# IUSB Recycling Resolution

Committee on Recycling

August, 1995

## 1 Resolution

The Academic Senate recommends the University to prepare and implement a comprehensive recycling program within all buildings of the IUSB campus for at least the following materials: aluminum, glass, corrugated cardboard, hdpe 1 and 2 plastic, and all grades of paper. This program should begin no later than three months from the date of adoption of this resolution.

## 2 Rationale

### 2.1 Legislative

In 1990, the Indiana General Assembly enacted House Bill 1240. This bill not only instructed the state waste management board to develop rules restricting the disposal of recyclables, "It required all businesses to reduce the amount of waste incinerated and landfilled, with a specific reduction goal to be met–35% by 1996 and 50% by 2001 [3]. As a state institution, IUSB has a strong legal obligation to comply. The policy proposed here will start IUSB in this direction. The entire campus community, however, must acknowledge and support the campus recycling effort if IUSB is to meet these reduction goals. As detailed in Section 2.4, there is strong evidence that significant support already exists.

### 2.2 Environmental

#### 2.2.1 Virgin Feedstock

Current usage of virgin feedstock for finished goods is likely to be unsustainable, even in the near future. "According to Ray H. Killam, a recent speaker at a SPEA colloquium, the U.S. consumes one-third of the world's paper with only five percent of the population [1]. According to Earth Day 1990 [2] "Americans throw away over four and a half million tons of office paper every year. If all this paper were recycled, we would save 75 million trees."

There are also significant energy costs associated with disposing of recyclables. The Hoosier Environmental Council (HEC) estimates that 100 gallons of gasoline are saved by every ton of newspaper recycled. According to Earth Day 1990 [2], "throwing away one aluminum can wastes as much energy as if the can were half full of gasoline." They further state that "recycling aluminum uses only 5 percent as much energy as refining new aluminum. Americans threw away 35 billion aluminum cans last year [1989]. Had we recycled all these cans, we would have saved an amount of energy equivalent to 150 Exxon Valdez oil spills." Earth Day also estimates the energy savings resulting from recycling the office paper used each year would be "enough energy to heat 2.3 million homes." [2]

#### 2.2.2 Landfilling and Incineration

According to the Environmental Protection Agency (EPA), 11 billion tons of industrial, agricultural, commercial and domestic wastes are produced in this country every year. About 38 percent of these wastes are solid wastes that must be incinerated, landfilled, recycled or disposed of in some other way [3, p1].

A 1992 EPA study found that in the United States incinerating accounts for 14% of solid waste disposal, landfilling accounts for 73% of solid waste disposal, and recycling accounts for 13% of solid waste disposal [4, p15].

Toxic air pollutants released by the incineration process [4], as well as toxins in the ash [5] are a cause for concern to public health. In addition, because the toxic ash, 10 - 50% of the original waste volume [4], would cause problems at a landfill it must be treated as a special waste and be disposed of in a more costly manner [6].

Landfills also pose public health concerns, due to the inclusion of hazardous materials, toxic leachate that results from decomposing waste and water, and methane gas that results from decomposing organic waste. These hazardous materials can leak from a landfill into the community water supply through the groundwater beneath the landfill [5, p12].

Landfill capacity is currently being filled faster than it is being created. Of the 5,499 landfills operating nationwide in 1988, the EPA forecasts that 3,342 will close by the year 2000 [4, p21]. In 1992, only 76 of the 150 landfills in Indiana that existed in 1980 were currently in operation, with a remaining capacity of only six years [7, p48]. The Indiana Department of Environmental Management (IDEM) has stated that unless new landfills are built or existing facilities expanded, up to 54 Indiana counties may soon be without accessible landfill facilities [8, p2]. Due to this diminishing capacity, tipping fees are increasing at a fast rate, as high as $100 or more per ton in some states [6], with the rates being $25/ton in Saint Joseph County.

