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CURRENT LEGISLATION AND PRACTICE OF COMPULSORY RECYCLING: AN INTERNATIONAL PERSPECTIVE†

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AN OVERVIEW—THE COMMON SENSE OF COMPULSORY RECYCLING

The environmental effects of unrestrained virgin materials use have become one of the most troublesome aspects of environmental quality control, and one of the most resistant to non-legislative resolution. It is perhaps a sign of the times that while modern industrial societies have been experiencing shortages of virtually every natural resource, more and more of those resources are wasted every year. Waste is an essentially undiscovered resource and, to date, it is increasingly unrecovered. Many nations are facing energy shortages and at the same time producing at an ever increasing pace a veritable glut of solid waste residuals and other forms of waste and litter. In the United States, for example, production of solid waste alone approached three and one-half pounds per day per capita in 1971.¹

Two principal economic stimuli could bring about a timely solution to the recovery problem: one would arise from the very real possibility of a raw materials crisis if consumption of virgin materials continues unabated at the present rate, or even increases as expected.² The second stimulus would arise through the energy saving potential of recycling materials. It is clear that in this, as in other areas, legislation could serve to speed up the overall process of materials recovery by superimposing on the economic and technological setting a series of restraints and incentives for cutting back on waste production.

The cost-benefit ratio within such legislation should be quite favorable. A brief review of the environmental effects of unrestrained virgin materials use is useful to place the problem in perspective and to demonstrate its susceptibility to legislative action in one form or another.

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1. E.P.A., 2ND REPORT TO CONGRESS—RESOURCE RECOVERY & SOURCE REDUCTION, S.W. 122, p. 4 (1974).

2. On the economic and technical issues associated with resource recovery, see *The Hang-Ups on Recycling*, 18 ENV'T'L. SCI. & TECH. 1015 (1975).

The principal substantive problems relating to unrecovered waste material are: litter, solid waste, resource loss, energy, and consumer costs. Beverage containers and other recoverable packing materials account for a large proportion of litter, much of which could be reduced by properly structured returnable container legislation. While elimination of all man-made litter is a desirable objective, it probably is an unrealistic goal for the purposes of proposed legislation. The basic problem is that voluntary disposal simply is not working satisfactorily; returnable container legislation or "bottle bills" may be able to reduce container litter sufficiently to justify their worth as an environmental measure.

Quite apart from the validity and comprehensiveness of doomsday energy projections, there exists adequate evidence to suppose that large-scale recovery schemes can save significant amounts of energy. A recent U.S. Environmental Protection Agency (EPA) study found that the container industry alone is responsible for 0.6 percent of total U.S. energy consumption, and that 57 percent of that figure (or slightly more than 3 percent of the nation's primary energy) could be saved by switching to a total returnable/refillable bottle system. This figure reflects 244 trillion BTU's, or an energy savings equivalent to 115,000 barrels of oil per day—42,000,000 barrels of oil each year.³

Until recently, little public attention has centered on the startling growth of solid waste matter in the environment, due to the general increase in throw-away packaging being accompanied by a corresponding increase in waste generation. Modern societies appear to take industrial pride in the fact that, after a single use, we dispose of a container that may cost more than the actual contents of that container. Particularly troublesome is the fact that not only is convenience packaging expensive in itself, but it fills dumps with relatively valuable resources. Additionally, the net costs resulting from solid waste disposal are phenomenally high, and increasing. There have been notable successes with solid waste recycling legislation which have reduced effectively the number of "one-way" items that enter the solid waste stream, as well as the associated disposal costs, thus supporting the idea that the best way to "dispose" of a material may be to recycle it.

There is a great deal of consumer cost associated with unrecovered resources. With beverages, for example, it is intuitively clear that as long as handling and transportation costs are less than the cost of a new container, it is less expensive to package beverages in returnable

3. Lowe, *Energy Conservation Through Improved Solid Waste Management*, OFFICE OF SOLID WASTE MANAGEMENT PROGRAMS, E.P.A. 2 (1974).

bottles. Finally, there is a high rate of depletion and dispersion of resources attached to the unrecovered wastes problem. The cost of acquiring basic materials inevitably must rise in the future. Given impending shortages, the situation is such that across the board recycling legislation has much to recommend it.

THE TREND TOWARD COMPULSORY RECYCLING—AN EMERGING MOVEMENT

Combatting Convenience Packaging: Anti-non-returnables Legislation

There appears to be a movement toward a deposit system on certain types of packaging utilized in the consumer marketplace. The beverage container controversy, as the most visible and seriously contested solid waste issue, illustrates many but not all of the current issues associated with solid waste management problems. The movement described here probably is more an emerging trend than a widespread phenomenon. The future of recycling legislation will turn upon its relative success in those jurisdictions which have gone forward with programs in this vein. In the United States, for example, headway in bottle legislation has been somewhat slow, probably because legislation that has been passed and is operational has so far been in the less industrialized states.

Legislation is now in effect in several U.S. jurisdictions, including Oregon (1972), Vermont (1973), South Dakota (1973), Michigan (1976), Maine (1976), Delaware (1978), Iowa (1978), and Connecticut (1978). Legislative treatment of the subject was in progress in 1979 in Illinois, Massachusetts, Ohio, and Washington. Three provinces in Canada have such legislation, as do Norway and Sweden.⁴ It will be of particular interest to examine briefly the existing legislation and resulting experiences in Oregon, Vermont, and Ontario, Canada. These jurisdictions have led the way in the United States and Canada in the initiation and implementation of compulsory recycling schemes.

