The European Community and Waste Recycling

European File

At the beginning of this decade, the nine countries of the European Community were producing close to 1 800 million tonnes of waste per year (about 5 million tonnes per day). This is the price we pay for economic development. But the accumulation of debris is seriously threatening our environment and is a sign of regrettable wastage — the planet's resources are not unlimited and Europe must still import a good share of its raw materials.

In these wastes we find:

- about 1 000 million tonnes of agricultural wastes, including livestock effluent;
- some 300 million tonnes of sewage waste and waste water;
- some 200 million tonnes of consumer wastes, 50% of which is household wastes and the rest metals, old tyres, waste oils etc;
- 200 million tonnes of wastes from extractive industries (mining etc.) and cinders;
- some 150 million tonnes of industrial wastes, 40 million tonnes of which are chemical wastes, which are often toxic and dangerous.

This enormous mass of waste with its 2% to 3% annual growth rate, causes a twofold problem:

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- Firstly, the permanent threat of pollution. Wastes discharged by industry and agriculture can contaminate the micro-organisms and reemerge in the food chain by way of complex and often ill-understood paths. Dumps and rubbish tips are still widely used by municipal authorities and individuals, and pollutants can filter through the soil and contaminate groundwater sources. Atmospheric wastes, dispersed by the wind, are later returned to earth via the rain. Effluents dumped in water courses transform the major European rivers into veritable sewers. In various parts of the Mediterranean and the Channel coastline, the sea itself has already absorbed disturbing levels of pollution. In short, the health of the local population is at stake.

- Secondly, a problem of undesirable wastage. On the one hand, the elimination of waste demands investment in technologies which are often expensive and consume significant energy resources. On the other hand, this enormous mass of waste contains large quantities of raw materials which could be reused: ferrous and non-ferrous metals, paper, glass, raw materials, rubber, textiles, hydrocarbons etc. Some wastes also constitute sources of energy when incinerated or, as with farm wastes, fermented.

At the present moment, a lot of technology either exists or is in full development to recycle secondary raw materials. And the market for these products is expanding every day. But even though the recycling process is in full swing, particularly in the processing of industrial wastes, immense possibilities still wait to be exploited. It is estimated that 70% to 80% of wastes produced in the Community continue to be thrown away without recycling.

This waste is all the more regrettable since our countries are particularly lacking in raw materials. Community dependence on third countries for its most widely used metals — iron, tin and zinc — is at a level of 80% to 90%, so that the recuperation of at least part of the 10 to 20 million tonnes of ferrous metals and the million tonnes of non-ferrous metals found each year in Europe's consumer wastes would make considerable savings. The same is true for paper and paper pulp for which the degree of Community dependence is of the order of 50%. The quantity of paper and cardboard which is thrown away each year without recycling is put at 20 million tonnes whilst the Community has to import 15 million tonnes. According to experts, the potential total value of the reclaimable materials thrown away each year in the Community probably exceeds 10000 million European units of account. [1] Recycling would permit import savings of between 5000 and 7000 million EUA.

Why Community action ?

The foundation stones of a common policy in the waste field were laid by the Community in 1973 with the first environmental action programme. For several years, the elimination and recycling of wastes has been an overriding theme in most Community countries and numerous initiatives have been taken at the national, regional and local

[1] 1 EUA = about £ 0.61 or Ir. £ 0.68 (at exchange rates current on 6 May 1980).

levels. But the necessity to develop solidarity and coordinate the efforts undertaken by other Community partners has not been fully appreciated:

- ☐ The battle against pollution: it is clear that a nuisance in one country can become a problem in its neighbouring countries. Effluent discharged into rivers and gaseous wastes discharged to the air are able to cross national frontiers freely.

- ☐ Fair competition between European companies: national initiatives taken to protect the environment can create distortions of competition from country to country. One State can, for example, impose requirements on companies which involve direct and indirect costs. To compensate the latter, it can also accord specific aids which might not be available to companies operating in other countries.

- ☐ The free movement of goods and services within the Common Market: diversity in national regulations can create many obstacles to intra-Community trade. And in the field of waste as well, such trade is starting to develop. Firstly, because in some regions it is practical to use nearby waste disposal or recycling facilities which are located on the other side of a national frontier. Secondly because the profitability of these facilities often demands an operating capacity which exceeds the national market. For this reason, all rules covering the transfer and transport of waste should be harmonized, particularly to take into account the safety of the general public.