### 2.3 Leadership

According to a survey conducted in the Spring of 1993, all seven of the other IU campuses have comprehensive recycling programs in place, most for at least five years. (See Appendix A.2 for a copy of the survey questions and responses). Clearly, IUSB has not taken a leadership position throughout the system in initiating recycling. However, IUSB can nonetheless exert a leadership role within a city that has yet to implement curbside recycling. By establishing a concerted recycling effort, IUSB will be setting a good example for other area organizations to follow.

Furthermore, in addition to the word-of-mouth publicity these types of activities would generate, IUSB could publicize its recycling program in campus reports, advertisements, brochures and newsletters. Media coverage could also be counted on. Reports on the University of Notre Dame recycling program were featured on local radio and television and in local newspapers, The Indianapolis Star and Technical Review magazine [9].

### 2.4 Support

The Committee on Recycling conducted a survey in the spring of 1993 to measure campus support for a recycling program, and to gauge the amount of effort individuals would be willing to expend in order to comply, (e.g., having recyclables picked up in one's office, taking one's own recyclables to a centralized area and sorting them). A copy of the survey can be found in Appendix A.3, along with a compilation of the results. A copy of the survey was mailed out to all Code I and II individuals, numbering approximately 800 people. Of the 231 received, 93% favored an institutionalized recycling program on campus, and 85% indicated a willingness to sort their recyclable materials within designated bins in their area.

Although there is likely to be selection bias with this voluntary survey, we nonetheless view the results as indicative of strong support by the faculty and staff. Given such support, the likelihood of individual participation in a recycling program, even one that involves individual sorting and transporting of materials a short distance, is quite high.

Student support has also been high. Students organized the Committee on Recycling (composed of members of the faculty, staff, and student body) from which this report comes. In addition, in the spring of 1993, petitions were sent to the chancellor's office with several hundred student signatures indicating support for a campuswide recycling program (see Appendix A.6 for a copy of the petition).

## 3 Current Recycling Program

IUSB currently has a recycling program, although it is neither comprehensive nor institutionally supported. The program consists of two components–a separate program for aluminum and a combined program for paper and corrugated cardboard. It is administered by Kathy Wickler, the IUSB Special Events/Support Services Coordinator, and is carried out using one paid employee (for whom recycling is only one of many duties) and one volunteer.

The aluminum recycling program, which began in January of 1990, consists of seven 55-gallon aluminum can collection bins located throughout campus. Since January of 1993, the collection bins have been periodically checked by Frank Earl, a Support Services employee. When the collection bins are full, Mr. Earl removes the bagged cans, and transports them to the Northside loading dock until a quantity sufficient for delivery to South Bend Waste Paper has been gathered.

The combined recycling program for paper and corrugated cardboard began in February of 1994. The paper portion of the program operates in a manner similar to the aluminum recycling program. Six 32-gallon and four 23-gallon paper collection bins have been placed throughout campus. Frank Earl and Albert Peiffer, a Custodial Services employee assisting as a volunteer, check the paper collection bins. When full, the bags are removed, transported to one of two six-yard recycling dumpsters located next to the Administration Building and near the Northside Hall loading dock, and emptied twice a month by Superior Waste Systems. The corrugated cardboard portion of the program operates by the simple mechanism of requesting that the custodial staff, who are responsible for breaking down all boxes, dispose of the corrugated cardboard in the recycling dumpsters.

Despite the good intentions of those implementing the current recycling program, it has few of the features that characterize other successful recycling programs. The director has worked without support from an advisory committee (as suggested by IDEM [10]) and without a clear sense of mission. The director has not been empowered to negotiate new agreements with recycling vendors and waste haulers, nor has she been authorized to institute changes in waste-handling and custodial

training. No budget has been allocated for either the start-up or ongoing costs. There are too few collection bins to adequately cover the entire campus. No educational materials have been provided to the campus community, informing them about the program and how they can participate. Only paper, cardboard and aluminum have been included, without regard to the volume of other recyclable materials in the current waste stream. No changes in accounting have been initiated in order to track the economic costs and benefits of the program. And lastly, there has been insufficient support by the administration. "No office recycling program can succeed without the active support of top management from the beginning."[10] In the following section, a recycling plan is proposed that overcomes these deficiencies.