Under Oregon's "bottle bill,"⁵ all carbonated beverage containers—cans or bottles—have a refund value. A grocer must redeem any beverage container if he stocks that particular brand in that particular type and size of container or package. The bill also provides for redemption centers where consumers may return beverage con-

4. The Organization for Economic Cooperation and Development (OECD) is currently engaged in a study of the beverage container issue, including an analysis of experience in the United States and elsewhere.

5. H.B. 1036, October 1, 1972.

tainers, and it further establishes a procedure for certifying containers which may be used interchangeably by several manufacturers. Cans with detachable self-open tabs are prohibited. Because this shift in containerization cuts down on the production and use of containers, concomitant reductions occurred in litter, solid waste, and energy consumption. As a control device, the measure has been superbly successful—beverage container litter fell by two-thirds. Impressive savings also were noted in the solid waste⁶ and energy consumption⁷ areas.

Distinct from Oregon law, the Vermont legislation⁸ neither bans the pull tab cans nor provides for standardized containers, nor is there a provision for setting up redemption centers. Vermont requires a mandatory minimum five cents deposit on all soft drink and beer cans and bottles. Prior to implementation of the deposit provision, a 4-mill tax, allocated for solid waste disposal costs, was levied against all non-biodegradable beverage containers. This requirement was suspended, however, with the imposition of the deposit requirement. Conclusions about the efficacy of the Vermont law are difficult to draw. There is not much raw data yet, but for purposes of reviewing the legislation as a second prototype in the United States, a few general statements can be made. First, the bill appears to have been effective in reducing litter, much as could have been anticipated; it also appears to have demonstrated a flexibility in a market system in which the returnables concept had long been discarded. Finally, despite the marginal inconvenience and expense, the general public appears to support the shift to a deposit-based system.

In Ontario, similar provisions are being put into effect through regulation. A new regulation⁹ provides for province-wide availability and use of carbonated soft drinks in refillable containers, thus effectively reducing use of environmentally undesirable non-refillable containers. The regulation requires the display and sale of refillable bottles wherever soft drinks are sold, and it sets up a mandatory deposit and cash refund system on all soft drink containers. Like the Oregon law, it also bans soft drink and beer cans with detachable pull-tab openers. These new controls will have a wide ranging effect on recovery and reuse of valuable materials, energy, and labor. The

6. Waggoner, *Oregon's "Bottle Bill"—One Year Later*, ORE. ENV'T'L. COUNCIL, 21, 22 (1973).

7. GUDGER & BAILES, *THE ECONOMIC IMPACT OF OREGON'S BOTTLE BILL* 19, 21 (1974).

8. Vt. Stat. Ann. tit. 10 §1522 (1977).

9. "Containers" regulations (O. Regs. 687-76) as amended, authorized under and issued pursuant to amendments to the E.P.A. 1971, S.O. 1971 c. 86; S.O. c. 49 §(1), 1976; S.). 1972, c. 106, §61(3).

system should have no lesser effect on consumer preferences and habits, and just might encourage further recycling efforts through action forcing and technology forcing legislation.¹⁰

Most of the recent "returnables" legislation seems to reflect the fact that net benefits of the new systems compare favorably with overall costs, both environmental and real, of continuing with the regressive container system still in force in the vast majority of jurisdictions.

The positive aspects of retaining the current system are questionable, and mainly based upon a marginal consumer convenience, and job-creating and production-inducing aspects of nonrefillable use. On the other hand, costs of maintaining the present system are several and excessive: the continuing energy and natural resources drain; greater centralization and monopolization of the industries involved—with the resultant decline in employment and local manufacturing; and continued costs to the consuming public in the form of higher prices and lost opportunity costs for energy and resources, as well as higher taxes for litter disposal and solid waste management.

The benefits of adopting a returnables system, on the basis of evidence available, would be the realization of positive environmental effects resulting from reduced production of containers. A salutary economic byproduct of the returnables system in the area of packaging would be the stepped up development of a market for resource recovery facilities.¹¹

The combined experiences in the United States, particularly in Oregon, have demonstrated the feasibility of mandatory returnables systems as an effective means of promoting the environmental aims

10. Effective October 1, 1976, the regulation requires retail vendors to accept the return of clean, intact refillable bottles up to a limit of 48 per person per day and to refund in cash a minimum mandatory deposit of 10 cents on individual size bottles and 20 cents on family sizes.

Effective March 1, 1977, soft drink cans with detachable openers are banned from use in Ontario, with a similar ban on this type of beer can effective July 1, 1977. Distributors and retailers will be allowed a reasonable time to clear existing stocks.

Effective April 1, 1977, a retailer may not offer non-refillables unless he also offers the same sizes, flavors and brands in refillable containers.

Effective April 1, 1977, non-refillable soft drink containers smaller than 480 millilitres (17 ounces) are prohibited on licensed premises. This, in effect, requires bars and taverns to serve soft drinks in either refillable containers or carafes for mixed drinks and eliminates the throwaway split common in premises selling alcoholic beverages.

Effective April 1, 1978, only five sizes of refillable carbonated soft drink containers will be manufactured in Ontario—200 millilitres (ml) for use on licensed premises only, 300 ml, 750 ml, 1 litre (1) and 1.5 l—roughly equivalent to 7 ounces, 10.5 ounces, 26.5 ounces, 35.5 ounces, and 53.5 ounces. However, a retailer may sell only three of these sizes in any given brand and flavor.

