

From waste to resources: mobilising the private sector to deliver sustainable waste management

Policy paper on infrastructure



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1. Introduction

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In most countries, managing waste is a demanding and costly undertaking, with major implications for the protection of public health, environmental quality and the depletion of natural resources. Yet policy- and decision-makers often neglect the sector in their strategic planning and investment in environmental services and municipal infrastructure.

While almost all cities and towns in economies where the European Bank for Reconstruction and Development (EBRD) invests receive a regular municipal waste collection service of some kind, service quality and delivery are frequently unreliable and inefficient. Coverage focuses primarily or exclusively on urban areas and, in many cases, once the waste has been collected, it is simply dumped at a nearby location, with little consideration of the consequences for public health, resource conservation or the environment.

This “out of sight, out of mind” attitude to waste remains prevalent in many countries undergoing transition to open-market economies (and even in some mature market economies with a well-established system of governance). Preventing waste and managing it sustainably once it has been generated are not always seen as priorities, especially when there are other pressing demands on scarce public resources. This is one of the most common challenges of waste management in transition countries – it tends to be the sector that receives the least political attention and financial support compared with other sectors such as water and electricity supply.

A comparison with the water supply sector – with which it often competes directly for political attention and investment – reveals other significant features peculiar to the waste sector (see Table 1.1).

Table 1.1. Distinguishing features of the water and waste sectors

Water sector	Waste sector
Water is universally recognised as being vital to life. Justifiably, policy- and decision-makers see improvements in the quality and availability of water as a top priority.	Waste is typically regarded as a minor negative consequence of economic activity and its proper management is often a low priority for policy- and decision-makers.
The supply of clean water is perceived to be an essential service with an obvious economic value for which householders and businesses are generally willing to pay.	Waste is perceived as having no actual or potential economic value, and its generator or owner can therefore be reluctant to pay for managing it in an environmentally sound manner.
Service users (water consumers) can usually be readily identified at the point of service delivery.	It is often difficult or impossible to identify individual service users (waste producers) at the point of service delivery.
With the application of appropriate technology or systems, service charges and billing can be linked directly to the quantity of water supplied.	Although possible in theory, it is often difficult (and in some circumstances, impossible) to link waste management service charges directly to the quantity and/or type of waste produced.
Disconnection or restriction of supply as a sanction for non-payment of service charges is feasible (at least in theory, although this is often difficult to apply in practice).	Withdrawal of services as a sanction for non-payment of service user fees is not feasible for municipal solid waste management services.
Water supply services are a “natural monopoly” ¹ and it is therefore difficult to create a competitive market for such services. This poses major constraints and challenges for private sector participation in infrastructure development and service delivery.	With certain exceptions (such as in small countries or islands, and for some hazardous waste treatment services), it is usually possible to establish a competitive market for waste management services, thereby creating scope for, and facilitating, private sector participation in infrastructure development and service delivery.
Relatively straightforward and inexpensive to regulate effectively.	Difficult and often expensive to regulate effectively.
Consumer attitudes and behaviour can be readily influenced through price mechanisms and targeted enforcement measures.	A well-functioning waste management system, especially one that includes separate collection of recyclables or other types of waste, depends heavily on social attitudes and behaviour, and the willingness of waste producers and other stakeholders to engage and contribute.

¹ A distinct type of monopoly that arises when there are extremely high fixed costs of distribution, such as exist when large-scale infrastructure is required to ensure supply.

As Table 1.1 shows, the waste sector has several unique characteristics and challenges, some of which this policy paper examines further. Notably, the paper looks at the potential and preconditions for introducing or expanding competition for the provision of municipal waste management services by mobilising and engaging the private sector.²

This paper aims to provide national, regional and local governments and waste management service providers – in economies where the EBRD invests – with concise information and guidance on the key steps, elements and reforms typically required to:

- improve solid waste management infrastructure and services with the goal of managing waste more sustainably
- realise the potential benefits of involving the private sector in their delivery.

It draws heavily on the expertise and practical experience of the authors, as well as the opinions expressed by participants in a two-day infrastructure policy dialogue seminar organised by the EBRD in London on 30 November and 1 December 2017 for representatives from Belarus, Egypt, Georgia, Kazakhstan and Tunisia.

² The term “private sector” is used to refer to formal, profit-making enterprises, but can also mean any organisation that is not public (in other words, not owned or managed by government).

The remainder of this paper is structured as follows.

Section 2 discusses the rationale, principles and steps involved in developing a more sustainable system for managing waste.

Section 3 highlights some fundamental principles and drivers or pre-conditions for creating an appropriate and effective enabling environment for private sector participation (PSP) in the delivery of waste management infrastructure and services.

Section 4 provides an overview and guidance on the principal steps and critical actions required to prepare and deliver a PSP project in the waste sector successfully.

Further information on specific topics, and links to other sources of relevant information and documentation, are provided in the annexes to this paper (available in the PDF version of this paper on ebrd.com).

2. Rationale and pathway for delivering sustainable waste management

“People ‘over-produce’ pollution because they are not paying for the costs of dealing with it.”

Dr Ha-Joon Chang, Economist and Author, University of Cambridge, United Kingdom

2.1. Key principles and objectives of sustainable waste management

2.1.1. Key principles

A number of important principles underpin viable and sustainable solutions for managing solid wastes. These are explained briefly below.

Sustainable development

The term sustainable development is “development pursued in a manner that, in meeting present needs, does not compromise the ability of future generations to meet their own needs”.³ This includes, among other activities:

- minimising the use of non-renewable resources and making prudent use of renewable resources, raw materials and energy and minimal use of land area
- minimising negative impacts on the natural and human environment, emissions to air and water, soil contamination, waste production and noise levels, and potential hazards and risks
- protecting or augmenting and improving basic natural and human capital
- capturing the economic benefits of environmentally sound approaches to development.

Integrated sustainable waste management

Sustainable waste management means using resources more efficiently, reducing the amount of waste produced and, where waste is generated, dealing with it in a way that helps to achieve the goal of sustainable development. The arrangements for waste governance and waste management together provide the “enabling environment” for integrated sustainable solid waste management (see section 2.3).

“Integrated” describes a system of managing solid wastes that:

- uses a range of interrelated technical and non-technical options and measures at different habitat levels (country, region, city, neighbourhood, household)
- involves all stakeholders, whether governmental or non-governmental, formal or informal, for-profit or non-profit
- takes into account interactions between the waste management system and other systems.

“Sustainable” describes a waste-management system that is:

- appropriate to the local conditions in which it operates, from a technical, social, economic, financial, institutional and environmental perspective
- capable of maintaining and financing itself in the long term.

Figure 1 illustrates the concept of integrated sustainable waste management.

Proximity principle and self-sufficiency

The proximity principle means that waste should be treated or disposed of as near as possible to the point where it arises. This principle aims to avoid the adverse environmental impacts of transporting waste unnecessarily. However, the environmental impacts of transporting waste very much depend on local conditions and circumstances.

The practical application of this principle varies according to the nature of the waste concerned, the quantities involved and the potential environmental impact of the method of waste disposal and the mode of transport. There must also be a balance between the proximity principle and economies of scale.⁴

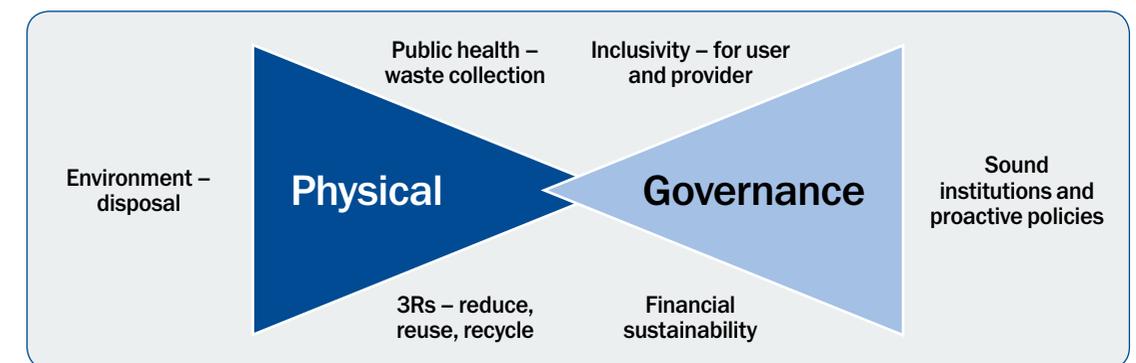
In certain cases, economies of scale may mean that some specialist treatment, recovery or final disposal operations may take place far from the point where the waste arises. The overall aim of the proximity principle is to move as far as possible towards self-sufficiency in sustainable waste management (both nationally and regionally).

“Polluter pays” principle

The “polluter pays” principle means that a polluter should bear the full costs of the consequences of its actions. The potential environmental and human health costs of producing, treating and disposing of waste should therefore be reflected in the price of products and in the fees for managing solid wastes in a legally compliant and environmentally sound manner.

Charging for the provision or use of waste management facilities and services is important, not only in order to generate revenues to cover their costs, but also because this helps to instil a sense of value among service users and consumers and creates an incentive to reduce the quantity and/or the polluting characteristics of the wastes generated. Progressively raising fees or tariffs for the use of waste management facilities and services to levels that reflect their true long-term cost to society is one of the most effective ways of encouraging environmentally desirable behaviour and ensuring that the necessary infrastructure and services can be financed. This is the philosophy underlying the “polluter pays” principle as applied to the waste sector.

Figure 1. Integrated sustainable waste management



Source: D. C. Wilson, C. A. Velis, and L. Rodic (2013), “Integrated sustainable waste management in developing countries”, *Proceedings of the Institution of Civil Engineers: Waste and Resource Management*, 166 (2), pp. 52-58.

³ World Commission on Environment and Development (Brundtland Commission). <https://www.sustainabledevelopment2015.org/AdvocacyToolkit/index.php/earth-summit-history/historical-documents/92-our-common-future>

⁴ “Economies of scale” refers to the cost advantages that accrue due to the scale of a system or operation (typically measured by the amount of output produced or, in the case of waste, the amount of waste handled), with cost per unit decreasing with increasing scale. In general, the greater the capital intensity of a facility or system for managing waste, the greater the potential economies of scale.

Waste management hierarchy

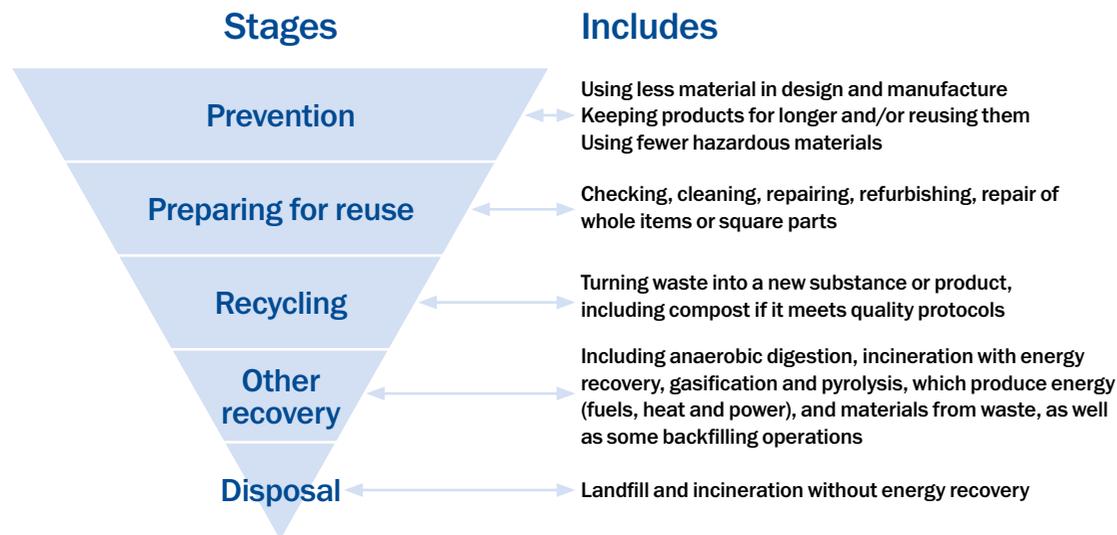
The concept of a waste management hierarchy has been developed over the past two decades. It provides a preferred order of priorities for selecting and applying waste management practices. In descending order of importance, these priorities are as follows.

- 1. Waste prevention** – Minimising the use of resources and reducing the quantities and/or harmful qualities of the wastes generated.
- 2. Reuse** – Using products or items again for the same purpose for which they were originally conceived.

- 3. Recycling** – Reprocessing waste materials for use as a feedstock in the manufacture of the same or a different product.⁵
- 4. Other recovery** – Obtaining value from wastes by (for example) composting, energy recovery or other technologies.
- 5. Disposal** – If there is no other appropriate solution, the disposal of waste by landfilling or incineration without energy recovery.

Figure 2 illustrates the concept of the waste management hierarchy. This principle should be considered in conjunction with others, in particular the best practicable environmental option (BPEO).

Figure 2. The waste hierarchy



⁵ Recycling includes the reprocessing of organic material but does not include energy recovery or reprocessing into materials that are to be used as fuels or for backfilling operations.

Extended producer responsibility

The principle of extended producer responsibility (EPR) is an extension of the “polluter pays” principle. It is about ensuring that the manufacturers, importers, distributors and retailers of products that result in the generation of wastes, take collective responsibility for those wastes, rather than expecting the community to bear the burden of arranging and paying for waste collection, treatment and disposal.

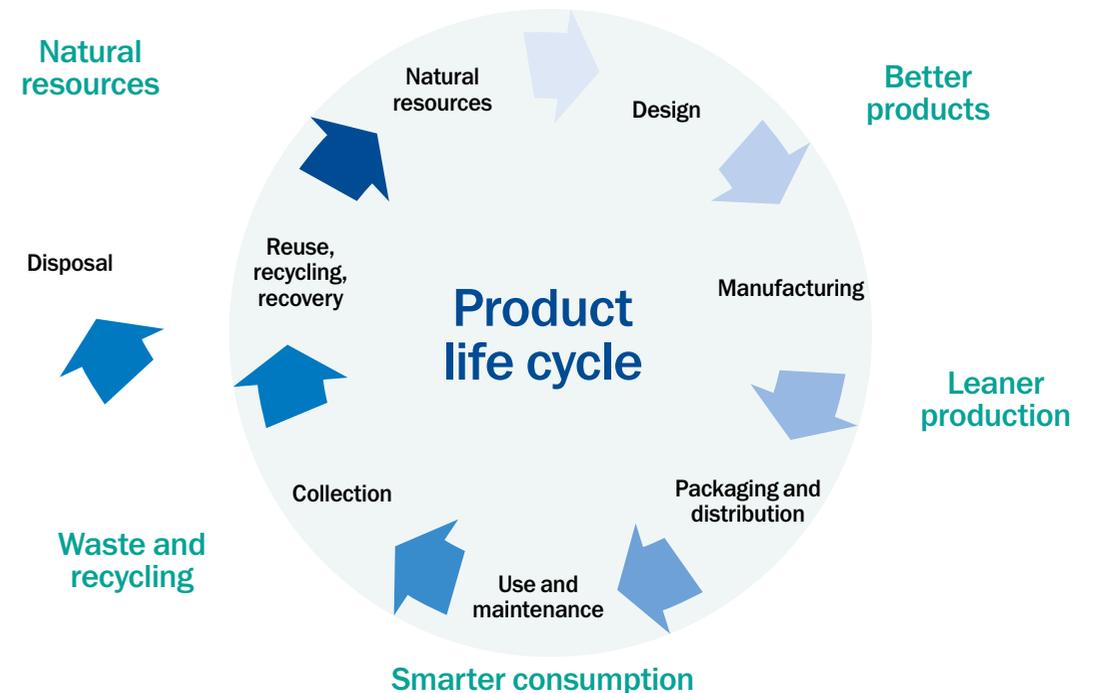
The meaning of “producer” in this context is much broader than the normal sense. During the life cycle of a product, from its manufacture until the end of its useful life, it is not only the manufacturer who influences the waste generating and management characteristics of a product. Others also play a significant role. However, it is the manufacturer who has the dominant role, since it is the manufacturer who takes the key decisions concerning the design and composition of the product that determine its waste generating potential and management characteristics. This principle therefore implies

that producers (in the broad sense) should take responsibility for:

- minimising the waste that arises from the use of their products
- designing and developing goods which are inherently recyclable and do not contain materials that pose an unnecessary burden for the environment
- accepting end-of-life products for reprocessing and subsequent reuse or recycling, for example, used packaging materials; waste electrical and electronic equipment (WEEE)
- developing markets for the reuse and recycling of the goods they produce.

EPR can add value at all stages of the product life cycle, as Figure 3 illustrates.

Figure 3. Extended producer responsibility



Best practicable environmental option

The best practicable environmental option is the outcome of a consultative evaluation and decision-making process that emphasises the protection of the environment across land, air and water. The BPEO process establishes, for a given set of objectives and circumstances, the option that provides the greatest benefits or least damage to the environment as a whole, at acceptable cost, in the long term as well as in the short term.

Best available techniques not entailing excessive costs

The principle of “best available techniques not entailing excessive costs” (BATNEEC) was first introduced in the European Union in 1984 with Directive 84/360/EEC and applied to air pollution emissions from large industrial installations. This principle can be applied more broadly to evaluate and select a process which is considered to be the most appropriate for preventing or minimising pollution, while at the same time being reasonable and affordable in financial terms:

- **“Best”** means the most effective in preventing, minimising or rendering harmless polluting emissions.
- **“Available”** means procurable in that it is generally accessible but does not necessarily imply that the technique is widely used or only available locally.
- **“Techniques”** covers both the process and how it is operated. It includes the concept and design of the process, number and qualifications of the operators, their training and supervision, the design, construction, layout and maintenance of the plant and its buildings.
- **“Not entailing excessive costs”** is subjective and each case must be judged on its own merits. There are no fixed rules for determining whether or not the costs of available techniques are excessive, but every effort should be made to minimise the more serious emissions and adverse environmental impacts.

BATNEEC is typically applied once the BPEO has been determined. For example, it may be used in choosing which of a range of possible pollution control technologies or techniques should be applied at a waste management facility.

Best available techniques

In 1996, Directive 84/360/EEC was superseded by the Integrated Pollution Prevention and Control Directive (IPPC), 96/61/EC, which applied the framework concept of best available techniques (BAT) to the integrated control of pollution to the air, water and soil. The concept was also part of the directive's recast in 2008 (2008/1/EC) and its successor directive, the Industrial Emissions Directive 2010/75/EU (IED) published in 2010 – see Annex A (available in the PDF version of this paper on [ebrd.com](#)).

This directive covers the following industrial activities: energy, metal production and processing, minerals, chemicals, waste management and other sectors such as pulp and paper production, slaughterhouses and the intensive rearing of poultry and pigs. All installations covered by the directive must prevent and reduce pollution by applying the best available techniques, efficient energy use, waste prevention and management and measures to prevent accidents and limit their consequences. The directive defines BAT as “the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole”.

In order to define BAT and the BAT-associated environmental performance at EU level, the European Commission organises an exchange of information with experts from Member States, industry and environmental organisations. This work is co-ordinated by the European IPPC Bureau at the EU Joint Research Centre in Seville (Spain). This process results in BAT Reference Documents (BREFs); the BAT conclusions contained are adopted by the

Commission as implementing decisions. The IED requires that these BAT conclusions are the reference for setting permit conditions for installations covered by the directive.⁶

Good governance

“Good governance is the transparent and accountable management of human, natural, economic and financial resources for the purposes of equitable and sustainable development. It entails clear decision-making procedures at the level of public authorities, transparent and accountable institutions, the primacy of law in the management and distribution of resources and capacity building for elaborating and implementing measures aiming in particular at preventing and combating corruption.”⁷

Although all of the above principles are important and should be reflected in national policies and legislation, policy- and decision-makers (especially at the national level) should adapt these principles to suit national priorities and conditions, taking account of resource and capacity constraints, especially at the regional or local level.

2.1.2. Key objectives

Strategic objectives and priorities for reforming and improving existing arrangements for managing wastes will vary both nationally and regionally but, typically, these would include:

1. at the national level, gradual alignment and harmonisation of waste management policies, legislation and standards with international or European Union (EU) legislation and standards.⁸
2. placing solid waste management on a more environmentally sustainable footing by:
 - limiting or reducing the amount of solid waste generated
 - adopting environmentally sound methods and systems for managing solid waste
 - recovering value from the wastes generated, where technically feasible and economically viable.
3. improving the quality and extending the coverage of waste management services across all communities.
4. improving the financial sustainability of waste management infrastructure and services by:
 - using available resources more efficiently or cost-effectively, and
 - gradually applying and reflecting the “polluter pays” principle in user fees or charges.

⁶ For further information on BREFs, visit eippcb.jrc.ec.europa.eu/reference/

⁷ Article 9.3 of The Cotonou Agreement.

⁸ A summary of EU policy and legislation on solid waste management is presented in Annex A (available in the PDF version of this paper, on [ebrd.com](#)).

2.2. Challenges of moving from a linear to a circular economy

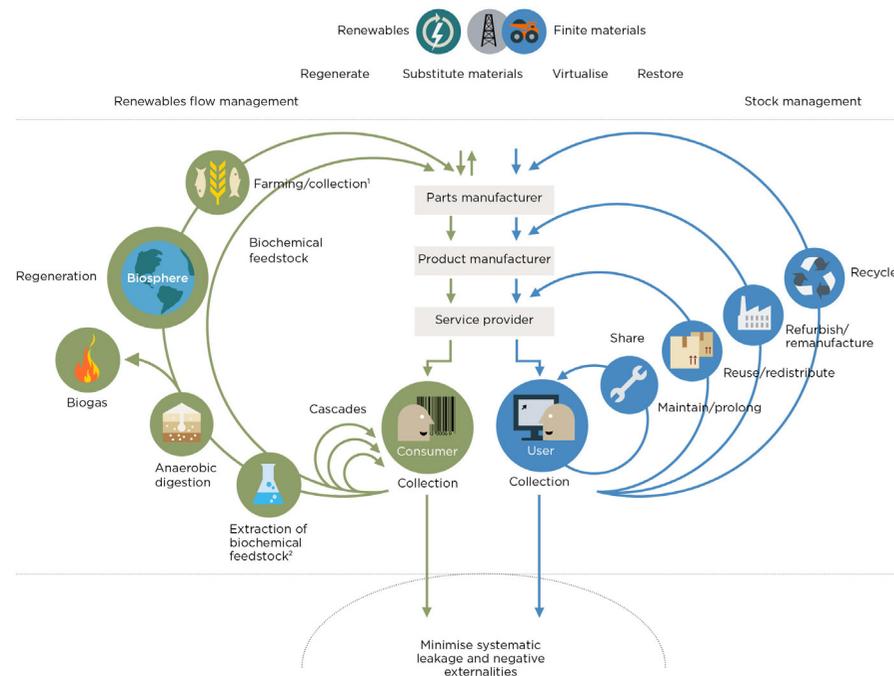
A circular economy differs fundamentally in concept and underlying philosophy from a linear economy. The main differences lie in the way in which natural resources are extracted and exploited within an economic system.

In a linear economy, raw materials are extracted and then used to make a product which, after use, is discarded to become part of a mixed waste stream that must be managed and disposed of. This is the so-called “take-make-consume-dispose” linear economic model. A linear economy relies on two basic (and questionable) assumptions:

- there will always be sufficient primary resources that can be extracted and used
- there will always be somewhere to dispose of discarded products or materials without causing significant harm to people and life-sustaining ecosystems.

In contrast, in a circular economy, raw materials circulate in a series of loops or cycles that differ depending on whether the material is organic, synthetic or technical in nature (see Figure 4).

Figure 4. The circular economy – a system that is regenerative by design



1. Hunting and fishing
2. Can take both post-harvest and post-consumer waste as an input

SOURCE: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment; Drawing from Braungart & McDonough, Cradle to Cradle (C2C).



A circular economy is regenerative by design, with the aim of retaining as much of the value embedded in products, parts and materials as possible. This requires a system that encourages and, as far as technically and economically feasible, maximises the useful life, optimal reuse, refurbishment, remanufacturing and recycling of products and materials, thereby progressively increasing resource efficiency and decoupling economic growth from the use and depletion of primary resources.

In practice, a circular economy implies reducing waste generation to a minimum through product life extension (reuse or refurbishment or remanufacturing) and, when a product eventually reaches the end of its useful life, recovering and recycling its component parts and materials back into the economy wherever feasible. There are numerous examples in which this concept has been applied to specific products in various sectors. However, moving towards a circular economy involves a variety of challenges and systemic barriers, some of the more significant of which are:

- **Natural limits to circularity:** Matter has a natural tendency towards dissipation and disorder and, for this reason, there will always be material and value losses from an economic system. A 100 per cent closed-loop circular economy is therefore not achievable.
- **The global span of many product markets:** Where, for example, raw materials are sourced from one part of the world, products manufactured in another and then sold, used and discarded in a third, this tends to inhibit efforts to achieve greater circularity.

- **Lack of appropriate economic enablers or motivators:** Key economic enablers or motivators of a circular economy are often weak or completely lacking, such as pricing systems that encourage resource efficiency or waste prevention and take full account of environmental costs; incentives for producers and recyclers to work together in order to improve performance within and across specific value chains; reliable and predictable markets for secondary raw materials.

- **High transition costs:** Moving to a circular economy involves considerable transition costs, such as research and development and asset investments; subsidy payments to create incentives and promote new business models; and public investment in clean technologies, sustainable waste management systems and digital infrastructure.

- **Resistance to change:** Moving to a circular economy requires systemic changes in producer and consumer behaviour and related business models. Many industries are currently based on a fast turnaround or short product life cycle driven by fashion and/or rapid technological obsolescence. Businesses and consumers often have little knowledge about the potential benefits of a circular economy and tend to be reluctant to adopt new models of production and behaviour.

- **Multi-dimensional nature of the changes required:** Moving to a circular economy requires actions to be taken at multiple levels (for instance, international, national, local, business and individual) and in many policy areas (such as waste governance or management, professional training and skills development, product design, manufacture and packaging, research and development, and finance). This is difficult to achieve in practice.

For these and other reasons, most countries remain extensively wedded to a linear economic model.

Source: Ellen MacArthur Foundation www.ellenmacarthurfoundation.org

While moving towards a circular economy can bring significant long-term economic and environmental benefits, the introduction of cleaner technologies and waste recovery and recycling systems often involves a substantial commitment of scarce resources and additional financial costs (at least in the short term). For countries in the early stages of transition to open-market economies, the first priority should therefore be to:

- establish an efficient, reliable and affordable system for collecting, transporting and disposing of waste in an efficient, safe and environmentally sound manner, and
- close and rehabilitate existing dumpsites

with waste recovery and recycling being introduced as a formal component of integrated management systems at a later stage in the development of the sector.

