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# **The Hurdles of Local Governments with PPP Contracts in the Waste Sector**

## **Abstract:**

This paper identifies a number of the theoretical principles that apply to PPP contracts, introducing new case studies and policy discussions relevant for Europe and elsewhere. It discusses to what extent these contracts can and should be applied in the waste sector and performs a comparison between the purely contractual and the institutionalised models of PPP arrangements. We analyse four case studies in the ‘wholesale’ waste market in Portugal and examine the implementation and degree of success of these partnerships in the field. It seems that public authorities are failing to secure an adequate level of protection of the public interest. Drawing on the empirical evidence, we present some guidelines that can lead to better regulatory contracts for waste services.

**Keywords:** concessions; mixed companies; public-private partnerships; regulation by contract; waste management.

## **Introduction**

While the decentralisation of general-interest services to local governments has been quite substantial in Europe (Devas and Delay, 2006), the growing budget restrictions have significantly constrained their action (Chong, 2006). The lack of economic sustainability has always been an important issue for the particular case of waste services, in spite of the European regulations supporting the ‘polluter-pays’ or ‘user-pays’ principles. In an attempt to reduce the political repercussions, local decision

makers might view the crafting of new governance models (other than direct public provision) as a chance to raise tariffs without much public protest. Indeed, referring to the Spanish waste sector, Bel and Miralles (2010, page 69) found that “policy makers may have used privatisation as a means of reducing the political cost of increasing service-specific taxes, thus reducing the service-specific deficit”.<sup>1</sup>

Public infrastructure services are subject to certain public service obligations; i.e. they would be delivered under different conditions (or would not be delivered at all) if there was no government intervention. Furthermore, if the decision is to contract out the services, the whole life cycle of urban waste services (collection, transport, storage, sorting, treatment and disposal) entails significant market failures. For example, the high asset specificity of infrastructure and the uncertainty inherent to long-term investments force public authorities to enter into a bilateral monopoly (Williamson, 1985).

The type of private sector participation in the waste sector is contingent upon the segment of waste activity. Outsourcing is dominant in the ‘retail’ segment and public-private partnership (PPP) contracts are usually predominant in the ‘wholesale’ segment. In this paper we investigate four PPP agreements in place in the Portuguese ‘wholesale’ market by analysing the tender and contract documentation. Two of these agreements consist of purely contractual PPPs (cPPP arrangements) whereas the other two case studies involve institutionalised PPPs (iPPP arrangements). Our aim is to address the differences between these two main types of PPPs and evaluate to what extent local governments have been taking the right steps to enter into balanced agreements with the

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<sup>1</sup> However, pricing service charges will always entail some sort of political repercussions, irrespective of the procurement method.

private partners. Indeed, this paper provides a response to the recent calls for research that “focus on examining how PPP delivery can be improved” (Regan et al, 2011, page 363). While analysing these specific modes of governing municipal waste, we try to take into account “the need to engage simultaneously with the structures and processes of governing, and the need to recognise the plurality and multiplicity of governing sites and activities” (Bulkeley et al, 2007, page 2734).

The objective of this paper is to explore the use of PPP arrangements in infrastructure service provision by introducing new case studies and policy discussions that are relevant for Europe and to inform policy making in the future. This is a very relevant issue not only for academics but also for governments. The matters covered here cut across sectors and jurisdictions. In fact, it seems that the key issues in procurement through PPP arrangements remain the same: (1) access to the market (an *ex-ante* concern) – ensuring a high level of ‘competition for the market’ is essential so that allocative (pricing) and production efficiency can be achieved (Demsetz, 1968); (2) a sound risk management (a whole life-cycle concern) – finding the optimal risk allocation scheme is vital to reduce the economic cost of the project, achieve value for money (VfM) and reduce the likelihood of renegotiation (Grimsey and Lewis, 2005); (3) an effective contract management (an *ex-post* concern) – including result-oriented (or output-oriented) performance indicators in the PPP contracts is crucial to ensure that the expected VfM does not fade away over time (Dijkgraaf and Gradus, 2008). We base our investigation in this ‘tripartite’ analysis, scrutinising the empirical data through these lenses. The paper contributes to the literature in each of these three aspects and sets the discussion in the theoretical context of institutional economics, drawing some normative conclusions of relevance to governmental actors. Indeed, policy makers need

to be better informed to develop stronger mechanisms for designing these complex governance structures.

The paper is organised as follows. After this introduction, the next section outlines some theoretical issues concerning PPP contracts and provides a broad description of the Portuguese waste sector. Afterwards, four case studies are analysed. The fourth section comprises specific suggestions on how PPP arrangements can be improved for policy makers who are considering this path to deliver waste infrastructure. The concluding remarks are provided in the final section.

