

THE ROLE OF EXTENDED PRODUCER RESPONSIBILITY IN STRATEGIC WASTE MANAGEMENT

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1. Introduction.

Without any countermeasures the volume of waste grows parallel to or even faster than our wealth, measured in Gross Domestic Product.

It is evident that in such a scenario even the most advanced waste management technologies will not be sufficient to ensure sustainable growth and development for our civilization.

It must therefore be a fundamental cornerstone of a successful sustainable waste management strategy to create ways and means to reduce waste – minimize waste production, facilitate recycling, increase the quality and value of the recycled materials etc. It should be noted here that newer studies show that sustainable waste management strategy holds the largest short-term potential for CO₂ reduction (Source: ISWA White Paper, Waste and Climate, Dec.2009)

2. Strategies for Waste Reduction

Efforts to reduce waste were in the past often put into the responsibility of the traditional stakeholders of the waste management business: the Communities, the Waste Operator Industry and the Academic institutions.. The results so far were not satisfactory and lasting.

Some obvious examples are

- the encouragement of the consumer to move to “immaterial consumption” and various “buy less” campaigns, which fight a losing battle against professional commercial consumer industry advertising,
- economic measures to encourage re-use (especially the notorious promotions of refillable beverage containers through mandatory deposit systems, which did not in the least stop the rapid decline of refillable systems and caused enormous additional costs to the consumer, and more.

3. The Concept of EPR

Slowly it became clear that waste minimization and /or reduction strategies can never function effectively at the “End of Pipe” phase of a product, but must be implemented much earlier in its life cycle.

At the end of a product's useful life it becomes waste, which has to be dealt with at best practises with the suitable and available methods of waste management as it is. Any strategy to reduce the waste volume, to facilitate recovery, to improve recyclability and to improve the quality of the resulting secondary material can only be successfully realized much earlier in the production of the product.

Design and construction of a product therefore not only determines its functionality, quality and cost during its useful life, but also its waste profile and characteristic at the end of it. Consequently it is the owner of the design and construction phase who plays the key role in a product oriented efficient waste management strategy.

Environmental Policy must therefore make the product producer, manufacturing and retail industry also responsible for the “waste phase” of their product, i.e. extending the traditional responsibility of the producer beyond the functional quality of their product during its productive life into efficient disposal at the end of its life, obliging them also to establish and finance recovery, recycling of it, etc.

As consequence EU and also OECD waste management policy recognized the shifting of responsibility for end-of-life (i.e. waste) management of products away from the waste management industry and communities to producers and distributors as a major waste reduction strategy.

A formal definition of EPR may be the following:

EPR is “an environmental policy approach where the producer’s responsibility, physical and/or financial, for a product is extended to the post consumer stage of a product’s life cycle. Producers accept their responsibility when they design their products to minimize life cycle impacts and when they accept legal, physical and/or economic responsibility for the environmental impacts that cannot be eliminated by design. A primary function of EPR is the transfer of the costs and/or physical responsibility (full or partial) of waste management away from local government authorities and the general taxpayer to that of the producer.” (OECD Guidance Manual for Government EPR, Dec.1999)

Disposal costs must consequently be internalized by the producers, be calculated into the total product costs, and consequently become part of the industrial productivity optimization process.

This principle is already at work. New concepts emerge and are currently state of the art corporate strategies, e.g. “design for recycling”, “design for deconstruction”, or intensified simple cost cutting procedures like weight reductions of bottles, cans etc.

4. EPR in Legislature

This so called “Extended Producer Responsibility (EPR)” requires a legal base to become functional. Based on the national Waste Laws, special ordinances were created for this purpose.

4.1. The Pioneer Effort: the German “Verpackungsverordnung”

The first effort was the legendary VerpVO in Germany, introduced by the visionary Klaus Töpfer, then Minister of the Environment, which became into effect in 1991. It was followed by the French and Austrian packaging ordinances in 1992 and 1993.

Packaging was the first target because of the comparable high impact on the MSW quantity (packaging waste constitutes ca 20-25% of total MSW and can be recovered and recycled rather easily).

Introduction of the ERP principle to packaging had a strong impact on the obliged industry, creating enormous focus on packaging reduction, and increases public awareness of the recycling issue as the “separate collection” on curb sides or from houses were introduced.