2.3. Achieving sustainability in waste management: the key elements

In order to achieve and maintain an efficient, environmentally sound and financially sustainable system for managing wastes, all of the following elements must be in place:

1. **a policy** that addresses all aspects of the “enabling environment” required to manage wastes sustainably
2. **primary legislation** supported by **comprehensive secondary legislation** that gives legal effect to, and underpins as necessary, all of the principles, objectives, targets and guidelines set out in the policy
3. an effective system and sufficient resources for **monitoring and enforcement of legislation**
4. a system and sufficient resources for **physically managing the various types and quantities of waste generated**, cost-effectively and in accordance with all applicable standards and legal requirements
5. a sufficient and predictable **means of funding and paying for the costs** of providing elements 3 and 4 above on a continuing basis.

If any of these elements is missing or deficient in a significant way, this is likely to have severe adverse effects on a country’s ability to achieve and maintain an environmentally and financially sustainable system for managing solid wastes. It should be noted that four out of the five elements listed above are concerned with waste governance, and it is in this area where countries in transition often face the greatest challenges and needs for reform (as section 2.3.1 discusses).

2.3.1. Waste governance

The essential components of an effective system of waste governance are:

- a comprehensive policy and legislative framework
- efficient and effective institutional structures and organisational arrangements
- sufficient human resources, with the necessary professional capacities and technical expertise
- accurate, reliable data and information on the sources, nature, quantities and fate of solid wastes generated
- a programme and system for ongoing communications and consultations with, and inclusion of, all key stakeholders
- a policy and programme for financing, funding and recovering the costs of managing wastes which, taking account of affordability constraints, enable major investments in essential waste management facilities and infrastructure to be financed, and ensure the long-term financial sustainability of the sector.

The framework and resources for waste governance create the pre-conditions that influence the types and quantities of wastes generated and determine or regulate the way in which these are subsequently managed, and therefore all of the above-listed components need to be addressed in a cohesive, integrated manner.

Policy, strategic and legislative framework

A comprehensive waste management policy⁹ forms the cornerstone of an effective system for waste governance, and due attention and sufficient time and resources should be devoted to formulating such a policy in conjunction with key stakeholders as the first step towards reforming and strengthening waste governance. The process of developing a policy should be inclusive and informed by a thorough baseline analysis and appraisal of the problems and deficiencies associated with the existing arrangements for preventing and managing wastes and their respective causes.

Once a waste management policy has been developed and, as far as possible, agreed by key stakeholders, the next essential step is to develop a national waste management strategy¹⁰ accompanied by an implementation plan,¹¹ which together describe all the various changes and measures required to deliver the policy successfully. The waste management strategy should present and explain the full spectrum of actions and measures that government and other stakeholders intend to take in order to realise the objectives and outcomes set out in the policy.

The national policy and strategy should also explicitly recognise and encourage the contribution of the informal sector in capturing valuable resources and reducing the amount of waste landfilled. Furthermore, it should incorporate provisions for formalising and integrating the role of self-employed waste pickers and recyclers into the organisational arrangements for managing wastes at local and regional levels, for example by encouraging the formation of waste-picker cooperatives, and establishing agreements with registered cooperatives which define their rights and regulate their activities as part of an integrated waste management system.

⁹ A concise “vision” and set of overarching principles, strategic goals or objectives and policy guidelines for the future management of wastes in a country, region or locality.

¹⁰ An overall framework or blueprint that stipulates the actions and measures to be taken to achieve the goals of the agreed waste management policy, and by when.

¹¹ A document containing the details of how the various actions and measures foreseen in the waste management strategy will be undertaken and by whom.

Having approved the policy and finalised the national strategy, it is usually necessary to reform national legislation and regulations relating to solid waste management, in order to create a legislative framework which gives legal effect to the policy and underpins the various measures foreseen in the strategy. Usually, this is best achieved through the development of a sectoral framework law which, among other features:

- provides comprehensive legal definitions for key words and terms relating to solid waste management which are harmonised with internationally used definitions
- defines the key actors in the sector (waste producers, transporters, processors and so on) and their respective rights and obligations, including the formal ownership of waste at different stages of handling
- embeds in law the long-term national goal and strategic objectives for sustainable waste management
- embodies and gives legal force to the government's policies and principles relating to waste management set out in the approved policy
- establishes a statutory duty of care (with exemptions where appropriate) on the part of any entity or person who imports, produces, carries, keeps, treats or disposes of waste or, as a broker, has control of waste
- provides for the eventual introduction of extended producer responsibility for specified types or categories of products (see also section 2.1.1)
- provides for the eventual introduction of hypothecated "eco-contributions" or levies on waste-generating products that have a demonstrable, specific negative impact on the environment and/or the systems required to manage the ensuing wastes in an environmentally sound manner

- sets up a mechanism for monitoring implementation of the national policy and strategy and determining further actions which may be necessary to achieve national policy objectives and targets
- incorporates provisions for progressively introducing secondary legislation (regulations or by-laws, including legally binding technical standards and codes of practice) for regulating specific waste-generating products, waste management activities and waste streams
- defines and assigns institutional competence and responsibilities for policy formulation and strategic planning, implementation, permitting and enforcement at national, regional and local levels
- establishes an independent and unified system for controlling and permitting all waste management facilities and activities (including waste containment, collection and transport), and for monitoring and enforcement (including minimum requirements and criteria for inspections)
- provides for appropriate penalties (including fixed penalties) for offences
- repeals all existing legislative acts or instruments that are conflicting, irrelevant or obsolete.

Such a framework law could focus solely on solid waste management (for example, a Sustainable Solid Waste Management Act), or a law that is much broader in scope and which addresses all aspects of environmental protection in a comprehensive manner (for example, an Environmental Protection Act incorporating several chapters or parts with related schedules). The major advantage of a broader law is that it provides the basis for a more integrated and streamlined approach to environmental management and protection which avoids conflicts and overlap, and is easier to monitor and enforce. However, a comprehensive Environmental Protection Act of this kind usually requires considerably more time and effort to prepare and enact.

Institutional and organisational framework

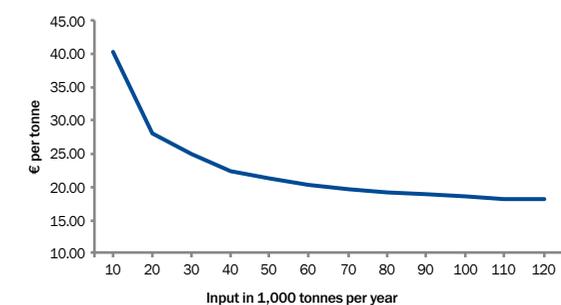
A strong, transparent institutional framework is essential to effective waste governance. Without such a framework, the system will not function well over the long term. In addition, to deliver waste management services reliably and cost-effectively, a city or municipality must have the capacity and the organisational structure to be able to manage finances and services in an efficient and transparent manner, streamline management responsibilities and communicate with service users. For the waste management system to function well, underlying issues relating to management structures, procurement procedures, human resources, accounting, cost recovery and corruption all need to be addressed.

As a general rule, central government should confine its role and activities to the development and oversight of the system for waste governance, in particular the development and application of a national policy and strategy, together with supporting legislation and guidance, and the reform or strengthening of institutional structures and organisational arrangements for regulating and managing solid wastes.

Statutory responsibilities for strategy implementation, infrastructure development and operation, service provision and regulation should as far as possible be delegated to lower levels of government or specialised agencies, taking into account resource and capacity constraints, economies of scale, and so on. However, in some circumstances (especially where local authorities are small and lack the necessary expertise and capacity), there may be advantages in assigning such responsibilities to a government-owned, semi-autonomous national entity with a clearly defined mandate, management and decision-making structure, and which is operated along commercial lines.

To a greater or lesser extent, all facilities and services for physically managing wastes (including sanitary landfills – see Figure 5) exhibit economies of scale and, in most situations, are best organised and operated at a regional or, in small countries, national level which allows the potential for such economies to be realised.

Figure 5. Landfill economies of scale



Note: Figures shown are indicative and exclude the costs of land acquisition.

Source: Integrated Skills Limited

The system of governance and institutional framework should therefore facilitate and incentivise cooperation between contiguous local authorities (through, for example, the formation of joint services councils), taking into account local or regional factors such as administrative boundaries, population density and distribution, transport networks and so on.

Likewise, where a municipal waste management service provider is also owned and ultimately controlled by a local authority or group of local authorities, a clear legal, institutional, organisational and financial distinction and separation should be established between "the client" for the services (representing the interests of its residents as service users) on the one hand, and "the services provider" on the other. Otherwise, conflicts of interest are likely to arise, as well as undue political pressure and interference in the day-to-day management and operation of the services provider.

Human resources

Substantial human resources are usually required to implement a policy and strategy for managing wastes more sustainably, and these are likely to fluctuate markedly over time. These relate primarily to implementation of the legislative reforms, and institutional and organisational measures required on the one hand, and development and supervision of the systems and infrastructure for physically managing wastes on the other. Typically, additional human resources will be required at all levels and will include engineers, professionally qualified managers, technicians and skilled operatives.

An assessment of the institutional and human resources and skills needed to implement the policy and strategy should be undertaken once detailed decisions regarding the institutional and organisational arrangements for managing wastes have been taken. In particular, it is important to assess the extent to which the private sector is expected to be involved in the delivery and operation of solid waste management infrastructure and services (see section 3 of this paper).

In this respect, a distinction should be drawn between the institutional and human resources and skills required to:

- undertake tasks of a limited duration, such as preparing detailed implementation plans for sub-components of the strategy, or planning, procuring and supervising the construction of new public waste management infrastructure and services
- undertake ongoing functions such as monitoring and enforcement under steady-state operating conditions
- meet peaks in workload associated with ongoing functions.

Many of the resources needed to implement limited-duration tasks could be brought in from the private sector. But those required to undertake ongoing

institutional functions are likely to require the permanent assignment of additional resources.

Meeting peaks in the workload associated with ongoing functions, especially during the early years of strategy implementation, is often difficult in terms of institutional planning and human resource provision. Outsourcing can sometimes help to meet peaks in workload but, in many instances, this will only provide a partial solution.

Data availability, monitoring and reporting

The adage “If you don’t measure something, you can’t manage it”¹² is certainly true of solid waste management. To varying degrees, countries in the EBRD regions suffer from a lack of reliable data and information on waste types and flows, and their fate and impact on public health and the environment. This in turn presents a significant challenge and constraint on the long-term planning and development of a more integrated and sustainable system for managing wastes.

Given the critical importance of detailed, accurate data for planning and managing every aspect of solid waste management, governments in transition countries should endeavour, among other goals, to:

- establish and develop a national system for classifying, regularly collecting, processing, analysing and disseminating data and information on the sources, nature, quantities and fate of wastes, and solid waste management processes and facilities
- develop the specialised laboratory facilities required to monitor and analyse waste and the emissions from waste management facilities
- introduce a legally binding obligation on waste producers (with the exception of householders and certain small and medium-sized enterprises) and on waste management service providers to collect, record and report data and information about the wastes they generate or manage

- ensure that all public waste management facilities above a certain capacity are equipped with electronic weighbridges and databases that can be accessed and interrogated remotely by the responsible authorities
- conduct a municipal waste characterisation survey every few years in order to identify long-term trends in the generation and composition of municipal solid waste
- develop accurate and reliable cost accounting systems, standards and procedures in accordance with internationally accepted accounting principles (International Financial Reporting Standards) in order to determine and monitor the actual costs of providing waste management services and the tariffs required to achieve full cost recovery.

Stakeholder communication and consultation

Implementing a waste management policy, strategy or project inevitably involves numerous changes in existing systems, practices, attitudes and behaviour. In any society or community, the interests and aims of different institutions, organisations and individuals do not always coincide. Consequently, all such changes require cooperation and support from other stakeholders¹³ in order to implement them successfully. Some of the most common and difficult communication challenges faced by policy- and decision-makers include the need to gain stakeholder acceptance, cooperation and support for:

- the siting and construction of new waste management facilities such as transfer stations, recycling facilities and landfill sites
- proposals to involve the private sector in infrastructure development and service delivery
- necessary changes in practices and behaviour (such as participation in waste prevention and recycling initiatives)

- measures aimed at progressively revising or increasing tariffs for managing municipal waste more sustainably to a level that recovers the full costs of doing so.

Inevitably, there will always be a body of opinion which is opposed to such changes, even if they can be shown to provide economic and environmental benefits for the common good.

Thus, the fundamental purpose of stakeholder communication and participation is to identify and then manage stakeholder concerns, expectations and behaviour in a way that avoids negative reactions and builds support for a proposed policy, strategy or project. It is especially important to involve and consult stakeholders at all stages in the development, implementation and subsequent management of projects that are designed to achieve national and local policy objectives.

The starting point for an effective stakeholder communication and consultation programme is a stakeholder analysis which:

- identifies all those organisations, groups or individuals who have a significant interest in the proposed project
- investigates their respective roles, interests, relative power and capacity to participate (strengths and weaknesses)
- identifies the extent of cooperation or conflict in the relationships between stakeholders.

The results and findings of the analysis should then be used to develop and refine the project concept or definition and formulate a targeted plan or programme for ongoing communications and consultations with, and participation of, all key stakeholders over the life of the project (see also section 4.1.2 of this paper).

¹² Adage attributed to Peter Drucker, management consultant, educator and author, who invented the concept known as “management by objectives”.

¹³ A stakeholder is any organisation or individual who, directly or indirectly, is influenced by and/or exerts an influence on the activities and decisions that take place within a project or programme.

Financing, funding and cost recovery

While raising the financing needed for new investments can be a challenge, generating sustainable funding is often the most difficult task faced by waste managers and decision-makers. The new or upgraded facilities and systems needed to manage wastes more sustainably invariably incur higher costs to develop and operate and, as with any other better-quality product or service, these need to be financed and paid for at some point. Accordingly, a key element of integrated sustainable waste management is financial sustainability.

Financial sustainability is assessed or verified by comparing all financial inflows (in other words, revenues and sources of project financing) and outflows (namely, operational and maintenance costs, investment costs) over the lifetime of a project or programme. Typically, the project or programme is considered to be financially sustainable only when its cumulative cash flow is positive and there are sufficient funds available to meet all of its resource needs and financial obligations at all times.

In principle, with a sufficient and predictable revenue stream, improvements in solid waste infrastructure and services can be readily financed in a variety of ways, including:

- long-term loans from a national, international, bilateral or multilateral financial institution (such as the EBRD)
- loans provided by commercial financing institutions (domestic and/or foreign)
- fixed-term bonds or loan stock
- lease-purchase of new facilities
- sale and lease-back of existing waste management facilities

- transfers from the regular state budget
- non-repayable grant financing from a national institution, such as a state-supported environmental fund
- non-repayable grant financing from international or bilateral donors, for example, the EU's Investment Facility for Central Asia or new Neighbourhood Investment Platform.

As a general rule, only investment projects that meet the criteria for long-term financial sustainability can be co-financed using funds from international or bilateral financing institutions.

Infrastructure project financing that is privately arranged or provided allows the financier or service provider much greater influence and control over how waste management facilities are built, accessed and operated, while the public contracting authority's¹⁴ ability to maintain flexibility and ensure operational security is correspondingly diminished. In order to retain ownership and overall control over strategically essential infrastructure (such as regional landfills and major waste treatment or recovery facilities), contracting authorities should therefore endeavour to finance major investments in strategically essential waste management infrastructure through a combination of international or bilateral loans and their own budgetary resources.

On the other hand, provided that the critical preconditions for PSP listed in section 3.2.3 are met, the investments required for expanding and upgrading municipal waste collection and transport services and developing non-strategic waste management infrastructure can generally be financed (either entirely or partially) by the private sector through participation in the supply and delivery of these facilities or services.

The revenue streams required to cover costs and service loans might be generated from any or all of the following sources:

- **user charges**, where a fee is paid (directly or indirectly) by the users of a waste management facility or service
- **earmarked charges or other economic instruments**, levied on a waste-generating product or activity and where the resulting revenues are allocated exclusively for expenditure on purposes related to waste management, for example to finance (or co-finance) the provision of landfill or recycling facilities
- **general taxation**, with funds allocated from the state and/or municipal budgets.

In accordance with the “polluter pays” principle, the long-term objective of governments and municipalities should be to set service user fees at levels that recover the full costs (including investment costs) of providing and maintaining public waste management facilities and services that meet the required environmental and other performance standards. However, in pursuing this objective, policy- and decision-makers should give full consideration to the affordability¹⁵ of any proposed increases in user fees, especially for households on low fixed incomes.

Unlike other public services, withdrawal of service provision as a sanction for non-payment of user fees is not possible for municipal waste services. Consideration should therefore be given to linking the tariff and billing arrangements for municipal waste management services to the tariff and billing system of another public utility service such as electricity supply.

While an appropriate, well-functioning regulatory regime is indispensable for effective governance and sustainable waste management, preference should be given wherever feasible to market-based measures and solutions. In this context, the scope for introducing differentiated charges (“eco-contributions”) on specific waste-generating products or materials, and on the disposal of active wastes to landfill, should be explored, the revenues from which could be earmarked and applied to finance some of the costs of developing strategically essential infrastructure.

2.3.2. Waste management systems

The essential components of an integrated system for physically managing wastes generated are:

- waste containment at or close to the point of generation
- regular collection of generated wastes
- transport of collected wastes (with or without intermediate transfer)
- safe final disposal of collected wastes (with or without intermediate treatment).

Desirable or potentially beneficial components of an integrated system for physically managing wastes are:

- waste prevention and reduction
- separation and recycling of recyclable materials
- treatment and recovery of non-recyclable waste.

¹⁴ EU law defines contracting authorities as state, regional or local authorities, bodies governed by public law, or associations formed by one or more such authorities or bodies governed by public law.

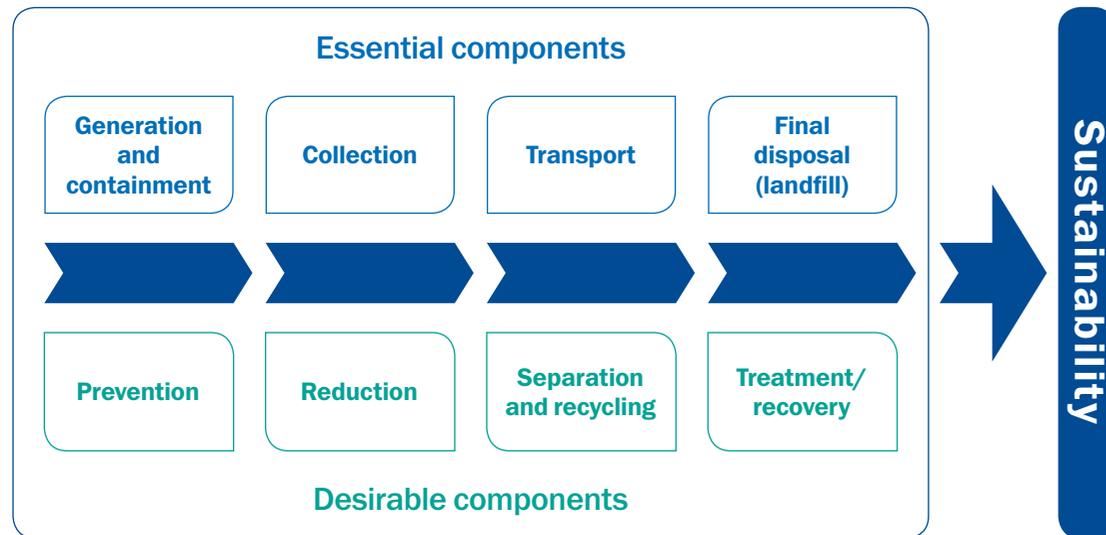
¹⁵ Affordability is generally interpreted as the price that household waste producers can afford to pay without jeopardising their ability to meet other basic needs.

Figure 6 illustrates these components, which are reviewed briefly on pages 23-28.

Annex B (available in the PDF version of this paper on ebrd.com) presents an overview of the technical

options for physically managing municipal and similar solid wastes, together with a summary of the main variants, advantages and disadvantages of each option.

Figure 6. Components of a waste management system



Source: Integrated Skills Limited.

Waste prevention and reduction (desirable)

Waste prevention is positioned at the top of the waste management hierarchy (see section 2.1.1 of this paper) and is therefore considered to be preferable in principle to all other methods of managing waste. Waste prevention and reduction encompass a broad range of policy options and measures and offer numerous potential environmental and other benefits (see section 2.2). Targeting waste production at source reduces the amount and/or toxicity of waste before recycling, composting, energy recovery and landfilling become options. Waste prevention can also include measures to reduce the adverse characteristics and impacts of waste on the environment and human health.

Waste prevention can be achieved by reducing the quantity of material used to create products, by extending a product's lifetime and by increasing the efficiency with which products, once created, are used. Preventing waste by avoiding or limiting unnecessary consumption and by designing and consuming products that generate less waste are strict forms of waste prevention. Waste prevention also encompasses actions that extend a product's life, such as repair, reuse, refurbishment or remanufacture.

Policy instruments and measures designed to encourage waste prevention and reduction include:

- **information provision** and dissemination
- **economic disincentives** ("sticks"), aimed primarily at changing behaviour by altering the cost structure faced by waste generators
- **extended producer responsibility**, including mandatory schemes, voluntary agreements and the setting of targets (see section 2.1.1)

- **economic incentives** ("carrots"), designed to provide positive financial encouragement to prevent and reduce wastes
- **regulatory measures**, which restrict the choice of options that is legally available to consumers or waste producers.

In practical terms, strategic measures to encourage waste prevention and reduction should:

- focus on those stages in the product life cycle over which government can realistically expect to exert some practical influence (namely local manufacture, import, local distribution, consumption, discard, collection, treatment and final disposal)
- concentrate on those sources and types of waste which, by virtue of their volume and/or their potential to cause pollution, are a significant environmental, social or economic burden on the community
- as far as practicable, allocate the full long-run costs of managing particular waste streams directly to the waste producer
- have already been applied with some demonstrable degree of success under comparable circumstances elsewhere
- endeavour to preserve market flexibility and consumer choice.

Containment or temporary storage of waste (essential)

The containment of waste while awaiting collection is the first essential component of an integrated system for managing wastes in an efficient and environmentally sound manner. The principle objectives of waste containment are to:

- improve hygiene and reduce health risks
- prevent dumping, spillage and indiscriminate scavenging
- increase the efficiency of collection.

As well as reducing health risks and environmental pollution, well-designed and constructed containers for storing wastes temporarily at or close to the point of generation, and positioned in locations that offer easy vehicle access, can increase the productivity of collection vehicles and reduce unit collection costs dramatically, thereby improving the efficiency and affordability of waste collection services.

There are substantial economic and operational benefits to be gained from using communal storage containers of a standard design and capacity to the maximum extent possible. A popular and widely used choice of universal storage container for household, institutional and commercial wastes is the 1,100 litre four-wheeled, mechanically emptied “Euro” container manufactured in either plastic or (preferably) galvanised steel – see Figure 7. Communal container systems can also be readily adapted to facilitate the later introduction of waste segregation at source and separate collection of dry recyclable materials and bio-waste – see Figure 8.

Figure 7. 1,100 litre Euro container in galvanised steel



Figure 8. 1,100 litre recycling containers



Source: iStockphoto.

Public and operative acceptance of communal container systems can be greatly enhanced by constructing purpose-designed container stands which are:

- convenient for users
- unobtrusive and inoffensive to nearby residents
- easy for collection vehicle crews to access
- easy to clean and maintain.

Collection and transport (essential)

After temporary storage in a suitable container, all generated wastes must be collected and transported using a wheeled vehicle of some kind. Waste collection and transport constitute the largest elements of the total cost of managing wastes in a safe and environmentally-sound manner (typically >70 per cent), and so these are the system components that warrant particular attention and investment aimed at improving service quality and coverage, and increasing performance and cost-effectiveness.

The optimum size and configuration of collection vehicle depends, among other factors, on:

- vehicle access and traffic conditions in the collection area
- distance or average journey time to the waste discharge point
- legal or other restrictions on maximum payload
- local customs and culture
- costs (capital and operational).

Although generally more convenient for waste producers (as well as achieving higher capture rates and yields in the case of separate collection of recyclable materials), door-to-door or kerbside collection systems are significantly more expensive to develop and operate (typically >50 per cent

higher) than communal waste containment and collection systems.

Waste collection vehicle productivity can be significantly increased and unit costs reduced by using larger capacity vehicles (for example three-axle models, with a payload of approximately 10 tonnes) and/or reducing waste collection frequencies where feasible. However, the scope for doing so will depend on local conditions, in particular the design and quality of the road network and prevailing traffic densities.

As a rule of thumb, where the one-way travel distance by road between the epicentre of waste generation and collection and the designated waste discharge point is greater than about 25 km, the potential benefits of using transfer-loading should be explored. Transfer-loading refers to the process by which waste collection vehicles discharge their loads at a facility (transfer station) where they are subsequently transferred into larger vehicles or other transport medium for onward transport.

While transfer stations vary widely in terms of size, design and cost, they all serve the same basic purpose – consolidating waste from multiple smaller collection vehicles into fewer, larger, high-volume transfer vehicles for more economical shipment to a distant treatment or final disposal facility. This also reduces fuel consumption and collection vehicle maintenance costs, and overall traffic levels, air emissions and road wear.

The use of transfer-loading becomes particularly relevant when introducing new or upgraded facilities designed to operate at a regional level in order to reduce adverse environmental impacts and exploit economies of scale. Where transfer-loading stations are developed as part of an integrated regional solid waste management system, their design should incorporate facilities for pre-sorting and processing recyclable materials prior to transfer, and a separate “civic amenity” area for the safe reception and storage of wastes (including potentially hazardous wastes) delivered by the public.

Modern computerised modelling techniques and management information systems can facilitate and greatly enhance the tasks of planning, optimising and subsequently managing waste collection and transport infrastructure and services, and can result in significant increases in resource efficiency and productivity and reductions in operating costs. However, before embarking on such computerised modelling, a specification should be prepared which describes in detail the proposed parameters, functionality and outputs of the modelling for review by key stakeholders.

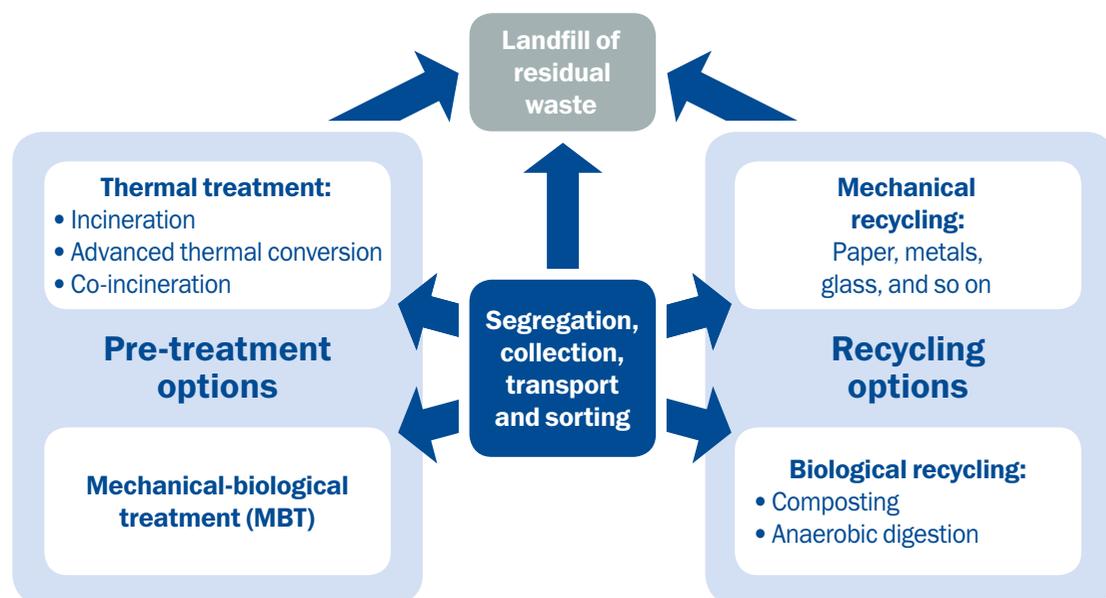
Recycling, treatment and recovery (desirable)

Options for recycling, treating and recovering municipal solid waste can be broadly divided into two main types, depending on whether or not the segregation of waste at source and separate collection of various waste components is undertaken – see Figure 9.