## **Delivering infrastructure in the waste sector**

### **Public-private partnership arrangements<sup>2</sup>**

The written documents that correspond to a PPP arrangement are considered to be “regulatory contracts” (Marques and Berg, 2010). These regulatory instruments are crucial to ensure the credibility of the commitments and of the institutional environment in which the investments are carried out (e.g. setting limits to unilateral regulatory changes – as opposed to simple regulation by law). Hence, ‘regulation by contract’ is particularly relevant in sectors with a high level of sunk investments (e.g. utility services, Spiller, 2008). In theory, PPP contracts create an “individualised regulatory framework for the investments at hand” (Spiller, 2008, page 21), limiting both governmental and third party opportunism. However, to be credible, a PPP contract should preferably be specific and capable of coping with adaptations to shocks without

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<sup>2</sup> The theoretical constructs that apply to PPPs are far more extensive than those touched upon in this study. Overall, the constructs that warrant discussion for this class of contract include the theory of the firm, institutions, agency theory, public choice and auction theory, incentives and the Coase theorem in relation to ownership and control. This paper emphasises contract theory (moral hazard, information problems) and incomplete contracts, and the current section is an important theoretical foundation providing a platform for the interpretation and application of the case studies to follow.

involving serious contractual deviations or triggering costly renegotiations (i.e. credible contracts ought to be extremely complex and limited by administrative capability and negotiation costs).

According to the Green Paper by the European Commission (EC, 2004a), PPP arrangements can be of two main types: purely contractual and institutionalised.<sup>3</sup> Within the contractual type (hereafter cPPP), concessions are particularly relevant (as well as *afférmage* agreements, management contracts, among others). In this type of arrangement, the private partner is solely responsible for the delivery of the service (or infrastructure). Conversely, institutionalised PPPs (iPPP) are joint ventures between public authorities and private investors (mixed companies) that are created with the same purpose but where the responsibilities are shared between the partners/shareholders (Cruz and Marques, 2011).

In a cPPP agreement, a long-term (incomplete) contract stipulates the rights and duties of each party. The key feature of cPPP arrangement is that the partners simply base their relationship on a written document (or a series of documents). This might be problematic because increasing contract completeness (i.e. trying to take into account all the possible future outcomes) can be prohibitively costly. Indeed, by opting for a concession, a public authority is adopting a transactional (uncooperative) approach to governance. Concessions are said to be ‘transactional’ because they are “rigid by origin” (Spiller, 2008, page 21). In fact, they usually fail to cope with adaptations to shocks without triggering formal contractual revisions (e.g. see Guasch, 2004). In theory, these governance structures should provide an effective response if the

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<sup>3</sup> For a scholarly discussion of this classification see, for instance, Weber and Alfen (2010).

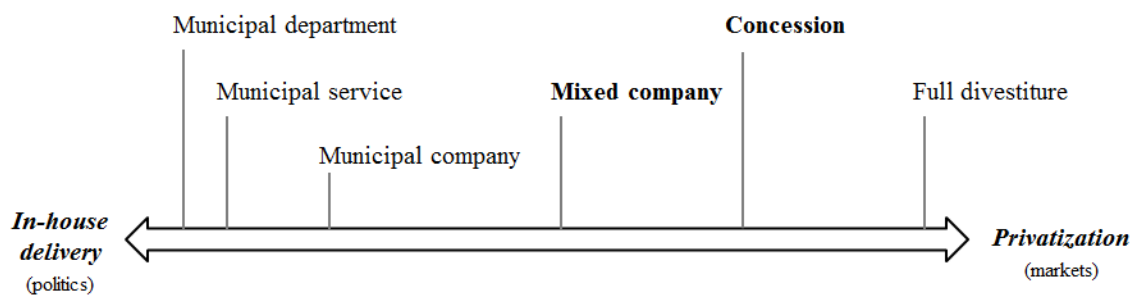
relationship between ‘buyer’ and ‘supplier’ is not bounded by singular uncertainty, the financial exchanges are frequent and there is no asset specificity in the investments undertaken (Williamson, 1979). However, drafting and regulating incomplete contracts is not an easy task if these conditions are not met (especially for small to medium-sized municipalities that may lack resources and the expertise needed to deal with specialists on the private sector side). Well-crafted cPPP arrangements should contain mechanisms for resolving unexpected events and coping with disputes between the parties without resorting to litigation or renegotiation (for a discussion on this topic, see Ayres and Braithwaite, 1995).

Unlike what happens in the public sector, private contracting has a “relational nature” (Spiller, 2008, page 1). Concessions are not as flexible because regulatory contracts (that solely establish the conditions of the partnership) should keep the commitments stable. By opting for an iPPP arrangement, local decision makers may be trying to adopt a relational (cooperative) approach to governance (Reeves, 2008). In these complex governance structures, the individuals appointed by the public partner cooperate with the ones appointed by the private partner in the daily management of the company and, in principle, they only turn to the contractual documents when disputes occur. In other words, the most important aspect is to preserve and respect the ‘spirit of the contract’ (Macneil, 1974).<sup>4</sup> The local governments’ degree of interventionism is definitely more significant in the mixed company model, as they usually retain effective power over the management of the services. Indeed, regarding utility services, in most cases the respective public authorities hold the majority of the shares, therefore retaining the

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<sup>4</sup> As opposed to the ‘letter of the contract’, such as in cPPP arrangements.