4.2. EPR in EU Waste Strategy and Legislation

EPR is an important part of the EU Waste Policy and the EU Prevention and Recycling Strategy (COM(2005))

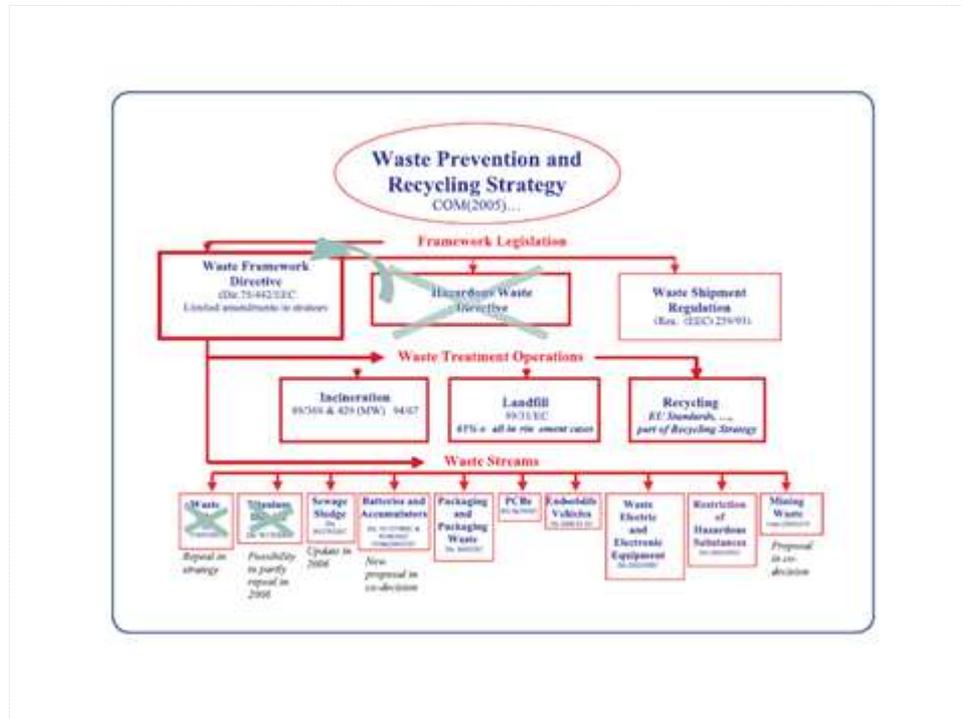


Figure 1

The principal of EPR is currently applied to all suitable waste components like packaging and packaging waste, electrical and electronic waste, lamps, batteries and vehicles.

Basically the regulations oblige the producer and importer to take back and recycle the product which he puts on the national market (e.g. packaging, battery, refrigerator etc.) at the end of its life and report the numbers to the authorities. Usually targets for these obligations are set in a certain percentage of the sales volumes. Since the majority of the “obligors” cannot meet these targets (the “quota”) themselves due to the nature of their business, they have also the option to transfer these obligations to a defined third party against a volume related monetary contribution (the “fees”). Such a third party is usually a state certified institution (“compliance system”) who again sets up the required national collection systems and assures the appropriate recycling activities to meet the targets, and issues the required reports.

4.2.1 Packaging

Part out of the emerging EU environmental strategy and part out of the fear of serious market distortions and trade-barriers as result of individual member states issuing individual packaging ordinances the EU followed with the Directive on Packaging and Packaging Waste in 1994 (94/62EC), confirming the EPR principle in EU Waste Policy.

“The European Union is seeking to harmonize national measures concerning the management of packaging and packaging waste to provide a high level of environmental protection and ensure the functionality of the internal market.”

There were several amendments, one setting increased recovery and recycling targets (Dir 2004/12EC) at 55-80 of total recovery of packaging material, with ambitious material targets ranging from 22,5% of Plastics and 60% for paper and glass, but also extending the realisation dates for the new Member states.

4.2.2. WEEE

The second most important subject of EPR was in the field of recovery and recycling waste from electrical and electronic equipment ((Dir 2002/95EC). Producers and importers are obliged to take back their products and take care of proper treatment/recycling. The target defined in this directive is the weight per capita per year, set currently at 4 kg/per capita. There is a proposal pending to change this target to a percentage of 65% of the weight put on the market.