As Figure 9 shows, various options are available for processing either mixed solid waste or the materials separated from it for recycling or for pre-treatment and recovery prior to final disposal. After waste prevention and reduction, the waste management hierarchy accords the highest preference to recycling, over recovery and disposal options.

For economic success and sustainability, recyclable materials and products need to find a reliable market at a price that at least covers the cost of their recovery and processing. The price commanded by recyclable materials depends heavily on quality. Clean, well-sorted and contaminant-free secondary materials generally command a much higher price than mixed, low-quality or dirty materials. Indeed, in many instances low-quality recycle has no market and so must be otherwise recovered or landfilled. For this reason, schemes or investments aimed at capturing recyclable materials and products from mixed waste streams are unlikely to be cost-effective or economically viable.

Figure 9. Technical options for recycling and treating municipal solid waste



Source: Integrated Skills Limited.

Increasing the recovery and recycling rates of municipal and other types of post-consumer waste significantly therefore generally requires:

- the introduction of segregation at source and separate collection of recyclable materials, especially in urban areas which have a higher concentration of waste production and potentially recyclable materials
- the introduction of take-back schemes for certain types of product-specific waste (such as packaging waste, end-of-life vehicles, end-of-life tyres, waste electrical and electronic equipment, used mineral and synthetic oils, waste batteries and accumulators)
- the development or expansion of local and export markets for potentially recyclable materials or products by, for example, offering well-designed economic incentives and removing unnecessary legal, technical or other barriers.

There is no value to be gained in collecting and processing recyclable materials or products unless viable long-term markets for them either exist or can be created. Initiatives to recover and recycle waste should therefore always be preceded by a thorough assessment of actual and prospective markets for the targeted materials or products, in particular the quantities and qualities (grades) required by intermediate processors and end users.

Novel or unproven technologies or techniques for treating and recovering wastes should be avoided. In particular, decision-makers should beware of persuasive salesmen selling “snake oil”, in other words, a technology or system of little real value that is promoted as a “free” or low-cost solution to a waste management need or problem.

Final disposal (landfill) (essential)

Final disposal in the form of sanitary landfilling can be defined as the controlled deposit of waste on land, with or without pre-treatment.¹⁶ As such, it is distinguished from dumping, which is characterised by the absence of any controls over the disposal operations and a lack of management of the dump site and its emissions into the environment.

Modern sanitary landfills should be designed, constructed and operated in accordance with recognised technical standards and practices such as those contained in the EU Landfill Directive (see Annex A in the PDF version of this paper, on ebrd.com). As the option of last resort in the waste management hierarchy, landfill should ideally be reserved for disposing only of stabilised wastes from which no further value may be economically recovered.

Landfilling of biodegradable wastes results in the formation of landfill gas (LFG) and leachate. It is important to manage both of these effectively. The methane emitted in landfill gas is thought to account for the main greenhouse gas impact of municipal waste management. LFG may be collected and either disposed of by flaring or by using it as a fuel.

The length of time over which LFG is generated in a landfill depends on a variety of factors, in particular the nature and composition of the waste, the placement methods and local climatic conditions. High levels of gas production typically occur over a 10-15 year period, starting about six months after the waste has been deposited. Under certain conditions, generation of LFG can continue for 50 years or more.

¹⁶ Under the EU Landfill Directive (see Annex A in the PDF version of this paper, on ebrd.com), landfilling of untreated waste is prohibited.

The calorific value of LFG is typically around half that of natural gas and so, under favourable conditions, it can be economically attractive (and environmentally beneficial) to abstract and recover LFG for subsequent use. LFG can be used in three main ways:

- as a direct source of heat energy, in kilns, boilers and furnaces, if a suitable customer or user is located nearby
- for the generation of electricity using reciprocating or turbine engines, either for use locally or for sale to a third party
- for upgrading to higher-quality fuel such as liquefied gas (often bottled).

In addition to reducing the damaging effects of emissions from landfill sites, the use of LFG brings the extra benefit of displacing power or fuels produced from (non-renewable) fossil sources.

All typical non-hazardous components of municipal solid waste are currently regarded as acceptable for landfilling, including the residual fractions remaining after the separation of materials for recycling and stabilised residues from pre-treatment processes such as incineration and mechanical-biological treatment.

3. Enabling private sector participation in sustainable waste management

“The annual funding gap for the Sustainable Development Goals is many trillions of dollars. The only way to close that gap is with the help of the private sector...”

Mahmoud Mohiedin, Svetlana Klimenko, World Economic Forum, 31 July 2018

There is no single, universally accepted definition of private sector participation (PSP) or a public-private partnership (PPP), and these terms are often used interchangeably. For the purposes of this paper, the term PSP is used in its broadest sense to refer to long-term, contractually based cooperation between public authorities and private businesses, with the aim of delivering infrastructure and services that have traditionally been provided by the public sector.

While most forms of PSP involve the introduction of private sector expertise and contractually defined performance requirements, PPPs typically also include:

- transfer of the majority of the risks and responsibilities for project delivery from the public authority to a private contractor
- a payment mechanism linked to performance which is specified primarily in output terms
- a substantial financial commitment by the private contractor and its financiers.

PPPs are more commonly used for larger infrastructure investments such as the development and operation of a new solid waste treatment or recovery facility. PSP or PPPs are not forms of privatisation that involve the permanent transfer of publicly owned assets to the private sector.

For simplicity, the term PSP is used throughout this paper except when referring explicitly to forms of PPP.

PSP, if prepared and implemented well, can help to overcome inadequate infrastructure and public services that constrain sustainable development and economic growth, particularly in transition or developing countries. Infrastructure investments are known to accelerate economic growth and reduce income disparities, especially in transition countries. But poor infrastructure and public services often reflect various constraints faced by governments, for example, insufficient public funds, poor planning, weak analysis underpinning project selection, preparation and implementation or, in some cases, corruption. Infrastructure assets developed solely by public sector entities are also often poorly designed and/or maintained. Mobilising the private sector and introducing PSP in infrastructure development and service delivery can help to overcome some of these challenges.

This section outlines the main steps and some of the key requirements and considerations for creating an effective enabling environment for mobilising the private sector and introducing PSP in the waste sector.

3.1. Key drivers and principles of private sector participation

3.1.1. Drivers

The key drivers for mobilising the private sector and introducing PSP in the waste sector vary from country to country. However, the ones most often cited by governments or public authorities include the potential scope for or benefits of:

- introducing or expanding effective competition, by reforming and strengthening public procurement legislation and contracting procedures, and removing or reducing barriers to market entry
- delivering improvements and innovations in waste management infrastructure and services more rapidly, comprehensively and/or on a larger scale than would be achievable by the public sector alone
- realising efficiencies in the use of resources and exploiting economies of scale through PSP in the development and operation of integrated regional waste-management systems and services
- equitable, cost-effective transfer of responsibilities and risks to the private sector
- achieving significant cost savings and increased value-for-money compared with a traditional public sector approach to infrastructure development or service delivery
- increasing the visibility and predictability of the whole-life costs of delivering new or upgraded waste management infrastructure and services
- mobilising private capital to reduce pressures on limited public budgetary resources
- better maintenance of the physical assets used for service delivery over the long term

- catalysing and/or accelerating advancements in social welfare, economic transformation and environmental quality.

3.1.2. Principles

The basic aims of PSP are to:

- establish and structure a relationship between the public sector and the private sector so that the responsibilities and risks¹⁷ associated with carrying out public infrastructure projects and/or providing services are borne by the party best able to manage them at least cost
- achieve increased value for public services through the exploitation of economies of scale, private sector know-how, skills and resources.

For successful PSP, an appropriate policy and legal framework for identifying, evaluating and managing project risks needs to be established. This topic is considered in section 3.2 of this paper.

The essential features of PSP are:

- a long-term contract between a public (contracting) authority or entity and a private contractor, under which the private enterprise delivers or contributes to the provision of a public service, which may also include the development and operation of the infrastructure required to deliver the service
- the private contractor receives a revenue stream – which may be from public budget allocations, from user charges, or a combination of the two – that is dependent on the availability and quality of the contracted service; the contract therefore transfers responsibility for service delivery and related risks from the public entity to the private enterprise, including service availability and levels and all or part of the risk of changes in demand

- in general, in the case of PPPs, the private contractor must also make a substantial financial commitment to the project

- in addition to budget allocations, the public entity may make further contributions, such as providing or enabling access to land; contributing existing assets; or providing debt or equity finance to cover capital expenditures (the government may also provide various forms of guarantee that enable some risks to be shared optimally between the public entity and the private contractor)

- in most instances, at the end of the contract, the associated assets revert to public ownership.

With the introduction of PSP, private sector entities become long-term providers of facilities and services, while public sector agencies become increasingly focused on regulation, service planning, performance monitoring and contract management.

Although the potential benefits of PSP can be substantial and enduring, they should not be regarded as a panacea or the only way to deliver sustainable waste management services at an affordable cost.

Underlying any decision to engage a private contractor to provide waste management facilities or services is the expectation that the contractor's profit and (where relevant) higher cost of capital will be more than offset by greater efficiencies in the management and use of the resources employed to deliver the facilities or services. While this is often the case, the potential for realising such efficiency gains is very much influenced by national policy, project scale and local conditions or constraints, in particular the scope for generating and maintaining competition and the capacity or ability of the contracting authority to monitor the private contractor and enforce the terms and conditions of the PSP contract.

3.2. Creating an appropriate policy, legal and institutional framework

3.2.1. Policy framework

As in the case of waste governance, a comprehensive national PSP policy provides the foundation for a successful framework and programme for expanding private sector participation in sustainable waste management. Therefore, sufficient time and resources should be devoted to formulating a policy of this kind, in close consultation with key stakeholders. The policy should ensure above all that PSP projects are:

- **well-defined and structured**, with risks allocated appropriately (see also section 4.1)
- **procured at minimum cost**, for example, by ensuring beforehand that a project is intrinsically bankable¹⁸ and that procurement is transparent, fair, competitive and attracts as many bidders as possible
- **developed and implemented efficiently**, for example, by reducing the number and complexity of regulations and improving communication and coordination between government agencies.

¹⁷ In the context of PSP, a risk is any factor, event or influence that threatens the successful development, operation and completion of a project in terms of cost, time or quality.

¹⁸ A project is generally considered bankable if lenders are willing to finance it (usually by providing long-term debt finance).

An outline for a national PSP policy should include:

- the purpose and scope of the policy: government's vision, goal, objectives and priority sector(s)
- a definition of PSP – for example, projects will be considered to be PSP if:
 - the private partner provides some combination of the design, construction, funding, management, maintenance and operation of infrastructure
 - the project delivers long-term, performance-based services
- the principles that should or must be adopted and applied by different sector actors, especially contracting authorities, for example, in respect of methods or criteria to be used for determining value for money, identifying and allocating risks, and formulating payment mechanisms for PSP projects
- when central government approval must be sought (at different stages of the project)
- conditions for the allocation of central government financing, subsidies and/or other forms of support
- an identification or allocation of responsibilities among government entities, including responsibility for:
 - assessing and selecting projects for PPP, project promotion, development and marketing
 - allocating government support and managing fiscal risk
 - regulating performance and implementation
 - gathering know-how and lessons learned, standardisation, operating guidelines
- processes and procedures to be used for procuring, managing and auditing PSP projects.

3.2.2. Legal and institutional framework

The effectiveness and impacts of private sector participation depend, to a large extent, on the legal and institutional framework and regulatory mechanisms used to govern, influence and guide the parties involved in a PSP transaction. Because of these critical dependencies and interactions, it is preferable to establish an effective legal and institutional framework before attempting to implement the principles and measures set out in the approved national policies and related strategies for waste management and PSP.

From the perspective of the private sector, the legislative and regulatory framework for PSP needs to be assured (in terms of the respective rights and obligations of contracting authorities, private operators and investors), predictable, stable, commercially oriented and consistently applied. In order to provide such assurance, governments should in the first instance:

- identify any existing legislative or regulatory barriers or constraints that could impede PSP, or adversely affect the viability and potential advantages to be gained from PSP
- identify which public authorities or entities have the statutory power and capability to perform the various functions associated with a PSP project
- consider the need for restructuring of existing public or communal waste-management service providers with respect to their legal status, mandate and ownership
- assess the need for a sector-specific regulation in order to facilitate and manage private sector participation, including the definition of permissible contract types or limits, the conditions under which public assets may be transferred or made available to privately owned entities, and the development of appropriate institutional structures to oversee and regulate private service providers

- take whatever steps may be necessary to ensure that public procurement rules or requirements maximise the efficiency of the procurement process, reduce opportunities for corruption, and encourage fair and open competition
- identify those regulatory requirements that may need to be incorporated directly into PSP contracts, and assess the extent to which safeguards against regulatory risk also need to be reflected in such contracts
- review and, where necessary, reform legislation governing land rights and acquisition, in order that land can be acquired reasonably quickly while establishing clear rights to compensation and resettlement
- review and, where necessary, reform legislation governing how service tariffs are set and collected, taking into account the “polluter pays” principle (see section 2.1.1 of this paper)
- review and, where necessary, reform legislation governing how contract disputes are resolved and enforced, and the rights and obligations of the contracting parties in the event that a PSP project fails or does not proceed according to plan
- review and, where necessary, reform legislation governing employment rights, in order to facilitate the transfer or secondment of public employees to a private entity or contracting party
- consider how PSP project assets, revenues, interest payments and profits will be taxed.

The legal and regulatory measures required to implement the PSP policy are often consolidated into a single specialised legal instrument such as a PSP or PPP law, concession law or similar. Alternatively, the legal framework may be embedded in other legal instruments (laws, decrees or regulations), such as those related to procurement, infrastructure sector regulations, government finance or privatisation. The

need for a specific law or set of regulations associated with PSP or PPP will depend on the nature of the legal system and current legal framework, for example, whether the legal system is based primarily on civil law or common law.

A specific PSP law is not an essential precondition for involving the private sector in public infrastructure development and service delivery. However, where such a law is required, this should be as concise and simple as possible, with any more detailed provisions that may be needed dealt with through administrative codes or regulations. This also helps to ensure that the legal framework is more readily adaptable to changes in the market and/or best practices. In addition, this ensures that the overall, more broadly defined legal framework, enacted at the national level, remains consistent over time and appropriate to current needs and circumstances.

Furthermore, it is usually good practice for the regulatory framework to include standardised model tender and contract documentation that include provisions for dialogue and interaction with prospective bidders. This is especially important for complex PSP projects that require a deeper interaction with, and feedback from, a list of pre-qualified bidders. These issues are discussed in section 4 of this paper.

Whatever the legal authority supporting PSP, detailed guidelines are usually needed to ensure the proper and consistent application of legislation and regulations by those responsible for implementing PSP projects.

The institutional framework for PSP should:

- be generally commensurate with the scale and scope of the tasks required to implement the government's policies and programme for PSP
- build on existing institutional responsibilities and processes to the extent possible

- define and allocate clearly the institutional responsibilities, relationships and functions for different stages or aspects of the PSP project cycle (in other words, project identification and appraisal, approval, structuring and preparation, procurement, performance monitoring and evaluation and contract management and supervision) to those entities or agencies that have the competence, resources, incentives and information to discharge the responsibilities
- establish a tailored programme for developing and strengthening the institutional capacities required to carry out the allocated responsibilities and functions effectively over the project life cycle, in particular procurement, performance monitoring or evaluation and contract management and supervision (see also sections 3.3 and 4.3 of this paper).

Developing an appropriate institutional framework should commence with a detailed assessment of the existing institutional capacities and future requirements for delivering the anticipated PSP programme or projects. Where national capacity and experience in developing and managing PSP projects is generally lacking, government should consider establishing a dedicated PSP unit to lead and support the implementation of its policy and programme (see also section 3.3.1).

The detailed role, functions and subordination of such a dedicated unit within the government institutional structure will depend on whether the government's PSP policy and programme are expected to apply universally to all sectors, or only to the development of one or two targeted sectors such as municipal infrastructure and services. In the former case, the dedicated unit will usually operate more effectively if it is attached or linked to a key ministry (such as a ministry of finance). In the latter case, the unit should be linked or attached to the line ministry or government department responsible for the targeted sector (for example, a ministry of environment or ministry of regional development).

3.2.3. Competitive environment

Empirical evidence from around the world suggests that the dominant driver of improvements in performance and increased value-for-money in the waste sector is open and fair competition between appropriately qualified and well-resourced service providers (which may also include incumbent publicly owned communal service providers, provided they are operated and managed independently from the client authority).

The critical preconditions for attracting and mobilising the private sector are:

- strong and visible political commitment and support for PSP across all levels of government
- having an appropriate legal framework for PSP in place (see also section 3.2.2)
- a succession or pipeline of well-planned and prepared opportunities for PSP in the sector is planned or likely to be forthcoming
- contracting authorities are stable, reliable and competent
- procurement methods, procedures and timetables that are appropriate, realistic and demonstrably transparent and fair
- payment for outputs or services properly delivered or performed by private service providers is assured over the entire contract life
- service requirements that are clearly defined, objectively verifiable and specified in output terms – see section 4.2.1
- proposed contract terms, including procedures for dispute resolution, that are fair, enforceable and bankable

- risks allocated to the private sector that are familiar, predictable and manageable
- appropriate and enforced regulations and standards relating to the specified outputs or services
- the possibility for the private sector to make a reasonable profit exists.

From a private sector perspective, the predominant considerations when deciding whether or not to enter a market are usually that proposed projects are well planned and prepared, related contracts are well drafted, fair and enforceable, and payments for services properly rendered are assured. Section 3.3.2 discusses this topic further.

3.3. Establishing an effective framework for private sector participation in project development and procurement

3.3.1. Institutional strengthening

A lack of public sector institutional capacity and experience is often one of the key challenges for PSP. PSP involves more complicated structures and processes than traditional publicly funded and implemented projects, and these usually require new or different skills throughout the project cycle that are more typically found in the private sector than in the public sector. The challenge can be further amplified by resistance or inertia within the public sector to unfamiliar processes and methods (such as specifying performance requirements in output-rather than input-based terms).

Governments should therefore aim to identify and build the necessary long-term institutional capabilities and capacities. This requires a multi-faceted approach which establishes new or reformed institutions where necessary, creates dedicated project development and procurement teams in line ministries or contracting authorities, trains public officials to perform core functions and brings

in external expertise when needed. Depending on the nature and scope of the project, a dedicated PSP project development and procurement team may typically need to include the following types of representation and sectoral expertise:

- a “project champion” – a senior individual employed by the contracting authority who is committed to developing and progressing the project, and overcoming any barriers or resistance
- a duly authorised, high-level official from the contracting authority, preferably with a legal background
- a representative of the responsible line ministry and/or ministry of finance
- local or regional political representatives (for instance, a mayor, municipal councillors)
- representative(s) of existing communal waste management service provider(s)
- experts or advisers in:
 - waste systems planning, engineering and operation
 - waste management logistics
 - information technology and geographical or management information systems
 - PSP project financial analysis, structuring and financing
 - environmental and social impact assessment
 - procurement legislation, and related tendering and contracting procedures or negotiation
 - stakeholder analysis, communications and consultation.

The project team will normally have an advisory role, with the contracting authority making or approving all key decisions.

A central source of technical and financial expertise, such as a national PSP unit, can support decision-makers and contracting authorities in acquiring a clear understanding of capacity requirements and limitations from the outset. Such a central source of

information and expertise may also be able to help build up the depth of the domestic PSP advisory market and benefit from lessons learned.

Typically, PSP units have a number of functions, including:

- developing or improving the policy, legal and regulatory context for PSP
- ensuring that the PSP programme is integrated with overall government planning, fiscal risk management and regulatory systems
- ensuring that projects protect government, environmental and social interests and comply with relevant requirements
- promoting PSP opportunities at the international, national and regional levels, among potential investors and the financial markets and developing those projects that are likely to maximise value-for-money, competition and sustainability.

The PSP unit can also provide a single point of contact for investors and contracting authorities or public agencies, coordinating activities so that the overall programme is as uniform and consistent for investors as possible. PSP units with clearly defined executive powers tend to work better than those that solely provide advisory services because they are then able to exert more influence over contracting authorities.

In order to minimise the potential for conflicts of interest, a dedicated PSP unit should normally remain at arm's length from the tasks of individual project promotion, development and implementation. The unit should confine its role to certain functions such as reviewing and assessing the technical merits and business case for projects proposed by other public sector agencies, and monitoring and enforcing the principles and requirements (especially financial requirements) set out in the government's PSP policy.

3.3.2. Payment mechanisms and performance incentives

The payment mechanism defines how the private party to a PSP project is remunerated and lies at the heart of the contract between a public contracting authority and a private contractor. It is also one of the main ways of allocating risk effectively and ensuring that a contractor meets performance requirements – see also section 4.1.4 below.

A well-designed and structured payment mechanism should:

- be simple and linked directly to measurable project outputs or deliverables
- create a financial incentive to perform well
- be affordable for the contracting authority, and provide appropriate remedies in the event that the private party does not meet its obligations
- comply with the key principle that payments should be made only if the asset or service is available, at the contractually agreed quality and performance levels
- be flexible and enable adjustments to be made to take account of unforeseen changes or events
- not be based on the private contractor's actual costs
- not require the private contractor to bear excessive risk
- where appropriate, include indexation to compensate for cost increases due to inflation.

In principle, payment mechanisms can comprise one or more of the following:

- **user charges** – payments received by the private contractor directly from users of the infrastructure or service (for example, waste disposal fees)
- **usage-based payments** – payments from the contracting authority to the private contractor that vary according to how much the infrastructure or service is used
- **availability-based payments** – payments from the contracting authority to the private contractor for making infrastructure or services available for use at the contractually agreed standard
- **performance-based payments** – payments from the contracting authority to the private contractor that vary according to the quality of service provided
- **bonuses and deductions or penalties** – if specified outputs and/or standards are met, or conversely not met
- **provisions for adjustment** – to take account of unpredictable changes in service needs and/or operating conditions.

PSP projects that involve private sector finance provide an opportunity for the public sector to convert up-front capital expenditure associated with traditional public investment projects into a flow of recurring service payments. These payments are structured so that the remuneration of the private party is linked to performance. In order to create an incentive to deliver services at the contractually agreed quality and performance levels, remuneration (net of costs) should increase when approaching the agreed service levels, and conversely decrease when deviating significantly from these levels.

A useful way to approach the design of a payment mechanism is to start with an “ideal” structure from the perspective of the contracting authority. Usually,

the contracting authority would want to pay the private contractor a fixed price, in arrears, for (and only for) each element or unit of service that has been provided in accordance with the service quality requirements. This complies with the key principles that payments should be made only if the service is available, at the agreed service levels and standards, and that payments should not be based on the private contractor's actual costs. However, while such an ideal mechanism would give the private contractor strong incentives to perform, it might also require it to bear excessive risks.

“Excessive” in this context infers that the payment premium required by the private contractor to bear the risks would not be worth the gain obtained from increased efficiencies. It might also mean that the private contractor would be more likely either to make excess profits or incur significant losses, which could threaten the viability of the PSP project. Therefore, the payment mechanism should be refined by moving away from the “ideal” mechanism towards a balanced scenario of risk and reward for the private contractor. In particular, it is important to make sure that risks which are entirely or largely beyond the control of the private contractor are not transferred to it – see section 4.1.4.

When designing the payment mechanism, the contracting authority and its advisers should also pay particular attention to features that could give the private contractor perverse incentives¹⁹ or are complicated or ambiguous (as these may later give rise to disputes). The payment mechanisms of comparable projects or sectors (where available) may also provide a useful benchmark against which to assess the impact and consequences of a proposed payment mechanism.

It is important to extensively model alternative payment options for different scenarios and assumptions. This should be done in order to calibrate the parameters of the payment mechanism and ensure that it functions satisfactorily under a set of performance scenarios representing the expected-, best- and worst-case project scenarios, respectively.

¹⁹ An incentive that leads to an unintended and undesirable consequence that is contrary to the interests of the contracting authority.

In the case of the waste sector, development of a suitable payment mechanism is heavily influenced by the nature and scope of the proposed PSP project(s). In particular, it is affected by whether a project focuses primarily on the provision and long-term operation of waste management infrastructure (such as a new landfill site), or the delivery of municipal services such as waste collection and transport, street cleaning, and so on. This issue is considered further in section 4.1.3.

3.3.3. Dispute resolution

Disputes are fairly common features of PSP contracts. Such contracts are generally complex and long-term and hence unexpected events or circumstances are almost certain to arise during the life of the contract. A failure to address disputes of this kind at an early stage can have a devastating impact on a PSP project. The contract provisions and mechanisms available to resolve disputes are therefore a significant factor in the assessment of contract risks by potential private bidders for or investors in PSP projects.

The contract between the contracting authority and the private party should therefore provide for a hierarchy of dispute resolution processes or procedures. The most commonly used options are:

- **independent expert determination**, which is especially effective in disputes involving the quality of service delivery, equipment or materials, and is usually inexpensive, straightforward and quick
- **non-binding mediation or conciliation**, which is an alternative to independent expert determination and involves the assistance of an expert mediator or conciliator whose role is to facilitate discussions and settlement between the parties in dispute
- **arbitration or litigation (national or international)**, which is generally only used either when there has been a total breakdown in the relationship between the contracting parties, or where binding arbitration or, alternatively, litigation through the courts is likely to provide the most appropriate means of achieving a formal resolution of the dispute. Litigation should only be used as a last resort.

Most standardised or model forms of contract incorporate such a hierarchy of dispute resolution processes or procedures. However, it is important to ensure that the contractual provisions for dispute resolution contained in model contracts are appropriate and enforceable in the relevant legal jurisdiction by consulting with appropriately qualified legal experts.

The location chosen for the dispute resolution may sometimes be an issue for international service providers and investors, who may be concerned that they will not get a fair hearing in the project jurisdiction irrespective of the dispute resolution process used. However, for contracting authorities, having the dispute resolution take place in another country is usually unacceptable. A realistic approach to this issue is required, because potential bidders will not bid unless they are confident of the integrity and fairness of the dispute resolution process.

