers companies for final product development. Starbucks indicates that the new recycled content cups will reduce the company's dependence on tree fiber by more than five million pounds a year. As the announcement of the FDA approval spreads, orders for the recycled content product from MRC will likely continue to increase. With support and vision from the state of Mississippi, new product development at existing recyclers, like MRC and at other potentially new recycling companies can significantly help our state economically and environmentally.

However, without a concentrated, long-term effort to ensure that markets exist for recycled materials, the use of recycled products is subject to the sporadic market demands. A state focus for market development is needed to benefit local businesses, promote economic development where most needed, and implement lessons learned from past efforts. Currently, the state and its industries spend significant resources creating markets for products such as agricultural and manufactured products; the same commitment should be made to recycled commodities.

Recommendations

1. The Task Force recommends that appropriate programs to recruit and entice new recycling industries into our state and to encourage expansion of existing recycling industries be developed as a part of Mississippi's overall economic development efforts.

The development of long-term and sustainable markets for recycled products should be integrated into the Mississippi Development Authority's (MDA's) mission as part of its ongoing market development efforts. This mission should be implemented through a phased process, with MDA preparing an implementation plan for review and approval by the Legislature during one of the next couple of sessions. The amount of funding required for this effort will be dependent on the plan's outcome and could be provided in part by leveraging other resources (federal, private sector) to address research, development, and implementation barriers. The implementation plan would determine how to effectively and efficiently accomplish the following:

- Coordinating the promotion of recycled materials with other state economic development activities.
- Comprising a range of commodities, such as paper, glass, tires, plastics, compost, wood waste, and other organic materials
- Dedicating resources to explore and develop new and expanded market opportunities for certain prioritized and identified materials in support of the government recycling programs that have engaged their citizens in the recovery of such materials.
- Enlisting the support of programs within MDA, MDEQ and other state agencies.
- Addressing and removing regulatory barriers for the marketing of recycled materials.
- Focusing on both marketing of recycled products and economic development opportunities (i.e., attracting sustainable businesses to rural communities).
- Prioritizing efforts based on commodities where the greatest need exists and for areas within the state where the greatest economic development impact will be made.
- Working with local governments, cities, counties, port districts, planning and development districts, solid waste districts, and school districts to develop markets for recycled materials.
- Coordination of research, development and implementation activities through MDEQ with local universities and community colleges, agricultural extensions, and the private sector to manage the technical issues related to developing and expanding recycled product use. This will require a sizeable pool of available and flexible funds that can be leveraged with other resources (federal, private sector) to address research, development, and implementation barriers. (One prime example is for USM's premier School of Polymer Science to conduct specific research on plastics for the creation of new recycled products, which also results in new businesses for Mississippi.)
- Sharing data within state agencies to maximize resources and understanding of the existing recycling opportunities and businesses in the state.
- Maximizing resources by providing opportunity and encouraging industry groups and private sector businesses to participate and partially fund market development efforts.
- Researching existing models in other states and countries for examples on how to implement market development efforts, partner with private industry, and maximize available resources.

- Establishing a Private Sector Voluntary Agreements Program, perhaps with the Mississippi Manufacturing Association, the Air and Waste Management Association, certain container manufacturers, and various state agencies to utilize a certain amount of recycled materials where practical.
- Conducting technical programs for industrial managers to describe methods and technologies available to incorporate recycled materials into manufacturing processes.

2. The Task Force recommends an increased focus by the State on purchasing recycled-content products.

   The Task Force recognizes that many recycled-content products are cost effective and should be purchased, yet barriers remain that affect the ability of our recycling programs to close this loop. State agencies and local jurisdictions have enormous buying power and, by increasing their purchasing of recycled-content products, have the ability to make those products more cost effective and provide leadership to the private sector. Development of guidelines and goals for purchasing of recycled-content products will require time and resources of state agency staff. The Task Force recommends that the Mississippi Development Authority, the Department of Finance and Administration, and other appropriate state government procurement staff be tasked with:

   A. Setting progressive requirements and/or goals for state use of recycled and environmentally-preferable products. This will include:

      - Providing specific guidance and information on the purchasing and performance of recycled materials (not just a blanket or generic message to buy recycled);
      - Adding a recycling and procurement goal to MDA and DFA's performance measures for state agencies;
      - Convening workshops for other state agencies to emphasize need, approach, and process for recycled product purchasing;
      - Establishing an economic preference for recycled materials;
      - Pooling the considerable purchasing power of state agencies to purchase recycled content materials at competitive prices;
      - Cataloging recycled materials in a resource book for use by purchasing agents and updating this log annually, with an opportunity for qualified vendors to include products on the list;
      - Establishing incentives for attaining recycled content purchasing goals.

   B. Focusing on specifications, requests for proposals and qualifications processes, contractor selection and contract negotiations to remove barriers to recycled products and provide incentives for utilization by contractors and service providers to the state.

