



**ENVIRONMENT DIRECTORATE  
ENVIRONMENT POLICY COMMITTEE  
TASK FORCE FOR THE IMPLEMENTATION OF THE ENVIRONMENTAL ACTION  
PROGRAMME FOR CENTRAL AND EASTERN EUROPE, CAUCASUS AND CENTRAL ASIA**

**GUIDELINES FOR PERFORMANCE-BASED CONTRACTS  
BETWEEN WATER UTILITIES AND MUNICIPALITIES  
Lessons learnt from Eastern Europe, Caucasus and Central Asia**

**14-15 October 2010 Almaty, Kazakhstan**

*This paper presents a summary of the major lessons learnt from the review of five cases of performance-based contracting in the water sector in three countries of Eastern Europe, Caucasus and Central Asia (EECCA), namely Armenia, Kazakhstan and Ukraine. The report also identifies good practices for designing and implementing such contracts.*

*Although the target audience of these Guidelines is decision-makers from EECCA, the main principles of and approaches to performance contracting are similar and may be relevant for countries from other regions that are envisaging to introduce or are striving to strengthen and improve such contracts in the water sector.*

*Action required: For endorsement. Written comments can be provided by 22 October 2010.*

For further information, please contact Nelly Petkova, at phone: +33 (0) 1 45 24 17 66; or  
e-mail: [nelly.petkova@oecd.org](mailto:nelly.petkova@oecd.org)



## FOREWORD

In many countries in Eastern Europe, Caucasus and Central Asia (EECCA), governments are still experiencing significant difficulties in providing reliable and high quality water services to their citizens. Due to low investment levels and poor maintenance over the past 15 years or so, the municipal water supply and sanitation sector in EECCA is in critical conditions. Although most of the EECCA countries recognise the acuteness of the crisis in the sector, the reform process has been slow and the operational and financial sustainability of water utilities, key to the rehabilitation of water infrastructure, is still far from being achieved.

A wide range of approaches for improving the performance of water and sanitation systems exists. Some options keep the operations in public hands, but change the operational incentives (as in the case of “corporatisation” of public water utilities that adopt formal, corporate structures). Other options involve private actors in a variety of ways and to a variety of degrees, ranging from private operation only to private operation, investment and ownership. In all of these options, however, the public authority remains responsible for overseeing the activity and for ultimately ensuring that public needs are met.

In an increasing number of countries, the relative roles and responsibilities between local governments and utilities are being clarified through “performance contracts”. Ultimately, performance-based contracts, if developed properly, can help to lay the basis for the long-term sustainability of water utilities, increasing their efficiency and creating conditions where investment capital can be attracted. Generally, performance-based contracts are designed to help define the utility development goals and include time-bound performance targets against which the performance of the operator is measured.

To support EECCA authorities that are willing to contractualise their relationship with their water utilities, the OECD EAP Task Force developed “*Guidelines for Performance-Based Contracts between Municipalities and Water Utilities in EECCA*”. These Guidelines address the key elements that need to be considered in connection with the preparation, implementation and periodic revision of a successful performance-based contracting mechanism.

The present report summarises the major lessons learnt from the experience with performance-based contracts (PBCs) in the water supply and sanitation sector in selected EECCA countries. The report also seeks to highlight the main achievements of and challenges facing the EECCA countries in designing and implementing such contracts. The analysis of the report is based on five case studies: two in Armenia (a management and a lease contract), two concession contracts in Ukraine and one case study from Kazakhstan (near full divestiture). The OECD Guidelines provided the analytical framework for these assessments. The present report builds upon the Guidelines, further deepening the analysis on the basis of specific examples from the reviewed contracts. The report also highlights some issues which were not present in the first version of the Guidelines.

The report was prepared in the framework of the EAP Task Force, whose Secretariat is located in the OECD’s Environment Directorate. The report was written by Nelly Petkova (from the Environmental Performance and Information (EPI) Division) under the guidance and supervision of Peter Borkey (Head of the Water Programme at the EPI Division). Brendan Gillespie (Head of the EPI Division), Xavier Leflaive and Angela Bularga, from the OECD Environment Directorate, provided valuable comments as well. Ecaterina Diderich provided administrative support to the project and Stanislav Kuld translated the report into Russian. The project was financially supported by TACIS Regional Co-Operation Programme for the NIS Region - Environment 2006-2007. All these contributions are gratefully acknowledged.

The views expressed in this report are those of the author and do not necessarily reflect those of the OECD or its member countries.