In some cases where unforeseen events or changes in circumstances have had a fundamental impact on the integrity or viability of a PSP contract, it may be necessary or desirable to renegotiate certain contract terms and conditions in order to resolve a dispute. Such a situation may be perceived as a failure by some stakeholders. However, while contract renegotiation can be a difficult process, it is a normal feature of PSP projects. It can also be an opportunity to amend the contract terms in order to address the changed needs of the project stakeholders and/or reflect the unexpected circumstances that the contracting parties have now encountered, to the benefit of the parties and the project beneficiaries alike.

4. Achieving private sector participation in sustainable waste management

“We assess the risk profile of all opportunities, reviewing contract performance, geography, local assets, material risks and other criteria before we put our bid teams to work, so a late-to-market, overly complicated, badly timed and poorly packaged opportunity will be unlikely to interest us”

SUEZ Recycling and Recovery UK Ltd., quoted in the CIWM Journal, April 2018

This section outlines the main elements and some of the key requirements and considerations for structuring, preparing, procuring and implementing PSP projects in the waste sector.

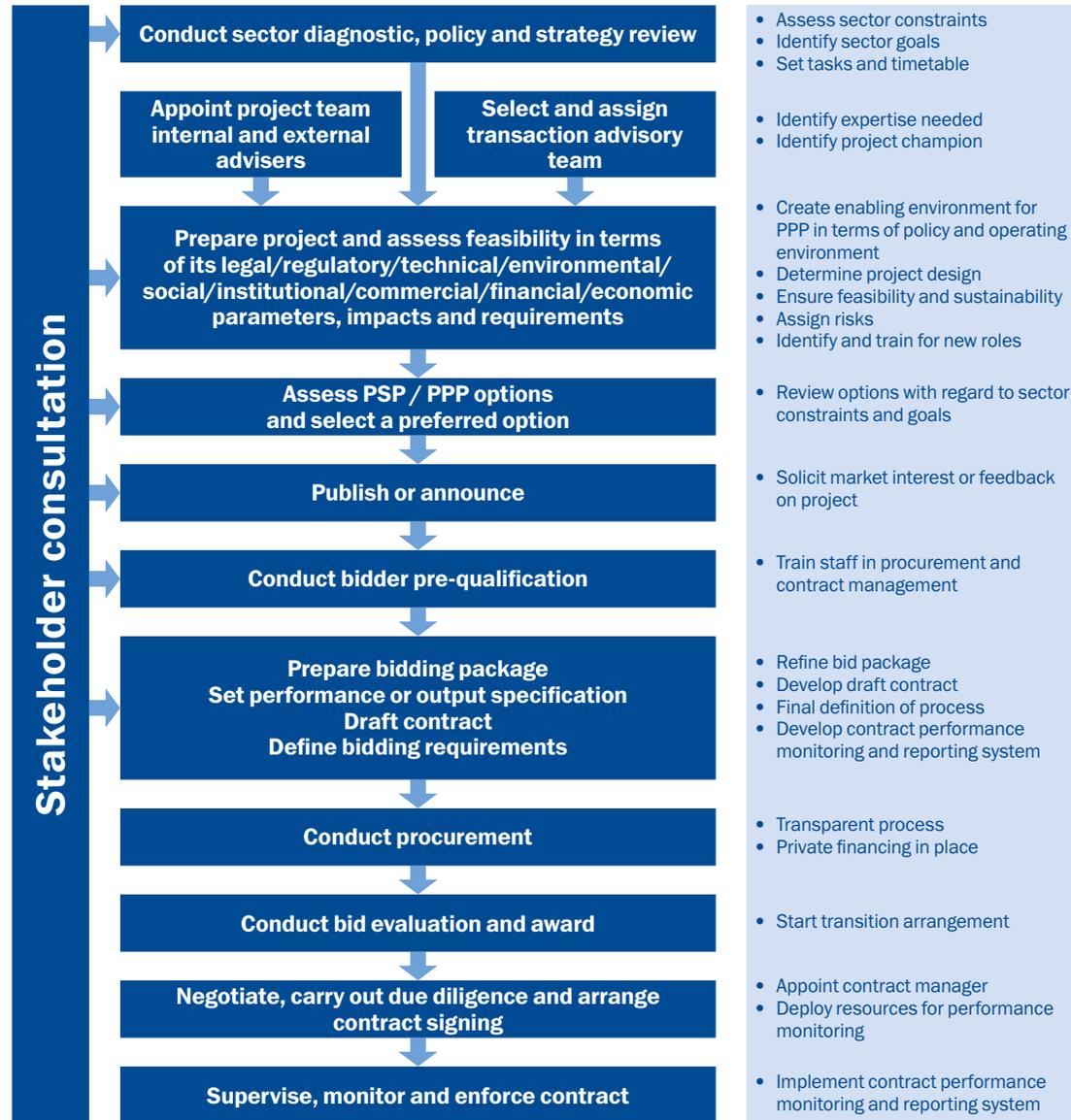
Figure 10 presents an overview of the sequence of main tasks and activities typically involved in delivering a PSP project. As may be seen, potential PSP projects in the waste sector usually originate from a sectoral diagnosis and/or a process of national policy development and strategic planning (as section 2.3.1 discusses).

Such a process enables the government to:

- assess the status quo in the sector, identify gaps and strengths or weaknesses, and draw up a strategy for sector development
- determine to what extent an enabling environment exists for PSP and what activities or changes may be required in advance of PSP to create such an environment
- identify the most promising areas for improvement through the introduction or expansion of PSP in the sector.

Critical elements of the process are stakeholder participation and consultation and identification of a “project champion” to drive the process of structuring, preparing, procuring and implementing a PSP project.

Figure 10. Typical sequence of steps for delivering a PSP project



Source: Integrated Skills Limited.

4.1. Structuring a PSP project

4.1.1. Project definition, feasibility and planning

Once identified, a potential PSP project needs to be:

- **defined** in terms of its scope, purpose and functionality, likely value, geographical boundaries, duration, expected outputs, costs and revenues, and anticipated end users and other beneficiaries
- **assessed** in terms of its technical feasibility, value-for-money, environmental and social impacts and acceptability, affordability and bankability.

At this initial stage, it is important to identify and fully engage actual and prospective project stakeholders.

Project preparation and transaction costs for PSP projects tend to be substantially higher than those for public sector projects developed and procured in the conventional way. For this reason, potential PSP projects need to be of a sufficient scale or value and duration to justify these higher costs.

Where the assets required to deliver a service are to be entirely or largely financed or owned by the private sector, the duration of the PSP project or contract should reflect the expected economic life²⁰ of the main project assets. This will vary depending on the project scope and local conditions and circumstances but, as a general rule, for municipal waste collection and transport services, the economic life of the main assets (vehicles) would typically be 7 to 10 years. For waste treatment and disposal services, the main asset life would usually lie somewhere between 15 and 25 years.

Detailed feasibility studies should be conducted in order, among other goals, to:

- define or confirm the need for the project
- identify, analyse and compare different options for achieving the project objectives
- identify or select the best or “preferred” option or solution, in other words, the one that is likely to represent the best value for money (which may not always be the least-cost option)
- provide details of the preferred solution in output terms, physical and other constraints and specific project characteristics such as environmental impact mitigation measures, land acquisition and resettlement requirements.

At this stage, the particular legal or statutory processes relevant to the project should also be identified, together with the requirements for completing such processes (technical, legal, environmental, social, timescale, public consultation, and so on).

It is also at this initial stage that the project developer or contracting authority, in close consultation with key stakeholders, should develop a rigorous business case for using a PSP approach rather than a conventional public procurement approach. It should also satisfy itself at first sight that there is likely to be sufficient interest from appropriately qualified private sector contractors who are able to deliver the required infrastructure or services, and willing to accept the envisaged transfer of risks.

²⁰ The length of time for which an asset is expected to continue to be useful, or how long the asset can be used before repairing it becomes more expensive than replacing it. The economic life of an asset could be different than its actual physical life.

4.1.2. Stakeholder engagement and communication

The support of most if not all stakeholders is critical to the sustainability of a PSP project. The difficulties and potential risks of the project can increase dramatically if such support is not present. A proposal to introduce or expand PSP can be controversial and, as section 2.3.1 discusses, for those directly affected by a proposed PSP project, the process can involve significant change and bring with it considerable fear and uncertainty.

Stakeholders can also provide valuable input to the development, procurement and implementation of a PSP project. Inviting stakeholders to express their views during key stages in the project cycle helps to foster their buy-in and support and can sometimes provide valuable insights and innovative suggestions for improving or refining a project.

It is therefore vital that:

- a thorough understanding is obtained about who has or may have an interest (both positive and negative) in the project, and what their concerns are or might be (this is usually best achieved by undertaking a detailed stakeholder analysis – see section 2.3.1)
- the maximum level of information possible is made available to stakeholders in an accessible form throughout the project cycle
- the relevant stakeholders are informed of the existence of the project as soon as it is proposed
- a plan, systems and sufficient resources are put in place at a local level to ensure that stakeholders are kept informed about, and consulted on, significant developments and decisions throughout the process.

Stakeholders in PSP projects in the waste sector typically include:

- policy- and decision-makers at national, regional and local levels
- service users and the public at large in the project area
- existing staff and employees
- waste pickers and other informal recyclers and operators
- existing communal service providers
- prospective project investors or financiers
- prospective private sector bidders or service providers.

An engagement and consultation process which involves waste pickers and informal recyclers as well as other key stakeholders helps to ensure that PSP projects in the waste sector are inclusive, socially desirable, economically viable and environmentally sound.

For stakeholders to engage and play an active part in project development, they must be given not only a forum for participation but also the information they need to participate effectively. A commonly used and effective mechanism for engaging with and managing stakeholder communications and building support for a proposed PSP project is to establish a project board or “steering committee”, comprising representatives of all key stakeholders and led by a senior officer of the contracting authority.

Other tools that should be considered to support the process of understanding, informing and engaging with project stakeholders are:

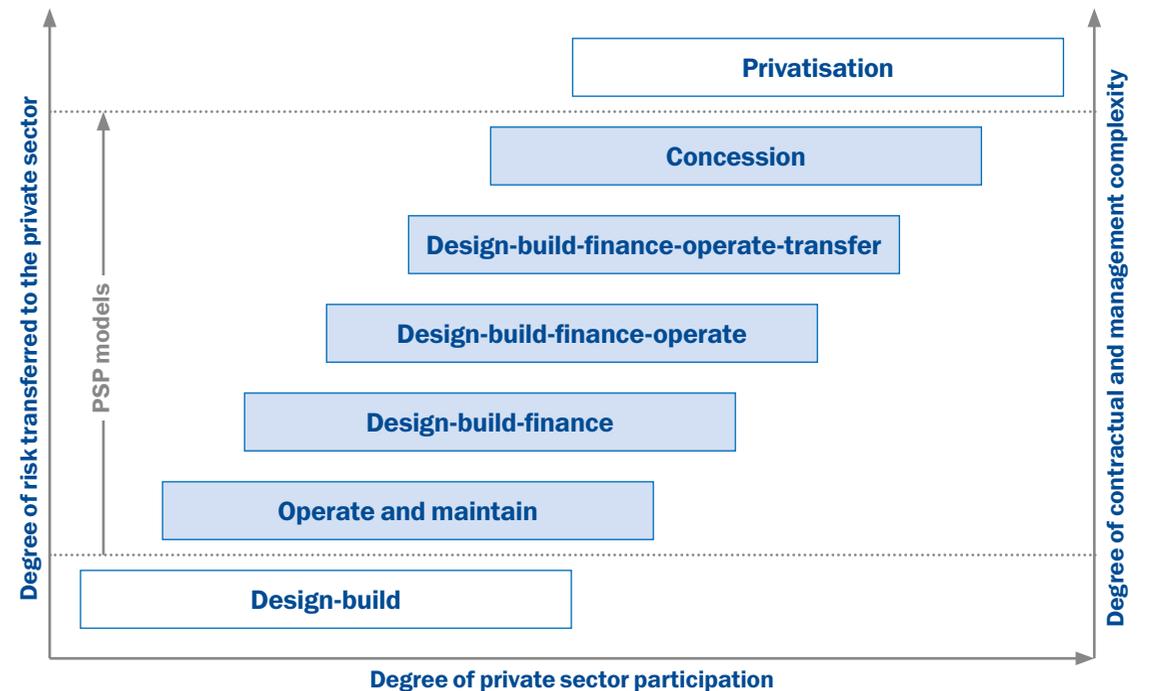
- conducting **opinion research** tailored to each stakeholder group
- establishing **stakeholder panels or focus groups** to provide commentary, advice and feedback on specific issues or proposals
- **public awareness programme(s)** designed to increase general awareness of the project and/or a particular issue
- **education programme(s)** to increase knowledge and understanding of an issue and/or prepare stakeholders to take on a new role.

4.1.3. Identifying and assessing options for private sector participation

A detailed project feasibility study and plan, together with feedback from key stakeholders, provide the basis for identifying and assessing the options for private sector participation in a proposed project.

In practice, a very wide range of options exists for establishing partnerships with the private sector. These range from those where there is a great deal of public sector involvement and limited transfer of risk to the private sector, to those where there is very little public sector involvement and extensive transfer of risk to the private sector. Figure 11 illustrates some examples of commonly used forms of PSP contract.

Figure 11. Some common models for private sector participation



Source: The Canadian Council for Public-Private Partnerships; adapted by Integrated Skills Limited.

Each PSP option or type of contract implies varying levels of responsibility and risk to be assumed by the private sector operator. It also implies differing degrees of contractual complexity and management burden for the contracting authority.

Identifying and selecting an appropriate option involves consideration and assessment of numerous policy and legal obligations and influencing or limiting factors, in particular:

- the procurement and contracting options legally available to the contracting authority
- technical, legal, regulatory and institutional issues and constraints (as identified in the sector diagnosis or national strategy and project feasibility studies)
- commercial, financial and financing requirements and constraints (as identified in the national PSP policy and project feasibility studies)
- interest of the market (local and international as section 4.2.3 describes further)
- special requirements of the project, based on the characteristics of the wastes generated, proposed system for managing wastes, topography and demography of the project area, and so on
- in the case of strategically essential assets, the need for the contracting authority to retain ownership or ultimate control of the assets.

Each PSP contract option or type has a set of prerequisites for successful implementation. For example, deeper forms of PSP that transfer greater responsibility and risk to the private sector will require more sophisticated legal, regulatory and financial structures, as well as the availability locally of sufficient resources and appropriate skills to execute and monitor the PSP transactions and manage project implementation – see also section 4.3.3 of this paper. Other constraints typically found in the waste sector which may restrict the choice of PSP option include:

- **low cost-recovery levels** due to politically influenced or determined tariff policies
- **lack of reliable and/or up-to-date information** about the waste generated in the project area and/or technical performance of the existing waste management services and facilities
- **affordability** of the proposed measures for improving the existing services and facilities.

For this reason, PSP contracts in the sector are increasingly becoming hybrids, adopting features of common PSP contract types and then tailoring them to reflect national policies and local needs and circumstances.

4.1.4. Defining and allocating project responsibilities and risks

In selecting and structuring a preferred PSP option, the overall aim should be to optimise the allocation of responsibilities and transfer of risks between the public and private sectors in a way that is likely to deliver maximum value for money.

The main responsibilities involved in delivering waste management infrastructure and services fall under the following broad categories.

- **Asset development, investment and financing:** Responsibilities involved in improving or expanding the project asset base, including planning new investments, forecasting demand and capacity needs, arranging finance, preparing detailed technical designs, constructing assets, and so on.
- **Management:** Responsibilities associated with managing the delivery company or entity, such as appointing and directing staff, setting human resource policies, establishing or improving business processes and procedures.
- **Operation and maintenance:** Responsibilities associated with service delivery, operating project assets and maintaining them to required standards, including inventory management, asset maintenance, and commercial activities such as fee billing and collection.

Key responsibilities associated with municipal waste collection and cleaning services include:

- **service delivery**, for example types of waste and/or recyclable materials to be collected or areas to be cleaned; transportation of collected wastes; payment for services delivered; acquisition of necessary permits or licences, enforcement of regulations, public relations and communications
- **procurement and supply of project assets and resources**, such as initial supply of containers and equipment; location and installation of container platforms; provision of depot, maintenance, office and other facilities; supply of consumables; transfer and/or hiring and training of human resources
- **ownership, insurance, cleaning, maintenance and replacement of assets**, for example ownership of assets at contract commencement and expiry or termination; insurance of assets; cleaning, maintenance and repair of assets; replacement of lost, stolen or damaged assets.

Key responsibilities associated with municipal waste treatment and disposal services include:

- **service delivery**, for instance types of waste to be received, treated or recovered and/or disposed; payment for services delivered; enforcement of regulations, public relations, and so on
- **facility development, operation, closure and aftercare** for example site provision or acquisition; acquisition of necessary permits or licences; facility design, construction, restoration and aftercare; supply of plant, equipment and consumables for facility operation; transfer and/or hiring and training of human resources; environmental monitoring, management and control
- **ownership, insurance, cleaning, maintenance and replacement of assets**, for example ownership of infrastructure and other assets at contract commencement and expiry or termination; insurance of assets; cleaning, maintenance and repair of assets; replacement of lost, stolen or damaged infrastructure and other assets.

The main risks associated with waste management projects fall typically into the following categories:

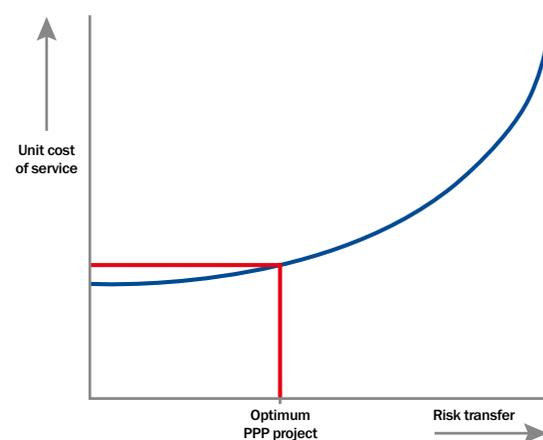
- **planning risk**, for example, the necessary permits are delayed or refused
- **design risk**, for example, the design solution fails to meet the contracting authority's requirements
- **construction risk**, such as delays due to adverse site or weather conditions
- **operating risk**, for instance, operating costs are higher than originally estimated and/or the required service standards are not being met
- **demand risk**, such as where service usage varies from the level forecast or revenues from service user fees are lower than expected
- **payment risk**, for example, some user fees due to the private contractor are unpaid or delayed
- **financial risk**, such as delays in securing project financing; variations in financing costs; fluctuations in project input prices, interest or exchange rates
- **political, legislative or regulatory risks**, for example unforeseen changes in government policy, legislation and/or regulations.

Key guiding principles for allocating responsibilities and transferring such risks are:

- each project responsibility should be allocated to the party best qualified and able to **undertake** it
- each risk should be borne by the party best able to **manage** it, taking into account the parties' abilities to predict, control and absorb or mitigate the risk at **lowest cost**.

Best value-for-money is rarely served by transferring all possible risks to private sector suppliers or service providers. The main benefit of cost-effective risk transfer is that it generates the incentives for the contractor to deliver value-for-money and high-quality services on time. The concept of cost-effective risk transfer is illustrated in Figure 12.

Figure 12. Cost-effective transfer of risk



Source: Integrated Skills Limited.

With regard to payment risk, in principle, payments for assets provided or services rendered can be either billed and collected by the private service provider directly from service users, made by the contracting authority to the private party (in arrears), or based on some combination of these two methods. However, unless there are compelling reasons for doing otherwise, the responsibility for paying for waste management infrastructure or services delivered under a PSP project should generally be borne entirely by the contracting authority.

The project responsibilities and risks and their proposed allocation should be identified, characterised and recorded in comprehensive **matrices or registers**, which may include some or all of the following:

- all significant project responsibilities and risks (which can be linked or cross-referenced)
- short descriptions of their nature and extent
- assessments of the likelihood of each risk occurring and its potential impact
- assessed value of each risk (qualitative and/or quantitative)
- proposed risk-mitigation measures
- proposed or preferred allocation of each risk (retained by the contracting authority, transferred to the private contractor, or shared between them).

Such matrices or registers can subsequently be used to structure the contractual relationship between the parties, undertake a value-for-money analysis and conduct preliminary enquiries or soundings among prospective bidders. Some examples of simple responsibility and risk allocation matrices for PSP projects in the waste sector are provided in Annex C (available in the PDF version of this report, on ebrd.com).

4.2. Preparing a project for private sector participation

4.2.1. Output-based specifications

A key feature of a PSP project is that the assets or services to be delivered or performed by the private sector should be specified primarily in terms of outputs (such as asset standards and service quality or levels) rather than inputs (such as the types and numbers of equipment to be used). In other words, an output-based specification defines what is required, rather than how it is to be performed, over the project life cycle. This allows scope for the private sector to be innovative in relation to asset or system design and service delivery.

A comprehensive, unambiguous and realistic output specification is an essential part of the tender and contract documents and underpins the entire PSP procurement process. An important principle is that the outputs specified should be capable of being assessed against clear and measurable performance criteria (key performance indicators – see section 4.2.2) and defined in ways that allow their subsequent achievement to be objectively evaluated and verified.

It is important that the output specification states clearly and accurately the core requirements of the contracting authority. These requirements define the essential features of the project, comprising elements that cannot be varied, either because they define the business needs (service-level objectives) or because of external constraints which must be satisfied, for example environmental constraints, site constraints, planning constraints, transfer of contracting authority personnel, and so on.

The approved project responsibilities and risk allocation matrices (as section 4.1.4 discusses) should be incorporated into the output specification (with the ability to modify them during contract negotiations).

Besides specifying the outputs required, the output specification should contain sufficient high-quality background information on the organisation and current operations of the contracting authority. This is necessary so that bidders will be fully aware of the interactions that will be required with existing organisations and structures in delivering the specified assets or services.

For example, it is not feasible to consider waste treatment and disposal facilities in isolation from the waste collection and transport system, the regulation of waste practices (recycling, recovery and management of residuals) and the activities of the contracting authority as a municipal service provider and/or regulator. These will have a major impact on asset design criteria and operational conditions such as facility usage, disposal of process residues, and so on.

Typical components of an output-based specification for a PSP project in the waste sector are as follows.

- **For design-build-operate (DBO) projects:**
 - background information
 - scope of the output specification
 - allocation of project responsibilities and risks
 - key performance standards (for all project phases)
 - works requirements
 - commissioning requirements
 - operating requirements
 - hand-back requirements
 - performance measurement framework and its relationship to the payment mechanism.
- **For municipal solid waste management services projects:**
 - background information
 - scope of the output specification
 - allocation of project responsibilities and risks
 - key performance standards (for all service areas)
 - service output requirements (for each service area)
 - other requirements (such as quality and environmental management systems; requirements on contract expiry or termination)
 - performance measurement framework and its relationship to the payment mechanism.

The following are some examples of output-based standards and performance requirements for projects in the waste sector.

For design-build-operate (DBO) projects:

- The Works shall be designed and constructed to enable vehicles delivering Contract Waste to achieve a maximum turnaround time from arriving at the Site, including, for the avoidance of doubt, from entering the Site, being weighed, being monitored and discharging Contract Waste, to leaving the Site(s) of [X] minutes.
- The Works shall be designed, constructed and operated so as to ensure that Contract Waste is separated into Marketable Materials, and that Residual Waste requiring landfill does not exceed [X] per cent of the actual annual tonnage of process Input Waste.
- The Contractor shall ensure that the Works comply with Good Industry Practice, relevant statutory requirements and Permits including, but not limited to, the following ... [list of applicable standards, permits].
- The Contractor shall ensure that all construction vehicles leaving the Site are adequately cleaned to prevent the deposit of waste material and debris on any Adjoining Property.
- The Contractor shall minimise nuisance and environmental impact during construction and shall design and construct the Works so as to minimise nuisance and environmental impact during operation.
- The Contractor shall implement and maintain Quality and Environmental Management Systems in compliance respectively with ISO9001:2015 and ISO14001 or equal at all times throughout the Contract Period.

For municipal solid waste management services projects:

- The Contractor is required to provide or supply, operate and maintain all Containers, Equipment, Vehicles, Depots, manpower, fuel and other resources necessary for the successful delivery of the Waste Collection Services in accordance with this Specification, the Service Standards and the Service Delivery Plan.
- All Litter Bins, Waste Containers, Vehicles and Equipment shall be maintained to a high standard of cleanliness, tidiness and mechanical repair commensurate with the manufacturers' specifications and maintenance schedules and in accordance with the provisions of the Contract.
- The Contractor shall have available sufficient replacement resources to enable a rapid response to be made when the Services are affected by Equipment or Vehicle breakdown or any other reason that might prevent delivery of the Services in accordance with the Specification and approved Service Delivery Plan.
- All Communal Waste Containers must be emptied at frequencies which ensure that their contents do not at any time exceed 80 per cent of their volumetric capacity as certified by the manufacturer.
- The Contractor is required to Clean all Carriageways, Footpaths, Footways, Streets and other Public Areas so as to maintain Grade A throughout the Contract Area in accordance with this Specification, the Service Standards and the approved Service Delivery Plan.
- The Contractor shall implement and maintain Quality and Environmental Management Systems in compliance respectively with ISO9001:2015 and ISO14001 or equal at all times throughout the Contract Period.

4.2.2. Key performance indicators

In the context of PSP projects, key performance indicators (KPIs) are the primary means for verifying whether or not the required outputs or outcomes are being delivered in the manner and to the extent agreed in the contract, and for calculating payments. KPIs are measurable values that demonstrate whether a private service provider is achieving the output-based performance requirements specified in the contract.

Each KPI has its own set of qualitative or quantitative measurement criteria which it must meet to verify performance, for instance, the percentage of time when service delivery standards are met. Typical KPI categories include: asset delivery; asset or service availability; asset or service quality; customer satisfaction; and environmental compliance. KPIs should not seek to capture all contractual requirements – only the key or critical requirements should be captured and they should be largely service-based.

Some examples of key performance criteria and indicators for DBO projects in the waste sector are:	
•	percentage plant availability in a [week, month, year] during the contract period
•	annual tonnage of process input waste
•	annual tonnage of recyclable materials extracted from input waste
•	annual tonnage of refuse-derived fuel produced from materials extracted from input waste
•	annual tonnage of compost-like output produced from materials extracted from input waste
•	annual tonnage of process residues sent to landfill
•	annual tonnage of process losses
•	number of performance standard failures in a [week, month, year] during the contract period
•	number of performance standard failures not remedied within the permitted rectification period
•	average vehicle queuing time in a [week, month, year] before being processed through the IN weighbridge
•	average turnaround time in a [week, month, year] of vehicles entering and exiting the site measured between IN and OUT weighbridges.

Table 4.2.2.1. Examples of key performance criteria and indicators for municipal solid waste management service projects.

