

Appendix 6: Glossary of Terms

Affordability	The issue of how much a household can pay for municipal services. Often measured as % of average household income. It is a political decision to set the maximum affordable level of payment for services.
Baseline scenario	A projection over the defined time horizon of expenditure needs and financing assuming no change in policies (environmental management, economic policy etc.). The baseline scenario thus provides a "no policy" projection of water quantities, wastewater composition, collection, treatment, financing etc.
Biochemical oxygen demand (BOD)	Biochemical oxygen demand is measured as oxygen consumed over a period of five days. In this document, we use BOD synonymously with BOD ₅
Biodegradable waste	Any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste as well as paper and paperboard (EU Landfill Directive). Also referred to as Bio waste. Biodegradable waste includes organic waste. In FEASIBLE, the following fractions are included in biodegradable waste: Food waste, garden waste, paper and cardboard.
Biogasification plant	MSW R&D facility. FEASIBLE contains one type of biogasification plant with a fully automatic process and separate anaerobic treatment of the solid and liquid fractions.
Biological sand filters	Biological sand filters consist of a primary sedimentation tank (septic tank) followed by a ventilated sand filter. Sanitary wastewater flows through the plant and undergoes treatment by means of settling, biological decomposition and filtration. The treated wastewater flows to the recipient.
Biological treatment, MSW	Treatment of the biodegradable part of MSW waste under controlled conditions and using micro-organisms, producing stabilised organic residues and, under anaerobic conditions, also methane. Landfilling is not to be considered as biological treatment (EU Packaging Directive). Also called "organic recycling". Biological treatment of MSW includes composting, anaerobic digestion/biogasification, mechanical/biological treatment or any other process to sanitise biodegradable waste. In FEASIBLE, the following facilities for biological treatment are available: Biogasification plant, windrow composting plant (for garden waste), in-vessel composting plant (for food waste).
Biological wastewater treatment	Treatment of wastewater through biological processes whereby mainly organic material (BOD) is removed. Biological treatment is carried out by means of micro-organisms either suspended within the liquid (suspended activated sludge) or attached to an inert medium such as rock, slag, ceramic or plastic materials (fixed film).
Bio waste	See Biodegradable waste

Bring bank	MSW collection method. Containers for different waste fractions to which the producer of waste (householder) is required to take and sort recyclable waste types.
By-product	The output of MSW recycling/recovery processes, which may be used for other purposes. E.g. compost is an output from a composting plant.
C&D recycling facility	R&D facility where pre-sorted C&D waste is treated for sale/reuse. FEASIBLE includes one type of C&D recycling facility. The process includes primary sorting (wheeled loader), crushing, magnetic separation and sorting according to material and size (recyclables sieved in different sizes).
Capital expenditure	Expenditure related to re-investment, renovation and service extensions. Therefore, capital expenditure implies that asset values are increased.
CEE countries	Central and Eastern European Countries: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, FYR Macedonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic and Slovenia.
CIS	Commonwealth of Independent States: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, the Ukraine and Uzbekistan.
Collection frequency, MSW	The number of times per week that MSW is collected from households by kerbside ordinary collection or kerbside dual collection.
Collection method, MSW	A certain method employed to collect MSW and the physical elements involved herein, e.g. containers, collection trucks including staff, collection frequency, container positions and destination of the collected waste. FEASIBLE contains the following collection methods: Kerbside ordinary collection, Kerbside dual collection, kerbside recyclables collection, recycling centre, bring banks, take-back, container ordinary collection and container recyclables collection.
Collection system, MSW	A combination of collection methods.
Collection, MSW	The gathering, sorting and/or mixing of waste for the purpose of transport (EU Framework Directive). In FEASIBLE, MSW collection is used to denote the gathering, sorting and/or mixing of waste for the purpose of transport as well as the close range transport (up to 15 km) to the recovery and disposal facility.
Composting plant	MSW R&D facility. A composting plant is a facility which treats organic waste in an aerobic process and produces compost as a by-product. FEASIBLE includes two types of composting plants: windrow composting plant (a low-tech system without mechanical aeration) and in-vessel composting plant (fully automated process).

Construction and demolition (C&D)	The construction and demolition sector is a source of waste generation. Often referred to as the "construction sector".
Consumables	Goods (and services) that are intended for immediate consumption. In our definition, such goods and services will normally have a life span of less than one year.
Container ordinary collection	MSW collection method. Mixed waste from commerce, industry or C&D is collected and transported to a R&D facility.
Container recyclables collection	MSW collection method. Certain waste fractions (recyclables) from commerce, industry or C&D are collected and transported to a R&D facility in different containers.
Cost	The cost is all the negative financial or economic consequences of making or obtaining a service or a good. Wear and tear that reduce the value of a physical asset is a cost, while it is not expenditure, see Expenditure.
Disposal, MSW	Landfilling of waste and incineration of waste without energy recovery.
Dual collection, MSW	See Kerbside dual collection, MSW.
Dump/Dumpsite	Site at which uncontrolled disposal of waste on land takes place.
Effluent quality	It is assumed that assessment of the effluent quality is based on frequent 24-hour sampling proportional to flow (say at least 12 samples taken at regular intervals over one year)
Energy recovery	The use of combustible waste as a means to generate energy through direct incineration with recovery of heat (EU Packaging Directive etc.).
Expenditure	The amount actually paid to make or obtain a service or a good. In many cases, expenditure and costs are the same, e.g. operating costs are usually also expenditure.
Expenditure function	Function that describes how the expenditure for either constructing or operating and maintaining a given infrastructure depends on a number of parameters (usually parameters describing the total production e.g. total amount of water produced or waste collected).
Expenditure need	The expenditure required to achieve a given service level.
Facility, MSW	See Recovery and disposal (R&D) facility, MSW.
Financing gap	The difference between the estimated expenditure need and the available finance in relation to achieving a given set of environmental or service targets.