11. See, e.g., *The Market For Resources Recovery Facilities . . .*, 18 WATER NEWS-LETTER 7 (1976).

of reducing litter and solid waste, conserving resources and valuable energy, without causing significant problems for the industries involved.¹² Further, the various systems mentioned above demonstrate that there are several viable legislative approaches to the problems posed by increased use of non-returnables. Indeed, at the national level, the EPA has advanced various legislative approaches for consideration.¹³

There is intense controversy, to be sure, over mandatory deposit legislation. Proponents support its passage on the basis of the incentive it would provide for container reuse and recycling. Opponents of government intervention argue for consumer sovereignty, and cite possible deleterious economic effects on the major industries that would be affected.^{14,15}

RECYCLING IN OTHER MAJOR INDUSTRIES

Legislation¹⁶ could well create incentives for various forms of recycling—treating many types of solid wastes, in effect, not as pollutants but as recoverable and reusable “resources out of place”¹⁷ and

12. The industries that would be most affected by a mandatory returnables system include retailers, beverage producers and distributors, container manufacturers, and producers of basic steel and aluminum.

13. The E.P.A. has mentioned three possible legislative approaches to controlling beverage containers: (1) a tax on containers to finance litter collection; (2) a ban on the production of certain beverage containers; and (3) a mandatory deposit on beverage containers. E.P.A. Report, *supra* note 1.

14. See generally, Executive Summary of the report entitled, ENERGY AND ECONOMIC IMPACTS OF MANDATORY DEPOSITS, FEDERAL ENERGY ADMINISTRATION (1976).

15. “Industry . . . opposed all measures other than a small litter tax on each container, claiming that increases in consumption of their products over the past years have resulted largely from the ‘convenient and attractive’ nonreturnable packaging.” *Congress Considers a National Bottle Bill*, 4 ENV’T L. L. RPT. 10085 (1974).

16. The most commonly proposed legislation, of course, calls for mandatory minimum deposits on beer and beverage containers. In the United States, for example, where such activity in this field is underway, several bills have been introduced in the last few years at the federal level and hundreds at the state and local levels, which would, if and when enacted, result in at least some form of government intervention in the beverage industries.

At the state level alone, 140 laws are currently being considered for action in some 36 states. But the laws actually in place and discussed herein currently cover, however, only a fraction of the national market for beer and soft drinks. In the Netherlands, as another example, a draft bill, in the nature of an outline law, for the regulation and limitation of the manufacture and use of packaging materials harmful and exhausting to the environment was introduced in 1973. The supporters of the bill asserted that the rapid growth of materials in packaging which are difficult or impossible to destroy, along with the quality of such “throwaway” packaging constitutes a problem of such urgency that the country cannot wait until a general regulation covering the problem of waste as a whole has been drafted and brought into force. Also, by bringing about a rapid regulation of the packaging question, industry may be prevented from making unnecessary investments. Reuse and recycling is generally under study for all classes of wastes.

17. See THE PRESIDENT’S 1972 ENVIRONMENTAL PROGRAM, COUNCIL ON ENVIRONMENTAL QUALITY, WASHINGTON, D.C. 6 (1972).

increasingly important part of the solid waste management burden. There has been, until recently at least, a disproportionate amount of attention given to the question of legislating recycling systems for consumer-use containers. Probably not enough attention has focused on the potential for recycling in other major industrial sectors, where the overall long-term impact might be even more promising. One commentator has put it this way: "we seem to have worried more about what the consumer does with his bottles, cans and old newspapers than with the need for large industries to base their production runs on recycled materials."¹⁸ That statement fairly well summarizes the problem in the approach towards solid waste management in many jurisdictions.

Waste Oil

The technology exists today to re-refine used lubricating oil to a point where it possesses properties equivalent to unused lubricating oil base stock. Such processes now are being used on a commercial basis, pursuant to legislation, in several countries including the Federal Republic of Germany, Italy, and Australia. Similar bills are pending in France and the Netherlands. Still other jurisdictions, including Canada, are proposing or about to propose legislative action in the field. Nevertheless, the pace in the utilization of re-refining technology has been relatively sluggish to date. There is a stigma attached to re-refining oils which causes difficulty in their marketing. To the extent, however, that the major oil firms take an active part in encouraging the recycling of such oils, that stigma can be progressively removed.

The waste oil problem is of impressive magnitude, involving many areas and large quantities of material. The recycling problem would be fairly easy to solve by legislation or regulation if all waste oil were utilized in one location or even in one form. As it stands, however, fresh oil is used in virtually every sector of the industrial economy and ultimately may be discharged at thousands of individual sites having few or no recovery facilities.

The possible benefits of recovering the oil are well illustrated by the current situation in Canada. There, about one-half of the 80 million gallons per year of used lubricating oils goes into road oiling. Utilizing used lubricating oils for road oiling is not only wasteful generally but is undesirable from an environmental point of view. Only one percent of the waste oil stays on the road; the remainder,

18. See Zimmerman, Institutional and Political Aspects of Waste Recycling and Management (May 1974) (unpublished paper, prepared for Waste Recycling Symposium, Ottawa, Canada, Royal Society of Canada).

along with most of its heavy metals, ends up back in the environment. A small fraction of the oil (about nine to ten percent) is being re-refined and an even less significant portion is being burned as fuel without regard to air pollution emissions. Some of the remainder is disposed of by dumping into sewers, back yards, fields and landfill sites and by other environmentally unsatisfactory means.