# 4 Proposed Recycling Program

The following discussion is not intended as a rigid specification for how a comprehensive campus-wide recycling program at IUSB should be administered. It is meant simply to outline some of the key issues that need to be considered in and addressed by such a program. Additional detailed study officially conducted by the university may be required and would undoubtedly be tremendously beneficial.

## 4.1 Materials

In preparation for a new recycling program, a solid waste audit should be conducted by the university to analyze the types and quantities of materials in the campus's solid waste stream. Both BFI, IUSB's current general waste hauler, and Superior Waste Systems, IUSB's current recyclable waste hauler, offer free waste audits to their customers. Detailed information should also be obtained from potential purchasers of recyclable materials. This information should include the prices these vendors are currently paying for recyclable materials, requirements they have for the acceptance of materials, support services they offer, and other details specific to their operation.

A partial audit conducted by BFI during the 1993 academic year, estimated that at least 65 percent of IUSB's solid waste consists of paper and corrugated cardboard. This high volume of paper and its high-density use areas (such as copy rooms and computer labs), make a paper recycling program attractive. Furthermore, the market for recyclable waste paper has traditionally been stable [11]. The market is anticipated to expand in the future as new waste paper processing techniques are developed and the demand for recycled paper products increases [11].

An aluminum recycling program at IUSB, too, holds promise. This is true primarily for two reasons. First, unlike paper which has many quality grades and collection requirements, collecting aluminum cans is simple and clear. Second, aluminum has a high, relatively stable market value. According to the Wall Street Journal, aluminum is the most cost-effective material to recycle.

## 4.2 Buildings

Ideally all campus buildings would be included in the new recycling program. It should be kept in mind, however, that any building involved must meet certain basic requirements. It must have adequate space for the placement of a sufficient number of recycling bins throughout the building. These bins should be convenient for use by the buildings occupants and should allow for ease in the removal and transportation of their contents. Furthermore, their placement must meet all building safety and fire regulations.

Every building, however, need not meet these requirements in the same way. Each building can have plans tailored to meet its specific needs. By identifying the sources of the various types of waste materials in the solid waste audit, collection facilities can be efficiently allocated–all buildings need not have collection sites for every recyclable materials.

## 4.3 Organizational Structure

### 4.3.1 IUSB Administration

Solid organization and support are key to the success of the new recycling program. The commitment and cooperation of the IUSB administration will be key factors. The administration can do this by adopting a formal recycling plan with specific goals and objectives .

### 4.3.2 Recycling Coordinator

For a campus recycling program to succeed in the long run, a recycling coordinator dedicated to and enthusiastic about the concepts and goals of recycling must be appointed. The coordinator will be directly responsible for the development, operation and management of the recycling program. This person must be empowered to effectively carry out their responsibilities.

### 4.3.3 Recycling Committee

The committee should be composed of members of the faculty, staff, (including at least one member of the custodial staff), and student body. In addition to providing general support and assistance to the coordinator, the recycling committee will have several key functions. First, it will be responsible for recruiting and educating a sufficient number of recycling representatives (detailed below). Second, it will provide the campus community with the initial instruction and the subsequent on-going publicity vital to the success of the new program. Finally, the committee must seek to identify problems and facilitate changes in the program as it grows and develops. The committee can do this by soliciting and responding to feedback from the representatives, custodial staff and members of the general campus community.

### 4.3.4 Recycling Representatives

To foster organization and communication, the new program should strive to provide everyone on campus with access and exposure to at least one recycling representative. To do this, a wide network of volunteer recycling representatives must be established–every academic division and every administrative department should have at least one representative.