Indicator	Description	Performance levels			Monitoring or reporting frequency
		Green	Amber	Red	
1	Number of missed collections per 100,000 collections of household or commercial waste	Below 500	500-1,000	More than 1,000	Weekly and per calendar month
2	Percentage of people expressing satisfaction with household and commercial waste collection services	Greater than 65	65-50	Less than 50	Annual
3	Percentage of missed collections rectified by end of next working day	Above 90	99-95	Below 95	Per calendar month
4	Collection of bulky waste from domestic properties (individual dwellings) – percentage compliance with the standard of completion within 24 hours from notification	90 and above	80-90	80 and below	Per calendar month
5	Damaged or missing refuse containers repaired within seven days, percentage compliance	95 and above	Less than 95 but more than 90	90 and below	Per calendar month
6	Percentage of highways, avenues, roads, lanes and open areas of a high or acceptable standard	Greater than 90	85-90	Less than 85	Weekly and per calendar month
7	Percentage of people satisfied with standards of cleanliness	Greater than 55	40-55	Less than 40	Annual

4.2.3. Financial or budgetary impacts of private sector participation

PSP projects invariably create financial implications and budgetary impacts for the contracting authority and (directly or indirectly) central government, and it is important that these are recognised and assessed during project preparation, especially contingent liabilities associated with the responsibilities and risks that will remain with the authority over the project life.

Where the assets required to deliver a service are to be entirely or largely financed by the private sector, initial investment costs do not impact on contracting authority budgets at the outset of the project. As a result, the project can appear to be cheaper than it really is. In fact, PSP projects simply shift the costs from the capital portion of contracting authority budgets to the annual operating budgets over the life of the project. This fundamental change needs to be reflected in authority budgeting, tariff-setting, accounting and financial management practices and procedures.

Ideally, contracting authorities should identify, quantify and budget for all financial commitments up front in order to ensure that decision-makers can fully consider all known and potential costs and understand the implications for service tariffs or user fees over the life of the project before irrevocable contractual and financial commitments are made.

4.2.4. Market sounding and preparation for procurement

A PSP project is only practicable where there are enough private sector suppliers qualified and able to deliver the required infrastructure and service, willing to accept sufficient risk transfer and ready to participate in a competitive bidding process. It is therefore essential that project promoters or developers test market interest by undertaking market soundings. These soundings should be taken

both during the initial stage of project definition or structuring, and when the project is being assessed and prepared for tendering.

An initial market sounding should present – in confidence and without any commitment – the project concept and structure developed during the structuring phase (as described in section 4.1) to potential private sector bidders, including infrastructure suppliers, service providers and financiers, and invite their comments. A popular, widely used method of achieving this is by preparing and distributing a project information memorandum²¹ to potential bidders. An example of a project information memorandum is provided in Annex C (available in the PDF version of this paper at ebrd.com).

Once a detailed output-based specification (incorporating the project responsibilities and risk allocation matrices) has been drafted, the same potential bidders should be re-contacted and invited to discuss or provide feedback on the specification, in pre-bid conferences, in face-to-face meetings and/or by means of questionnaires and written submissions. The issues to be tested during a market-sounding exercise will vary depending on the nature and scope of the project, but issues typically raised include:

- the proposed scope of the project, in terms of facilities or services, service area and the proposed output specification
- the main technical risks identified that might affect the ability of potential bidders to deliver the infrastructure and the services
- anticipated capital expenditure (CAPEX) and operational expenditure (OPEX)
- the envisaged payment mechanism and performance incentives
- the general and specific aspects of the allocation of project responsibilities as initially defined

- the financial assumptions such as debt conditions and cost, and the tax and accounting assumptions
- the proposed timetable for the period from procurement to the commencement of services
- the proposed contract structure, including risk transfer.

Market sounding may be done by the contracting authority directly or be delegated to transaction advisers. Transaction advisers with experience of the sector tend to know the most likely bidders for particular kinds of PSP projects. Using them to assess market interest allows the authority to take advantage of these relationships. Irrespective of who conducts the market-sounding exercise, due care and attention should be paid to ensure that the approach and methodology used comply with relevant procurement rules and official guidelines.

4.2.5. Tender and contract documentation

The main aims of a well-prepared and specified PSP contract are to:

- set out clearly the respective responsibilities and obligations of the contracting authority and private contractor in a legally binding and enforceable form
- describe precisely, and in an objectively verifiable way, the project outputs or outcomes that the private contractor agrees to deliver
- establish the rules and procedures for dealing with unforeseen events or changes, and for resolving and/or compensating for any problems or failings in performance
- provide a detailed basis for monitoring performance and verifying whether or not the private contractor is delivering the outputs or outcomes in the manner and to the extent agreed between the parties in the contract.

Depending on the nature, scope and complexity of the project, it may make bids easier to price, evaluate and compare if the tender and contract documentation is subdivided into several discrete work or service packages, for example, facility design and construction, facility operation, waste collection services, street cleaning services, and so on.

The structure and contents of the tender and contract documentation typically used for a DBO project in the waste sector are as follows.

- **Pre-qualification documents:**
 - invitation to pre-qualify (PQ)
 - project description and background information
 - instructions to applicants (general and particular)
 - PQ application form or questionnaire.
- **Tender and contract documents:**
 - invitation to tender
 - instructions to tenderers
 - forms of tender and agreement
 - price schedules or bills of quantities
 - other forms (acceptance, guarantees, insurances and so on)
 - conditions of contract (general and particular)
 - technical and performance specifications (for design-build, for operation and for hand-back)
 - annexes or appendices (other requirements).

²¹ A concise document providing background and specific information about the project, the proposed scope, key contractual terms, payment mechanism, procurement method and timetable, and so on.

The structure and contents of the tender and contract documentation typically used for a municipal solid waste management services project are as follows.

- **Pre-qualification documents:**
 - invitation to pre-qualify (PQ)
 - project information memorandum
 - instructions to applicants (general and particular)
 - PQ application form or questionnaire.
- **Tender or contract documents:**
 - invitation to tender
 - instructions to tenderers
 - forms of tender and agreement
 - price schedules
 - other forms (acceptance, guarantees, insurances, and so on)
 - conditions of contract
 - standards and performance specifications (for each service area)
 - annexes or appendices (other requirements).

For large or complex projects involving extensive and/or confidential information related to a PSP project, consideration should be given to establishing a centralised repository of all such information (also often referred to as a “data room”). This should be made available to prospective bidders in accordance with pre-determined conditions and procedures for gaining access.

As a general rule, tender and contract documentation for a PSP project should adopt a structure and format which have already been used successfully for procuring similar projects in the waste sector. In this regard, standardised or model forms of contract and output specifications can bring several advantages, notably in terms of their:

- familiarity and acceptability to prospective bidders
- scope for reducing the time and cost of developing and finalising tender and contract documentation.

There are a number of standardised or model forms of PSP contract available, most of which have been developed for national use in the waste sector, for example:

- **For DBO projects:**
 - FIDIC Conditions of Contract for Design, Build and Operate project (“Gold Book”, 2008)
 - Design-Build-Operate Documents for a Solid Waste Facility (World Bank, 2005)
 - Sample Contract to Design Build and Operate a Solid Waste Disposal Facility (PPP in Infrastructure Resource Center for Contracts, Laws and Regulations (PPPIRC), 2011)
 - NEC4: Design, Build and Operate Contract (UK Institution of Civil Engineers, 2017)
 - The WIDP Residual Waste Treatment Contract (UK DEFRA, 2010)
- **For municipal solid waste management services projects:**
 - Sample Service Contracts for Collection of Municipal Solid Waste and Street Cleaning, and Operating Transfer Stations (PPP in Infrastructure Resource Center for Contracts, Laws and Regulations (PPPIRC), 2011)
 - Various national model contracts (Australia, South Africa, United Kingdom, United States of America)

Annex D (available in the PDF version of this paper, on ebrd.com) includes links to websites where some of these documents can be downloaded or purchased. However, in all cases, these would need to be adapted to reflect the legal jurisdiction and framework, government’s sectoral policy and objectives, and the specific needs and circumstances of the project developer or contracting authority.

In deciding whether or not to adopt a standard or model form of contract for a PSP project in the waste sector, a broad distinction should be made between projects where the primary focus is on:

- developing and then operating a waste facility of some kind for a long period, for example, a waste recycling plant or sanitary landfill site for more than 15 years, and
- delivering improved waste management services over a shorter period, for example, waste containment and collection, street cleaning and similar environmental services for less than 10 years.

In general, the former is more suited to the use of a standard or model form of contract, whereas the latter often requires a customised or bespoke form of contract and performance specification.

4.3. Procuring and implementing a project with private sector participation

4.3.1. Procurement planning and preparation

The initial requirement for procuring a PSP project is the definition of a procurement strategy and plan. Key issues for procurement planning are:

- whether or not to use a **bidder pre-qualification process**
- whether to use a **single-stage process** to select a preferred bidder, or a **multi-stage process** in which proposals and the bidding documents may be reviewed and revised
- the extent to which **discussions or negotiations with bidders** will be permitted that may lead to changes in the contract or output specification, either during the bidding process or after final bids have been submitted
- whether to evaluate and rank bids and choose a preferred bidder based on a **single financial or value-related criterion** (after screening for technical compliance or merit), or some **weighted evaluation of financial and technical criteria**.

The optimum procurement strategy and plan will depend on the project nature and characteristics and country context. For example, allowing dialogue with bidders can lead to stronger proposals and an improved PSP contract, but it may result in the contracting authority being accused of a lack of transparency and/or corruption. There may also be some constraints on how the procurement strategy and plan can be defined and executed, for example:

- national procurement legislation or regulations may restrict the options available or set specific PSP rules
- where the project involves funding from an international or bilateral financing institution, the procurement options will invariably be constrained by that institution’s procurement rules or requirements.

It is important that all available procurement options are analysed thoroughly and compared in order to identify the procurement method that is most likely to provide best value-for-money in meeting the contracting authority's service objectives.

A PSP procurement strategy and plan would typically contain, among other features:

- a summary of the proposed procurement (business case, scope, proposed duration and commencement date, estimated contract value, funding and so on)
- information regarding the current arrangements for providing the services which are the subject of the procurement
- a summary of the results of the market-sounding exercise
- details of the project procurement team and their roles and responsibilities
- proposed timetable, with key milestones and decision points
- the risk analysis and proposed risk allocation or register
- proposed procurement method and evaluation process and requirements
- proposed arrangements for due diligence, financial closure and contract management.

Unless there are sound reasons for not doing so, procurement of a PSP project in the waste sector should always commence with a **pre-qualification process** in order to:

- check the legal status, technical qualifications, experience and financial integrity and robustness of the firms or consortia that have expressed interest in participating in the bidding process
- restrict the number of pre-qualified bidders, thereby increasing the chances of attracting bids from well-

qualified and resourced firms, and reducing the time, effort and resources required to evaluate and respond to bids.

All firms or consortia interested in bidding should be required to complete and submit a detailed pre-qualification questionnaire (sometimes referred to as an "expression of interest"). The questionnaire should as a minimum require the following information to be provided:

- the profile and business activities of the firm or consortium (such as details of ownership and governance)
- relevant experience and expertise (for example, projects of a similar nature or size undertaken by the firm or consortium over a specified number of years)
- financial information (such as turnover and net worth over a specified number of years)
- legal information about the PPP consortium, including any relevant litigation or court judgements
- details of relevant certifications held (such as for quality management, health and safety, and environmental management)
- the qualifications and experience of personnel who will be involved in the project.

Potential bidders should be assessed and short-listed solely on the basis of the information provided, and according to qualification criteria specified, in the questionnaire. Great care should be taken in formulating the qualification criteria to avoid, for example, excluding smaller firms that have the appropriate expertise and experience to deliver the required services satisfactorily, or including firms that lack the necessary capacity or have a poor track record.

Annex C (available in the PDF version of this paper, on ebrd.com) provides an example of a pre-qualification questionnaire.

4.3.2. Project tendering, evaluation and negotiation

The project-tendering phase typically comprises the following main elements:

- final selection of the tender method and tender evaluation process
- distribution of tender and draft contract documents to (pre-qualified) bidders
- interactions with bidders
- tender evaluation and selection of a preferred bidder
- contract negotiations and award
- due diligence and financial closure
- contract signature.

The size, complexity and inherent uncertainties of PSP projects in the waste sector will typically require a high degree of interaction and communication between the contracting authority's procurement team and bidders during the tendering phase. For this reason, the procurement method should normally be based on a multi-stage bidding process, with scope for iterative dialogue or negotiation with bidders during this process.

However, the terms and conditions for an interactive process of this kind, including the procedures, protocols and rules to be applied, should be included in the broader set of conditions, rights and obligations to which bidders' consent should be sought at the outset. A basic principle in this regard is that any change to the PSP contract agreed with the preferred bidder during final negotiations must not be material to the procurement (for example, altering the risk allocation immediately prior to contract award).

With the aim of achieving best value-for-money and the optimum balance of project costs and benefits, bids should be evaluated and a preferred bidder selected based on a pre-determined combination of weighted technical and financial criteria.

The **technical evaluation** typically considers:

- conformity with key tender requirements
- quality of proposed work plan, covering:
 - services to be provided
 - methodology and approach, including resourcing levels
 - ability to deliver the contract objectives
 - innovations and improvements
 - timescales or phasing for implementation
 - staff training and development.
- quality of proposed staffing plan, covering:
 - details of staffing plan
 - experience of reflecting required services in the staffing plan
 - professional qualifications and experience of key staff.

The **financial evaluation** is usually based on:

- bid prices as submitted (currencies, amounts, and modifications or comments)
- corrections for any computational errors and provisional sums
- corrected or adjusted bid prices
- conversion of bid prices to a single currency
- scoring of bids (if a weighted methodology of technical or financial evaluation is used).

As with pre-qualification criteria, great care should be taken in designing the bid evaluation and contract award criteria and related scoring or weighting methodology in order to avoid accusations of bias or unfair advantage and related challenges to the award decision. In particular, the criteria should be kept as minimal and objective as possible and the scoring or weighting methodology described clearly in the tender document.

When finalising or concluding a contract for a PSP project, any further interaction between the contracting authority and preferred bidder should

be confined to clarification and “fine-tuning” of the contract and/or the winning bid. This results in a final contract that is completely clear for both parties and incorporates all substantive elements of the winning bid.

Financial closure requires not only that the financing documents have been signed, but also that the prior conditions for the availability of project financing have been fulfilled. As a general rule, where circumstances and local procurement rules allow, signature of a PSP project (“commercial closure”) should only take place after the fulfilment of all prior financing conditions.

Reaching financial closure can be quite time-consuming, so it is important to allow enough time for this process to be completed. During this period, the contracting authority should also verify as far as practicable those data, references or statements which had a material influence or bearing on the pre-qualification and selection of the preferred bidder.

4.3.3. Contract monitoring and performance management

To deliver the expected improvements in solid waste infrastructure or services and achieve value-for-money, the contract for a PSP project must be proactively monitored, managed and (especially) enforced by the contracting authority over its entire life cycle. Experience shows that a failure to do so leads inevitably to a decline in performance and deterioration in service levels and/or standards.

It is therefore imperative that the respective rights and obligations of the parties to the contractual agreement, and related performance criteria, monitoring and management procedures, are clear, workable and enforceable. The contracting authority must also ensure that a transparent and effective system and sufficient resources are in place to manage the PSP contract, as well as to ensure that the authority is meeting its own obligations under the contract.

Key requirements

During the implementation phase of a PSP project, the contracting authority is primarily concerned with fulfilling the following functions.

- **Contract management:** The procedures, resources and organisation required to ensure that the services and facilities contracted for are delivered in full accordance with the terms of the contract.
- **Performance management:** The day-to-day process of assessing whether the services and facilities contracted for are being delivered to the required service levels or standards, and assessing the remedial action required when these standards are not met.
- **Relationship management:** The ongoing process of establishing and managing effective communications and interactions between the contracting authority, the contractor and project stakeholders (especially service users and the public in general).

The contract-management and performance-monitoring duties associated with a PSP project will be derived substantially from the terms of the contract. These terms should include specific provisions in relation to the following elements, among others.

- **Monitoring and reporting:** Provisions on contract management covering the monitoring to be undertaken by the contracting authority, and reporting required of the contractor, and the financial consequences of any under-performance by the contractor.
- **Risk management:** Management of the risks to be retained by the contracting authority or which the contracting authority is obliged to manage due to a failure or default in service delivery by the contractor.

- **Change management:** Provisions in relation to change management, covering items such as technical developments, changes in law, changes in service scope or demand and changes in contracting authority requirements.

- **Under-performance:** A contracting authority may have to enhance the scale, nature and frequency of its management and monitoring capability where there is persistent under-performance by a contractor.

- **Interdependence:** Some PSP projects may be dependent on certain enabling actions or services by the contracting authority, for example, the transfer of existing assets required for delivery of the services, or the delivery of stipulated amounts of waste to a landfill facility. This may require organisational interfaces, information flows and the meeting of key milestone dates or objectives, which therefore need to be incorporated into the contract.

There are two principal phases usually associated with contract and performance management:

- **design and construction** – covering the period from award of the contract to the commencement of service delivery in accordance with the requirements of the output specification, and
- **operation** – covering the provision and use of the contracted services throughout the operating period of the contract.

Each stage requires different skills and resources which will vary over time.

In addition, PSP projects for municipal waste collection or cleaning and waste treatment or disposal services respectively are also quite different in nature.

- **Waste collection and cleaning** services involve little in the way of design and construction (principally maintenance workshops, depots and communal container stands) but require a substantial investment in mobile plant and equipment.

- Conversely, **waste treatment and disposal** services usually involve substantial design and construction activities, but comparatively little investment in mobile plant and equipment.

These differences need to be reflected in the arrangements for contract and performance management.

Contract management

The contract management role commences at the moment of contract award. The effective management of PSP contracts cannot rely on continuity of personnel and should instead involve a dedicated organisational unit that is structured and sufficiently resourced to be able to deliver the necessary contract and performance management skills and expertise over the life of the contract. This often has major implications for the structure and resources of the contracting authority (which is why a large part of this role is often outsourced to specialist organisations). Fortunately, modern computer-based management systems allow a PSP project to be actively monitored, managed and enforced with limited human resources and, compared with the typical whole-life monetary values of PSP contracts, at relatively little additional cost to the contracting authority.

For most PSP projects, an experienced full-time contract manager should be employed to lead a multi-disciplinary team responsible for managing and overseeing the contract. The contract manager plays a central role in representing the interests of the contracting authority, developing relationships with the private contractor, and monitoring the contractor’s performance, and is therefore a critical appointment.

An indicative check-list of contract management issues for waste projects is provided in Annex E (available in the PDF version of this paper, at ebrd.com).

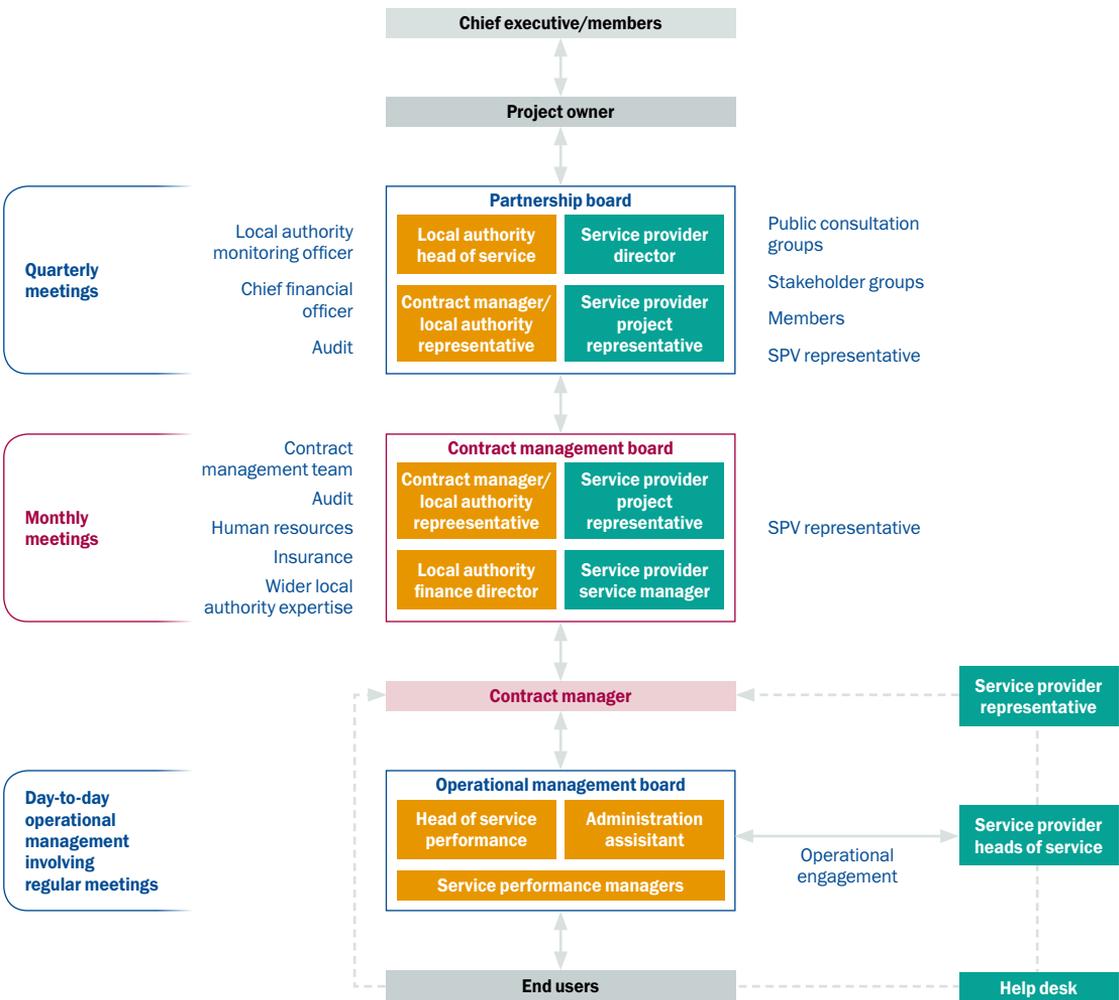
Management structure

In order to maximise the benefits and value-for-money from a PSP project, a project management structure is required which will enable strong working relationships to develop at all levels between the contracting authority, service users and the service provider. Such a structure should establish and maintain clear lines of communication and reporting, and a balanced relationship between project

stakeholders in other words, one that is not so adversarial that the relationship fails or disintegrates, nor one that is so lenient that the service provider fails to deliver the requisite levels of service.

A typical structure for managing a large PSP project consists of a supervisory or partnership board, a contract management board and an operational team, as Figure 13 illustrates.

Figure 13. Typical structure for managing a PSP project



Source: A Guide to Contract Management for PFI and PPP Projects, United Kingdom Public Private Partnerships Programme (2007)

ANNEX A. Overview of EU policy and legislation on waste management

Policy

In strategic terms, European Union waste policy aims to ensure that:

- by 2020 waste is managed as a resource
- waste generated per capita is in absolute decline
- reuse and recycling of waste are economically attractive options for public and private sector actors
- more materials are recycled according to high quality standards
- energy recovery is limited to non-recyclable materials
- landfilling is virtually eliminated
- illegal shipments of waste are eradicated (see Roadmap to a Resource Efficient Europe).

In addition, collection, recycling and recovery targets to be reached between 2011 and 2020 have been introduced by binding legislation for various waste streams. Table A.A.1 presents an overview of EU policy objectives and targets for waste management.

Table A.A.1. Overview of EU policy objectives and targets for waste management (2008-20)

Sub-sectors and objectives	Sources	Deadline for implementation											
		2008	2010	2011	2012	2013	2014	2015	2016	2018	2019	2020	2030
General													
Manage waste as a resource	Roadmap to a Resource Efficient Europe												by 2020
Achieve an absolute decline of waste generated per capita	Roadmap to a Resource Efficient Europe												by 2020
Ensure high quality recycling	Roadmap to a Resource Efficient Europe												by 2020
Limit energy recovery to non-recyclable materials	Roadmap to a Resource Efficient Europe												by 2020
Virtually eliminate landfilling	Roadmap to a Resource Efficient Europe												by 2020
Eradicate illegal shipments of waste	Roadmap to a Resource Efficient Europe												by 2020
Reuse, recycling and recovery targets													
Recycling and recovery targets for packaging wastes (by average weight):	Directive 94/62/EC	by 2008											
<ul style="list-style-type: none"> • total recovery of at least 60 per cent • total recycling of at least 55 per cent • recycling of at least 60 per cent of glass • recycling of at least 60 per cent of paper and board • recycling of at least 50 per cent of metals • recycling of at least 22.5 per cent of glass • recycling of at least 15 per cent of wood 													
Recycling targets for batteries (by average weight):	Directive 2006/66/EC		by 2011										
<ul style="list-style-type: none"> • 65 per cent of lead acid batteries • 75 per cent of nickel cadmium batteries • 50 per cent of other batteries 													
WEEE with reference to Annex I categories:	Directive 2012/19/EU			by 2012									
<ul style="list-style-type: none"> • categories 1 or 10: 80 per cent recovery and 75 per cent recycling • categories 3 or 4: 75 per cent recovery and 65 per cent recycling • categories 2, 5, 6, 7, 8 or 9: 70 per cent recovery and 50 per cent recycling 													
Gas discharge lamps: 80 per cent recycling (*)													

Sub-sectors and objectives	Sources	Deadline for implementation												
		2008	2010	2011	2012	2013	2014	2015	2016	2018	2019	2020	2030	
Targets for end-of-life vehicles (by average weight per vehicle per year):	Directive 2000/53/EC							by 2015						
<ul style="list-style-type: none"> reuse and recovery: 95 per cent reuse and recycling: 85 per cent 														
WEEE with reference to Annex I categories:	Directive 2012/19/EU							by 2015						
<ul style="list-style-type: none"> categories 1 or 10: 85 per cent recovery and 80 per cent recycling categories 3 or 4: 80 per cent recovery and 70 per cent recycling categories 2, 5, 6, 7, 8 or 9: 75 per cent recovery and 55 per cent recycling 														
Gas discharge lamps: 80 per cent recycling														
WEEE with reference to Annex III categories:	Directive 2012/19/EU								by 2018					
<ul style="list-style-type: none"> categories 1 or 4: 85 per cent recovery and 80 per cent reuse and recycling category 2: 80 per cent recovery and 70 per cent reuse and recycling categories 5 or 6: 75 per cent recovery and 55 per cent reuse and recycling category 3: 80 per cent recycling 														
Recycling and reuse of 70 per cent by weight of non-hazardous construction and demolition waste	Directive 2008/98/EC													by 2020
Recycling and reuse of 50 per cent by weight of paper, plastic, glass and metal from households	Directive 2008/98/EC													by 2020
Collection and disposal														
Decontamination or disposal of equipment with polychlorinated biphenyl (PCB) volumes > 5 dm ³	Directive 96/59/EC	by 2010												
Collection target for batteries: 25 per cent	Directive 2006/66/EC		by 2012											
Separate collection for glass, plastic, metal, paper	Directive 2008/98/EC							by 2015						
Collection target for WEEE:	Directive 2012/19/EU							by 2015						
<ul style="list-style-type: none"> at least 4 kg per inhabitant of WEEE from private households, or the same weight as the average amount of WEEE collected in the three preceding years 														
Collection target for batteries: 45 per cent	Directive 2006/66/EC												by 2016	
Landfill disposal of biodegradable municipal waste (BMW): reduction to 35 per cent of total BMW in 1995	Directive 1999/31/EC												by 2016	
Collection target for WEEE: 45 per cent of the average weight of EEE placed on the market in the three preceding years in the Member State concerned	Directive 2012/19/EU												by 2016	

Legislation

Table A.A.2 presents a summary of the main EU legislation relating to waste management.