Total volumes of WEEE equipment put on the market in the EU 27 are currently estimated at ca. 9.3 Mio t (data for 2005, source: 2008 Review of the WEEE Directive, UNU). Collection of WEEE waste remains mainly in the responsibility of the communities, the compliance systems to take over and recycle their obliged quantities and compensate financially for recovery costs.

4.2.3. Batteries and Accumulators, regulated by Dir 91 157

4.2.4. End- of- life-vehicles, regulated in Dir 2000/53EC

The volumes of end-of-life vehicles in the EU are estimated at 10- 14 Mio t p.a. The targets set are 85% to be reused or recovered and at least 80% to be reused or recycled, from 2008 only vehicles may be put on the market which can be recovered up to 95% and recycled up to 85 %. Manufacturers are obliged to take back EOL vehicles at no cost to the consumers.

5. The Emergence of Dual Systems and the “Green Dot”

As already mentioned, fulfilling the quite challenging recovery and recycling targets is almost impossible for most of the obliged industry. Therefore the alternative of transferring the obligations to a qualified third party, a compliance system, is widely used and, for the majority of obligors, the only way to comply.

Legislation usually defines the conditions required for the certification of such a system e.g. constructing, maintaining and financing nationwide collection facilities, recycling methods, communication to the consumer, etc. and, of course, recovery and recycling targets.

Consequently, the obliged industry establishes such compliance systems themselves, sharing ownership and responsibility, to keep in control of the costs and quality of such a system.

The mission of such a system is therefore usually “to secure compliance to the law for its customers at the lowest sustainable cost”. Consequently most also follow a non-profit principle.

Since quite different national legal provisions exist in the Member States, the systems differ accordingly. Some cover the full costs of recovery on one extreme (e.g. Germany, Austria, Spain, etc) and others are only obliged to make contributions to communities for separate collection (France, Czech Rep, etc.)

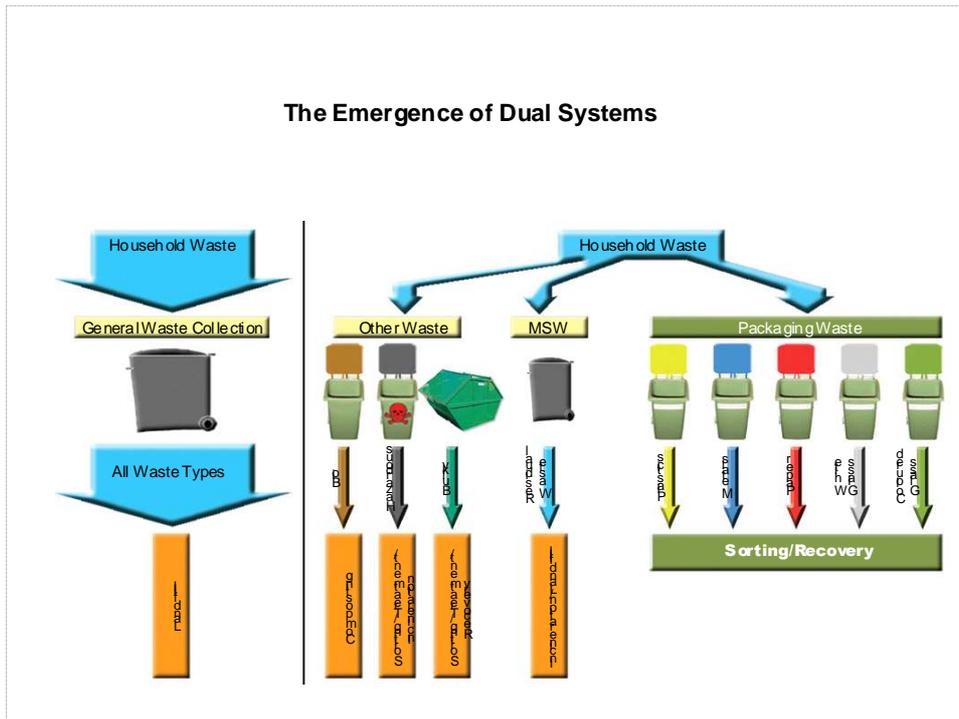


Figure 2

As a result a new concept of financing separate waste collection emerged; systems which exist in parallel to the regular urban waste collection operated by the communities and financed through waste fees, and are organized by private initiative, owned by industry and financed through product sales – truly *dual* systems

