

SOLID WASTE MANAGEMENT
IN RURAL OHIO:
THE "GREEN BOX" STORAGE
AND COLLECTION
CONCEPT

by

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Introduction

The desire to improve the environment and to eliminate the nuisance of clean-up costs associated with the open dumping along rural roads in rural areas in Ohio has led to a search for a more satisfactory method of managing solid waste.

The Ohio General Assembly passed two laws in 1967, a Solid Waste Disposal and the Anti-Stream Dumping Law [6]. The Solid Waste Disposal Law provided for the licensing of all solid waste disposal sites and facilities and for the inspection of such places. The Anti-Stream Dumping Law prohibits dumping of refuse into or alongside lakes, ponds, ditches, and streams or on the area that normally floods annually. Passage of these two laws points up dramatically the concern that Ohio citizens have about managing our solid waste.

Since the 1967 legislation, most counties in Ohio have established sanitary landfills to dispose of solid waste. In addition the number of local, private, and township dumps has been reduced from around 900 to 65 [8]. The closing of local community dumps requires many rural residents to drive several miles to the sanitary landfill. This is inconvenient and unsatisfactory for many rural people because of the distance. One of the results has been an increase in dumping of solid waste along back roads and isolated areas in many rural areas.

Accordingly, a major problem facing rural counties today is the collection of solid waste. Many rural Ohio residents are without a public or private collection system.

Storage, Collection, Disposal and Recovery of Solid Wastes

In the 1967 Solid Wastes Disposal Law, "Solid Wastes means such wanted residual solid or semisolid material as results from industrial, commercial, agricultural, home, and community operations, excluding earth material from construction, mining, or demolition operations and slag and other substances which are not harmful or inimical to public health and includes garbage, combustible and noncombustible materials, street dirt, and debris" [9].

Solid waste storage is the placing and keeping of accumulations of garbage and other refuse in containers by a household or business between the time it is produced and collected. Even though storage is often overlooked, it may be the most important phase of the solid waste program from the standpoint of controlling disease carrying rats and flies. Storage containers include metal and plastic cans, plastic bags, bulk refuse boxes, etc.

There are several methods of providing solid waste collection service. The public type of service is owned and operated by a city, village, township, county or special sanitary district. It is also possible for one of these political subdivisions to contract with an individual or private company to collect solid wastes according to conditions stated in a contract. A private collection service owned and operated by an individual or private company may also be employed. This service is usually paid for directly by the individual customer. Finally, individuals may provide their own collection service. Collection is the most expensive stage and may account for as much as 80 percent of the total costs of solid waste management [1].

The primary methods of solid waste disposal or recovery include sanitary landfills, incineration, composting, and salvaging and recycling [3]. Under the sanitary landfill method, the solid waste is dumped, spread, compacted and covered with earth at the end of each day. This is the most common and feasible method of solid waste disposal in Ohio, particularly for rural areas. Incineration is quite costly, composting is not appropriate for the large proportion of non-organic solid wastes and salvaging and recycling have not had a significant impact, to date, on reducing the volume of solid wastes.

The "Green Box" Concept

The "green box" concept refers to the use of bulk refuse containers for solid waste storage in rural areas. Bulk refuse boxes have previously been used to service various commercial establishments, schools, etc. However, Chilton County, Alabama was the first area in the country to implement a system of bulk refuse boxes to service a rural area. The original boxes were painted green which is the reason for the "green box" terminology [2].

Bulk refuse containers are covered, leakproof metal boxes holding two or more cubic yards of solid waste. These containers can be picked up and carried away by a special truck. More typically they are mechanically dumped into a garbage truck and returned to their convenient location for consumer use.

Chilton County, Alabama has 92 bulk refuse containers or "green boxes" distributed over 700 square miles of area. Most of the "green boxes" are located on paved roadside turnoffs. About 95 percent of the

county residents are no more than five miles from a container, and 50 percent are closer than 1.6 miles. Containers are emptied three times per week and it is estimated that 90 to 95 percent of the 17,000 rural residents in Chilton County are using the containers.