Substantial federal-provincial collaboration on the possible reuse of used lubricating oils already is underway in Canada,¹⁹ although actual legislation appears to be some way off. Intensive research and experimentation at both the federal and provincial levels will, however, very likely lead in the near future to recommendations for legislation dealing with a waste oil recycling or refining plan.²⁰

The waste oil disposal question is one that cuts across several legislative and jurisdictional planes. The federal legislation already in effect in Canada is essentially unintegrated and piecemeal. Under Sections 33 and 34 of the Fisheries Act, the Federal Government has authority to define a deleterious substance and to regulate it.²¹ At the provincial level, several provinces have laws which by implication apply to the disposal or reuse of contaminated oils. However, these provisions are targeted principally at reducing the public safety and health hazards created by storage of volatile or flammable liquid substances, rather than the environmental degradation caused by uncontrolled dumping of waste oils.²²

19. For example, used lubricating oil which causes persistent pollution problems when dumped into sewer systems or sprayed on gravel roads, has been found to be a suitable fuel for the cement industry. Extensive road tests carried out as part of a cooperative study by Environment Canada and the Ontario Ministry of Environment at the St. Lawrence Cement Company of Mississauga, Ontario have revealed that the pollution problem inherent in burning used lubricating oil or disposing of it by other means can be avoided by using it as a supplementary fuel to fire cement kilns. Waste lubricating oils could thus supply 15 percent of the fuel requirements of the Canadian cement industry, which, as one of the major fuel users in that country, depends heavily on Canada's limited resources of oil and natural gas.

For background, see generally BERRY, et al., EXPERIMENTAL BURNING OF WASTE OIL AS A FUEL IN CEMENT MANUFACTURE, EPS 4-WP-75-1, TRAINING AND TECHNOLOGY TRANSFER DIVISION (WATER), ENVIRONMENTAL PROTECTION SERVICE, ENVIRONMENT CANADA (1975). For a statement of the position that refining or recycling of waste oil is preferable to burning it in incinerators, see Tanguay, *Canada: Harmless Use of Waste Oil?* 2 ENV'T'L. POL'Y & L. 1, 15 (1976).

20. See SKINNER, PRELIMINARY REVIEW OF USED LUBRICATING OILS IN CANADA, EPS 3-WP-74-4, PETROLEUM AND INDUSTRIAL ORGANIC CHEMICALS DIVISION, WATER POLLUTION CONTROL DIRECTORATE, ENVIRONMENT PROTECTION SERVICE, ENVIRONMENT CANADA (1974).

21. Under the Act, it is an offense to: "cause or knowingly permit to pass into, or put or knowingly permit to put chemical substances or any other deleterious substance of any kind in any water frequented by fish or what flows into such water." *Id.* at § 24.

22. In Alberta, Regulation 127/71 under the Department of Labour Act, requires the installation of gasoline, oil, grease and grit interceptors on the waste outlets of all public garages. In British Columbia, there exists regulations, pursuant to the Fire Marshal Act,

In Europe a variety of commercial practices and legislative requirements have characterized the developing situation with respect to disposal of used oil until a uniform European Economic Community (EEC) directive on the disposal of waste oils recently was superimposed over this mix. The explanatory memorandum attached to the original proposal for the directive underlines the extent and urgency of the waste oil disposal problem as perceived by the EEC Commission: "... one of the main objectives of this draft directive is to ensure effective protection of water, air, and soil against the harmful effects caused by the discharge, deposit, and treatment of these oils."^{2 3}

The directive thus concentrates essentially on the environmental impacts of waste oil disposal as contrasted with natural resource protection, employment protection, balance of payments, or other social and economic aspects of the problem. At the level of the individual European states, the approaches to the oil disposal issue necessarily will vary in policy emphasis. Nonetheless, there appears to be a common concern to deal with the waste oil problem promptly and directly. Legislation action will be accelerated and standardized by the EEC directive which calls for strict statutory supervision and authorization procedures for disposal and recycling.

In Great Britain, for example, there has been some government research into the problem of waste oil recycling, although there has

governing the manufacture, sale, storage, carriage and disposal of inflammable liquids and oils. Newfoundland has draft regulations under the authority of The Waste Material (Disposal) Act, 1973. Under the regulations, approval must be sought for all phases of a waste management system before an operator can engage in any aspect of it. The Act requires licensing, submission of plans, specifications, and payment of fees for pick-up and waste from the occupier of premises from which waste material is collected. It also forbids the dumping or disposing of waste except in an approved manner. In Ontario, the handling of waste oil is regulated by the Ontario Gasoline Handling Act, 1969, and the Gasoline Handling Code. Waste oil handling in Ontario also falls under the regulations made under the Waste Management Act, Reg. 824, 1973. Under both Acts, waste oil collectors, road oilers, etc., must be licensed. In Québec, regulations under Division 7 (Waste Management) of the Environmental Quality Act, December, 1972, cover used lubricants and waste management systems. Division 7 also covers permits, reporting, terms of operating, depositing, etc., of waste materials. The Petroleum Products Trade Act, Chapter 33, covers the storing, handling and transport of petroleum products, except liquefied gas. There is also Bill 23, The Transport Act, in which specialized transport includes transport of domestic and industrial waste. These latter two acts confer authority to control the storage and shipment of used lubricating oils. In Saskatchewan, regulations governing used oil could be enacted under existing legislation, such as the Water Resources Management Act, 1972 and the Public Health Act. There are, in addition, a number of cities and towns which have specific by-laws limiting the dumping of waste oil into municipal sewers: Corner Brook, New Foundland; Ottawa; Edmonton, and Toronto.