Table A.A.2. Summary of current EU legislation relating specifically to waste management (as at 15 September 2017)

Legislative instrument(s)	Main requirements
<p>Directive 2008/98/EC on Waste (The New Framework Directive)* together with Commission Decision 2011/753/EU and Regulation 333/2011 As amended by Commission Regulation (EU) No 1357/2014 of 18 December 2014, Commission Directive (EU) 2015/1127 of 10 July 2015, and Council Regulation (EU) 2017/997 of 8 June 2017</p>	<p>This Directive establishes a framework for the management of waste and a waste hierarchy and further clarifies the definitions of waste, by-products (in other words, not waste) and specifies the definition of “end-of-waste status”. It gives Member States powers to impose producer responsibility, for example to take back end-of-life products.</p> <p>Like its predecessor (75/442/EEC) as amended by 2006/12/EC, it requires Member States among their other obligations to:</p> <ul style="list-style-type: none"> • encourage the prevention or reduction of waste production and its harmfulness • encourage the recovery of waste, including recycling, reuse or reclamation, and the use of waste as a source of energy • establish an integrated and adequate network of disposal installations taking into account the best available technology not involving excessive costs • prepare and implement waste management plans • apply the “polluter pays” principle • ensure that waste is recovered, or disposed of, without endangering human health and the environment • prohibit the abandonment, dumping or uncontrolled disposal of waste • require establishments and undertakings that carry out disposal or recovery operations to obtain a permit. <p>It incorporates the requirements in the old Hazardous Waste Directive (91/689/EEC – now repealed) to:</p> <ul style="list-style-type: none"> • draw up plans for the management of hazardous waste and make them public • establish proper databases at any site where hazardous waste is produced, transferred or tipped • ensure that producers of hazardous waste are subject to appropriate periodic inspections • ensure that, in the course of collection, transportation and temporary storage, waste is properly packaged and labelled. <p>It also incorporates the provisions of the repealed waste oils directive (75/439/EEC) to:</p> <ul style="list-style-type: none"> • ensure that waste oils are collected and disposed of without causing avoidable damage to human health and the environment • in managing waste oils, give priority to processing by regeneration, then to combustion, and finally to safe destruction or final disposal • prohibit the discharge of waste oils into waters or onto soils and emissions to air in excess of permitted levels • require any undertaking that collects waste oils to be subject to registration and supervision • require any undertaking that disposes of waste oils to be subject to prior authorisation • take measures to ensure that the operation of plants where waste oils are used as fuel will not cause significant levels of air pollution, and that waste oils used as fuel do not constitute toxic and dangerous waste or contain concentrations of polychlorinated biphenyls (PCBs) and polychlorinated terphenyls (PCTs) exceeding 50 parts per million.

Continued

Legislative instrument(s)	Main requirements
	<p>In addition to the provisions of the previous directives, it requires Member States to:</p> <ul style="list-style-type: none"> • set up separate collection for paper, metal, plastic and glass by 2015 • recycle or reuse at least 50 per cent of the above materials in the household waste stream by 2020 • reuse, recycle or otherwise recover (for example, by use as fill material) 70 per cent of construction and demolition waste by 2020 • apply the principles of self-sufficiency and proximity • encourage the separate collection of bio-waste (food and garden waste) • establish a waste prevention programme by the end of 2013 • review waste management plans and waste prevention plans at least every six years • ensure public participation in the development of waste management plans. <p>Commission Decision 2011/753/EU establishes rules and calculation methods for verifying compliance with the targets for reuse, recovery and recycling of waste set out in Article 11(2) of this Directive, and Regulation 333/2011 specifies when and whether scrap metal is to be considered as waste.</p>
<p>Decision 2000/532/EC Establishing a List of Wastes (formerly known as The European Waste Catalogue) as amended by Decisions 2001/118/EC, 2001/119/EC and 2001/573/EC, 2014/955/EU</p>	<p>This decision requires waste to be classified using the European Waste Catalogue, which is a system based mainly on the classification of the waste producer rather than the properties of the waste.</p>
<p>Directive 94/62/EC on Packaging and Packaging Waste as amended by Directives 2004/12/EC and 2005/20/EC, and Regulation 219/2009, 2013/2/EU, 2015/720</p>	<p>The main aim is to harmonise measures on the management of packaging and packaging waste, in order to prevent or minimise any environmental impacts of this waste, and to avoid distortions of competition within the internal market. It lays down minimum standards for packaging materials and targets for the recovery and recycling of packaging waste and among other obligations requires Member States to:</p> <ul style="list-style-type: none"> • include a chapter on the management of packaging and packaging waste in waste management plans • set up systems for the return and collection of used packaging and packaging waste and their reuse or recovery, and ensure that systems are open to economic operators of all relevant sectors and competent public authorities, and apply to imported products • establish databases on packaging and packaging waste • consider how economic instruments could be used to implement the objectives of the Directive • take measures to prevent the formation of packaging waste and to attain specified targets for recovering and recycling packaging waste, including measures to ensure that: <ul style="list-style-type: none"> – as a minimum by weight of packaging waste 60 per cent is recovered or incinerated at waste incineration plants with energy recovery – between 55 per cent as a minimum and 80 per cent as a maximum by weight of the packaging waste will be recycled – the following minimum recycling targets for materials contained in packaging will be attained by weight: 60 per cent for glass, 60 per cent for paper and board, 50 per cent for metals, 22.5 per cent for plastics and 15 per cent for wood. • organise an information campaign for the general public and economic operators • take measures to ensure that users of packaging, particularly consumers, obtain information on how they could contribute to reuse, recovery and recycling of this waste • ensure that packaging is identified and marked in accordance with the identification system provided for in Commission Decision 97/129/EC • ensure that the concentration of heavy metals in packaging does not exceed specified limits.

Legislative instrument(s)	Main requirements
<p>Directive 96/59/EC on the Disposal of Polychlorinated Biphenyls and Polychlorinated Terphenyls (PCBs / PCTs)* and related Decision 2001/68/EC amended by Regulation 596/2009</p>	<p>The purpose of the Directive is to harmonise laws on the controlled disposal of PCBs or PCTs and on the decontamination or disposal of equipment containing PCBs (PCBs means PCBs, PCTs and similar substances) with a view to eliminating them completely. Among other obligations it requires Member States to:</p> <ul style="list-style-type: none"> • compile and regularly update inventories of equipment containing PCBs • require holders of equipment containing PCBs to notify the competent authority • draw up plans for the decontamination and/or disposal of PCBs and of equipment containing PCBs • develop installations for the disposal, decontamination and safe storage of PCBs • ensure that PCBs and equipment containing PCBs are decontaminated or disposed of within specified deadlines (by 2010).
<p>Directive 2006/66/EC on Batteries and Accumulators Containing Certain Dangerous Substances* as amended by Directives 2008/12/EC, 2008/103/EC and 2013/56/EU</p>	<p>This Directive aims to approximate laws on the recovery and controlled disposal of spent batteries and accumulators. It requires the reduction of their heavy metal content. Among other obligations it also requires Member States to:</p> <ul style="list-style-type: none"> • draw up programmes to achieve specific objectives, including the reduction of the heavy metal content of batteries and accumulators • ensure the efficient organisation of separate collection systems with a view to recovery or disposal, and where appropriate consider the use of deposit systems • prohibit the marketing of batteries containing specified levels of mercury and cadmium (with some exceptions) • consult with concerned parties on proposals for a separate collection and deposit system as well as for economic instruments in order to promote recycling • ensure that batteries and accumulators are marked, in accordance with Directive 93/86/EEC • provide consumers with specific information about batteries and accumulators, including information about the dangers of their uncontrolled disposal • achieve collection of 25 per cent of such batteries as become waste by 2012, and 45 per cent by 2016 • ensure all waste batteries undergo treatment and recycling that comply with European Community legislation.
<p>Directive 86/278/EEC on the Protection of the Environment, and in particular of the Soil, when Sewage Sludge is used in Agriculture as amended by Directive 91/692/EEC, Regulation EC/807/2003 and Regulation 219/2009</p>	<p>The main aims of this Directive are to regulate the use of sewage sludge in agriculture in order to prevent harmful effects on soil, vegetation, animals and humans. The Directive requires the application of maximum limit values for certain heavy metals both in sludge and in the soil. Among other obligations it requires Member States to:</p> <ul style="list-style-type: none"> • ensure that the use of sludge in agriculture complies with limit values for the concentrations of heavy metals in soil • establish rules for the use of sludge • prohibit the use of sewage sludge on specified categories of land within defined periods or where the concentrations of heavy metals in the soil exceeds specific limit values • ensure that the necessary information is available to the competent authorities • analyse sewage sludge and soil to ensure that the proper limits are adhered to.

Legislative instrument(s)	Main requirements
<p>Directive 78/176/EEC on Waste from the Titanium Dioxide Industry* as amended by Directives 82/883/EEC, 83/29/EC, 91/692/EC and 92/112/EEC, Regulations EC/807/2003 and 2010/75/EU</p>	<p>The purpose of the 78/176/EEC Directive is to prevent and reduce pollution caused by waste from the titanium dioxide industry. The two other associated directives elaborate on certain requirements of this directive. Among other obligations, Member States are required to:</p> <ul style="list-style-type: none"> • draw up programmes to fulfil the requirements of the legislation • ensure that waste is disposed of without endangering human health or harming the environment • encourage the prevention, recycling and reuse of waste • monitor waste disposed of and the effects of disposal of waste on the environment • ensure that the construction of new industries is subject to prior environmental impact surveys • take steps to remedy specific situations and, if necessary, require the suspension of operations.
<p>Directive 2000/53/EC on End-of-Life Vehicles* as amended by Decisions 2001/753/EC, 2002/151/EC, 2002/525/EC, 2003/138/EC, 2005/63/EC, 2005/293/EC, 2005/437/EC, 2005/438/EC, and 2005/673/EC, and Directives 2005/64/EC, 2008/33/EC, 2008/112/EC, 2011/37/EU, 2013/28/EU and 2016/774</p>	<p>The purpose of this Directive is to harmonise laws on the recovery and controlled disposal of end-of-life vehicles and their components. Among other obligations Member States are required to:</p> <ul style="list-style-type: none"> • establish measures to promote the prevention of waste from end-of-life vehicles • establish systems for the collection and deregistration of all end-of-life vehicles • take measures to ensure that producers of vehicles collect and process a substantial part of those vehicles • achieve targets for the recovery of at least 85 per cent of the weight of discarded vehicles and the reuse or recycling of at least 80 per cent (by 2006) and at least 95 per cent and 85 per cent, respectively, by 2015 (lower targets may be set for vehicles manufactured before 1980) • reduce the use of dangerous materials in vehicle manufacture • support applications of recycled materials and facilitate dismantling and recycling through proper measures in designing vehicles • ensure that the storage and dismantling of end-of-life vehicles will not harm human health and the environment, and enable the reuse and recycling of spare parts • provide consumers with specific information about the processing of discarded vehicles, including information about the dangers of their uncontrolled disposal.
<p>Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment* as amended by Directives 2012/50/EU, 2012/51/EU, 2014/1/EU, 2014/2/EU, 2014/3/EU, 2014/4/EU, 2014/5/EU, 2014/6/EU, 2014/7/EU, 2014/8/EU, 2014/9/EU, 2014/10/EU, 2014/11/EU, 2014/12/EU, 2014/13/EU, 2014/14/EU, 2014/15/EU, 2014/16/EU, 2014/69/EU, 2014/70/EU, 2014/71/EU, 2014/72/EU, 2014/73/EU, 2014/74/EU, 2014/75/EU, 2014/76/EU, 2015/573, 2015/574, 2015/863, 2016/585, 2016/1028, 2016/1029, 2017/1009, 2017/1010 and 2017/1011</p>	<p>The objective of this Directive is to restrict the use of hazardous substances in electrical and electronic equipment (EEE), and to contribute to the protection of human health and the environmentally sound recovery and disposal of waste electrical and electronic equipment. Among other obligations Member States are required to:</p> <ul style="list-style-type: none"> • ensure that, from 1 July 2006 and subject to certain exemptions, new EEE put on the market does not contain cadmium, hexavalent chromium, lead, mercury, polybrominated biphenyls (PBBs) or polybrominated diphenyl ethers (PBDEs).

Legislative instrument(s)	Main requirements
<p>Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE)*</p>	<p>The purpose of this Directive is to prevent the generation of electrical and electronic waste and to promote reuse, recycling and other forms of recovery in order to reduce the quantity of such waste to be eliminated, while also improving the environmental performance of economic operators involved in its management. Among other obligations Member States are required to:</p> <ul style="list-style-type: none"> • encourage the design and production of electrical and electronic equipment which take into account and facilitate dismantling and recovery, in particular the reuse and recycling of WEEE, their components and materials • adopt appropriate measures to minimise the disposal of WEEE as unsorted municipal waste and achieve a high level of separate collection of WEEE • establish systems for the separate collection and treatment of WEEE, using best available treatment, recovery and recycling techniques • set up minimum quality standards and a permitting system for the treatment of WEEE • meet specified targets for the separate collection and recovery of WEEE • require producers to provide for financing of management of WEEE from private households • establish a system for financing management of WEEE from other (non-household) users • ensure that producers provide information on reuse and treatment for new EEE put on the market • maintaining a register of producers and establish an effective inspection and enforcement system. <p>The most significant feature of this directive is, from 2019, a minimum WEEE collection rate of 65 per cent of the average weight of electrical and electronic equipment placed on the market in a Member State in the 3 preceding years, or alternatively 85 per cent of WEEE generated on the territory of that Member State.</p>
<p>Directive 1999/31/EC on the Landfill of Waste* as amended by Directive 2011/97/EU, Regulation EC/1882/2003, regulation 1137/2008/EC and related Decisions 2000/738/EC and 2003/33/EC as amended by Directive 2002/84/EC, 2007/71/EC and 2015/2087 and Regulation 1137/2008</p>	<p>The main aim is to provide for measures, procedures and guidance to reduce the negative effects on the environment, and the risks to human health, from landfilling of waste. Among other obligations, Member States are required to:</p> <ul style="list-style-type: none"> • prepare and implement a national strategy for reducing the amount of biodegradable municipal waste going to landfill in order to meet specified targets – the ultimate objective being a reduction by 65 per cent. • prohibit co-disposal of hazardous and non-hazardous waste, and landfilling of tyres, liquid waste, infectious clinical waste and certain types of hazardous waste • apply stringent provisions for permitting, control, monitoring, reporting, closure and after-care of landfill sites • require operators to prepare conditioning plans for landfill sites and decide whether existing sites may continue to operate • classify landfill sites according to the type of waste to be disposed of at the site – hazardous waste, non-hazardous waste and inert waste • establish criteria and procedures for the inspection and acceptance of wastes at landfills • ensure that landfill sites are located, constructed and operated in accordance with specified standards. • ensure that all costs involved in the setting up and operation of a landfill site, including the costs of closure and after-care of the site for a period of at least 30 years, will be covered by the price to be charged by the operator for the disposal of any type of waste in that site.

Legislative instrument(s)	Main requirements
<p>Directive 2000/59/EC on Port Reception Facilities for Ship-Generated Waste and Cargo Residues as amended by Directive 2002/84/EC, 2007/71/EC and 2015/2087 and Regulation 1137/2008</p>	<p>The purpose of this directive is to reduce the discharges of ship-generated waste and cargo residues into the sea, especially illegal discharges, from ships using ports in the European Community, by improving the availability and use of port reception facilities for ship-generated waste and cargo residues, thereby enhancing the protection of the marine environment. Among other obligations it requires Member States to ensure that:</p> <ul style="list-style-type: none"> • port reception facilities are provided which meet the needs of the ships using them without causing abnormal delays (these facilities must be tailored to the size of the port and to the categories of ship calling there) • ships' masters bound for a European Community port notify the port at least 24 hours in advance with certain information on wastes requiring discharge, in particular the date and the last port in which ship-generated waste was delivered and the quantity of waste remaining on board • all ships discharge their ship-generated waste before leaving a European Community port, unless the captain can prove that his vessel has adequate storage capacity • the cost of operating the facilities is recovered by means of a fee charged to the ships (all ships calling at an EU Member State port will bear a significant part of the cost – which the Commission interprets as meaning at least 30 per cent – whether they use the facilities or not).
<p>Regulation 2150/2002/EC on Waste Statistics as amended by regulations 574/2004/EC, 783/2005/EC and 221/2009/EC, 1893/2006 and 849/2010</p>	<p>This Regulation sets out the way in which statistics on generation, recovery and disposal of waste are to be prepared and reported to the European Commission.</p>
<p>Regulation (EEC) No 1013/2006 on Shipments of Waste* as amended by Directive 2009/31/EC, Decision 2010/438/EU and Regulations 1379/2007, 669/2008, 219/2009, 308/2009, 413/2010, 664/2011, 135/2012, 255/2013, 1257/2013, 660/2014, 1234/2014, 2015/2002</p>	<p>This Regulation establishes procedures and control regimes for the shipment of waste, depending on the origin, destination and route of the shipment, the type of waste shipped and the type of treatment to be applied to the waste at its destination. It sets up separate regimes governing shipments within the EU, imports to and exports from the EU, and transit shipments through the EU. Different requirements are laid down depending on the destination of the waste shipment, and on whether the waste is listed in the Annexes on the “Green” List (non-hazardous waste intended for recovery) or “Amber” list (all waste intended for disposal and hazardous waste intended for recovery).</p> <p>Among other obligations, Member States are required to:</p> <ul style="list-style-type: none"> • establish a system for the supervision and control of shipments of waste within the national jurisdiction • ensure that any bilateral agreements and arrangements for the import of waste are concluded in accordance with specified conditions • enforce directly applicable provisions of the Regulation such as the prohibition of the export and import of waste • prohibit and punish illegal traffic in waste • ensure that shipments of waste are subject to the provision of a financial guarantee or equivalent insurance • ensure that producers of waste take responsibility for its safe disposal or recovery • ensure that waste is shipped in accordance with specified requirements, which may include inspections and spot checks • designate customs offices of entry into, and departure from, the Community • ensure that consignment notes conform to specified requirements • ensure that the competent authorities, the notifier and the consignee keep documents sent to or by the competent authorities for at least three years • ensure that authorities, shippers and producers of waste understand and comply with their obligations in respect of shipments of waste which shall be clearly defined in a contract. • report to the Commission on specified aspects of implementation.

Legislative instrument(s)	Main requirements
<p>Directive 2006/21/EC on the Management of Waste from Extractive Industries* as amended by Regulation (EC) 596/2009</p>	<p>This Directive applies to waste resulting from the extraction, treatment and storage of mineral resources and the working of quarries. Waste covered by this Directive no longer falls within the scope of Directive 1999/31/EC on the Landfill of Waste.</p> <p>This particular extractive waste must be managed in specialised facilities in compliance with specific rules. In accordance with Directive 2004/35/EC, operators of such facilities are subject to liability in respect of environmental damage caused by their operation. EU Member States must take every precaution to limit risks to public health and the environment related to the operation of extractive waste processing facilities, including among other measures by applying the concept of “best available techniques”.</p> <p>No extractive industry waste facility may operate without a permit issued by the competent authorities. In order to obtain this type of authorisation, the operator of the facility must comply with the provisions of this Directive.</p> <p>The competent authorities must inform the public of applications for permits that are submitted. This provision enables the public to submit comments and to participate in the assessment procedure for authorisation requests.</p> <p>When a new waste facility is built or an existing one modified, the competent authority must ensure that the following measures are taken:</p> <ul style="list-style-type: none"> • the facility must be suitably located • its physical stability must be ensured and soil, air and water pollution prevented • it must be monitored and inspected by competent persons • arrangements must be made for the closure of the facility, the rehabilitation of the land and the after-closure phase. • Operators of waste facilities presenting a potential risk for public health or for the environment (Category A) must draw up: <ul style="list-style-type: none"> • a policy for preventing major accidents • a safety management system • an internal emergency plan specifying the measures to be taken on-site in the event of an accident. <p>For facilities in Category A, the competent authority must also draw up an external emergency plan specifying the measures to be taken off-site in the event of an accident. These two types of emergency plan (produced by the operator and the competent authority) are intended to reduce the potential impact of major accidents on health and the environment and ensure the restoration of the environment following such an accident. They must provide for participation by the public and take account of the opinions submitted. Waste facility operators must provide a financial guarantee before the beginning of operations so as to ensure that the Directive’s obligations are covered and to ensure the existence and availability of funds to restore the site when the facility is closed.</p> <p>A waste facility is regarded as finally closed when the competent authority has carried out a final inspection, assessed the reports submitted by the operator, confirmed that the site has been restored and given its approval. After closure, the operator must maintain and monitor the site for as long as the competent authority considers necessary. The costs of these measures are, in principle, borne by the operator.</p> <p>EU Member States must ensure that waste facility operators draw up a waste management plan, to be reviewed every five years. The objectives of the plan must be to:</p> <ul style="list-style-type: none"> • prevent or reduce the generation of waste and/or its harmful nature • encourage waste recovery through recycling, reuse or reclaiming • encourage the short- and long-term safe disposal of waste.

Continued

Legislative instrument(s)	Main requirements
	<p>The plan must include at least the following:</p> <ul style="list-style-type: none"> • a description of the waste and its characterisation (chemical, physical, geological, and so on), a description of the substances used to process the mineral resources, methods used to transport and process the waste • the control and monitoring procedures • where applicable, the classification of the waste facility (Category A) • planned measures for the closure of the facility and after-closure monitoring • measures for the prevention of water and soil pollution. <p>The competent authority must satisfy itself that waste facility operators have taken the measures necessary to prevent water and soil contamination, in particular by:</p> <ul style="list-style-type: none"> • evaluating leachate generation (leachate means any liquid percolating through the deposited waste, including polluted drainage) • preventing leachate generation and preventing surface water or groundwater from being contaminated by the waste • treating contaminated water and leachate in order to ensure their discharge. <p>The Directive also introduces specific measures aimed at limiting cyanide concentrations in tailings ponds and waste waters when cyanide is used to extract minerals.</p> <p>The competent authority must inspect waste facilities at regular intervals, including after their closure. Operators are required to keep up-to-date records of all waste management operations and to make them available for inspection by the competent authority.</p> <p>Every three years, Member States must send the European Commission a report on the implementation of the Directive. The Commission must publish a report within nine months of receiving the information from the Member States.</p> <p>Member States must ensure that an inventory of closed waste facilities is drawn up and periodically updated. The inventory must include abandoned waste facilities which are located on the territory of the Member States and which cause serious negative environmental impacts or have the potential of becoming in the medium or short term a serious threat to human health or the environment.</p>
<p>Directive 2010/75/EU on Industrial Emissions (Integrated Pollution Prevention and Control)*</p>	<p>This Directive defines the obligations to be met by industrial activities that have the potential to cause significant pollution. It establishes a permit procedure and lays down requirements, in particular with regard to discharges. The objective is to avoid or minimise polluting emissions in the atmosphere, water and soil, as well as waste from industrial and agricultural installations, with the aim of achieving a high level of environmental and health protection.</p> <p>This Directive brings together Directive 2008/1/EC (the IPPC Directive) and six other directives in a single directive on industrial emissions. This Directive covers industrial activities that have the potential to cause significant pollution, defined in Annex I to the Directive (energy industries, production and processing of metals, mineral industry, chemical industry, waste management, rearing of animals, and so on). The Directive shall contain special provisions for the following installations:</p> <ul style="list-style-type: none"> • combustion plants (≥ 50 MW) • waste incineration or co-incineration plants • certain installations and activities using organic solvents • installations producing titanium dioxide. • This Directive does not apply to research activities, development activities or the testing of new products and processes.