The representatives should serve as the eyes, ears and mouth of the recycling program. In addition to providing the essential feedback on day-to-day operations , the recycling committee should educate their colleagues, answer their questions, and relay their concerns. Recycling representatives should also provide their colleagues with important encouragement and motivation. Finally, the representatives should be responsible for supervising and maintaining the recycling bins in their immediate area.

We recommend that representatives be rewarded for their role in the recycling program, with recognition the most likely form of this reward. Consideration should be given to rewarding the those areas (and the associated representative(s)) showing most improvement, highest amount of per capita contributions of recyclables, and those that rank highly using similar such metrics.

### 4.3.5 Custodial Staff

The custodial staff must be involved in the new recycling program. This may require some significant changes. These details will have to be worked out by the administration and the Facilities Management Department. After this restructuring, the director of custodial services and the recycling coordinator and committee should meet with all custodial staff members. At this meeting, the specifics of the new recycling program and the revised duties of the custodial staff should be clearly explained. The custodial staff should be encouraged to cooperate with the program and provide feedback and recommendations to the representatives, committee and coordinator.

### 4.3.6 Students, Faculty and Staff

Obviously in order to be a success, the new recycling program needs to be understood and supported by all parts of the university community–the administration, the professional staff, the faculty and the student body. A high participation rate and an improved commitment to recycling should be fostered through the use of educational materials, notices, publicity items and word of mouth. Like the custodial staff, the entire campus community should be encouraged to participate in the program and provide beneficial feedback and recommendations.

## 4.4 Set-up and Execution

### 4.4.1 Central Collection Bins

A major feature of the new recycling program should be a drastic increase in the number of collection bins. Increasing the number of bins would serve two important functions. First, it would increase participation by making recycling more convenient. Second, it should increase public awareness by making recycling more visible. Recycling bins should be placed in consistent and convenient locations around campus. For example, collection bins for aluminum cans should be placed near every can vending machine, by every elevator, in every lounge and in other areas deemed appropriate. Standard trash cans should be placed near all recycling bins to minimize incorrect usage of these special containers.

### 4.4.2 Collection of Recyclable Materials

The custodial staff will be asked to develop a schedule and routine for emptying these collection bins. Currently, custodial staff members transport full bags of garbage to a central collection area within the building from which a staff member removes them on a large cart, as detailed in Section 3. A system virtually identical to this should prove successful with recyclable materials. To prevent confusion, translucent garbage bags should be used in all recycling bins and opaque bags should be used in standard trash cans.

### 4.4.3 Storage of Recyclable Materials

When removed from the building, recyclable materials should be transported to a central storage facility and deposited there until a quantity sufficient for transportation to a vendor exists. These storage facilities should be accessible and should be located such that they can be locked and easily cleaned and maintained. Furthermore, as mentioned earlier, these storage facilities must meet all relevant safety codes.

### 4.4.4 Transportation of Recyclable Materials

Methods for transporting recyclables from the campus storage facility to vendor sites will need to be developed separately for each material. Some vendors may provide collection and transportation services while others may require materials to be brought to them. In such instances, the IUSB stake-bed truck used for transporting aluminum cans in the current system might be employed.

## 4.5 Education and Promotion

In order to improve the recycling program at IUSB, the campus community must be well-educated and well-informed. The Student Association could contribute much to this effort. Official notification of the new program endorsed by campus leaders supporting the program should be provided. Furthermore, educational materials clearly explaining the benefits, procedures and requirements of the new recycling program should also be developed. These materials could be provided in campus mailings, distributed on campus, or presented in educational sessions. Periodic reports on the performance of the program and on-going updates on policies, participation and improvements are important to the program's continued success.