‘dominant influence’ in legal terms.<sup>5</sup> In theory, owning at least 51% of the shares (which is the typical participation of municipalities in mixed capital utilities) should be enough to keep the companies at arm’s length, benefit from the private sector’s know-how and, simultaneously, allow for the pursuit of (unprofitable) social goals. This is the theoretical advantage of mixed companies. However, in practice (and as we show in our case studies), it is the content of the shareholders’ agreements (and the transfer of risks, the absence/presence of indicators for contract management, etc.) that will ultimately express the actual capacity of local governments to influence the day-to-day management of the firms. cPPP and iPPP arrangements stand somewhere in the middle between pure public provision and full privatisation; while the iPPP model is closer to in-house delivery, the cPPP model is closer to privatisation (see figure 1).



**Figure 1 – The continuum of governance structures for delivering local infrastructure (simplified; source: the authors)**

All PPP contracts are complex by nature, especially when costly infrastructures or facilities are involved. In order to benefit from their multiple advantages (whether these benefits are systematically real in overall terms or merely in budgetary terms is still an

<sup>5</sup> e.g. see the examples in EC (2004b) for mixed companies in the water and waste sectors in Bulgaria, Hungary, Ireland, Germany and the UK. This tendency is also observed in France (Lobina and Hall, 2007), Italy (Marra, 2007) and Spain (Bel and Fageda, 2010).



open discussion), local governments ought to ensure the following: (1) the partial or total private funding of public infrastructure (which demands increased efficiency, due to the higher cost of capital); (2) a long-term agreement with the purpose of adopting a whole life-cycle approach for the management of the public infrastructure (which renders the contract incomplete); (3) the transfer of risks to the private partners, to ensure their commitment to the project, avoid practices such as opportunism and a ‘quiet life’, and protect the public interest (which is difficult to do effectively and implies a risk premium). The Eurostat philosophy towards PPP projects (i.e. the rules that allow for the assets to be registered off the government’s balance sheet) implies that ‘most of the project risks’ are transferred to the non-government partner (EPEC, 2010). Conversely, academics tend to agree that, in order to mitigate the economic cost of risk bearing, each risk should be allocated to the party that is better able to manage it (Ke et al, 2010). However, it seems reasonable to state that an optimal risk allocation should be determined on the basis of an *ex-ante* evaluation of risk-weighted costing (that is to say that risk allocation should involve ‘cost’ and ‘competence to manage’ concerns).

All things considered, one should bear in mind that PPP transactions are *sui generis* and few are contractually similar (as clearly shown by the case studies canvassed in this paper). With these governance structures the municipalities’ position as direct operators has evolved into that of regulators. Hence, PPP contracts should include output-oriented performance indicators (Regan et al, 2011) so that public authorities are able to effectively monitor the performance of private partners (and capable of applying rewards or sanctions). Having a framework of output-oriented incentives is therefore a tool for contract management.

### **‘Wholesale’ waste market**

The waste sector can be categorised in three different segments (Massarutto, 2006): the primary, secondary and tertiary markets. In Portugal, the primary market (comprising ‘retail’ services such as refuse collection and urban cleaning) is mostly managed directly by each municipality. Lately, however, local governments have been increasingly resorting to short-term outsourcing contracts to deliver these services. The secondary market, corresponding to ‘wholesale’ services, comprises waste transport (between transfer stations, if they exist, and landfills or sorting and treatment facilities) and waste treatment (landfilling, incineration or mechanical biological treatment). Sociedade Ponto Verde (SPV), a non-profit private organisation, is the main actor in the Portuguese tertiary market (waste recycling), managing the logistics chain of packaging waste under the ‘Green Dot Scheme’.

In Portugal, ‘wholesale’ waste services are delivered by regional utilities which cover several municipalities. However, the institutional arrangements of these utilities vary substantially (ERSAR, 2010). These services can be provided (1) directly by public entities (associations of municipalities); (2) indirectly by public capital (municipally-owned companies or public-public partnerships - PuPs) or mixed capital (iPPP arrangements) companies; or (3) indirectly by private companies (cPPP arrangements).

Presently, the ‘wholesale’ segment comprises 29 utilities (26 operate in the mainland and three in the Portuguese islands) serving 10.6 million inhabitants. In mainland Portugal, there are three associations of municipalities (in-house production), four 100% public intermunicipal companies, 11 PuP arrangements (the central state is the major

shareholder while the covered municipalities hold a minority stake), six mixed companies and two cPPP arrangements.

Urban waste is often perceived by the public as the most important service provided by local governments (Broadbent et al, 2006). Although these services were once technologically simple and their management relatively straightforward, nowadays this is no longer true (Walls, 2005). Ensuring compliance with recent EU directives aimed at providing a high level of environmental protection while ensuring the functioning of the internal market, presents a difficult challenge for this sector and requires investments in new infrastructures and equipment (such as sorting facilities, compliant landfills and drop-off centres). The framework seems to have a bias in favour of asset-based PPP agreements since local governments are frequently struggling with restrictions on borrowing. The ‘wholesale’ services, in particular, have very high asset specificity (since sorting, treatment and final disposal facilities are unlikely to be of use to any other economic activity) and this can be the basis of “contractual holdup” (Goldberg, 1976).