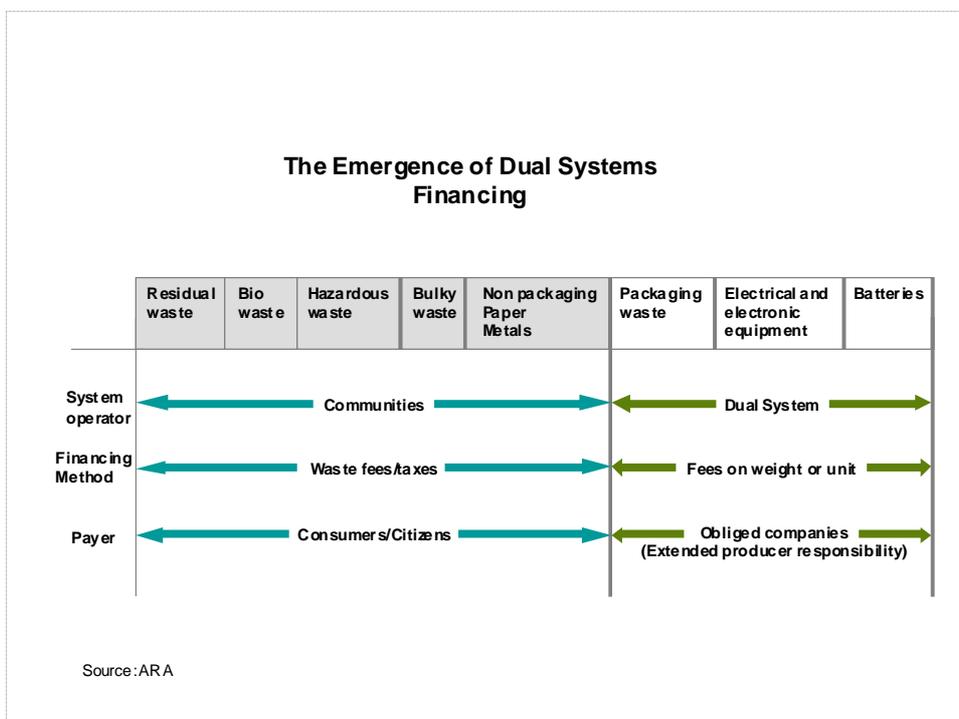


Figure 3

The German compliance scheme, the “Duale System Deutschland Ges.m.b.H. (DSD)” even derives its name from this.

Inseparably connected with the emergence of dual systems in packaging is the symbol of the “Green Dot”. Often the focus of strong criticism because of alleged misleading messages it became and still remains the most widely used trademark in the world. The discussion about what it stands for is apparently never ending. Even now otherwise quite qualified experts still get it wrong (e.g. US Environmental Protection Agency, “Recycling and Reuse: Packaging Material: Reuse and Recycling”, www.epa.gov). As a contribution to a better understanding here is the true meaning:

“The Green Dot” on packaging means that for such packaging a financial contribution has been paid to a qualified national packaging recovery organisation that has been set up in accordance with the principles defined in European Packaging and Packaging Waste Directive 94/62 and the respective national law (Source: Pro-Europe s.p.r.l.)”

6. Implementation of EPR in the EU Member States

Currently all Member States have the appropriate legislature in place and there are compliance system established. Curb side separate packaging collection bins or bags have become part of city infrastructure and separation of electrical appliances, batteries and lamps has been getting more and more established as integral part of the personal lifestyle and daily life routine of the citizens which take environment protection increasingly serious.



Figure 4

Separate Collection from Household Packaging

The Austrian Example

Typical collection site in Vienna



Source: ARA

The yellow bag as a convenient system for the collection of "lightweight packaging"



Figure 5

Separate Collection from Household Packaging

The Austrian Example



Collection of Plastic Bottles



Source: ARA

Figure 6

7. The results of EPR Legislation

The EU Commission had several studies made on the impact of the respective directives. Results from the countries are of course quite different and depend on GDP, infrastructure development, and the level of national targets. The new Member States have a grace period

to reach the material targets of packaging set by the 2006 amendment of the EU packaging directive.

The following charts give an overview of these achievements and show the considerable differences in results for packaging, electrical and electronic equipment and end-of-life vehicles.