Fixed costs	These are costs that do not vary with the volume of goods and services produced (for a given production capacity). Typical fixed costs are buildings and other infrastructure, administration and management. See also Variable costs. We have introduced the condition "for a given production capacity" in the definition. Otherwise, in the long run, all costs will be variable.
Fraction, MSW	Group of materials with similar characteristics or properties, e.g. paper, cardboard, plastic, combustible waste, glass, metal. FEASIBLE includes a number of fractions for each source.
Hazardous household waste treatment facility (HHWTF)	R&D facility for treatment of hazardous waste from households. In FEASIBLE, the cost function is based on the cost of treating different types of hazardous household waste and a generic distribution of the different hazardous waste types in the household waste stream.
Home composting	The composting of biodegradable waste in a garden belonging to a private household.
Incineration	A R&D facility with thermal treatment of combustible waste with or without the recovery of energy/heat generated by the combustion process. Recovered heat can be used directly and/or to generate electricity. FEASIBLE contains three types of incineration plants; incinerator with both heat and electricity recovery, incinerator with only heat recovery and incinerator with no recovery.
Investment	The act of obtaining a capital asset consisting of goods (and services) that are not intended for immediate consumption. In our definition, such goods and services will normally have a life span of at least one year, and they add new capital stock or replace worn out parts of the existing capital stock. Investments are thus either Re-investment, Renovation or service extension.
Investment expenditure	The Expenditure resulting from an Investment.
Kerbside dual collection, MSW	MSW collection method. The waste generator (householder) is responsible for sorting the waste into dry mixed waste placed into one container/bag, and food waste placed into another container/bag for collection at a given time and in the immediate vicinity of the property.
Kerbside ordinary collection, MSW	MSW collection method. The waste generator (householder) is responsible for placing mixed waste into one or more containers or bags for collection at a given time and in the immediate vicinity of the property.
Kerbside recyclables collection, MSW	MSW collection method. The waste generator (householder) is responsible for separating out mixed recyclables and placing them into one container/bag for collection in the immediate vicinity of the property. The remaining waste fraction is placed in another container/bag and collected through a complementary collection system (kerbside ordinary collection or kerbside dual collection).

Landfill	MSW facility where waste is buried or deposited on land at a controlled and permitted site. FEASIBLE includes the following types of landfills: Type A, which is a sanitary landfill of EU standard; Type B, which is a controlled landfill (similar to type A but without plastic bottom liner and gas treatment plant) and Type C, which is a dumpsite.
Maintenance	See Operation and maintenance (O&M).
Materials recovery facility (MRF)	MSW R&D facility. An MRF is a facility where recyclables are sorted and prepared for sale/distribution. FEASIBLE contains the following types of MRFs: MRF for mixed wet waste (collected through kerbside ordinary collection); MRF for dry mixed waste (collected through kerbside dual collection); MRF for mixed recyclables (collected through kerbside recyclables collection); and MRF for source separated recyclables (collected via bring banks and recycling centres).
MSW treatment facility	See Recovery and disposal (R&D) facility
Municipal solid waste (MSW)	Waste from households as well as other types of waste which, in nature or composition, is similar to waste from households (EU Landfill Directive).
Operation and maintenance (O&M)	Cost that is required to operate an infrastructure in such a way that it provides the service for which it was designed and continues to provide such service for the designed life time of the infrastructure. Maintenance is usually small repair.
Organic recycling	See Biological treatment, MSW
Organic waste	A waste group consisting of organic waste fractions. In FEASIBLE, this includes: Food waste and garden waste.
Packaging waste	Waste from any waste source which has been used for containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the consumer (EU Framework Directive and Packaging Directive). In FEASIBLE, packaging waste may comprise a certain percentage of the following fractions: Paper, cardboard, plastic, glass and metal.
PE	Person equivalent. One PE is defined as 60g BOD per day, which is the typical amount of BOD discharged to the municipal sewerage system per person per day.
Price correction factor	Also referred to as price indicator. The expenditure functions are adapted to the national price level by applying a price correction factor. If labour accounts for 50% of given expenditure, and the national salary level is 50% of the international level used in the expenditure functions, the resulting effect is a down-scaling by 25%.
Price indicator	See Price correction factor