23. PROPOSAL FOR A DIRECTIVE ON THE DISPOSAL OF WASTE OILS, COMMISSION OF THE EUROPEAN COMMUNITIES, COM (74) 334 Final (1974).

been no comprehensive legislation on the subject.²⁴ In addition, there have been a large number of private studies in the field.²⁵ Britain uses about 1200 kilotons of lubricating oil annually and, according to its Department of the Environment (DOE) statistics,²⁶ some 80 kilotons are recycled by the oil reclamation industry every year, principally by means of re-refining into lubricating oils. An additional quantity, estimated by DOE to be considerably greater, is burned as fuel. Current legislation is sparse. Emptying used oil into surface drains, if it ends up in a sewer, contravenes the Public Health Act 1936, and if it ends up in a watercourse, contravenes the Rivers (Prevention of Pollution) Act 1951. Since publication of its *Green Paper* in 1974, however, DOE has taken no significant action on initiating accelerated cooperation among authorities, the garage trade, and the oil industry.

In the Federal Republic of Germany, a Waste Oil Law was promulgated in 1968 essentially to protect water supplies from the improper disposal of used oils.²⁷ This objective is achieved through an industry financed support scheme involving disposal by re-refining and incineration. The 1968 enactment, although calculated to achieve comprehensive environmental protection by itself, also promotes existing social and economic policies involving mandatory collection to assure resource protection, tax preferences and tariffs for a positive balance of payments from and subsidies to the re-refining sector to assure water quality. The 1968 enactment anticipated and complies with the EEC directive. The system in effect under the Law requires all importers, producers or re-refiners of specified lubricating oils to pay a "compensation fee" of 9 Deutsche Mark per 100 kilograms of product to the federal government, in addition to a tax on mineral oils. Proceeds from this "compensation fee" are put into a special reserve fund earmarked for disposal of used oils by controlled incineration or re-refining. The subsidy is currently 10 Deutsche Mark per 100 kilograms of recycled used oil.

In Denmark, local authorities have been established for collection facilities. All holders of specified quantities of oil report their holdings to the authority. Unless the holder can demonstrate that he has

24. The U.K. issued regulations in 1977, complying with the EEC directive. *See generally*, U.K. GREEN PAPER, MATERIALS RECLAMATION—WAR ON WASTE: A POLICY FOR RECLAMATION, SECRETARY OF STATE FOR ENVIRONMENT AND SECRETARY OF STATE FOR INDUSTRY (1974).

25. *See, e.g.*, FRIENDS OF THE EARTH, OIL CHANGE (1976).

26. *Supra*, note 24.

27. Law of December 23, 1968, BGBI 1968 I at 1419. For background on the provisions of the Law, *see* Irwin & Burhenne, *A Model Waste Oil Disposal Program in the Federal Republic of Germany*, 1 ECOLOGY L. Q. 471 at 480-84.

appropriate disposal arrangements, waste oil must otherwise be delivered to the authority itself. The basic jurisdiction for the central regulatory authority to supervise the collection program and to establish criteria for exemption therefrom derives from the Disposition of Oil and Chemical Waste Act 1972. In 1974, approximately 10,000 tons of waste oil was collected under the program.

In the Netherlands, a Chemical Wastes Bill (Kamerstukken 12662) covering used oils was drafted in late 1973, well in advance of the EEC directive and in anticipation of further general legislation on waste materials. Under the bill, a two-tiered licensing system is used for the collection and then for the storage and processing of used oils. Article 31 of the legislation prohibits deposit of used oil (or chemical wastes) into or onto land. Further, a separate used oils advisory body, reporting to the Minister of Public Health and Environmental Hygiene, is set up to deal with waste oil disposal questions.

In the United States, authority exists under several pieces of legislation to control used oil collection and disposal. There is additional potential authority under other legislation presently existing, pending and proposed.²⁸ But present laws, at least at the federal level, do not offer comprehensive control in the waste oil area. Some types of used oils fall within the definition provided for Section 104(m)(1) of the Federal Water Pollution Control Act Amendments of 1972, which call for a study of the general effects and potential market of "used engine, machine, cooling and similar waste oil." While this definition includes mineral oils and mineral oil by-products used in machines, motors, engines and the like, it excludes animal and vegetable oils as well as unused mineral oil wastes such as wastes from drilling for, refining, or transporting petroleum.