### **Relevant actors**

The municipalities represent the citizens and local governments have the responsibility to provide essential services in suitable conditions. In Portugal, due to the principle of local autonomy (guaranteed by the Constitution), the central state cannot interfere in the duties of local governments. However, in practice, the central state participates indirectly in the management of nearly half the ‘wholesale’ waste utilities. These utilities consist of PuP arrangements where the municipalities and a company owned by the central state (EGF) cooperate to deliver the services. PuP companies deal with

around 3.7 million tons of urban waste per year, covering about 60% of the Portuguese population and 174 municipalities (out of a total of 308). This model is prone to some criticism. First, there seems to be an overlap of the competences of local governments; second, with central government's skills and money only being invested in certain territorial areas, situations of economic discrimination are bound to occur; third, one of the reasons to create partnerships is to promote synergies and efficiency gains, and the public sector is not traditionally known for having these skills (Sørensen, 2008). Certainly, the search for economies of scale does not require this specific type of governance structure (Watson et al, 2008).

In 1997, the Portuguese government decided to create a sector-specific regulator to oversee the water and waste sectors. The Water and Waste Services Regulation Authority (ERSAR in the Portuguese acronym) is an atypical regulator if we take into account the usual absence of an external regulator in the waste sector throughout the world (Marques and Simões, 2008). ERSAR was created to protect the users' interests and foster the quality of service while taking the economic sustainability of the utilities into account. This entity has administrative and financial autonomy but remains under the jurisdiction of the Ministry of the Environment.

The private sector's participation in the delivery of public services raises several concerns related to opportunism (or "self-interest seeking with guile", Williamson, 1979, page 234), corruption and monopolistic behaviour. Usually, in the waste sector, construction companies or their specialised sub-holdings play the role of private partners in PPP arrangements. Operating in a fiercely competitive environment and knowing that local governments are subject to strict debt limits, the companies of this

sector have been keen to adapt to this new type of procurement. They often seem to be far more prepared to enter into PPP agreements than the local decision makers (Massoud et al, 2003). Furthermore, some of these companies (usually large or medium-sized ones) exert a strong political influence upon local governments. In Portugal there is no specialised PPP office to retain the lessons learned and help municipalities in the structuring and monitoring of local PPPs. Best practices such as the ‘Operational Task Force’ of the HM Treasury, or even the ‘Local Partnerships’ (both in the UK) would be of great use in this country.

## **Case studies**

### **Introduction**

As we mentioned before, PPP arrangements are *sui generis*; analysing these governance structures through the lens of institutional economics necessarily places an emphasis on case-study research (Posner, 2010). Here we analyse four case studies (two cPPP and two iPPP arrangements) from the perspective of three crucial issues: access to the market, risk management and contract monitoring.

To understand how local governments have been handling PPP procedures in the waste sector, we asked the utilities for all the contractual documents that regulate their activities and the relationships between the partners. It was our aim to analyse the critical success factors involved in these PPP contracts. Our analysis is presented in a straightforward and systematic way.

At the time of our analysis there were only two concessions operating in the ‘wholesale’ waste sector in Portugal. To balance out our data set, we also analysed two iPPP

arrangements (the two cases addressed here are representative of the national panorama, and also correspond to the ones for which we had more empirical data).<sup>6</sup> The national panorama/market structure was described with the aid of the sector-specific regulator's annual report and the authors' own research. For the concessions, data were collected from the public authorities (in this case, from the associations of municipalities); for the mixed companies, the procurement documents were provided by the public authorities and the contracts by the companies themselves. The case studies analysed in this paper are in line with the type and scope of PPP arrangements operating in the EU and are representative of those in which the Commission has provided financial grants (e.g. Weber and Alfen, 2010 and EC, 2004b). Moreover, in addition to the 'umbrella' provided by the EU legislation, the national legal framework (regarding PPPs and the waste sector) and the actual practices in Portugal in terms of public procurement are similar to those in continental Europe (e.g. France, Italy, Spain and even Germany).<sup>7</sup>

The reasons that lead local governments to opt for PPP arrangements instead of pure public production are well known and discussed elsewhere (e.g. see McQuaid and Scherrer, 2010). There are, however, some factors influencing the choice of the actual type of PPP arrangement (see table 1).

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<sup>6</sup> As an early critique, we point out that obtaining the contracts and tender documents for these types of arrangements is an extremely difficult and time-consuming task; this fact denotes a clear lack of transparency.

<sup>7</sup> PPP agreements are also present in the waste sector in other countries such as the UK (e.g. the Kirklees Metropolitan Solid Waste Project).