Continued

Legislative instrument(s)	Main requirements
	<ul style="list-style-type: none"> • Any industrial installation which carries out the activities listed in Annex I to the Directive must meet certain basic obligations, namely: • preventive measures are taken against pollution • the best available techniques (BAT) are applied • no significant pollution is caused • waste is reduced, recycled or disposed of in the manner which creates least pollution • energy efficiency is maximised • accidents are prevented and their impact limited • sites are remediated when the activities come to an end. <p>Industrial installations must use the best available techniques to achieve a high general level of protection of the environment as a whole, which are developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions. The European Commission must adopt BAT conclusions containing the emission levels associated with the BAT. These conclusions shall serve as a reference for the drawing up of permit conditions.</p> <p>The permit must provide for the necessary measures to ensure compliance with the operator's basic obligations and environmental quality standards. These measures shall comprise at least:</p> <ul style="list-style-type: none"> • emission limit values for polluting substances • rules guaranteeing protection of soil, water and air • waste monitoring and management measures • requirements concerning emission measurement methodology, frequency and evaluation procedure • an obligation to inform the competent authority of the results of monitoring, at least annually • requirements concerning the maintenance and surveillance of soil and groundwater • measures relating to exceptional circumstances (leaks, malfunctions, momentary or definitive stoppages, and so on) • provisions on the minimisation of long-distance or trans-boundary pollution • conditions for assessing compliance with the emission limit values. <p>Special provisions apply to combustion plants, waste incineration and co-incineration plants, installations using organic solvents and installations producing titanium dioxide.</p> <p>The emission limit values for large combustion plants laid down in Annex V to the Directive are generally more stringent than those in Directive 2001/80/EC. A degree of flexibility (transitional national plan, limited lifetime derogation) is introduced for existing installations.</p> <p>Member States must set up a system of environmental inspections of the installations concerned. All installations must be covered by an environmental inspection plan. The plan must be regularly reviewed and updated.</p> <p>Based on the inspection plans, the competent authority must regularly draw up programmes for routine environmental inspections, including the frequency of site visits for different types of installations. The period between two site visits is based on a systematic appraisal of the environmental risks of the installations concerned. It must not exceed one year for installations posing the highest risks and three years for installations posing the lowest risks.</p>

Legislative instrument(s)	Main requirements
Regulation 2017/852 on Mercury	<p>This Regulation replaces the previous EU Mercury regulations (1102/2008). The new Regulation was introduced in order to bring EU law into line with the UN Minamata Convention, which aims to protect human health and the environment from the adverse effects of mercury.</p> <p>The Regulation prohibits the export of mercury, provides for the proper storage of mercury waste and restricts the use of mercury in many products.</p> <p>In order to allow the competent authorities and economic operators sufficient time to adapt to the new regime laid down by this Regulation, they took effect from 1 January 2018.</p> <p>Chapter IV of this Regulation sets requirements for the disposal of waste from mercury-using industries and mercury waste. Operators of large sources of mercury waste, and operators of temporary or permanent storage and treatment facilities of mercury waste, must provide annual reports to the European Commission. Member States must provide reports to the Commission on sites contaminated by mercury.</p> <p>Prior to permanent disposal mercury waste must undergo conversion and, where intended to be disposed of in above-ground facilities, conversion and solidification. Mercury waste that underwent conversion and solidification can only be permanently disposed of in salt mines or deep underground hard rock formations or dedicated above-ground facilities.</p>

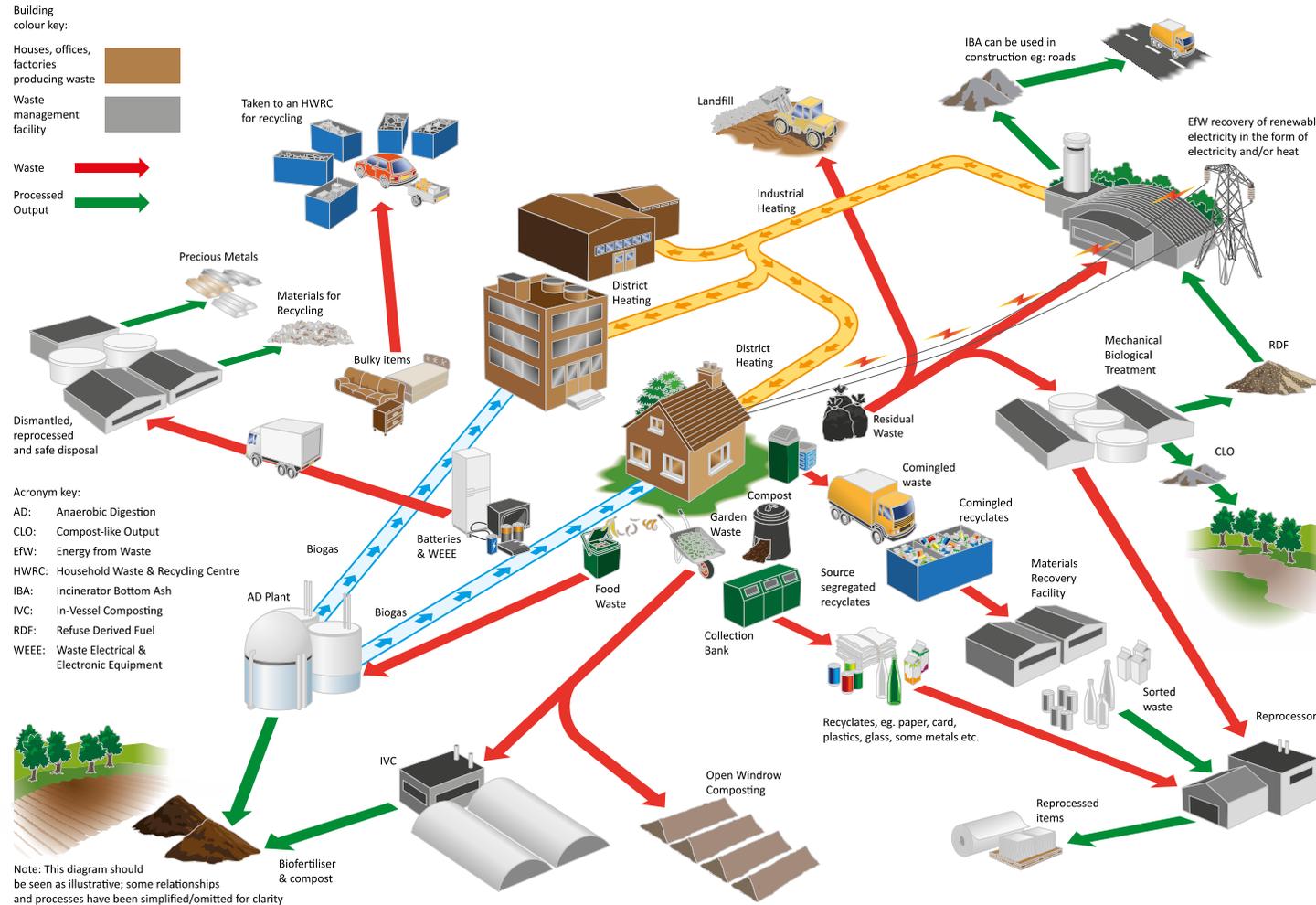
Note: * indicates those instruments which either explicitly or implicitly require the designation of a Competent Authority. Further information on EU waste management legislation may be found at the following website:

<http://ec.europa.eu/environment/waste/legislation/index.htm>

Source: EBRD, European Commission and Integrated Skills Limited.

ANNEX B. Overview of technical options for managing municipal and similar solid waste

Figure A.B.1. Municipal waste management options and material flows



Source: UK Environmental Services Association.

Table A.B.1. Waste management options, main variants, advantages and disadvantages

Option	Main variants	Main advantages	Main disadvantages
Landfilling of untreated mixed waste	<ul style="list-style-type: none"> • With or without landfill gas recovery 	<ul style="list-style-type: none"> • If landfill gas is recoverable in sufficient quantities, this can be used for energy production • If landfill gas is recovered, greenhouse gas emissions are significantly reduced 	<ul style="list-style-type: none"> • Can give rise to significant adverse environmental impacts • Quantities of recoverable landfill gas diminish over time • Environmentally unsustainable, especially on a large scale
Source segregation and separate collection of waste fractions for subsequent recovery or recycling	<ul style="list-style-type: none"> • With or without segregation of kitchen, garden and other clean organic wastes • Kerbside collection of source-separated waste • Delivery of recyclables to a civic amenity site or household waste and recycling centre 	<ul style="list-style-type: none"> • Much higher material capture rates are achievable • Quality of materials collected for recycling is much better 	<ul style="list-style-type: none"> • Usually significantly more expensive to establish and operate than collection of mixed waste • Environmental impacts of additional collection activities
Transfer loading	<ul style="list-style-type: none"> • Road or marine transfer • With or without waste compaction • With or without pre-sorting of recyclables and screening of hazardous or difficult wastes • With or without intermodal containerisation 	<ul style="list-style-type: none"> • Reduced transport costs compared with transporting waste directly in collection vehicles over long distances • Reduced pollution from transporting waste • Can also serve as a household waste and recycling centre 	<ul style="list-style-type: none"> • High capital costs for marine transfer (but lower operating costs than road transfer) • Does not provide any final treatment of waste • If not well located and designed, can give rise to adverse environmental impacts
Incineration (combustion) of mixed waste and/or residual waste from other treatment processes	<ul style="list-style-type: none"> • Mass-burn incineration with: <ul style="list-style-type: none"> – energy recovered as electricity – energy recovered as heat and power (CHP) • Rotary kiln incineration (usually used for treating hazardous or difficult wastes) • Fluidised bed combustion of refuse-derived fuel (RDF) 	<ul style="list-style-type: none"> • Little or no pre-treatment required • Large reductions (~80 per cent) achievable in the volume of waste requiring landfilling • Significant potential for use as a source of renewable energy • Incinerator bottom ash can be used in construction 	<ul style="list-style-type: none"> • High capital costs • Low public knowledge or acceptance • Incinerator fly ash should be managed as a hazardous waste
Advanced thermal treatment (non-combustion)	<ul style="list-style-type: none"> • Pyrolysis or gasification • Plasma gasification • Fluidised bed gasification of RDF • Mechanical heat treatment (for instance, autoclaving) 	<ul style="list-style-type: none"> • Advanced thermal treatment (ATT) technologies can be applied to produce energy, fuels and/or chemical products • Pyrolysis or gasification are thought to emit lower levels of pollutants than incineration emits • It is claimed that ATT technologies are economically viable at smaller scales than conventional incineration • Plant designs are usually modular 	<ul style="list-style-type: none"> • Pre-treatment of waste is required • When optimised for power generation, existing gasification and pyrolysis technologies are less energy efficient than modern mass-burn incineration technology • Most advanced thermal treatment technologies are not fully developed or proven on a large scale • High capital costs

Option	Main variants	Main advantages	Main disadvantages
Mechanical treatment for recycling	<ul style="list-style-type: none"> • “Dirty” materials recovery facility • “Clean” materials recovery facility 	<ul style="list-style-type: none"> • Reduces the volume of waste requiring landfilling, especially in the case of a “clean” materials recovery facility (MRF) • With a “clean” MRF, much higher material recycling rates are achievable 	<ul style="list-style-type: none"> • Quality of materials recovered by a “dirty” MRF is usually inferior to that of a “clean” MRF • “Clean” MRFs require segregation and separate collection of recyclable materials
Biological treatment for recycling	<ul style="list-style-type: none"> • Composting with: <ul style="list-style-type: none"> – open systems (windrows) – in-vessel composting (IVC) • Anaerobic digestion (AD) with: <ul style="list-style-type: none"> – power generation – heat recovery 	<ul style="list-style-type: none"> • Reduces the volume of waste requiring landfilling (to 20-40 per cent), especially if used in conjunction with separate collection of organic waste • Compost or digestate recovered can be used beneficially as a low-grade soil conditioner or fertiliser in agriculture or horticulture • Biogas from AD can be combusted to provide heat or electricity (or both) • Plant designs for IVC and AD are usually modular 	<ul style="list-style-type: none"> • Open windrow systems require large sites and can give rise to odour problems • Unless local markets exist for recovered compost or digestate, reductions in the volume of waste requiring landfilling are small compared with incineration • High capital costs for IVC and AD
Mechanical biological treatment (MBT)	<ul style="list-style-type: none"> • With landfilling of reject fraction • With incineration of reject fraction as an RDF for energy recovery 	<ul style="list-style-type: none"> • Uses a combination of proven technologies which can be configured to achieve different objectives • Reduces the biodegradability of the reject fraction • Reduces the volume of waste requiring landfilling, especially if the reject fraction is used as an RDF for energy recovery • Can remove additional recyclable materials from the waste stream 	<ul style="list-style-type: none"> • Lower capital costs but higher operational costs than some other treatment options • MBT in itself does not result in the final treatment of waste • Markets for outputs may be limited • Unless local markets for outputs exist, reductions in the volume of waste requiring landfilling are small compared with incineration • Where the reject fraction is used as an RDF for energy recovery, less energy efficient than modern mass-burn incineration technology

Source: Integrated Skills Limited.

ANNEX C. Sample documentation

Market-sounding questionnaire

[Name of City] Waste collection, sanitary cleaning and winter maintenance services

Market-sounding questionnaire

Introduction

This questionnaire is part of a market sounding exercise for waste collection, sanitary cleaning and winter maintenance services (“the Services”) being conducted by [Name of consultancy firm] (“the Consultant”) on behalf of [Name of client municipality], with the support of [Donor name, if applicable]. It should be read in conjunction with the Project Briefing Note issued with this questionnaire.

It is intended for use by businesses and organisations which are potentially interested in participating in a future procurement of the Services. It is not intended for general public use.

To assist the Municipality and the Consultant in the development of their proposals for tendering and implementing the Services, and in the formulation of procurement documentation, we are seeking, and would be most grateful for, written responses to the questions set out in this form.

If you have any queries regarding this questionnaire, please contact [Name, title and phone number of the key contact at the consultancy firm].

All responses will be treated in strict confidence.

We would be grateful if this form could be completed and returned as soon as possible. Many thanks for your time and interest in this project.

Respondent contact details:

Name of organisation: _____

Postal address: _____

Website: _____

Name of person completing this questionnaire: _____

Job title of person completing this questionnaire: _____

Office telephone number: _____

Mobile telephone number: _____

E-mail address: _____

Questions:

1. Based on the information contained in the Project Briefing Note, would you be interested in submitting a tender for providing the Services?

- Yes
- No

2. If no, please briefly explain the reason(s):

3. If yes, would you expect to submit a tender:

- Alone?
- As member of a consortium?
- As a sub-contractor to a lead bidder?

If as member of a consortium or as a sub-contractor, please provide further details (if possible at this stage).

4. Do you have any comments or suggestions regarding the proposed contract scope and allocation of responsibilities for the Services?

5. Do you have any comments or suggestions regarding the proposed allocation of risks in relation to the Services?

6. Many of the Multi-Apartment Blocks (MABs) in [Name of City] are equipped with waste chutes and central storage chambers from which accumulated wastes must be removed manually (further information may be found in the Feasibility Study reports). Would you still be interested in tendering for the Services if the task of removing wastes from waste storage chambers is incorporated within the scope of the Services?

- Yes
- No

If no, please briefly explain the reason(s):

If yes, under what conditions (if any)?

7. In case a separate, stand-alone contract is offered for the service of removing wastes from waste storage chambers in MABs and transferring these to containers, would you be interested in tendering for such a contract?

- Yes
- No

If no, please briefly explain the reason(s):

If yes, under what conditions (if any)?

8. Currently, a contract for the Services with a duration of 10 years is being considered. In your opinion, is such a contract duration:

- Acceptable?
- Too long?
- Too short?

If too long or too short, please suggest an alternative contract duration together with a justification:

9. Currently, it is intended that the Services will be specified primarily (but not exclusively) in output-based terms.¹ Do you agree with this approach?

- Yes
- No

If no, please briefly explain the reason(s):

10. Currently, it is envisaged that the Contract payment mechanism for the Services will be based on:

- An index-linked annual sum payable monthly in arrears by the Municipality to the Contractor, beginning on the date of commencement of the Services;
- Provisions for payment deductions for contractually-defined Contractor defaults in performance of the Services;
- Provisions for payment adjustments to take account of any significant changes in service levels (such as quantities of waste collected) or Municipality-ordered Contract variations;
- Provisions for sharing of financial benefits resulting from any reductions in costs arising from improvements in resource productivity or mutually-agreed changes in operating methods after Contract commencement.

Do you consider such a payment mechanism to be reasonable and acceptable?

- Yes
- No

If no, please briefly explain the reason(s) and suggest an alternative payment mechanism:

11. Do you consider the timeframe for procurement and commencement of the Services indicated in the Project Briefing Note to be realistic?

- Yes
- No

If no, please briefly explain the reason(s) and suggest an alternative timeframe together with a justification:

12. Would you be interested in attending an informal meeting of prospective tenderers to discuss the Services and the contractual arrangements for their provision?

- Yes, in [Name of City]
- Yes, at another location in central Europe
- No

It should be noted that any such informal meeting would be held strictly on a “without prejudice or commitment” basis.

13. Do you have any other comments or suggestions?

- Yes
- No

If yes, please provide these on a separate sheet.

Thank you for completing this questionnaire.

Please send it to [Name, title and email address of key contact at the consultancy firm].

¹An Output Specification forms part of the Contract and is the means by which the Contracting Authority defines the outputs that it requires from the Contractor over the term of the Contract. Fundamentally, the Output Specification specifies the outcomes that are required to be achieved, not how they are achieved.

Project information memorandum

Municipality of [Name of City]

Procurement of Municipal Solid Waste Collection, Sanitary Cleaning and Winter Maintenance Services for [Name of City]

Project Information Memorandum

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Disclaimer, confidentiality and related matters

This Project Information Memorandum (PIM) and accompanying Post-Qualification Questionnaire (PQQ) have been prepared by [Name of Municipality] (“the Municipality”) solely for the purpose of confirming the interest and verifying the capacities and capabilities of organisations interested in being invited to tender for two long-term contracts for the provision of Municipal Solid Waste Collection, Sanitary Cleaning and Winter Maintenance Services (“the Services”) in [Name of City].

The contents of this PIM and accompanying PQQ are confidential. The PIM and PQQ may be made available to prospective tenderers’ employees and professional advisors directly involved in the appraisal of such information. Except where permitted by this PIM, the PIM and PQQ shall be treated as confidential and shall not, either in whole or part, be copied, reproduced, distributed or otherwise made available to any other party in any circumstances without the prior written consent of the Municipality, nor may they be used for any other purpose than that for which they are intended.

The PIM is intended only as a preliminary background explanation of the Municipality’s requirements and plans and is not intended to form the basis of any decision on whether to enter into any contractual relationship with the Municipality for provision of the Services. The PIM does not purport to be all-inclusive, or to contain all of the information that a prospective tenderer may require.

None of the Municipality, its technical, financial or legal advisors or any other advisor (or the directors, officers, members, partners, employees, staff, agents or advisors of any such person):

- Makes any representation or warranty (express or implied) as to the accuracy, reasonableness or completeness of the PIM. Any organisations or persons considering making a decision to enter into contractual relationships with the Municipality following receipt of the PIM should make their own investigations and their own independent assessment of the Municipality and its requirements for the Services and should seek their own professional technical, financial and legal advice.
- Accepts any responsibility for the information contained in this PIM or for its fairness, accuracy or completeness. Nor shall any of them be liable for any loss or damage (other than in respect of fraudulent misrepresentation) arising as a result of reliance on such information or any subsequent communication. Only the express terms of any written Contract relating to the subject matter of this PIM, as and when it is executed, shall have any contractual effect in connection with the matters to which it relates.
- Will be liable for any costs incurred by any organisation responding to the PQQ, whether incurred by them directly or their advisors or sub-contractors.

It should be noted that this PIM does not constitute an Invitation to Tender, nor does it commit the Municipality to award any contract pursuant to any tender process.

Introduction

This PIM provides a brief overview of:

- The current system of municipal solid waste management in [Name of City];
- The planned new arrangements for private sector participation in managing municipal solid waste in the City;
- The planned arrangements, selection process and indicative timetable for procuring two long-term contracts for the provision of Municipal Solid Waste Collection, Sanitary Cleaning and Winter Maintenance Services (“the Services”) in [Name of City].

Background

Current situation

[Name of City] (population [X] million) is the largest city of [Name of country]. Over the past fifty years, the City has been transformed from a town of a few thousand residents into the principal cultural, artistic, and industrial centre of the country, as well as becoming the seat of national government. With rapid growth of the economy, [Name of City] has been undergoing major transformation as many parts of the city have been the subject of renovation and new construction since the early 2000s. Today, the appearance of new buildings, roads, hotels, restaurants, boutiques, living quarters, and so on have started to give the city a modern, cosmopolitan appearance.

As a relatively young self-governing body, the [Name of City] Municipality has not yet had sufficient time to develop the institutional structures, capacities or expertise to be able plan and manage city-wide municipal services, including municipal solid waste (MSW) management services, in an integrated and efficient manner.

In addition, an ineffective institutional and legal framework, absence of government strategy and policy, financial inefficiencies, lack of investments and performance incentives have resulted in significant shortfalls in the level of MSW management services in [Name of City]. In general, the waste collection and city cleaning system has not adapted to the conditions created by economic growth, including increases in the quantity of waste generated, changes in its composition, and so on. The current decentralised delivery of MSW collection and cleaning services in [Name of City] by a number of small public and private enterprises ([X] in total) is characterised by a wide variation in service quality. The existing municipal landfill, located at [Name of landfill location], is poorly operated and presents a significant health and environmental risk due to landfill gas emissions, waste burning and potential water quality impacts.

Feasibility study

In response to the deteriorating situation relating to solid wastes in [Name of City], the government requested [Name of organisation] support to improve the MSW management system in the City through private sector participation. A [Name of funding and/or administering organisation]-administered feasibility study on solid waste management system development for [Name of City] through private sector participation (hereafter referred to as the Feasibility Study) was completed in [Month and year]. An Environmental Impact Assessment (EIA) and geological study of the [Name of landfill] was completed in [Month and year]. Copies of the Feasibility Study and EIA reports can be downloaded from here:

[URL for these studies and reports]

A detailed, scalable map of [Name of City] in PDF format can also be downloaded from here:

[URL for the map]

The Feasibility Study consultant, [Name of consultancy firm], provided recommendations on:

- a). Performance-based specifications defining acceptable service levels for solid waste collection, sanitary cleaning, winter maintenance and landfill services meeting reasonable standards of environmental and hygienic protection, affordability, capacity and local requirements;
- b). Long-term and short-term waste disposal options, including upgrading and operation of the single largest official landfill for the City ([Name of landfill]);
- c). A solid waste management configuration plan for [Name of city], which suggested dividing the City into two waste collection and sanitary cleaning zones, upgrading the existing landfill to acceptable European standards, improving its operations, as well as closing and cleaning-up the existing illegal dumpsites
- d). The level of tariffs required to ensure financial sustainability of the waste collection, sanitary cleaning and landfill operation;
- e). The legislative changes required to facilitate the proposed reforms, including involvement of the private sector;
- f). Private sector involvement through (i) separate waste collection and sanitary cleaning contracts for two city zones and (ii) a design-finance-build-operate (DFBO) model for the landfill development and operation.

New arrangements for solid waste management in [name of city]

Project board

A Project board comprising the Mayor of [Name of City], other representatives of the Municipality and relevant state bodies has been established to act on the key recommendations of the Feasibility Study and oversee procurement of the Services. The Board has already endorsed the key recommendations of the Feasibility Study on the waste management system configuration plan, tariffs, the required legislative changes as well as the proposed arrangements for private sector participation in MSW management services.

Transaction advisor

In March 2010, the consulting firm [Name of consultancy firm] was appointed to provide Transaction Advisory Services to the Government and [Name of City] Municipality in connection with the procurement and implementation of the two contracts foreseen for waste collection, sanitary cleaning and winter maintenance services (the subject of this PIM), and the landfill DFBO contract (see below).

New law on waste management and sanitary cleaning

With the assistance of the Transaction Advisor, a new draft “Law on Waste Management and Sanitary Cleaning” was prepared by the Government and presented to the [Parliament] earlier this year. The new Law was enacted on [Date], and came into force on [Date]. The Law provides a comprehensive legal framework for planning and managing solid waste management and sanitary cleaning services in [Name of country], and for private sector participation in the provision of these services. In particular, the new Law provides municipalities with new competence and powers for setting tariffs and collecting fees from waste generators in order to ensure the financial sustainability of municipal solid waste management services.

Arrangements for private sector participation

The proposed new arrangements for municipal solid waste management in [Name of City] envisage engaging experienced private sector companies to supply new vehicles and equipment and operate waste collection, sanitary cleaning and winter maintenance services, and also to construct and operate a new sanitary landfill site at [Name of landfill location]. This will be achieved by competitively tendering and awarding:

- Two Public-Private Partnership (PPP) contracts to provide waste collection, sanitary cleaning and winter maintenance services for a period of 10 years (each contract covering approximately half of the City); and
- One long-term contract for the design, construction and operation of the new landfill.

In all cases, the Contracting Authority for the services will be the Municipality of [Name of City] which will also be responsible for paying for the Services in accordance with the terms of the contracts.

Contract scope and risk allocation

A summary of the intended scope and allocation of responsibilities foreseen for the two PPP contracts for provision of the Services is presented in Annex A of the Project Memorandum.

The proposed register and allocation of risks between the contracting parties for the Services is presented in Annex B of the Project Memorandum.

Procurement arrangements

Procurement process

The procurement process shall be deemed to have formally commenced upon publication of the announcement on prequalification in the Bulletin of the [Name of country] Government. The procurement will be conducted using the “competitive dialogue” procedure in accordance with the provisions of the Law on Public Procurement [Year].

Invitations to tender for each of the two PPP contracts for the Services will be issued to a minimum of three and maximum of six organisations which have successfully passed the pre-qualification stage.

While short-listed tenderers will be at liberty to submit tender proposals for either or both contracts for the Services, under no circumstances will both contracts be awarded to a single tenderer or to two tenderers which are in any way associated or related. The successful tenderers will be required to provide a sworn declaration to this effect prior to contract signature.

Pre-qualification

Organisations interested in being invited to tender for the Services are required to complete a Pre-Qualification Questionnaire (PQQ). The criteria and methodology which will be used to evaluate completed PQQs are stated in the PQQ itself. In general, these relate to the legal position, technical capacity, and economic and financial capacity of prospective tenderers.

The Municipality may treat a prospective tenderer as ineligible if:

- The prospective tenderer fails to submit a PQQ completed in accordance with the instructions set out in the PQQ document.
- The prospective tenderer submits a PQQ that is incomplete or not in the specified format (however, the Municipality reserves the right, at its discretion, to request further relevant information from any prospective tenderer).
- The prospective tenderer, or where the prospective tenderer is a consortium, any of its shareholders, is ineligible under Article [X] of the Law on Procurement [Year].

Contract award

The two PPP contracts will be awarded on the basis of the most economically advantageous tenders. Details of the criteria and methodology that will be used to evaluate tenders will be provided in the tender documents.

Debriefing

Organisations which fail to pre-qualify, and tenderers which are unsuccessful, will be given an opportunity for a written explanation or debriefing session upon written request.

Procurement timetable

An indicative timetable for the process of procuring the Services is presented in Table 1. The Municipality reserves the right to amend this timetable if required.