The Resource Conservation and Recovery Act of 1976 (RCRA) was enacted in response to the perceived health and environmental problems associated with the disposal of solid wastes. The basic objectives of RCRA are to promote the protection of health and the environment and, significantly, to conserve valuable mineral energy resources. To reach these objectives, RCRA mandates the develop-

28. Current jurisdiction in the waste oil area derives basically from the Federal Water Pollution Control Act (FWPCA) Amendments of 1972, 31 U.S.C. § 311 (1976) as amended by Clean Water Act of 1977, 33 U.S.C. § 1251, et. seq; and the Resource Conservation and Recovery Act of 1976 (RCRA), 42 U.S.C. § 1004(7) (1976). Potential additional jurisdiction may obtain under the Clean Air Act, 42 U.S.C. § 112 (1976), and the Toxic Substances Control Act (TOSCA), 15 U.S.C. § 2605 (1976). In addition, the Department of Energy (DOE) has statutory authority and responsibility to encourage recycling and reuse of waste oils with a view to controlling its environmental hazards (Energy Policy and Conservation Act, 15 U.S.C. § 753 (1976)).

ment of three major programs. The first would establish and develop a comprehensive hazardous waste management program. The second is a system to develop and implement state and regional solid waste management plans, and the third deals with the development of resource conservation and recovery techniques and demonstration systems.

Under the EPA's Proposed Hazardous Waste Regulations issued pursuant to the Act, 43 FR 58946, Subpart A identifies and then lists "hazardous wastes." Section 250.10 under Subpart A, refers specifically to the term "other discarded material" in the solid waste definition used by EPA to mean any material which: "(2) Is re-used (including materials treated prior to re-use) (i) If such re-use constitutes disposal (as defined under the Act), or (ii) If the material is: (A) Used lubricating, hydraulic, transformer, transmission, or cutting oil which is incinerated or burned as a fuel." By treating the problem of improper disposal of waste oils as hazardous wastes, the Act would appear to encourage forms of recovery. The Act further provides that the states can directly assume responsibility for regulation of these hazardous wastes where the states have adequate programs. Under RCRA S. 3006, the hazardous waste management program is to be administered by the Office of Solid Waste of the EPA, unless EPA has approved a State hazardous waste program.

Several states have regulatory mechanisms to control one segment of the used oil stream. These mechanisms, in ten states, include scavenger licensing systems, hazardous waste or solid waste disposal regulations, and surface storage systems. In addition, several states have the enabling authority to set up licensing systems if necessary in the future.

Finally, several coastal states have rather comprehensive oil pollution control statutes.²⁹ These enactments, though comprehensive, are directed at the problems of oil spillage and oil dumping rather than specifically at the used oil problem.

MUNICIPAL SOLID WASTES—PRACTICES AND LEGISLATION

Municipal solid wastes include garbage, refuse, litter, street cleanings, garden debris, demolition wastes, abandoned vehicles, discarded

29. Alaska: ALASKA STAT. §46.03.740 (1978); Connecticut: CONN. GEN. STAT. ANN. §25-4466 (West) (1975); Florida: FLA. STAT. §403.088 (1978); Maine: ME. REV. STAT. Tit. 38 Sub. 11-A (1974); North Carolina: NO. CAR. GEN. STAT. Ch. 143, Art. 53; Oregon, ORE. REV. STAT. §449.155-449.175, and 449.994 (1977); Rhode Island: R.I. GEN. LAWS §46-12-15 (1978); Virginia: VA. CODE §62.1-44.34:1, :2, -195 (1973, 1978 Supp.).

household goods, sludge from sanitary treatment processes, and more.

In the great majority of jurisdictions, it is usually the local authority which is responsible for policies and management with respect to the disposal of municipal solid wastes. While it is probably true that systems for the management of urban solid wastes have become better organized as urban communities have grown in density and size, it also is true that there have been no dramatic movements either in technology or management techniques insofar as recycling or reutilization is concerned. This is no doubt due in part to the operational restraints under which a great many urban communities function, as well as to economic and political problems. But recovery and reuse of urban waste materials is experiencing some progress in several jurisdictions, for those wastes where the feasibility of recycling already has been clearly demonstrated. While such jurisdictions may represent only a small proportion of urban communities in which recovery and reuse could be brought into functional operation immediately, there seems to be reason to believe that ultimately economic, social and, indeed, political demands for improved performance in this field will translate into more adequate systems for recycling.

A brief survey of the practices and legislation in two European jurisdictions, the Federal Republic of Germany and the Netherlands, will provide some focus on the potential for progress in this area and the probability of a developing trend in similar jurisdictions. In the Federal Republic of Germany, disposal of basic consumer wastes either by depositing on and in refuse tips, or by means of incinerating or composting, is strictly regulated under a series of laws pertaining to the particular material to be disposed of. However, recyclable waste materials are generally fed into the recycling process for reuse by collection at private collection facilities.

The environmental program of a German federal government has outlined specific objectives for waste disposal, ranging from basic disposal to reutilization schemes. These objectives as summarized in the environmental survey of the government's advisory council are: 1) organized disposal, including recycling of wastes by providing appropriate processes, for all wastes accruing; creating sufficient disposal capacity; delivery of all wastes to disposal installations; regular operation of disposal plants; and 2) repair of damages resulting from inappropriate waste disposal.

More particularly, in 1975 the federal government prepared an economic waste disposal program, with the Minister of Interior as coordinating administrator. The Minister of Interior works with a

guiding committee consisting of representatives of other key ministries, the state and industries concerned. The foremost objectives of this program may be summarized as follows:

1. reduction of waste quantity;
2. exploitation of the possibilities of reuse and reutilization of wastes;
3. organized disposal of unavoidable wastes; and
4. equitable distribution of disposal costs.