Project leaders in Chilton County fenced off a hilly, well-drained site on county land for the landfill. They bought a bulldozer, packer truck, and waste containers for \$94,300 and spent another \$51,200 on construction and facilities, including \$11,000 to seal old dumps. They estimate the \$5,000 landfill site will last 10 years and be worth \$75,000 as real estate when it is filled to capacity and leveled.

Annual capital and operating costs for the Chilton County rural solid waste disposal systems are approximately \$5 per ton for the storage and collection phases and \$1.50 per ton for the sanitary landfill operation. This averages about \$7 per year per rural family.

A project similar to the Chilton County, Alabama "Green Box" project has recently been implemented in two townships (Clinton and Plain) in Wayne County, Ohio. The project is a cooperative effort of county and township officials, a private hauler, County Health and Highway Departments, Soil Conservation Service, 4-H, and the Department of Agricultural Economics and Rural Sociology at The Ohio State University. County agent, Doyle Findley, has been the primary organizer of the project. The Timken Company in Canton, Ohio, donated \$500 which has been utilized for leaflets, signs, etc. County and township governments are sharing the remaining development costs of the "Green Box" sites and the other costs for the first year's operation [13].



Open dumping situation



A "Green Box" site in Wayne County, Ohio



Truck emptying "Green Box"

A graduate student in the Department of Agricultural Economics and Rural Sociology at O. S. U. is doing an evaluation of the Wayne County "Green Box" pilot project including its impact, if any, on roadside littering, level of use, and private and public costs. This analysis should be completed and published by August 1, 1973.

Steps to Consider in Solving a Solid Waste Problem

1. Local leaders, officials (county commissioners, township trustees, and mayors), and agencies (Extension, farm organizations, F.H.A., S.C.S., etc.), agree that a problem of solid waste management exists in the county.
2. Officially document the waste management problem. A survey can be used to help delineate the problem (see attached solid waste survey form).
3. Key people may be invited to attend a meeting to discuss the solid waste problem. Example: health department, township trustees, county commissioners, engineers, highway department, U.S.D.A., and rural organizations such as the Farm Bureau and Grange.
4. If local leaders, officials, and agency people decide the solid waste problem should be solved, a study by an appointed committee or planning commission can be made to explore alternative solutions and to develop a proposal in writing for presentation to the public [3, 10].
5. Once the proposal has been documented, one or more well publicized public meetings may be called to inform the people. Citizens should be encouraged to express their opinion about the problem and the proposed solutions at the public meetings.
6. Local leaders, officials and agency people should consider the varied opinions of citizens in making a decision on the waste management problem.

7. Financing initiation and continued operation of the solid waste proposal must be given major consideration once the decision is made to correct the problem [9].

8. The agency people (Extension, S.C.S., F.H.A. and farm organization) can assist in developing educational materials to help explain the solid waste management program to the people.

9. Follow up after the plan has been implemented is desirable to see that the program is operating properly and to field questions from the general public.

A Sample Community Survey on
Solid Waste Management

County _____

Community _____

1. Is there evidence of roadside littering in your community? ☐ Yes ☐ No
2. Is there an agency which collects the garbage and trash? ☐ Yes ☐ No
3. Is this at a reasonable cost? ☐ Yes ☐ No
4. If your answer is yes, is this a public or private service? ☐ Private
☐ Public

If public (check one) City ____, Village ____, Township ____, County ____,
system of operation.
5. If you have a pick-up service, what is the cost of this service?
\$ _____ per _____ (length of time).
6. If your answer is no to question #1, what disposal procedure is used?

7. If there is a pick-up service, how often is the refuse picked up?
☐ Once a week ☐ Once every 2 weeks ☐ Longer
8. By what means is the refuse taken to the disposal site?
☐ Private car ☐ Open truck
☐ Packer truck ☐ Other (specify) _____
9. Do you have any unusual features or problems with your waste disposal?
☐ Yes ☐ No Comment: _____
10. Does the method of disposal frequently create an undesirable odor in
the community? ☐ Yes ☐ No
11. Are people concerned about the availability of disposal sites in your
community? ☐ Yes ☐ No
12. Is backyard burning permitted in your community? ☐ Yes ☐ No

Comment: _____

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