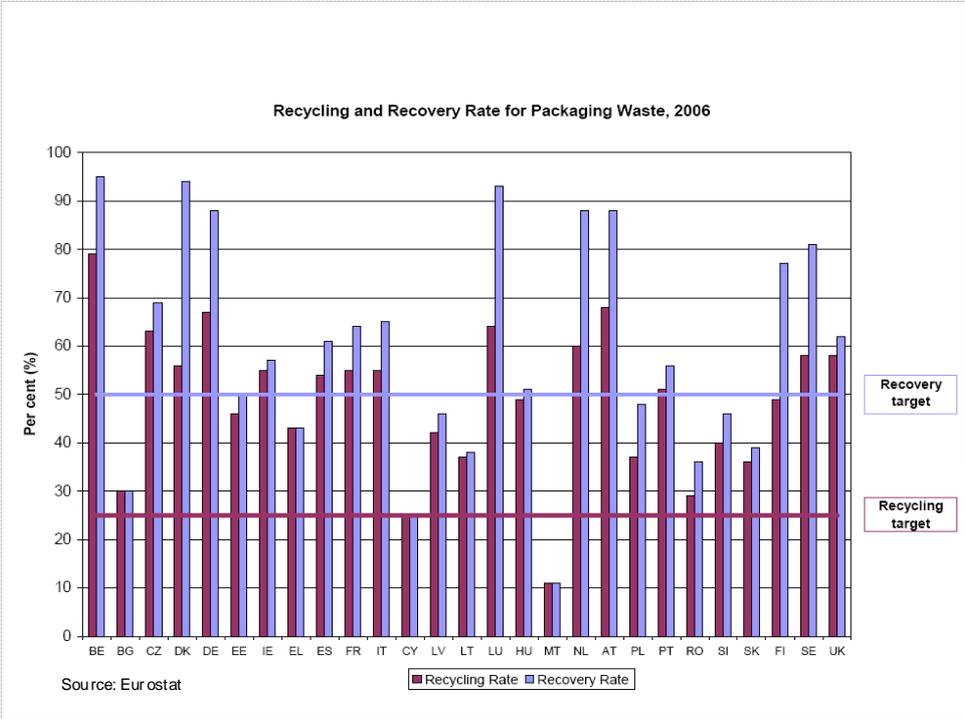


Figure 7

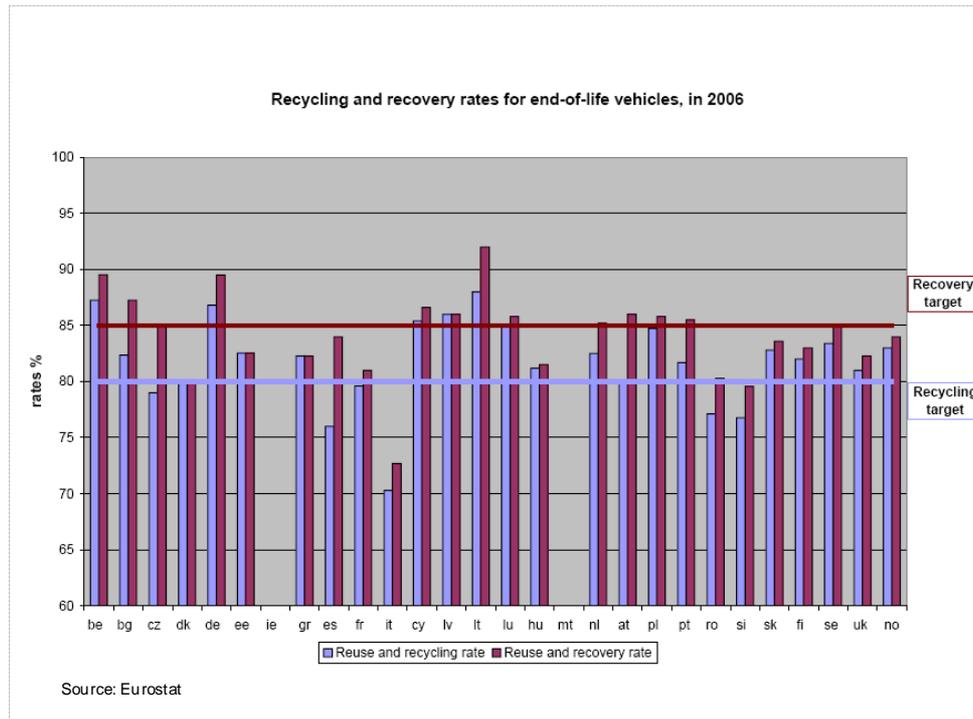


Figure 8

A considerable issue seems to be the reporting system and methods, which differ substantially, thereby making comparisons of Member State results difficult.