## 4.6 Budgeting and Accounting

A budget detailing cost estimates for personnel, equipment, facilities and other expenses should be developed by the administration, the recycling coordinator and other concerned parties. The budget should identify both anticipated start-up costs and projected operating expenses. It should also attempt to predict revenues from the sales of recyclable materials and other sources of income.

In addition to accurate accounting recordings of all revenues and expenditures, detailed descriptions of the types and quantities of materials being collected should also be kept. This information will allow the recycling program to be monitored and evaluated for both technical and economic effectiveness.

## 4.7 Funding

### 4.7.1 Revenue from the Sales of Recyclables

A primary source of funding for the new recycling program should come from the revenue generated by the sales of recyclable materials. In the current system these revenues are placed into a scholarship fund that provides $500 for a student who has achieved at least junior standing with an active interest in environmental issues. A recycling fund administered by the recycling coordinator would allow for purchases necessary to the efficient operation of the recycling program.

In the new program, aluminum sales should serve as a substantial and reliable source of income for the recycling fund. In the 1994 calendar year, IUSB received $558.23 from South Bend Waste Paper for aluminum. In an effort to calculate potential revenue gains, an extremely conservative vending machine delivery/sales figure of 960 cases a month was used as an estimation of the number of cans on campus. Using 27 cans per pound of aluminum as a conversion, it was determined that 8,533.33 pounds of aluminum cans were on campus last year. Using these numbers, it was estimated that an optimistic 19.35 percent of all cans on campus was recycled. Using a low average value for the price paid for aluminum, results in a figure of $2,463.70 in lost potential revenues from the unrecycled 80.65 percent of cans.

After completion of the initial waste audit, it is possible that IUSB will receive money from paper recycling as well. It is roughly estimated that one trailer load of paper should generate between 50 and 100 dollars for the recycling fund (Shulman).

### 4.7.2 Waste Diversion Credits

Waste diversion credits are costs avoided by the recycling program. They result from the removal of recyclable materials from the general waste stream. The decrease in materials being disposed of as general waste may allow the number of dumpsters on campus and/or their pick-up frequency to be reduced. This would save money in the general waste budget. Since these savings would be a direct result of the new recycling program, it is appropriate that they be channeled into the recycling fund.

### 4.7.3 Solid Waste Management District Partnerships

The Solid Waste Management District of St. Joseph County offers "partnerships" to area businesses and organizations striving to establish waste reduction/recycling programs. The partnerships, while informal (there is no official policy) can be tremendously beneficial. The Solid Waste Management District (SWMD) typically provides informational materials, support and expertise. It is also possible to obtain some funds for the purchase of equipment vital to the recycling program. It is recommended that the Recycling Coordinator establish a relationship with SWMD as early as possible.

### 4.7.4 Indiana Recycling Grants Program

The Indiana Recycling Grants Program, administered by the Indiana Department of Environmental Management, is designed to encourage the development and expansion of waste reduction and recycling programs. To date more than $5.1 million have been awarded to over 300 programs. The grants, open to public agencies and not-for-profit organizations, are awarded on a competitive basis. Universities are eligible and, in fact, a number of awards have been granted for establishing campus recycling programs. Indiana State University, Indiana University, Indiana University-Purdue University at Indianapolis, the University of Notre Dame and Purdue University have all received grants. Any applicant can request a maximum grant of $150,000. A key provision is the requirement for 50% matching funds – the maximum grant awarded will be half of the total project cost. However, the grant allows half of the university match to be from in-kind contributions. Appendix A.4 has a blank application from 1993, and a copy of the completed application that was awarded to IUPUI in 1992.

# 5 Future Directions

There are a number of related directions that the University might consider in the future that would extend the successes of an effective recycling program.

**The Three R's: Reduce, Reuse, Recycle**

Effectively managing our resources involves the reduction of source materials, finding ways to be more efficient with the materials that we use. In addition, many materials can be effectively reused rather than placed in the waste stream. There are additionally secondary markets for recycling common office materials, such as toner, and outdated computers and photocopiers. At IUFW, one individual is charged with overseeing the disposal of surplus and salvage equipment, and has had success at finding markets for many of these items (see intercampus survey, Appendix A.2).