3. The Task Force recommends that State agencies develop individual agency goals for purchasing recycled-content products.

   State agencies should set goals for purchasing recycled-content products that coincide with the guidance developed by MDA and DFA. In instances where recycled-content products are cost effective and within the state's economic preference, they should be purchased. To establish recycled-content purchasing goals, DFA should convene appropriate state agency representatives to identify individual agency goals and how those goals will be met (i.e., what recycled-content products will be purchased). A review by DFA should be made at the end of each biennium to determine whether agency goals were met and what changes should be implemented. To ensure the success of these goals, the Task Force recognizes that the commitment of top-level management will be essential and encourages the management of each agency to demonstrate that commitment by ensuring that their individual goals are met each biennium.

Minimizing Environmental Impacts through Product Stewardship

A significant concept in waste reduction is product stewardship, which aims to minimize the impact of a product on the environment. The concept involves the design and manufacturing of various products so that the products are easily recyclable and the development and growth of an infrastructure to support recycling the products. Currently, in various states, local governments are partnering with the private sector to identify products to which this concept can be applied, such as computers, televisions, product packaging, and other household items.

Voluntary partnerships between the public and private sectors will be critical to the success of product stewardship. Businesses and consumers must be educated about product stewardship and its environmental benefits. Important links between market development and product stewardship should be maximized.

Product stewardship is defined as "a principle that directs all actors in the life cycle of a product to minimize impacts of that product on the environment." It is also referred to as "extended product responsibility." The concept is to encourage manufacturers to design products that are recyclable or that are more easily recyclable, and to help create the infrastructure for recycling them. This becomes especially important for products made of multiple materials, such as TVs, furniture, and other household items. In addition, some products contain dangerous materials, which are costly for local governments to handle in disposal systems. Examples of such products include computer monitors (which contain as much as 4.5 pounds of lead), used automotive oil, and lead-acid batteries. Under the product stewardship concept, manufacturers are encouraged to seek ways to reduce the toxicity of their products to make end-of-life recycling easier. Product stewardship also suggests that costs of disposal be considered in developing the product, striving to reduce them whenever feasible.

Efforts are being made by many industries to implement product stewardship in a variety of ways. Throughout the world, computers are now being designed for disassembly and reuse. Rechargeable batteries and reuse of copiers and other office machines are also examples of product stewardship. Manufacturers and retailers are using reusable crates for transporting inventory, and reducing levels of packaging wastes. Used motor oil and paint are collected in various locations for reuse, and in the technical arena, reusable plastic coolers often replace disposable packaging for water sampling. Product stewardship has potential to increase the recycling rate and reduce waste disposed, adding to the effectiveness of the State's goal to "reduce, reuse, and recycle."

Recommendations

1. The Task Force recommends the development of voluntary information-sharing partnerships to assist in product stewardship technology and information transfer.

   The state should develop an information sharing partnership program, possibly through MDEQ or a "revived" MSTAP that will encourage local and state governments, the private sector, and consumers to share information about opportunities for increasing product stewardship efforts. Local chambers of commerce and the state's Planning and Development District's could hold forums and workshops for the business community to exchange sources of information. The Stennis Institute of Government at Mississippi State University could also perhaps provide needed facilitation to these efforts between local governments and the private sector. Other information-sharing opportunities with state lawmakers should also be undertaken to increase product stewardship awareness among legislators.

2. The Task Force recommends that the state encourage research efforts, pilot programs and other projects related to the development or expansion of product stewardship efforts.

   Public/private partnerships should be sought to conduct voluntary pilot programs or projects, in which product stewardship concepts are applied locally and regionally within the state. In addition, research projects through the state's institutions of higher learning would help to assist in developing new technologies for making products safer and more easily recyclable. Input from the private sector should also be used to target especially difficult recycling and disposal problems. The results of these research projects, pilot programs and outreach efforts will promote better understanding and use of product stewardship methods as well as additional local product stewardship models that can be employed by industry in the state.

Market Development Summary

In closing, if Mississippi is to enhance our recycling and waste reduction efforts, the cooperation of the public and private sectors is vital. Therefore, opportunities for involving and partnering with the public and private sectors must be fostered and encouraged from the inception of any market development strategy to its successful

implementation. A spirit of cooperation and not coercion is always more effective if we are to attain excellence in our initiatives to enhance and grow recycling in the state. The private sector has proven its ability to develop markets for recyclables. We should learn from this experience and seek the assistance of the private sector in our efforts to increase the markets for recycled materials and for improving the efficiency of the entire recycling system. Working together – public and private – we can make Mississippi the most environmentally and economically friendly state in our nation.

VII Summary of Recommendations

The following contains a brief summary on the recommendations of the Task Force that are contained throughout this report and the corresponding page numbers at which additional information can be found on each recommendation.