Recovery and disposal (R&D) facility	A facility where MSW is either recovered or disposed of. Also referred to as MSW treatment facility. FEASIBLE contains the following types of recovery facilities: material recovery facilities, composting plants, bio-gasification plant, incineration plants with energy recovery and C&D recycling facility. The following types of disposal facilities are included in FEASIBLE: Landfills and incineration without heat recovery.
Recovery, MSW	Recovery of MSW denotes the types of waste treatment whereby the MSW is recycled (including biological treatment) or incinerated with recovery of the energy produced (EU Waste Framework Directive).
Recyclable waste	Waste which, because of its composition and the existing technology, can be recycled; e.g. paper, cardboard, glass, metal, specific types of plastic; but not composite materials. Also referred to as recyclables.
Recyclables	See Recyclable waste
Recycling	Reprocessing of waste materials in a production process for the original purpose or for other purposes including biological treatment, but excluding energy recovery (EU Packaging Directive etc.).
Recycling centre	MSW collection method. An area, often enclosed, located a distance away from the houses, to which the waste generator (householder) is required to take recyclable waste, garden waste and hazardous waste, and place it into separate containers. Also referred to as recycling station.
Recycling station	See Recycling centre
Reed bed treatment plant	Reed bed plants consist of a sedimentation chamber (septic tank) followed by a shallow soil filter planted with reed. Sanitary wastewater flows through the plant and undergoes treatment by means of settling, biological decomposition, filtration and adsorption to humus and clay. The treated wastewater flows to the recipient. Settled sludge has to be removed regularly.
Rehabilitation	See Renovation.
Re-investment	Re-investment is a sub-class of Investment. For a given infrastructure, re-investment is here defined as the annual loss of value due to wear and tear. It is the physical depreciation of the infrastructure. See also Renovation.
Renovation	Renovation is a sub-class of Investment. Renovation adds to an existing capital stock in a manner which increases the value of the stock towards the value at the date of construction. Renovation and re-investment have similar effects. While Re-investment is here defined as the annual loss of value due to wear and tear, renovation can include the effect of several years of wear and tear. Rehabilitation does not establish new "independent" capital stock. Renovation and rehabilitation are used interchangeably.

Residue	The output from a recovery facility that cannot be distributed or sold and has to be disposed of at a landfill. The residue from incineration without recovery which has to be disposed of at a landfill.
Reuse	Any operation by which waste is used for the same purpose for which it was conceived (Proposed EU Directive on WEEE) e.g. refilling a glass bottle. Material enters the waste management system only when it can no longer be re-used.
Septic tank	Simple wastewater collection and treatment solution typically for individual households. A septic tank provides primary settling and cold anaerobic digestion of settled solids. There is an overflow of effluent to the recipient, and the sludge has to be removed regularly.
Service extension	Investment in either upgrading or extending of the infrastructure so that a higher service level can be provided.
Small system	Here used to describe decentralised wastewater plants typically serving up to a few hundred persons. The technologies included in FEASIBLE are reed bed treatment, biological sand filters and stabilisation ponds.
Source, MSW	Any person or entity whose activities generate waste and/or who carries out pre-processing, mixing or other operations resulting in a change in the nature or composition of the waste. Also referred to as waste generator (ref. EU Waste Framework Directive). In FEASIBLE, there are seven sources of MSW: Single-family households, multi-storey households, rural households, commerce/institutions, industries, construction and demolition activities and wastewater treatment plants.
Stabilisation ponds	A simple pond system consists of a screen, a grit and grease chamber and stabilisation ponds. Stabilisation ponds are shallow earthen basins with a long detention time. Biological treatment takes place by means micro organisms. The solids and dead micro organisms settle on the bottom, and the treated wastewater overflows to the recipient. Stabilisation ponds are suitable for hot climates, only.
Take-back	MSW collection method. The user is required to take the used product back to the producer - either directly or through the dealer's network.
Variable costs	These are costs that vary with the volume of goods and services produced (for a given production capacity). Typical variable costs are energy, consumables and day labourers. See also Fixed cost.
Waste	Any substance or object, included in the European Waste Catalogue (a list of waste types published in the Commission Decision 94/3/EC of 20 th December 1993, which is amended from time to time), which the holder discards or intends or is required to discard (EU Waste Framework Directive).

Waste flow	The "life cycle" of a specific waste fraction from source (waste generator), through collection, recovery and final disposal. Also referred to as waste stream.
Waste generator	See Source, MSW
Waste group	A specific waste fraction or combination of fractions generated at a specific source and collected by a specific collection method which shares characteristics with regard to possible types of treatment (recovery/disposal).
Waste handling	The collection, transport, recovery and/or disposal of waste.
Waste management	The collection, transport, recovery and disposal of waste, including the organisation, financing and supervision of such operations.
Waste not collected	The share of the MSW generated which is not collected for treatment/disposal, i.e. the share of waste which is dumped in an uncontrolled manner.
Waste stream	See Waste flow
WEEE	MSW fraction consisting of waste from electrical and electronic equipment.