**Table 1.** Differences between cPPP and iPPP arrangements.

<b>Decision drivers</b>	<b>Concessions</b>	<b>Mixed companies</b>
<b>Control</b>	<p>Local governments are only able to control what was agreed in the contract. This generates some difficulties due to the long-term nature of the agreements (incomplete contracts);</p> <p>The municipalities relinquish the operational management of the services. Their power consists of the supervision of the contracts (in the terms agreed beforehand);</p> <p>The uncertainty surrounding the infrastructure investments and the high costs involved in the capture of the contracts (in the event of public contestation or some other unpredicted event) are disincentives for local decision makers to opt for this type of agreement.</p> <p>If there is a need to increase the quality of service (e.g. due to changes in regulations), there can be a deadlock and/or the renegotiation of the contract.</p>	<p>The municipalities are able to retain control over the services. Local governments acknowledge the flexibility that mixed companies provide them;</p> <p>Local decision makers may see this as an option that guarantees the commitment with public service obligations (they are held accountable for the ‘social performance’ of the services in every election);</p> <p>Local decision makers may feel that the mixed company model can reconcile liberalisation with public service obligations and reduce the problems and uncertainties involved in long-term incomplete contracts (economic concerns merge with social concerns);</p> <p>In theory, the mixed company model can provide the necessary dynamism (private duty) and, at the same time, guarantee the appropriate quality levels (public duty).</p>
<b>Financing</b>	<p>Concessions allow for the ‘off balance sheet’ treatment if at least two of the three following risks are transferred to the private partner: construction risk; demand risk; and availability risk;</p> <p>Usually, there is no up-front payment. If the services are (at least potentially) profitable, the private partner pays a monthly rent to the public partner in order to earn the right to manage the services.</p>	<p>If there is not an effective risk transfer or if the companies fail to provide balanced accounts, their debt should be recorded on the balance sheet of the respective municipalities;</p> <p>Municipalities generally ask for an up-front single payment (usually a generous sum) working as a ‘buy in’ that the private partner has to pay to earn the right to manage the services (and extract a rent from them).</p>

The four case studies are listed in table 2. For every arrangement, the private partner is (or has direct connections with) a construction company. One of the most striking (and negative) aspects regarding the case studies analysed here is the fact that only the private partner of the ‘Focsa’ concession was selected via competitive bidding. Arguably, this was due to the lack of a legal framework regarding this type of public procurement at that time. The fact that there is no explicit reference to the duration of the contracts for the mixed companies is also likely to harm the public interest and

clashes with the EU guidelines for iPPP contracts (EC, 2008). Without periodic market consultation, there are no incentives for “competition for the market” (Demsetz, 1968) which increases the likelihood of ‘gold-plating’ and ‘quiet life’ practices. The existing concession contracts have a limited duration. However, there are clauses allowing for their automatic and indefinite extension (five-year periods for ‘Focsa’ and no time limit for ‘Zagope’). This can result in the same externalities mentioned for the mixed companies’ case.

**Table 2.** The four case studies.

<b>Model</b>	<b>Year of creation</b>	<b>Public partner</b>	<b>Private partner</b>	<b>Waste processed</b>	<b>Population</b>	<b>Duration of the PPP</b>
<b>Mixed companies</b>						
Ambilital	2001	AMAGRA (51%)	SERURB (49%)	63,000 ton/year	113,000 (7 municipalities)	Not specified
Gesamb	2004	AMDE (60%)	LENA (40%)	77,000 ton/year	156,000 (12 municipalities)	Not specified
<b>Concessions</b>						
‘Focsa’	1996	Resíduos do Nordeste	FOCSA / FCC	55,000 ton/year	148,000 (13 municipalities)	20 years (renewable)
‘Zagope’	1999	AMRP	ZAGOPE	35,000 ton/year	98,000 (6 municipalities)	10 years (renewable)

Another interesting aspect is related to the scope of each governance structure. While the contracts established with concessionary companies mainly encompass the construction and management of landfills and auxiliary facilities (the ‘Focsa’ concession also includes refuse collection for five of the municipalities covered), the mixed companies are responsible for a much broader set of activities. In addition to the management of landfills, transfer stations, sorting and composting facilities, these companies perform street cleaning, refuse collection (including selective collection) and waste recovery. This seems to be in line with theory: the relational framework provided



by the iPPP model offers higher flexibility for local governments, so there is less political hesitation to widen the scope of the contracts. The rigid and transactional contracts involved in cPPP models (Spiller, 2008) might startle local decision makers who are therefore reluctant to include a broader set of responsibilities under the PPP agreement.

### **Access to the market**

The way in which local governments regulate access to the market is key for the success of a PPP agreement. We have already pointed out the absence of competitive tendering for three of the case studies. This clearly damages the public interest since without competitive pressure, prices become detached from the production costs and the final users are directly or indirectly harmed (Bajari et al, 2006). Likewise, the lack of transparency in contracting the waste services and the nonexistence of initial viability and feasibility studies for any of the PPP agreements decreased the potential benefits of introducing private skills into the sector (Fobil et al, 2008). Bearing this in mind, it is also relevant to say that while auctions may avoid several problems of biased awarding of contracts, they cannot respond so well to *ex-post* adaptations due to problems of bounded rationality (Bajari et al, 2009). In fact, for complex investments, the ideal procedure would be to have negotiated contracts (that minimise transaction costs) and, at the same time, have mechanisms in place to avoid manipulation, corruption and favouritism.

### *Concessions*

In 1996 five neighbouring municipalities put a tender out for the design and construction of a landfill and the management of both 'retail' and 'wholesale' waste

services. The criteria for awarding the concession were as follows (in decreasing order of importance):

- a) Curriculum of the bidders;
- b) Guarantees of adequate completion and sound technical quality;
- c) Quality of the service and of the proposed equipment;
- d) Technical and financial capacity;
- e) Price and other financial conditions;
- f) Clarity of the bid;
- g) Time for completion of construction works.