"Organized disposal" must be in compliance with the statutory requirements relating to the "collection, transportation, treatment, storage, and depositing" of waste materials.³⁰ The advisory council has defined "reutilization" specifically to mean the treatment and subsequent reintroduction of wastes or parts of such wastes into the market. "Reuse," on the other hand, has been defined specifically to mean the repeated use of a product or material in the same application. Byproducts, therefore, do not become wastes should they be marketed, reconditioned, or used in any other way. The overall process of recycling thus contemplates reutilization, reuse, and repeated reuse.³¹

In the Netherlands, solid waste disposal is regulated directly by either national, provincial, or municipal authorities pursuant to the policies established by legislation (national) or regulation (local) at those respective jurisdictional levels.

The key enactments in place at the national level deal primarily with the siting of the disposal, rather than with methods of waste handling and recycling.³² The salient feature of the local regulatory structures is the systemizing and siting of solid wastes disposal with a basic policy objective of holding environmental degradation at strictly minimal levels.

There is an elaborate licensing system regulating the installation and operation of plants, methods of collection, transportation, and storage of waste material. The Minister of Health and Environmental

30. Abfg. art. 2.

31. See, e.g., Koster, *Tire and Car Disposal*, in 3 REFUSE DISPOSAL, 8510. See also, FEDERAL GOVERNMENT REPORT ON DISPOSAL OF WRECKED CARS, OFFICIAL PUBLICATION 7 (March 4, 1974). For general background on the role of private contractors in waste disposal, see Kimminich, *The Law of Waste Disposal in the Federal Republic of Germany*, 1 ENV'TL POL'Y & L. 1, 28 (1975).

32. The Nuisance Act 1952, Stb. 274, article 2 of which prohibits the establishment, operation, extension or alteration of facilities without permission which may cause damage, hazards or nuisance; The Destruction Act 1957, Stb. 84, regulating the destruction of animal waste material and; provincial regulations.

Hygiene issues guidelines for regulations, the issuance of which is subject to the approval of the provincial executive.^{3 3}

The policy of various authorities in the area of municipal solid waste, as well as industrial and special wastes, increasingly points toward reuse and recycling of these materials. For example, the Motor Vehicle Licensing Bill^{3 4} would introduce a stringent licensing policy for automobile wrecking and scrapping operators. Under this legislation, an additional fee would be levied when the vehicle initially was licensed, thereby subsidizing the collection and processing of abandoned automobiles.

Under preparation is a Waste Materials Bill which would make the processors of specified wastes responsible for their disposal. Transportation and processing of certain waste materials would be linked to a licensing scheme, and government guidelines would be issued to meet environmental and sanitary objectives. There would be authority to ban from the marketplace specific products which are non-degradable or which otherwise constitute a disposal problem.^{3 5} A system of fees would support these schemes.

Approaches to Solutions

Many jurisdictions have begun to consider solutions to the problems presented by solid waste disposal only after those problems have affected the standard of living and environmental quality in a significant manner. The historical lack of recycling technology may explain part of the delay in the search for solutions. Nonetheless, the solid waste stream in several key jurisdictions now is receiving increased attention as a potential source of usable materials and energy through recycling and recovery. Although very little of the recovery potential in solid waste is being realized at present, plans of a legislative or sometimes nonlegislative character are being considered that could change the situation dramatically.

Laws or regulations requiring recycling of waste materials are, of course, not altogether new in concept or design. The value of re-

33. Provincial regulations include: landscape regulations relating, *inter alia*, to the dumping, storage, or deposit of rubble, waste, abandoned vehicles, etc.; the underground discharge regulations, prohibiting, *inter alia*, the disposal of noxious substances in land or water-drawing areas; chemical and industrial wastes regulations controlling waste removal from industrial sites.

34. Kamerstukken 1973-1974, 12.642. For technical reasons, as well as the accompanying pressures of the fuel shortage at the time, the bill was withdrawn in 1974.

35. See Memorandum of Reply (to the Bill) (by members of parliament Epema-Brugma and Terlouw) on the regulations and limitation of the manufacture and use of packaging materials damaging and exhausting to the environment.

cycling schemes was recognized and such schemes were carried out in practice during the years of the Second World War in many countries. Currently, the decision to legislate or otherwise initiate recycling operations in a given sector is based largely upon economic considerations rather than strictly environmental factors. If the net cost of recycling is less than the costs of using fresh materials, then waste material will be reused or reincorporated in the industrial process. It has been recognized only recently that this sort of short-term cost-basis decision has serious long-term impact ("opportunity costs") with regard to increasing pressures on nonrenewable and renewable resources, and on the overall capacity of the finite environment to digest the waste generated.

In order to outline some of the approaches to the waste management problem including probable legislative trends in the area, it will be instructive to review briefly the present problems, some of which are very real, with respect to recycling. In addition to the various technical problems specific to each particular recyclable material, there exist several general problems.

Earlier mention has been made of the essentially socio-political problem of encouraging changes in attitude of both industry and the general public. Insofar as the public is concerned, the principal stumbling block has been the modern emphasis on planned obsolescence, "use and discard," and the general movement to exploit resources rather than reuse them. It is, at the outset, a psychological problem characterized by a post-war habit to think in terms of "new" rather than "used." Insofar as industry is concerned, the principal bar to progress has been overemphasis on growth, increased output, and progressive exploitation of natural resources.