Table 1: Indicative timetable for the procurement process

Procurement stage	Elapsed time in days
Publication of pre-qualification announcement in the official Bulletin	0
Issue of Project Information Memorandum (PIM) and Pre-Qualification Questionnaire (PQQ) to interested organisations	Upon request
Closing date for clarification questions on PIM and PQQ	+20
Time within which responses to clarification questions on PIM and PQQ will be provided	3
Deadline for return of completed PQQs	+25
Determination of tender short-lists (for each contract)	+35
Issue of invitations to short-listed tenderers to submit draft technical proposals / revised specification	+38
Deadline for submission of draft technical proposals or revised specification	+90
Issue of invitation to participate in a simultaneous dialogue	+100
Completion of dialogue	+110
Issue of Invitations to Tender	+120
Closing date for submission of tenders	+150
Evaluation of Technical Proposals	+170
Opening of Financial Proposals	+175
Evaluation of Financial Proposals	+180
Selection of preferred tenderers (2)	+180
Negotiations with preferred tenderers	+190
Contracts awarded	+200
Debriefing of unsuccessful tenderers	+220

Annex A to the project information memorandum: Contract scope and allocation of responsibilities

Waste collection, sanitary cleaning and winter maintenance services – contract scope and allocation of responsibilities				
No.	Description of task or responsibility	Municipality	Shared	PPP contractor
Service provision:				
1	Provision of a service for the regular collection of Municipal [Communal] Solid Waste arising within the administrative boundary of [Name of City], including but not limited to the collection of: <ul style="list-style-type: none"> • Household waste • Waste originating from any public building which is similar in character to household waste (for example schools, government buildings, and so on) • Waste originating from any private building which is similar in character to household waste (for example shops, supermarkets, offices, other commercial premises, and so on) • Bulky waste • Waste from public parks and gardens • Waste from markets • Waste from sanitary cleaning services • Solid waste from cleaning of gullies and drains situated on public roads and highways. 			✓
2	Provision of a service for the regular cleaning of all public roads, highways, yards, gardens, squares, pavements or sidewalks, pedestrian crossings, bridges, lawns, beaches, open spaces and other similar areas of public use situated within the administrative boundary of [Name of City], including but not limited to: <ul style="list-style-type: none"> • Initial clean-up and removal of accumulated debris, abandoned moveable property and other solid waste • Ongoing clean-up and removal of debris, abandoned moveable property and other illegally dumped solid waste • Manual and mechanical sweeping and removal of dust, litter and small items of debris • Removal of leaf and blossom fall • Emptying, cleaning and maintenance of litter bins • Removal of dead animals • Removal of animal faeces • Removal of debris following road accidents. 			✓
3	Provision of a winter maintenance service for selected public roads, highways, pavements or sidewalks and other specified areas of public use situated within the administrative boundary of [Name of City], including but not limited to: <ul style="list-style-type: none"> • Clearance and, where necessary, removal of snow and ice in accordance with priorities set by the Client • Application of salt or grit in accordance with priorities set by the Client. 			✓
4	Provision of additional waste collection, sanitary cleaning, winter maintenance and other related services as may be required to cater for emergencies and special events			✓
5	Transportation and delivery of all collected Municipal Solid Waste to one or more waste processing or disposal facilities designated by the Municipality			✓

Waste collection, sanitary cleaning and winter maintenance services – contract scope and allocation of responsibilities				
No.	Description of task or responsibility	Municipality	Shared	PPP contractor
6	Acquisition of all permits and licences required to provide the services and operate the service facilities	✓		
7	Compliance with all permits, licences, laws, acts, statutory regulations, codes of practice and all contractual obligations applicable to the provision of the services and operation of the service facilities			
8	Enforcement of all laws, regulations and statutory norms relating to the management of Municipal [Communal] Solid Waste	✓		
9	Public relations, education and publicity		✓	
10	Payments to the Service Provider for services performed in accordance with the Contract	✓		
11	Levying and collection of fees from householders and other service users	✓		
Procurement or supply of assets and resources:				
12	Initial supply of all containers, vehicles, mobile plant and equipment required for provision of the services			✓
13	Identification of locations for the installation of permanent platforms (pre-collection points) to accommodate wheeled containers for storing Municipal [Communal] Solid Waste prior to collection		✓	
14	Permitting of locations for the installation of permanent platforms (pre-collection points) to accommodate wheeled containers for storing Municipal [Communal] Solid Waste prior to collection	✓		
15	Design and construction of permanent platforms (pre-collection points) to accommodate wheeled containers for storing Municipal [Communal] Solid Waste prior to collection			✓
16	Identification and permitting of locations for the installation of permanent platforms to accommodate containers for storing salt or grit required for winter maintenance services	✓		✓
17	Design and construction of permanent platforms to accommodate containers for storing salt or grit required for winter maintenance services			✓
18	Reception, storage, assembly and distribution or placement of all containers, vehicles, mobile plant and equipment required for provision of the services			✓
19	Procurement and supply of additional containers, vehicles, plant and equipment as may be required for provision of the services during the entire duration of the Contract			✓
20	Provision of appropriate and secure storage, depot, maintenance, office and all other facilities required for provision of the services for the entire duration of the Contract			✓
21	Supply of all fuel, power, spare parts and consumable items or materials required to provide the services and operate the service facilities			✓
22	Provision of all human resources required to provide the services and operate the service facilities			✓

Waste collection, sanitary cleaning and winter maintenance services – contract scope and allocation of responsibilities				
No.	Description of task or responsibility	Municipality	Shared	PPP contractor
Ownership, insurance, cleaning, maintenance and replacement of assets:				
23	Ownership of all containers, vehicles, plant, equipment and other assets used to provide the services during the period of the Contract			✓
24	Ownership of all containers, vehicles, plant, equipment and other assets used to provide the services upon Contract expiry or termination	✓		
25	Insurance of all containers, vehicles, plant, equipment and other assets used to provide the services for the entire duration of the Contract			✓
26	Cleaning, repair and maintenance as required of all containers, vehicles, plant, equipment and other assets used to provide the services and operate the service facilities for the entire duration of the Contract			✓
27	Replacement, as may be required, of any lost, stolen or damaged containers, vehicles, plant, equipment and other assets used to provide the services and operate the service facilities for the entire duration of the Contract			✓

Annex B to the project information memorandum: Proposed risk register and allocation

Waste collection, sanitary cleaning and winter maintenance services – proposed risk register and allocation				
No.	Description of risk	Municipality	Shared	PPP contractor
Planning, design and construction risks:				
1	Identification and permitting of locations for containers Unanticipated delays and costs arising from the process of identifying and permitting of locations for the installation of permanent platforms for containers.		✓	
2	Variations Time and/or costs Unforeseen time and/or cost overruns arising from changes in relevant legislation or regulations, or from changes in the requirements of the Municipality.	✓		
3	Legal covenants Unforeseen legal covenants or rights of way result in a requirement for significant changes in location and/or design of permanent platforms for containers.	✓		
4	Redesign Redesign required as a result of poor initial design or misunderstanding or misinterpretation of the specification.			✓
5	Performance Design does not meet the functional requirements of the Municipality.			✓
6	Weather conditions Delays arising from unexpected weather conditions during the construction period.	✓		
7	Public protest Delays in construction caused by public protests and disruption.	✓		
8	Workmanship Delays and additional costs resulting from poor quality workmanship.			✓
9	Time extensions Cost increases due to any extensions of time granted by the Municipality.			✓
10	Works sub-contractors Delays and/or cost overruns arising from sub-contractors: <ul style="list-style-type: none"> • Insolvency or default • Failure to perform • Failure to achieve quality standards. 			✓
11	Industrial action Delays and additional costs resulting from industrial action by the staff employed by the Contractor or its sub-contractors.			✓
12	Interruptions Delays and additional costs arising due to: <ul style="list-style-type: none"> • Noise complaints • Disputes with local residents • Access problems. 			✓

Waste collection, sanitary cleaning and winter maintenance services – proposed risk register and allocation				
No.	Description of risk	Municipality	Shared	PPP contractor
13	Cost inflation Construction costs increase more than expected and allowed for by the Contractor in his tender submission.			✓
Operating risks:				
14	Waste quantities The quantities of waste required collected and transported under the Contract change significantly over time due to growth or reduction in the population and/or the number of residential and/or commercial properties served.	✓		
15	Waste types Wastes of types other than those specified in the Contract are deliberately or inadvertently collected.		✓	
16	Service availability The availability of the services provided falls below the standard specified.			✓
17	Service performance The delivery, timing or quality of the services provided falls below the required standard.			✓
18	Estimation errors Additional service costs are incurred and are attributable to inaccuracies in the Contractor's original cost estimates.			✓
19	Equipment and materials Deficiencies in the performance of key equipment and/or materials results in higher than expected maintenance costs.			✓
20	Staff shortages Shortage of appropriately skilled staff leads to a reduction in service availability and performance.			✓
21	Staff training Shortage of appropriately trained staff leads to a reduction in service availability and performance.			✓
22	Industrial action Delays and additional costs resulting from industrial action by the staff employed by the Contractor or its sub-contractors.			✓
23	Residual life of equipment Incorrect assessment of life expectancy of any containers, vehicles, plant, equipment or other assets supplied by the Contractor.			✓
24	Municipality staff Delays and additional costs resulting from industrial action by the staff employed by the Municipality.	✓		
25	Variations Delays and additional costs resulting from changes in: <ul style="list-style-type: none"> • Municipality requirements • Regulatory or statutory requirements • Environmental performance standards 	✓		
26	Environmental performance Delays and additional costs resulting from a failure to meet environmental performance standards.			✓

Waste collection, sanitary cleaning and winter maintenance services – proposed risk register and allocation				
No.	Description of risk	Municipality	Shared	PPP contractor
27	Third party claims Additional costs arising from third party claims resulting from a failure to meet the service and/or environmental performance standards specified in the Contract.			✓
28	Cost control Inadequate cost control leading to the need for additional resources.			✓
29	Maintenance Additional maintenance costs resulting from estimating errors, abuse in usage or poor life cycle maintenance procedures.			✓
30	Infrastructure deficiencies Deficiencies in infrastructure design or build quality resulting in higher than anticipated maintenance and servicing costs.			✓
31	Infrastructure damage (insurable) Infrastructure damage or destruction arising from an insurable event.			✓
32	Infrastructure damage (uninsurable) Infrastructure damage or destruction arising from an uninsurable event or civil unrest.	✓		
33	Cost inflation Operating costs increase more than expected and more than allowed for in the contract price indexation arrangements.			✓
34	Sub-contractor performance Failure to meet availability and performance standards as a result of sub-contractor: <ul style="list-style-type: none"> • Insolvency or default • Failure to perform • Failure to achieve quality standards 			✓
Financial risks:				
35	Affordability Revenues from user charges are insufficient to cover all service payments properly due to the Contractor.	✓		
36	Interest rates post contract award Post contract award, interest rates and any other costs of finance increase by more than anticipated by the Contractor in his tender submission.			✓
37	Foreign currency exchange rates Additional costs or savings arise as a result of fluctuations in foreign currency exchange rates.			✓
38	Tax assumptions Costs incurred by the Contractor increase or decrease due to inaccurate tax assumptions by the Contractor.			✓
39	General tax changes Costs incurred by the Contractor increase or decrease as a result of general changes in taxes.	✓		

Pre-qualification questionnaire

[Name of country]

Municipality of [Name of City]

Procurement of Municipal Solid Waste Collection, Sanitary Cleaning and Winter Maintenance Services for [Name of City]

Pre-Qualification Questionnaire

1. Introduction

The Municipality of [Name of City] (“the Municipality”), with support from the Government of [Name of country] and [Name of funding partner or lender], will shortly invite tenders for two contracts to provide municipal solid waste collection, sanitary cleaning and winter maintenance services (“the Services”) in the City of [Name of City]. Further information about the planned tenders is contained in the Project Information Memorandum which accompanies this questionnaire.

The purpose of this pre-qualification questionnaire (PQQ) is to:

- a). Confirm your organisation’s interest in being invited to tender; and
- b). Verify that your organisation has the resources, technical capability and financial capacity to be able to deliver the Services successfully.

Please note that the Municipality will not re-reimburse any expenses incurred by organisations in preparing their responses to the questionnaire. The Municipality also reserves the right to:

- *Raise such additional questions it may consider necessary in the light of the information given before confirming or rejecting an organisation’s participation in any tender for the Services.*
- *Undertake a financial assessment of your organisation’s suitability to be invited to tender by commissioning an independent business appraisal check.*
- *Discontinue the procurement process at any time and will not accept any liability towards organisations should it decide to do so.*

2. Instructions for completion

Please respond to this questionnaire in full. All questions must be answered using “none” or “not applicable” where appropriate. Clearly mark on any additional sheets the name of your organisation and the question number it refers to.

Organisations not currently registered in [Name of country] should answer all questions substituting where relevant the appropriate professional or commercial registers, legislation, Codes of Practice and so on, which are applicable within their domestic jurisdiction.

The information disclosed in this form will be used to finalise the list of pre-selected tenderers. However, the issue of any invitation to tender based on this questionnaire does not imply any representation by the Municipality as to your organisation’s on-going financial stability, technical competence or ability in any way to carry out the Services. The right to return to these matters is reserved by the Municipality.

Except where instructed otherwise, please give details that relate to the organisation which may be invited to tender, not to the whole of the group if your organisation forms part of a group. Please note that any organisation selected and invited to tender for any contract must submit its tender in the name given in response to question 4.1. Failure to do so without prior approval of the Municipality will result in tenders being rejected.

Please do not include general marketing or promotional material for your organisation to answer any of the questions in this questionnaire, or for any other reason.

The completed and signed questionnaire, together with any supporting documents, shall be submitted not later than 25 days after publication of the announcement on prequalification in the Bulletin of the [Name of country] Government to:

[Insert name, address, phone number and email address of the Municipality’s representative.]

3. Evaluation criteria

Please respond to this questionnaire in full. All questions must be answered using “none” or “not applicable” where appropriate. Clearly mark on any additional sheets the name of your organisation and the question number it refers to.

Criteria	PQQ question	Max. points available
Organisation Profile	4.1 – 4.11	Information only
	4.12	Pass / fail
Financial Information	5.1 – 5.2	Information only
	5.3	Pass / fail
	5.4	Pass / fail
	5.5	Pass / fail
	5.6	Pass / fail
	5.7 – 5.8	Information only
Relevant Experience and Technical Expertise	5.9 – 5.10	Information only
	6.1	Information only
	6.2	Pass / fail
	6.3	60%
	6.4	20%
Quality Assurance, Health and Safety and Environment	6.5	20%
	7.1	Pass / fail
	7.2	Information only
	7.3	Pass / fail
Completed and signed declaration	7.4 – 7.6	Information only
	8	Pass / fail

4. Organisation profile

Note: Where the word “organisation” is used in this document, it refers to a sole trader, partnership, incorporated company, co-operative, charity or analogous entities operating outside [Name of country] as appropriate. The term “officer” refers to any director, company secretary, partner, associate, employee, trustee or other person occupying a position of authority or responsibility in the organisation.

4.1. Name of the organisation:

4.2. Contact for enquiries about this questionnaire:

Name:

Position:

Telephone:

E-mail:

4.3. Status of organisation, for example, sole trader, partnership, private limited company, public limited company, charity or other legal entity (please specify):

4.4. Registered Company name (if different from 4.1):

4.5. Address of Registered Office if organisation is a registered company:

4.6. Please state the organisation's place and date of incorporation or formation, and registration number:

4.10. Is the organisation a member of a group including other organisations?

Yes	
No	

4.7. Address of Head Office if organisation is not a registered company:

4.10.1. If yes, please attach the names and addresses of the holding company and associated companies, the objectives of the group and full details of the structure of the group including a group organisation chart.

Attached	Yes	
	No	

4.8. Address to which correspondence is to be sent if not Head Office:

4.10.2. Would the group or the ultimate holding company be prepared to guarantee your contract performance as its subsidiary (if applicable)?

Yes	
No	

4.9. Address from which the Services will be managed (if successful):

4.11. Do you propose to deliver the Services by way of a joint venture or sub-contracting arrangement with other firms?

Yes	
No	

4.11.1. If yes, please provide details of the proposed joint venture or sub-contracting arrangements, including the financial, managerial and legal relationships between the companies involved (provide an organisation chart illustrating these relationships).

Attached	Yes	
	No	

4.12. Article 5 of the Law on Procurement 2010 stipulates inter alia that any organisation participating in a public procurement for goods and services:

- a). must have the right required to fulfil the obligations envisaged under the procurement contract, the professional qualifications, technical resources, financial resources and labour resources;
- b). shall not be deemed bankrupt by a court;
- c). shall not have outstanding debts or arrears in relation to tax and social insurance fees in [Name of country];
- d). during the year prior to the day of tender submission, shall not have:
 - 1. Repeatedly breached a contractual obligation or obligations undertaken within the format of a public procurement process, which has resulted in the unilateral termination of a contract or termination of further participation of the tenderer in the procurement process;
 - 2. During a public procurement process, submitted false information;
 - 3. As a selected tenderer in a public procurement process, repeatedly refused to enter into a contract;
 - 4. Been the subject of a decision made by judicial order for anti-competitive behaviour, collusion or abuse of position during a public procurement process;
 - 5. Failed to fulfil its contractual obligations in respect of any of the criteria stipulated in Article [X] of the Law on Procurement [Insert year the Law was passed].

Please provide a sworn statement confirming that there are no grounds applicable to the organisation pursuant to which it could be rejected by the Municipality under the Law on Procurement [Insert year the Law was passed]:

Sworn statement attached	Yes	
	No	

5. Financial information

5.1. Who is the person in the organisation responsible for financial matters?

Name:

Position:

Telephone:

E-mail:

5.2. Please provide on letter-headed paper details of your principal banker and authorisation for the Municipality to take up reference from your bank at your expense:

Signed letter of authorisation attached	Yes	
	No	

5.3. What was your total annual turnover in the last three years?

For the year ended 2010: [Insert currency and amount]

For the year ended 2009: [Insert currency and amount]

For the year ended 2008: [Insert currency and amount]

5.4. What was your annual turnover in the last three years in respect of services which are of a similar type to the Services being procured for the City of [Name of City]?

For the year ended 2010: [Insert currency and amount]

For the year ended 2009: [Insert currency and amount]

For the year ended 2008: [Insert currency and amount]

5.5. If requested, would you be able to provide the following information?

Copies of your most recent audited accounts (for the last three years):

Yes	
No	

A statement of your turnover, profit and loss account and cash flow for the most recent year of trading:

Yes	
No	

A statement of your cash flow forecast for the current year and a bank letter outlining the current cash and credit position:

Yes	
No	

5.6. Insurances - please confirm that you have, and intend to maintain, in effect insurances of the types indicated below:

a). Employers Liability Insurance:

Insurer	
Address	
Policy Number	
Extent of Cover	[Insert currency and amount]
Expiry Date	

b). Public Liability (Third Party) Insurance:

Insurer	
Address	
Policy Number	
Extent of Cover	[Insert currency and amount]
Expiry Date	

c). Professional Indemnity Insurance:

Insurer	
Address	
Policy Number	
Extent of Cover	[Insert currency and amount]
Expiry Date	

5.7. Are there any outstanding financial claims or litigation against the organisation?

Yes	
No	

If yes, please provide details:

5.8. Has your organisation suffered a deduction for liquidated and ascertained damages in respect of any contract within the last three years?

Yes	
No	

If yes, please provide details:

5.9. Has your organisation ever had a contract terminated or its employment determined under the terms of the contract?

Yes	
No	

If yes, please provide details:

5.10. Has your organisation not had a contract renewed for failure to perform in accordance with the terms of the contract?

Yes	
No	

If yes, please provide details:

6. Relevant experience and technical expertise

- 6.1. Please attach a list of the towns or cities where your organisation currently delivers municipal solid waste collection and sanitary cleaning services, indicating the number of inhabitants served in each case:

List attached	Yes	
	No	

- 6.2. Please provide details of three recent contracts that are relevant and comparable to the Municipality's service requirements. If you cannot provide three references, please explain why.

Reference 1

Customer Organisation (name):	
Customer contact name, phone number and e-mail:	
Date contract awarded:	
Value (currency and amount):	
Status (on-going or completed):	
Completion date:	

Reference 2

Customer Organisation (name):	
Customer contact name, phone number and e-mail:	
Date contract awarded:	
Value (currency and amount):	
Status (on-going or completed):	
Completion date:	

Reference 3

Customer Organisation (name):	
Customer contact name, phone number and e-mail:	
Date contract awarded:	
Value (currency and amount):	
Status (on-going or completed):	
Completion date:	

- 6.3. For each reference given in 6.1 above, please attach a detailed qualitative and quantitative description of the services provided:

Descriptions attached	Yes	
	No	

- 6.4. Please state the approximate number of employees in your organisation which are engaged in providing the types of services being procured for the City of [Name of City]:

Management	
Professional/technical	
Administrative/clerical	
Supervisory	
Operative	
Other (please describe)	

- 6.4. Please state the approximate number of employees in your organisation which are engaged in providing the types of services being procured for the City of [Name of City]:

7. Quality assurance, health and safety, and environment

7.1. Does your organisation hold a recognised quality management certification, for example ISO 9001:2008 or equivalent, or operate a quality management system?

Yes	
No	

If "No", please explain why:

7.4. Has your organisation, or any individual director, partner or proprietor been prosecuted under health and safety and related legislation, or had enforcement action taken against it or them by the enforcing authorities (this includes the issuing of a prohibition or improvement notice) within the past three years, or are any such actions pending?

Yes	
No	

If "Yes", please give details:

7.2. Does your organisation have a written health and safety at work policy?

Yes	
No	

If "No", please explain why:

7.5. Has any person taken civil action against your organisation or any individual director, partner or proprietor with regard to the award of compensation for loss suffered as the result of a health and safety incident, or have arrangements to compensate for such incidents been agreed out of court (through insurance companies, for example) within the past three years, or is any such action pending?

Yes	
No	

If "Yes", please give details:

7.3. Does your organisation have a health and safety at work system?

Yes	
No	

If "No", please explain why:

7.6. Does your organisation hold a recognised environmental management certification, for example 14001:2004 or equivalent, or operate an environmental management system?

Yes	
No	

If "No", please explain why:

8. Declaration

I / we certify that the information supplied is accurate to the best of my/our knowledge and understanding and I / we accept the conditions and undertakings requested in the questionnaire.

I / we understand and accept that false information could result in my / our exclusion from the tendering exercise or cancellation of any contract awarded.

I / we understand that the information supplied will be evaluated in accordance with the criteria described in section 3 of this questionnaire.

I / we understand that it is a criminal offence, punishable by imprisonment, to give or offer any gift or consideration whatsoever as an inducement or reward to any servant of a public body and that any such action will empower the Municipality to cancel any contract currently in force and will result in my / our exclusion from the tendering exercise.

I / we also understand that canvassing of Officers or Members of the Municipality will result in disqualification from the tendering exercise.

- 1. Signature: _____
- 2. Full name and position: _____
- 3. For and on behalf of: _____

- 4. Date: _____

ANNEX D. Links to other sources of information

Sustainable waste management

<http://ec.europa.eu/environment/waste/>

<http://www.waste.nl/en/concept-tool-iswm>

http://www.waste.nl/sites/waste.nl/files/product/files/tools_iswm_concept_eng1.pdf

[http://www.europarl.europa.eu/RegData/etudes/BRIE/2016/573899/EPRS_BRI\(2016\)573899_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2016/573899/EPRS_BRI(2016)573899_EN.pdf)

<https://kenniskaarten.hetgroenebrein.nl/en/knowledge-map-circular-economy/how-materials-circulate/>

<http://web.unep.org/gpwm/what-we-do/integrated-solid-waste-management>

<https://www.adb.org/sites/default/files/institutional-document/324101/tool-kit-solid-waste-management.pdf>

[https://www.innovationpolicyplatform.org/system/files/4%20Integrated%20Waste%20Manangement_Apr6.pdf](https://www.innovationpolicyplatform.org/system/files/4%20Integrated%20Waste%20Management_Apr6.pdf)

<https://www.ciwm.co.uk/ciwm/knowledge/>

<https://www.iswa.org/media/publications/knowledge-base/>

<http://www.oecd.org/env/tools-evaluation/extendedproducerresponsibility.htm>

[http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ENV/EPOC/WPRPW/WPIEEP\(2017\)1/FINAL&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ENV/EPOC/WPRPW/WPIEEP(2017)1/FINAL&docLanguage=En)

<http://documents.worldbank.org/curated/en/227581468156575228/pdf/472210BRI0Box31ing1sectors01PUBLIC1.pdf>

<http://siteresources.worldbank.org/INTUSWM/Resources/siswm.pdf>

<http://www.wiego.org/sites/default/files/publications/files/Medina-wastepickers.pdf>

Private sector participation:

<http://www.worldbank.org/en/topic/publicprivatepartnerships>

<https://pppknowledgelab.org>

<https://ppiaf.org>

<https://ppp.worldbank.org/public-private-partnership/about-pppirc-ppp-infrastructure-resource-center>

<https://www.github.org/>

<https://ppp.worldbank.org/public-private-partnership/sector/solid-waste/sample-contracts-waste-disposal-treatment-recycling>

<https://ppp-certification.com>

<https://www.unece.org/fileadmin/DAM/ceci/publications/ppp.pdf>

<https://www.unece.org/fileadmin/DAM/ceci/images/ICoE/Introductionppp.pdf>

<http://www.uneceppp-icoe.org/>

<http://www.eib.org/epec/g2g/>

<https://www.oecd.org/governance/budgeting/PPP-Recommendation.pdf>

<http://documents.worldbank.org/curated/en/153101468190188221/pdf/99114-WP-Box393188B-PUBLIC-PPP-guide-decision-makers.pdf>

<https://www.neccontract.com/NEC4-Products/NEC4-Contracts/NEC4-Design-Build-and-Operate-Contract>

<http://fidic.org/books/pfi-guide>

<http://fidic.org/books/dbo-contract-1st-ed-2008-gold-book>

<http://localpartnerships.org.uk/wp-content/uploads/2016/12/Local-Partnerships-Contract-Management-Guidance-Nov2016.pdf>

<http://webarchive.nationalarchives.gov.uk/20130221160228/http://www.defra.gov.uk/environment/waste/local-authorities/widp/widp-procurement-pack/>

<https://www.ciwm.co.uk/ciwm/knowledge/standard-form-of-waste-management-agreement.aspx>

The websites listed in Annex D were accessed by the author during the preparation of this paper.

ANNEX E. Indicative checklist of contract management issues for waste projects

Table A.B.1. Waste management options, main variants, advantages and disadvantages

Phase	Category	Contract management issues
Contract documentation	Capacity	<ul style="list-style-type: none"> • Loads and variations (tonnes per day) • Waste characterisation • Variation range • Modular processes
	Design criteria	<ul style="list-style-type: none"> • Emissions limits • Residues or disposal • Flexibility • Outage (per cent)
	Safety	<ul style="list-style-type: none"> • Emissions control • Plant safety • Auto-shutdown • Equipment standards • Containment of residues
	Asset condition	<ul style="list-style-type: none"> • Proven technology • Fitness for purpose • Maintenance levels • Design life and standards • Workmanship specification • Design or quality approval • Witness tests • Commissioning tests
	Payment provisions	<ul style="list-style-type: none"> • Usage values and thresholds • Volume or load capacity • Availability • Environmental emissions • Safety standards • Regulations • Maintenance criteria
	Monitoring and auditing	<ul style="list-style-type: none"> • Waste delivery (tonnes) • Automatic emissions analysis • Independent audit sampling • Inter-stage data • Residual waste streams (tonnes) • Residue disposal records • Waste diverted (tonnes, percentage) • System operation data (SCADA) • Records database or GIS or MIS
Design and Construction	Design review	<ul style="list-style-type: none"> • Compliance with constraints • Compliance with standards • Compliance with tender
	Statutory process	<ul style="list-style-type: none"> • Completed environmental and social impact assessment • Site acquisition (if required) • Development permit • Construction permit • Licence(s) to operate • Other statutory permits or consents
	Contract formalisation	<ul style="list-style-type: none"> • Permits and related conditions • Securities and insurances
	Existing works or staff	<ul style="list-style-type: none"> • Possession or security of site • Staff transition or handover • Interim operation of plant

Phase	Category	Contract management issues
	Workmanship and materials	<ul style="list-style-type: none"> • Quality assurance plan and implementation • Spot-check for compliance • Equipment approvals or tests • Authority and public interfaces • Commissioning tests • Integration with existing systems
Operation	Monitoring plan	<ul style="list-style-type: none"> • Waste reception or acceptance • Waste loads (tonnes per day) • Characterisation • Reception or acceptance records • Site emission data • External cost parameters • Residues (volume, nature)
	Availability	<ul style="list-style-type: none"> • Capacity and throughput • Maintenance outage • Flexibility (waste types and loads)
	Commissioning	<ul style="list-style-type: none"> • Troubleshooting • Acceptance tests • Completion of repairs to defects • Maintenance schedules • Health and safety review • Operator training • Setting-up of records systems
	Performance standards	<ul style="list-style-type: none"> • Volume throughput • Achievement of emissions standards and other environmental limits • Residue disposal
	Payment authorisation	<ul style="list-style-type: none"> • Usage charge • Minimum threshold(s) • Deductions for non-compliance • Bonus (for higher performance) • Inflation index
	Repair and maintenance	<ul style="list-style-type: none"> • Plant renewals or repair of defects • Calibration checks • Asset upgrading • Maintenance records
	Contract obligations	<ul style="list-style-type: none"> • Health and safety regulations • Securities and insurances • Statutory reporting
	Change management	<ul style="list-style-type: none"> • Change in waste regulations • Change in emission standards • Increased loads • Public pressure • Contracting authority decision • Technological change or upgrade • Energy cost or tax charges
	Stakeholder management	<ul style="list-style-type: none"> • Contracting authority staff • Waste collectors or producers • Environmental regulator(s) • Public bodies and general public
	Hand-back	<ul style="list-style-type: none"> • Managing hand-back • Potential obsolescence • Upgrade facility • Re-tender service

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