Afterwards, seven other municipalities wanted to join the system in order to exploit the potential economies of scale. However, the association of municipalities was unable to change the scope of the 'transactional contract'. 'Focsa' only agreed to receive waste from the new municipalities in the landfill (the contract states that the remuneration of the concessionary is indexed to the amount of waste disposed of, in tons). Hence, in 2002, the municipalities opted to create a publicly owned company to deliver 'retail' services to the other seven municipalities (the company Resíduos do Nordeste which currently manages the 'Focsa' contract).

In terms of market access, there is little doubt that the 'Focsa' agreement was better handled than the 'Zagope' concession (negotiated directly with the private investor). However, the evaluation model used to select 'Focsa' had some serious problems. The model was highly discretionary. If there were weights for each criterion, they were not disclosed in the tender documents. Most of the items should have had qualification criteria rather than evaluation criteria (a, b, d, and f). Moreover, the time for completion controlled by the 'criterion g' would have been better handled through the definition of availability indicators linked to payment mechanisms.

The studies provided in the public tender merely consisted of the description of the state of affairs regarding waste services at that time. Each bidder was supposed to make his own forecasts. However, the evaluation model did not include criteria to assess the robustness of the bidders' business models (and thus, the probability of future renegotiations). Local governments ought to know what would happen if fluctuations of the original estimates occur. Hence, the equity internal rate of return (IRR) required by the private partners should have been evaluated (important in the event of new service requirements, Marques and Berg, 2010). On the bright side, the tender documents included a draft of the contract and a bid template which is extremely helpful for bid comparability purposes. But, unfortunately, all the clauses of this draft were negotiable and the final agreement was negotiated with the winning bidder.

#### *Mixed companies*

The literature (both empirical and theoretical) shows that several factors influence the likelihood of renegotiation.<sup>8</sup> In theory, the more complex the projects, the more negotiations in procurement make sense (if market consultation takes place and if effective mechanisms to prevent corruption and favouritism could be devised, Bajari et al, 2009). In practice, our empirical evidence suggests that local governments have not taken the necessary measures to protect the public interest.

There are also indications that renegotiations could be optimal for both partners (Brux, 2010). However, empirical evidence shows us that these processes are usually very harmful to the public interest as both the lack of competition and information

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<sup>8</sup> For instance, we know that incomplete contracts, complex projects, underdeveloped regulatory and legal frameworks and politically unstable environments attract a high level of renegotiation.

asymmetries are likely to prevent an optimal solution (welfare maximisation) deriving from the new contract (Guasch, 2004). Since the iPPP contracts were awarded using a negotiated procedure (and thus, the private partners were not subject to any competitive pressures), the slack for future adaptations should be higher and thus the likelihood of future renegotiation should be lower (occasionally, in PPPs put out to tender bidders submit a bid of exceptional quality at a very low price, expecting future renegotiations – a phenomenon sometimes labelled “the winner’s curse”, Marques and Berg, 2010).

In a framework where the main tool to regulate the access to the market is competitive tendering a major concern must be to remove the barriers to entry for private investors. Also, the PPP option would be more attractive (from a social welfare point of view) in a stable and developed market of potential bidders. This does not seem to be a problem in the environmental sector where the private partners are construction companies trying to enter into new markets. Indeed, all four case studies have different private partners, which suggest a good level of ‘potential’ competition.

### **Risk management**

All infrastructure investments involve similar risks (Marques and Berg, 2011). However, in the waste sector, environmental, operational and technological risks (production risks), demand and capacity risks (commercial risks) and regulation and public contestation risks (context risks) are particularly important. The first step that municipalities ought to take is to identify these risks. Private sector organisations will only take on risks that they can manage and measure and that will not destroy the firm if they eventuate. These organisations will always ensure that they are fully compensated for risk taking (Acerete et al, 2009). Hence, public authorities must ensure that the

private sector really bears the risks for which the public sector is paying the risk premium. Bearing in mind that the public sector should only take on risks that are under its control, the majority of them should be transferred to the private partners. Sound risk allocation is crucial to ensure the commitment of the private sector to the project and offset the efforts involved in designing PPP processes. Risk transfer underpins the economics of VfM and clearly the appropriate risks must be assumed by the private bidders if the PPP is to proceed. Hence, local governments should provide a risk matrix with the tender documents showing the intended allocation for the PPP project; this would be useful not just for comparability purposes but also to avoid ‘creative interpretations’ in the future (whenever disputes occur).

### *Concessions*

In these governance structures the property rights were transferred to the concessionaire. In the ‘Focsa’ concession, the private partner has to pay the public partner 4% of the billing on a monthly basis. In the ‘Zagope’ concession, the public partner does not obtain any rent. In neither case is there an explicit allocation of risks to the private partner. In the contract clauses there is only reference to the transfer of availability risks and maintenance risks (excluding misuse). Some risks, such as unilateral changes and *force majeure*, are explicitly allocated to the public sector. However, most of the risks are not mentioned in the contracts. Furthermore, since the payment mechanisms are related to the quantity of waste processed alone, the main risks allocated to the private sector are demand risks. Nonetheless, waste production has some inelasticity (although it is closely related to the GDP and economic growth of the area), especially if the operators do not encourage its reduction.