8. What happens outside Europe?

The concept of EPR has been in discussion in many countries in the world. The developments in the EU are being watched very closely. EPR for packaging waste was introduced for instance in Japan and Israel. Neighbouring countries to the EU considering membership are considering introducing similar legislature or have already done so, e.g. Macedonia, Bosnia, Croatia, and of course, Serbia.

In Canada exists a number of voluntary movements (e. g. "Ontario Stewardship"), and the government has recently decided it to enter legislation.

In the USA we see currently a quite violent discussion between pros and cons on a fundamental level; in California EPR legislature concerning packaging recovery was only narrowly blocked. Voluntary industry activities exists (e.g. Sony take back venture in Minnesota)

9. Compliance Systems and the competitive environment

Due to the high recovery targets business volumes of compliance systems can grow quite high, the largest ones in Europe achieve revenues up of several hundred Mio € p.a. In some countries they rate among the biggest customers of the local waste management companies. Furthermore, the increasing prices and demands for secondary raw material make this market more and more attractive.

Consequently more and more enterprises are trying to enter this market of compliance, claiming free access in the new member state but also increasingly in the older ones.

Forerunner is frequently the waste management industry because of the advantages gained from vertical integration and the escape from challenging tenders from the obligor-owned systems.

DG Competition ruled especially in the case of the DSD that the German market has to be opened at any costs.

The results in Germany were extremely problematic: with 8-10 companies entering the market as competing compliance systems freerider numbers climbed from almost zero to a staggering 50% (which means that only about half of the obligors pay their fees), equal treatment of customers was abandoned and the German industry as the founder and owner of DSD had to sell it to an international investor.

In Poland there are now over 30 competitors fighting for their share of packaging customers. As a result there are little or no investments in nationwide collection systems and consumer education, and it is not foreseeable when the collection infrastructure will be in place required to reach the targets.

These experiences demonstrate that the rules of free market may not fully be applicable to such areas of public services provision. Specific regulations seem necessary to avoid side effects of the common profit oriented corporate strategies which endanger an adequate, sustainable and fair build-up, maintenance and development of the required nation-wide collection system and recycling infrastructure.

These measures should include at least:

- the establishment of a singular entity for the build up of the recovery infrastructure
- provisions to avoid market distortions which may be caused by competing systems trying to gain advantages on the market: e.g. ensure equal treatment of all obligors, avoid cross subsidies of material fees, encourage long-term contracts with recyclers to prevent short term speculation with secondary materials, etc
- provisions to high quality and sustainability in management and performance of the compliance systems by setting ambitious quality prerequisites for the certification of an entity as such a system, and establish an adequate audit procedure.

10. Summary

The EPR principle has become one of the major cornerstones of sustainable Waste Policy in the EU Member States and of many other countries throughout the world. It is the underlying principle of a number of waste directives and laws, which have been in place in some countries for more than 15 years. Its validity has been recognized widely.

In all EU Member States and many others compliance systems exist and work, more than 50 in the area of Packaging Recycling and WEEE only.

The manufacturing industry has accepted their responsibility by moving into new product design principles and by creating and financing the compliance systems required.

Waste industry and communities have proven themselves as valuable partners of these systems and played their role professionally.

Waste separation has become widely accepted by the citizens as their responsibility in maintaining a sustainable life style, and separate collection is more and more becoming a

routine part of daily life. More and more urban curb side collection bins become visible as part of city infrastructure in all European capitals.

Recovery and Recycling volumes are quite high and throughout the EU targets are met. There is still a lot of work to do, especially in definitions, reporting etc., and the adjusting of feasible recovery and recycling targets to reach the optimum between environmental protection and economical feasibility is a permanent process.

It will be a major challenge for all new Member States and the other countries aspiring to become Member to introduce suitable legislature and assist the fledgling or emerging compliance organisations to establish proper national area wide collection systems. It will also require a huge effort to inform and educate the public in those areas about the necessity to play their part and motivate them to undertake the additional effort. Experience shows that it can be done and that the ecological gain is definitely worth the effort, although every nation and culture will require its own way and method.