- ☐ The harmonious development of economic activities in the Community: this general objective which the European Treaties assign to the Community, demands that the problems of waste and recycling be taken into account. Recycling aids the work undertaken to counter the unfavourable effects of the rising costs of raw materials and Community and national dependence in the supply field. In the longer term, it could help us counter the scarcity of resources and the foreseeable rise in prices of certain materials. Community action in this area complements that undertaken to develop new energy sources or to encourage prospection, processing and conservation of raw materials.

- ☐ Greater effectiveness of scientific study and research: by developing mutual cooperation, the Nine can step up exchanges of experience and pool the resources needed to find the most appropriate legal, technical and economic solutions. A large amount of study and research work is still indispensable to develop reclamation systems and recycling processes and technologies, as well as to define their means of operation particularly from the point of view of profitability.

What does the European Community do?

Community action in the field of waste has developed progressively in recent years. A general orientation has been defined. Also, in several sectors, European directives have been adopted or are being prepared; these directives set out the common objectives to which the Nine must adapt their laws. Finally, a sizeable research effort is being undertaken at the European level. All this is assisted by a waste management

committee set up in April 1976. Composed of experts from all member countries, this committee helps the European Commission and gives its opinion on measures to be taken and on the application of those already decided upon.

The general framework of Community action

Two basic texts guide Community action in the area of waste:

☐ On 15 July 1975, the Council of Ministers of the Nine adopted - upon a proposal from the European Commission — an outline directive aimed at harmonizing national provisions which are often widely divergent. The European directive obliges Member States to:

- regulate in a coherent and effective way, the elimination of waste by prohibiting, in particular, all uncontrolled discharges or dumping which threatens the quality of air, water or soil;
- implement authorization and control procedures applicable to private or public companies which eliminate their own waste, which collect that of others, or which transport, store or process waste;
- establish plans to organize the elimination of waste, to inform the European Commission of new national projects and regulations and to draw up periodic analyses of activities undertaken in these areas;
- combat wastage by promoting economies in the use of raw materials and possibly energy, through the retrieval, recycling and processing of wastes and residues.

☐ In its second environmental action programme, the Community has defined the principal objectives of action during the period 1977-81:

- collecting economic and technological data which should enable the evaluation and improvement of the techniques and organization of reclamation;
- ensuring better market stability for reclaimed materials which are often subject to cyclical variations linked to the availability of raw materials and their prices. These fluctuations make forecasting difficult and greatly hinder the development of reclamation;
- expanding the outlets for reclaimed products, particularly through orders from public administrations;
- combating the indifference and slowness to adapt, whether at the level of product-design or of consumer habits.

But prevention is better than cure. If the battle against wastage requires that resources contained in waste be recycled, another essential factor to be taken into

account is the prevention of the creation of waste. This is why, since 1978, the European Commission has put emphasis on a strategy to develop 'own technologies' which should enable optimal utilization of raw materials and energy, increased product durability and recycling after use. The Council of the Nine has invited the Commission to undertake enquiries on this subject in cooperation with national authorities and industry. Special labelling to inform consumers of the recyclability of products has also been envisaged.

Actions taken at the sectoral level

With the basis of action accomplished, the Community has involved itself in much more specific activity on a sector by sector or product by product basis. In certain cases, specific directives have already been drawn up. In other cases, priorities have been defined and working groups are preparing new measures.

☐ The European directives which have come into force up to now are very much of a 'curative' nature. They deal with:

- the elimination of toxic and dangerous wastes: this directive reinforces the principles described in the outline directive on waste by allowing for specific prohibitions, control and monitoring measures relating to the harmful effects of products such as mercury, cadmium, tar, asbestos etc. Community countries should establish obligatory plans to eliminate waste. They are also invited to prevent the creation of waste and promote recycling;

- the elimination of certain chlorine-based chemicals (PCBs etc.): this directive harmonizes the collection arrangements, regeneration or the destruction of toxic and persistent substances used particularly in condensers, transformers and heat-transfer installations;

- the elimination of waste from the titanium dioxide industry: this directive sets out preventive measures and a plan to reduce pollution to less than 5% of its initial level by 1985. Stricter monitoring and control measures are being examined;

- the discharge of waste into the aquatic environment: a series of measures have been adopted in this area; [1]

- the elimination of waste oils: depending on the country, 20% to 60% of these oils which represent 12% of the Community lubricants market, escape all controls. On average, waste oils account for approximately 20% of the pollution of European waters. The Community directive prohibits dumping in the natural environment. It covers the organization of retrieval systems, sets down severe controls over elimination and, given the growing cost of imported energy, promotes the re-use of oils either through regeneration or by incineration, combined with heat retrieval. A new directive is being drawn up to limit pollution caused by incineration without pretreatment.