### *Mixed companies*

After the negotiation of the contracts, the existing assets of the public shareholders (equipment, land rights, etc.) were transferred to the mixed companies. These assets were monetised, representing a substantial part of the capital participation of the public partners. Usually, for political reasons and due to legal requirements, mixed companies are not set up to make significant profits and the private shareholders are paid through costs (for the construction of new infrastructures and for consultancy services). But in these cases, the shareholders' agreements set minimum thresholds for the profitability of the companies. For Ambilital the amount that can be transferred to the partners is capped (such as in rate of return regulation).

Risks are seldom addressed in the contractual documents, although some clauses clearly transfer them away from the mixed companies. For instance, safeguards are in place exempting risks such as unpredictable events, *force majeure*, misuse and legal or regulatory alterations in one clause of the management contract signed between AMAGRA and Ambilital. Moreover, the regulatory documents establish several financial indicators that lead to higher tariffs in the event of underperformance. Thus, the investment made by the partners is always secured. It seems evident that the public interest is disregarded through these arrangements. Since nowadays, in Portugal, the final users only pay for about 30% of the total costs involved in waste management (IST, 2007), these risks are likely to be transferred to taxpayers.

## **Contract management**

A PPP arrangement will only provide VfM if efficiency gains outweigh the higher financing costs. To ensure that suitable efficiency targets are being met throughout the term of the contract, a framework of incentives must be devised. Furthermore, the objectives concerning quality standards and effectiveness also need to be monitored by the public authority that must determine the degree of achievement and apply sanctions whenever needed. A proper contract management must assure this by using an output-oriented approach (e.g. regarding coverage, percentage of waste recycled, number of complaints, etc.). Obviously, contract monitoring has costs; nevertheless, without a good framework of incentives (and penalties) there is little chance of attaining success (Stiglitz and Wallsten, 1999). The procurement phase is crucial, but focusing just on the *ex-ante* phase of the PPP is not enough. Successful long-term arrangements entail a proactive emphasis throughout the duration of the contract.

## *Concessions*

Monitoring PPP contracts is never easy and this task may be even harder for the particular case of ‘wholesale’ waste services due to the network fragmentation and the diversity of the ‘wholesale’ services (including various municipalities). Taking into account that concession contracts have a much smaller scope than mixed companies (as we have seen, this contractual arrangement is more prone to specialisation), obtaining results that match the objectives should be easier for ‘Focsa’ and ‘Zagope’.

The best-practice guidelines for contract management state that local governments should act as informed owners without interfering in day-to-day management (OECD, 2010). In the concession models these problems are not so pressing, as there are fewer

conflicts of interest. However, in both cases studied, the public partners still do not have the right tools to monitor the PPPs. Performance indicators should have been embedded in the contracts allowing for the automatic application of awards and sanctions related to the performance of private partners (preferably connected with the payment mechanisms).

### *Mixed companies*

Crocker and Masten (1996) argue that an incomplete relational contract is the optimal governance model in contexts where exchanges require relationship-specific investments and the environment is complex or uncertain. In theory, the mixed company model tries to accomplish this. However, in practice, several written documents regulate the PPP project during its lifetime: the statutes (which set up the internal rules of the companies), the shareholders' agreement (which stipulates the rights and duties of the partners) and the management contracts (which are signed between the municipalities and the companies and should set specific targets for the latter). Local governments should carefully take these documents into account and the most important clauses (that protect the public interest) should not be open for negotiation. There are benefits in promoting the standardisation of PPP contracts given that this can facilitate continuous improvement, speed up procurement and reduce uncertainty for bidders and lenders (Yescombe, 2007).

When compared to other types of PPPs, the contract management of mixed companies has some additional difficulties. In this case, public authorities (responsible for contract monitoring) have disincentives to apply sanctions against themselves, since they are actively involved in the management of the services. Hence, local decision makers tend



to agree with proposals to raise tariffs very easily. Once again, no performance indicators were included in the iPPP contractual documents of Ambilital and Gesamb.

### **The way forward**

Regarding the delivery of infrastructure services, the idea that the role of government should be to ‘steer’ and not to ‘row’ (Savas, 2000) is more in line with the cPPP model. Mixed companies, on the other hand, are consistent with the ‘alliance model’, requiring a high level of mutual trust (Koppenjan, 2005). Accordingly, local governments regulate cPPP arrangements by adopting a ‘project management’ approach, and regulate iPPP arrangements by implementing a ‘process management’ approach (for further details on these concepts see Edelenbos and Teisman, 2008).

Although the use of mixed companies is now starting to become popular in Portugal (Cruz and Marques, forthcoming), this governance structure is quite common in Italy (Marra, 2007) and has a growing relevance in Spain (Bel and Fageda, 2010), France (Lobina and Hall, 2007), Eastern Europe (Moszoro, 2010) and in developing countries (Marin, 2009), especially in the environmental sector. Some authors argue that this model is a second-best alternative, when neither the pure public nor the pure private models are feasible (Boardman et al, 1986). It is reasonable to state that mixed companies have sound theoretical capabilities (see table 1) but the way they are being handled in the waste sector may prevent these structures from meeting the efficiency targets and achieving the social objectives for which they were envisioned. The concession model is being better handled by the municipalities. This may be related to the fact that, nowadays, this model is more familiar to local decision makers.

Furthermore, the regulatory framework is simpler for cPPPs and usually the contracts have a smaller scope to avoid future “maladaptation costs” (Crocker and Masten, 1996).