On the economic side, present cost decisions strongly favor use of virgin rather than recycled matter. Those decisions are grounded in short-term cost accounting which necessarily omits long-term opportunity costs, specifically, long-term environmental and related social costs. In recycling and reclamation, as in other areas, "there is no such thing as a free lunch." The direct costs of a given recycling system will vary from jurisdiction to jurisdiction. As has been pointed out, however, the initial costs are likely to be set off by indirect or long-term costs which are not taken into account when calculating solid waste management costs. From the consumer's standpoint, there will be costs incurred in correcting the present defects in solid waste management and in reducing the overall solid waste stream. These costs will be reflected in increased prices for certain consumer products.

Further, while governments in many jurisdictions and particularly in the United States have made intensive studies into the potential of

reclamation and recycling from the technical standpoint, a recurrent problem has been the lack of local markets for separated commodities resulting from these processes.

At the level of government organization there exists a multijurisdictional problem in many countries which limits to some extent the management efficiency of certain government units in dealing with solid wastes. The problem centers on the complexity and overlapping of local and regional government units and their competences. While this is not the appropriate forum to treat the historic circumstances bearing on urban planning, suffice it to state that the pace of technological advance and the concentration of urban populations require a more comprehensive approach to public services. The experience of the EPA seems to indicate that regionalization, desirable in solving the problem, presents its own difficulties. Clearly each jurisdiction will have distinct organizational settings and different approaches to creating a comprehensive solution. Nevertheless, at the national level it probably is accurate to state that some kind of national integrated program, at least from the policy viewpoint, will be the continuing trend. This is not to say that other levels of government will not have sometimes distinct and possibly conflicting efforts; it is to say that the activities of the various levels of government generally appear to be increasingly complementary and interdependent.

The contours of such national integrated programs necessarily assume varying forms. But a trend can be discerned in several areas. First, governments themselves increasingly are taking inventory of their own purchasing and disposal practices. They are, moreover, lending significant support in financial, technical and regulatory terms to desired collection, recycling, and disposal systems. In anticipation of legislative regimes, several jurisdictions are encouraging voluntary recycling schemes. Second, governments appear to be laying the ground work for legislative action in several areas.³⁶ The most common legislative approaches are as follows:

- 1) setting objectives and priorities for specific recycling and reclamation solutions;
- 2) coordinating the efforts of the public and private sectors in achieving recycling and reclamation programs;

36. See, e.g., Shabecoff, President to Vow Strong Support to Protect Nation's Environment, N.Y. Times, May 23, 1977, §1, at 1. In President Carter's message to Congress of May 23, 1977, he termed solid wastes a serious economic and public health problem, asserting that excessive packaging and inadequate use of recycled materials are two principal causes of the solid waste problem. The message called further, *inter alia*, for the Environmental Protection Agency (EPA) to conduct a two-year study to find ways to encourage recycling and other waste reduction. The message did not, however, propose legislation for the mandatory recycling of consumer bottles, cans and other solid wastes.

- 3) setting guidelines for government units to follow at all levels;
- 4) underwriting a technological development program in recycling and reclamation and;
- 5) setting up an information exchange system to provide information to the public and to disseminate technical information to both the public and private sector.

Third, governments have generally been embarking on more immediate legislative initiatives in at least two areas: (1) establishing regulatory frameworks with the objective of reducing the waste component of consumer throwaway packaging, particularly by means of minimum deposit legislation and by influencing product design;³⁷ (2) establishing tax regulations and other financial incentives to encourage and generally facilitate resource recovery.³⁸ Among the financial controls are: transportation subsidies for recycled materials; compulsory deposits on initial purchase of items such as automobiles; taxes on product nondurability; taxes on proportion of product that is nonrecyclable; taxes on resource extraction; extension of accelerated writeoffs to include solid waste management systems; conditional grants from national governments for regional or local programs meeting predetermined criteria; and funding for new process and equipment development in the private sector.

In anticipation of general legislation, many industries have begun to initiate voluntary recycling programs of their own. The movement toward voluntary recycling in the private sector, is, however, a fledgling at best.³⁹ As for consumers, changes in attitudes will very likely be presaged by changes in the marketplace itself, which in turn will probably require legislative movement.

The basic trend in this field, however, is clear enough. Much more thought needs to be taken by government on the type of legislation, regulation or program it will require. While the precise legislative approach will vary with local circumstances and the organizational patterns of national and local government, there emerges a general movement toward recycling and reclamation enactments and programs as part of an integrated national scheme of solid waste management.

37. Refer to Section I, herein.

38. See Comment, *New ELI Project Assesses Impact of Tax Code Provisions on Use of Depletable Resources and Recycling*, 5 ENV'T'L L. REP. 10014 (1975), describing a sixteen-month long study by economist Robert C. Anderson and other members of the Environmental Law Institute (ELI) (U.S.A.) staff entitled *Federal Tax Policy and Depletable Resources: Impacts and Alternatives for Recycling and Conservation*. The Anderson study concludes that tax subsidies alone have little impact on recycling and conservation of depletable resources. For an opposite view, see e.g., *Taxes that Bite into Recycling Savings*, *Christian Science Monitor*, January 5, 1975, at 11. For general background on tax incentives, disincentives, and environmental objectives, see Delogu, *Tax Policy and Environmental Objectives*, IUCN Environmental Policy & Law Paper, No. 11 (1976).

39. See e.g., *Aluminum Peddles its Own Recycle*, *Business Week*, January 30, 1971, at 21. See also, *Reclaiming Solid Wastes for Profit*, 4 ENV'T'L. SCI. & TECH. 9, 729 (1970).