**Energy Efficiency**

Energy is a critical resource that the University can more effectively utilize. There is likely considerable on-campus interest and expertise in how this can best be done.

Closing the Loop

Purchasing materials manufactured with recyclables increases the demand for the recycled goods, and helps provide a more stable economic environment that will encourage companies to use recycled materials for manufactured good. There are already several excellent references available for facilitating the meeting of buyers and sellers in this market[1].

# 6 About this Document

Several individuals have contributed their time and effort toward the goal of having a comprehensive recycling program at IUSB. The initial effort in forming CORE, The Committee on Recycling was by Ruth Dilley and the IUSBe Greens. CORE met weekly during the Spring and Summer of 1993, and its members included Roberta Ashley-Hall, Cindy Sutton, Linda Schultz, Albert Peiffer, Kathy Wickler, Liz Haley, Chris Friedman, Josh Tenenberg, and Vic Reimenschneider, with Ruth Dilley chairing the meetings. CORE members carried out the surveys described in the appendices, formulated the objectives and rough outline of the recycling program proposed above, and established contacts with people involved in recycling, not only at other campuses within the state (including all others within the IU system), but within the St. Joseph Solid Waste District, the Indiana Department of Environmental Management (IDEM), the Hoosier Environmental council, Superior Waste Systems and BFI. In addition, CORE members obtained most of the supplementary documents included in the appendices.

An initial but incomplete draft of this resolution was compiled by Josh Tenenberg in the summer of 1993, summarizing the efforts of CORE. This draft languished for almost two years, during which time Kathy Wickler carried out the current recycling program from her position within the Facilities Management Department. In the spring of 1995, Brian Beutter, a student in SPEA, wrote an Environmental Policy Paper for his V520 class in which he made suggestions for improving the current recycling program. During the summer of 1995, with the encouragement of past CORE members and of current SA

[1] For more information, contact Recycling Market Development Program, Indiana Department of Commerce, Office of Energy Policy, One North Capital, Suite 700, Indianapolis, IN 46204. (317) 232-8940 or (800) 362-4631. Also, see Appendix A.5.

president Allen Boykens, Kathy Wickler, Brian Beutter, and Josh Tenenberg resurrected CORE for the purpose of finishing this document for presentation to the university's governing bodies. Finally, this document was compiled by Josh Tenenberg and Brian Beutter, by combining Brian's SPEA paper and the earlier CORE draft.

This document can also be accessed via the World Wide Web via

`http://phoenix.iusb.edu/josh/comm/core/resolution.html`

# References


[1] *IUB Newspaper*, March 3 1991.

[2] Earth Day. *Workplace Audit*, 1990.

[3] The Solid Waste Management District of Saint Joseph County. *Profiting From Waste Reduction in Your Business.*

[4] J. Carless. *Taking Out the Trash: A No-Nonsense Guide to Recycling.* Island Press, 1992.

[5] D. McVicker. *Easy Recycling Handbook.* Grassroots Books, 1994.

[6] The Indiana Department of Environmental Management. *Office Recycling Video.*

[7] Jim Glenn. The state of garbage. *Biocycle*, pages 46–55, April 1992.

[8] The Indiana Recycling Coalition and The Indiana Department of Environmental Management. *The Indiana Recycling Handbook*, revised first edition edition, 1991.

[9] P. Ruesch. *Recycling Report to the University of Notre Dame Recycling Committe*, August 15, 1991.

[10] The Indiana Department of Environmental Management. *Recycling: how to do it at the office.*, 1991.

[11] Michael Alexander. The challenge of markets. *EPA Journal*, pages 29–34, July/August 1992.

[12] The Indiana Institute on Recycling. *The Financial Design of Recycling Programs*, 1991.