The development of a public sector comparator (which is a tool designed to find the alternative that should provide the highest VfM) was not carried out for any of the cases studied. The decisions to issue the PPP contracts were mainly political and not backed up by adequate technical studies. The economic and financial viability studies must be carried out to provide evidence on the VfM of the project, and the PPP option should be seen as one among many, all of them with their strengths and limitations. If a PPP is the only feasible way of implementing infrastructure projects, private investors will take advantage and costs are likely to drift upward. As we have seen, PPP arrangements are being adopted by local governments in projects involving high investments and, therefore, long-term relationships. This aspect can be harmful in the waste sector where measures to reduce waste production and promote reutilisation must be taken. In fact, as Broadbent et al (2006) put it “major projects can be attractive under the PPP, small-scale recycling schemes are not”. In short, PPP projects provide asset-based services, thus luring local authorities towards chemico-energy modernisation projects rather than eco-modernisation projects. In addition to not providing incentives for cost efficiency, the regulation by contract being carried out does not contain incentives to reduce waste production (for instance, by developing customer education programs), to increase coverage and to engage stakeholders in more sustainable practices (for some useful suggestions on how to accomplish this see Baker et al, 2010). Structuring the payment of the private partners simply in accordance with the amount of waste treated can be a perverse incentive (promoting performance but neglecting the environment).

The risk allocation was fuzzy for all the cases analysed here. This is undesirable because it increases the likelihood of renegotiation and the potential for a deadlock in the case of some unpredicted event. When municipalities call for PPP contracts in the waste sector, the tender documents should explicitly show the intended risk allocation and call for mitigation measures (Marques and Berg, 2011).

Transparency is closely connected to good governance. This concept should be secured throughout PPP processes which are highly complex and demand public scrutiny. The decisions regarding price setting, evaluation metrics and approval of business plans should involve the participation of all the stakeholders given that these items directly affect their welfare (Watson et al, 2008). All the documents analysed in this paper were extremely difficult to obtain. This is a negative aspect since transparency enhances accountability and promotes the benchmarking of the models. Asenova and Beck (2010, page 2) report that “the character of PFI (private finance initiative) schemes hides their reality from public gaze. Despite the use of public money, there is a veil of secrecy and a failure of accountability cloaking PFI and PPP contracts.” Hence, in every on-going contract it is crucial to determine whether or not VfM has been achieved.

The effort undertaken by the municipalities in the case studies to coordinate and explore economies of scale is praiseworthy. However, this cooperation should be taken forward, involving other municipalities with experience in PPP arrangements and even the public company of the Central State (EGF). Nowadays, ERSAR should serve as a ‘lessons learned’ platform, providing guidance and consultancy to the local governments that wish to consider the potential for private sector participation in waste services.

## **Concluding remarks**

Regarding local infrastructure services, public authorities seem to have renounced their role as direct operators, positioning themselves as regulators with the mission of protecting the public interest. In the waste sector, there is a collective hope that the private sector will improve management at all levels (Zhang et al, 2010). Nonetheless, as we have seen, this will only materialise if the necessary precautions are taken by public authorities. Local governments still lack the expertise concerning the implementation and management of PPP agreements. The private sector's know-how, better efficiency and capacity to innovate are not emerging from the existing arrangements. It seems that cPPPs and iPPPs in the waste sector are only being used to overcome budget limitations and facilitate economies of scale, instead of achieving higher VfM.

Several measures can be taken which could result in better VfM in PPP projects while reducing the likelihood of renegotiation and inefficiency. The importance of access to the market (including the reliability of the evaluation model and the mechanisms to prevent the winner's curse), the objective and effective transfer of risks to the private sector and the development of performance indicators (to manage the contract) should be highlighted. Local governments should engage in these tasks adopting a whole life-cycle approach. In PPP arrangements, the reputation and know-how of the partners (both public and private) as well as the object of the partnership are relevant; however, the contract itself remains the 'most valuable player'.

The choice of local governments should embrace the model which allows for welfare maximisation. Theoretically, the mixed company model seems to be able to respond to

this purpose (as it seeks the ideal combination between efficiency and social objectives, Schmitz, 2000). However, it utterly depends on the quality of contract design and it usually results in ‘the worst of both worlds’ (Eckel and Vining, 1985). It is crucial to understand the difference between market and government and then provide a balanced approach (Warner, 2008). It is true that the mixed company model can provide a balanced solution resulting from the clash between opposing pressures (markets and politics). In fact, mixed companies stand in the grey area between public and private sectors. It is very important that national regulations are able to provide a robust framework and that the governments establish a set of guidelines regarding contract design. Furthermore, the inclusion of an external (light) regulator in the waste sector capable of benchmarking all governance structures can tie up the loose ends caused by the incomplete nature of the contracts.

In the ‘wholesale’ market of the waste sector, as long as the PPP option passes the VfM test, concession contracts seem to be the best choice, provided that the environmental policy for the region has acquired a large consensus and that the proper stakeholder involvement is carried out. The cPPP model can provide an effective response if the procured activities merely involve the construction and management of one type of infrastructure (e.g. landfills). However, if local governments decide to pursue a higher degree of vertical integration, the additional complexity might require a more flexible structure (such as an incomplete relational contract).

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