[1] See *European file* No 6/80: 'The European Community and water'.

☐ Encouraging both reclamation and recycling, the Community is concentrating its strategy on the too often neglected area of consumer wastes. Progress is often more rapid in industry where a large part of retrievable materials are already being recycled. As mentioned above, accent has been placed on waste oils as well as three other categories of very abundant wastes, whose elimination is the direct or indirect responsibility of public authorities:

- waste paper: it represents 40% to 50% of the volume and 15% to 20% of the tonnage of urban wastes. Recycling is more economic and less polluting than the paper pulp cycle and provides substantial import savings in a sector which is second only in value terms to oil products in the Community's trading deficit. The objective is to raise the re-use level for waste paper in the paper industry from the current 40% to 60%. A recommendation on the use of recycled paper in public services is being prepared. The Community is conducting, at the same time, a number of scientific research actions which we will return to later;

- beverage packaging: represents about 10% of the weight of urban waste. This form of packaging requires considerable energy and raw material use in production. In addition, it contributes greatly to the deterioration of beauty spots and to pollution. A proposal for a directive aimed at reducing wastage and extending the use of returnable bottles is being examined;

- old tyres: the raw materials used in the manufacture of tyres are for the most part imported. On the other hand, the elimination of old tyres can involve considerable energy consumption and pollution. It should be noted that out of 1.8 million tonnes of tyres used in 1978 (increasing at a rate of 10% per year) three-fifths were not recycled. The Community's objective is therefore twofold: to reduce the number of tyres thrown away (increasing the durability and encouraging retreading) and utilizing the waste (regenerating the rubber, incineration and energy retrieval). Research currently in progress in this field should result in the drafting of specific legal provisions.

Scientific research

Waste recycling raises a certain number of technological problems which are often difficult to resolve. The Community has therefore launched several multi-annual research and development programmes.

☐ Processing and storage of nuclear wastes: the Nine have adopted a research programme which constitutes in this field the most important multilateral cooperation effort in the world. [1] Community funds allocated to this programme stand at 43 million EUA.

☐ Treatment and use of sewage sludge: the purification of waste water produces 700 kg of sludge per person per year. This sludge constitutes a danger to the environ-

[1] See *European file* No 15/79: 'Community action in nuclear safety'.

ment and is also very expensive to eliminate. The Nine have decided to allocate 6 million EUA to research into improving the basic treatment processes as well as study on the safe storage of non-recyclable elements which contain a high proportion of toxic metals.

- ☐ Recycling paper and carton: earlier we discussed the importance and size of this sector. The Nine have allocated 3 million EUA to the study of various technical problems such as the decontamination of waste paper, the removal of ink, the use of fibres from urban wastes, the re-use of recycled fibres, etc.

- ☐ Recycling municipal and industrial waste: the Nine have just launched a vast four-year programme in this sector and half of the total cost (24 million EUA) comes from the Community budget. Among the principal areas being examined are:

  - the retrieval of materials and energy from household waste and particularly the problems posed by separation (at source or in bulk);

  - retrieval by thermal processing: to extend to industrial waste the incineration techniques already successfully applied to household wastes and to develop pyrolysis techniques and chemical decomposition through heat. Whilst providing effective elimination of waste, these methods should permit the retrieval of energy and materials such as glass and metal;

  - the utilization of waste rubber: among other techniques applicable to this priority objective, retreading is currently being looked at, as well as pyrolysis and ways of regenerating rubber;

  - the fermentation and hydrolysis of waste: the retrieval of useful organic materials and energy contained in the enormous masses of agricultural wastes (1000 million tonnes per year).

Recent progress has been made in the field of retrieving energy from wastes. The Community can now progress from the scientific research stage and begin to support the industrial development and commercialization of new processes and equipment. Community subsidies have consequently been accorded to demonstration projects on the conversion of agricultural wastes into gas. [1]

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The Community's waste management policy, as has been seen, is conducted on a number of very different fronts. The scope for action is immense and much remains to be done. But progress in this field has become a pressing necessity, both from the point of view of environmental protection and the supply of raw materials. Success will largely depend on cooperation between Community countries and also on the efforts of local authorities, companies and individuals.

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[1] See *European file* No 2/80: 'New energy sources for the Community'.

Sponsored by the European Commission and organized at the same time as the International Congress on Solid Wastes, the European Waste Management Conference (London, 17-18 June 1980) [1] should enable a first overall picture to be drawn up in this area. The main approaches of this work are the ecological and economic basis of retrieving certain materials, conservation of raw materials and energy, product durability and public attitudes to waste ◘

[1] Further information: tel. 01-723 1044 (London).

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