Recommendations from Section I, the Executive Summary

The Task Force recommends that the Legislature re-visit the continuation or re-initiation of this Task Force on Recycling in the coming years. In its continuation, the Task Force would be expected to review our state's overall progress towards enhancing recycling conditions in Mississippi and to ensure that this report's recommendations have been considered and where possible, implemented. (Page 7).

Recommendations from Section III on Benefits of Recycling

1. The Task Force recommends that Mississippi develop a system of measuring and reporting for recycling activities to adequately quantify our recycling rate and to gauge the overall success of our state's recycling system. (Pages 30 & 31).

2. The Task Force recommends that the State establish stronger programs for assisting and encouraging the integration of recycling programs by local governments into the local, solid waste management system. (Pages 31 & 32).

3. The Task Force recommends that the State continue to study ways to resolve the fundamental conflict of landfill owners, both public and private, that need waste tonnage to keep their landfills profitable versus the state's desire to divert wastes for recycling. (Page 32).

Recommendations from Section IV on Recycling Education and Outreach

1. The Task Force recommends that comprehensive recycling education programs be developed and/or updated and integrated, as appropriate, into public education science curricula. (Page 37).

2. The Task Force recommends that additional education and outreach programs be developed and implemented by the State to encourage adult consumers to recycle. (Pages 37 & 38).

3. The Task Force recommends that recycling "best management practices" (BMP's) be developed and distributed to local governments. (Page 38).

4. The Task Force recommends that local law enforcement efforts against illegal dumping and littering be given increased priority and attention and that MDEQ should continue to work to increase the number of these officers across the state to assist in educating the public on recycling and proper solid waste management practices (Page 38).

5. The Task Force recommends that the Mississippi Technical Assistance Program (MSTAP) program or another similar technical assistance program possibly at one of the universities or at an appropriate state agency be re-organized and re-initiated (Page 38).

6. The Task Force recommends that technical assistance programs be offered to private recycling companies and to potential recyclers. (Pages 38 & 39).

Recommendations from Section V on Collection of Recyclables

1. The Task Force recommends sponsoring or developing Collection Efficiency workshops for local governments through MDEQ or one of the state universities. (Page 46).

2. The Task Force recommends that local government solid waste assistance grant funds, local government waste tire grant funds, and local government solid waste planning grant funds, provided by MDEQ, be preserved and protected from use for other purposes. (Pages 46 & 47).

3. The Task Force recommends that appropriate state assistance agencies including the State's Planning and Development Districts, the Mississippi Development Authority and the Mississippi Department of Environmental Quality, provide resources and assistance to local governments to find "non-traditional" financial assistance resources outside of the normal environmental grants provided by state agencies. (Page 47).

4. The Task Force recommends that actions be taken to ensure that all state agencies and institutions of higher learning have the recycling collection programs in place and functioning as required by the Mississippi Multimedia Pollution Prevention Act of 1990. (Pages 45 & 47).

5. The Task Force recommends that the Legislature give strong consideration to the development of a collection and recycling program for discarded electronics waste. (Page 47).

6. The Task Force recommends that MDEQ coordinate with the U.S. EPA to conduct a specialized workshop for local government officials on the option of implementing Pay-As-You-Throw programs in Mississippi. (Page 47).

Recommendations from Section VI on Market Development

1. The Task Force recommends that the State organize and implement Regional Cooperative Marketing and Processing Programs to better market recyclables. (Pages 49 & 50).

2. The Task Force recommends implementing improvements for transportation of recycled materials. (Page 50).

3. The Task Force recommends prioritizing current state grant funding assistance for local government recycling. (Page 50).

4. The Task Force recommends that the State consider the adoption of appropriate laws that offer liability protection for collectors and processors of recyclables. (Page 50).

5. The Task Force recommends that the State evaluate and expand financial assistance programs for recycling businesses. These assistance programs should include grants, loans and tax incentive programs. (Page 52).

6. The Task Force recommends that the State provide technical assistance programs specific to recycling business development. (Pages 50).

7. The Task Force recommends producing a comprehensive recycling profile of the State of Mississippi to aid in recruiting new recycling businesses to the state and to aid expansions and growth of existing industries. (Pages 52 & 53).

8. The Task Force recommends the development, publication and distribution of an enhanced Recycling Market Development Directory. (Page 53).

9. The Task Force recommends that appropriate programs to recruit and entice new recycling industries into our state and to encourage expansion of existing recycling industries be developed as a part of Mississippi's overall economic development efforts. (Pages 54 - 56).

10. The Task Force recommends an increased focus by the State on purchasing recycled-content products. (Page 56).

11. The Task Force recommends that State agencies develop individual agency goals for purchasing recycled-content products. (Page 57).

12. The Task Force recommends the development of voluntary information-sharing partnerships to assist in product stewardship technology and information transfer (Page 58).

13. The Task Force recommends that the state encourage research efforts, pilot programs and other projects related to the development or expansion of product stewardship efforts. (Page 58).