

**DEFINITION OF INTEGRATED RESOURCE AND WASTE MANAGEMENT  
UNICE Discussion Paper****Introduction**

Although waste statistics differ greatly, according to the Dobbris Report 1995, the European Union generates annually 1,587 billion tonnes of waste. Their sectoral distribution is as follows:

- 678 million tonnes agricultural
- 352 million tonnes mining
- 336 million tonnes manufacturing
- 132 million tonnes municipal
- 57 million tonnes energy production
- 32 million tonnes other.

The public debate in Europe about waste has focused largely on municipal waste, a relatively small waste stream compared to others. The above figures underline the diversity of waste streams. This requires a flexible but coherent approach to waste management throughout the European Union. By providing definitions and principles regarding Integrated Resource Management and Integrated Waste Management, this paper offers tools for balancing waste management options with regard to their environmental effectiveness, economic costs and social benefits in a sustainable development perspective.

**Definitions**

**Integrated Resource Management (IRM)** aims at ensuring optimisation of the consumption and management of raw materials and energy in the production of goods and services and the related transport and handling, thereby preventing waste generation ("cradle-to-grave"). The safe use and management of materials entails the use of science-based methods (e.g. risk assessment, life cycle assessment), leading to risk management and possibly to risk reduction measures.

IRM can contribute to a significant reduction in waste quantity and improve waste quality (e.g. hazardousness, segregation etc). However waste generation cannot be fully prevented and

needs to be complemented by Integrated Waste Management which provides a holistic approach to manage the wastes still produced.

**Integrated Waste Management (IWM)** is a co-ordinated, multifaceted and responsible approach to waste handling aimed at achieving the minimum affordable impact of waste generation and processing and simultaneously meeting industry's obligations. IWM and IRM combine prevention, reuse and all forms of recovery (recycling, biological treatment, energy recovery, etc.), and final disposal (incineration and landfill) in a complementary way, using a flexible hierarchy on a cost-benefit basis. The appropriate waste management options are combined depending on the types, quantities of waste concerned and infrastructure available so as to ensure an optimal balance between environmental sustainability and economic feasibility, taking account of local circumstances.

### **Principles and objectives**

#### **Shared responsibility**

This principle states that all participants in the supply chain, from production to consumption, accept responsibility for the environmental impacts occurring in their specific part of the chain.

Shared responsibility thus implies that each sector/economic operator (e.g. agriculture, mining, manufacturing, energy production, retailers, users) is responsible for waste generated during its operations, and for the part of the chain where it can exert direct control.

In the particular case of municipal waste, shared responsibility must be understood as involving all economic operators, public authorities and consumers. These partners in the consumption chain need to work together to find the most appropriate environmental solutions in a cost-effective way. Product design and manufacturing are the responsibility of industry, while collection and segregation schemes should mainly be organised by the authorities in cooperation with consumers and industry when appropriate. The availability of an appropriate combination of waste management options must be carefully taken into account by the authorities prior to the setting-up of any scheme.

#### **Balance of criteria**

An optimised resource and waste management system will have to achieve a balance between the following criteria:

- Environmental effectiveness - Minimise the environmental effect of the overall resource and waste management activities

- Economic effectiveness - Minimise the cost and administrative burden of the management options so that it is affordable and sustainable
- Social acceptability - Management options meet needs and are acceptable to society.

**Flexibility in application**

Each sector generating waste (or the authorities, for the consumer) should be able to determine the recovery and other waste management options that best correspond to its characteristics and circumstances, taking due account of the criteria mentioned above.

**Holistic approach to IWM**

To be effective an integrated waste management policy must be based on the total waste generated, whatever its origin, and not focus on small fractions which are arbitrarily segregated, selected and micro-managed. This will ensure that:

- priority is given to recovery of materials for which there is a real market demand;
- the scale of the waste management operations is appropriate to support a range of treatment options and to benefit from economies of scale;
- life-cycle analysis may be used when necessary to help determine the optimal combination of waste management options used in this IWM approach.

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