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>7</b>
<b>CHAPTER 1. INTRODUCTION.....</b>	<b>14</b>
1.1 Objectives of the report.....	14
1.2 Main types of contractual arrangements in the water supply and sanitation sector .....	15
1.3 Brief introduction of the case studies.....	16
1.4 Target audience of the report .....	17
1.5 Structure of the report .....	18
<b>CHAPTER 2. LEGAL AND INSTITUTIONAL FRAMEWORK AND STATUS OF THE REVIEWED CONTRACTS.....</b>	<b>19</b>
2.1 Armenian case studies.....	19
2.2 Ukrainian case studies.....	22
2.3 Kazakhstan case study .....	25
2.4 Major lessons learnt .....	27
<b>CHAPTER 3. CONTRACT PREPARATION STAGE.....</b>	<b>30</b>
3.1 Contract type and duration.....	31
3.2 Review of the existing legal and regulatory framework .....	32
3.3 Review of the utility’s assets and liabilities and restructuring of the utility .....	34
3.4 Preparation of the bidding and selection process .....	36
3.5 Accuracy of initial data and information .....	39
3.6 Major lessons learnt .....	41
<b>CHAPTER 4. PERFORMANCE INDICATORS.....</b>	<b>42</b>
4.1 Definition and selection of performance indicators .....	43
4.2 Definition of baseline scenario.....	45
4.3 Monitoring of indicators – the choice of a technical auditor .....	46
4.4 Performance indicators in the reviewed cases.....	46
4.5 Major lessons learnt .....	49
<b>CHAPTER 5. TARIFFS AND FINANCIAL OBLIGATIONS OF CONTRACTING AUTHORITY.....</b>	<b>50</b>
5.1 The economic context of water pricing.....	51
5.2 Types of tariff structures .....	54
5.3 Mechanisms for tariff adjustment .....	57
5.4 Financial obligations of the contracting authority.....	60
5.5 Tariff setting in the reviewed cases.....	63
5.6 Major lessons learnt .....	68
<b>CHAPTER 6. CONTRACT MONITORING, ENFORCEMENT AND DISPUTE RESOLUTION ..</b>	<b>70</b>
6.1 Monitoring of contract implementation .....	70
6.2 Types of conflict resolution mechanisms.....	72
6.3 Dispute settlement in the reviewed cases.....	72
6.4 Contract enforcement mechanisms .....	75
6.5 Contract enforcement mechanisms in the reviewed cases .....	76
6.6 Major lessons learnt .....	77
<b>CHAPTER 7. RISK MANAGEMENT.....</b>	<b>79</b>

7.1	Types of risks .....	80
7.2	Risk allocation.....	82
7.3	Risk management in reviewed cases.....	84
7.4	Major lessons learnt .....	85
<b>MAJOR GOOD PRACTICES .....</b>		<b>86</b>
<b>REFERENCES .....</b>		<b>94</b>
<b>ANNEXES .....</b>		<b>96</b>
Annex I: Contract summary tables .....		96
Annex II: Performance results of the two Armenian private operators .....		106
Annex III: Difficulties with marginal cost pricing of water services.....		108
Annex IV: Main elements of a performance-based contract .....		109

### LIST OF BOXES

Box 1.	Inconsistencies between the management contract and the law in force in Armenia .....	33
Box 2.	Dispute over debt management at AWWC, Armenia .....	35
Box 3.	Bidding and selection procedure for the lease contract for the Yerevan water utility .....	38
Box 4.	Evaluation criteria for the concession contract in Berdyansk, Ukraine .....	39
Box 5.	Challenges in measuring service continuity in the Armenian lease contract .....	47
Box 6.	Disagreements over the measurement of performance indicators between the contractor and the technical auditor under the management contract in Armenia.....	48
Box 7.	How is the water and sanitation sector different from other infrastructure sectors? .....	52
Box 8.	Price-cap regulation in the United Kingdom.....	57
Box 9.	Market testing - A way to determine whether the operator's costs are reasonable .....	59
Box 10.	Eligibility criteria under a price-cap regulation in Kazakhstan.....	67
Box 11.	Conflict resolution in privatised water utilities .....	74
Box 12.	Conflict dispute mechanisms in Chile.....	74

### LIST OF TABLES

Table 1.	Allocation of public/private responsibilities across different forms of PBCs in water services ...	16
Table 2.	Possible financial criteria by type of contractual arrangement .....	37
Table 3.	Basic types of water tariff structures .....	54
Table 4.	Types of subsidy .....	61
Table 5.	Major good practices identified in the Revised Guidelines .....	87

## LIST OF ABBREVIATIONS

### Armenia case studies

AWWC	Armenia Water and Wastewater Company
AMD	Armenian dram (local currency)
CMB	Company Management Board
CMU	Contract Monitoring Unit
EMRP	Enhanced Maintenance and Repairs Programme
PSRC	Public Services Regulatory Commission
RFP	Request for Proposal
SCWS	State Committee of Water System
ToR	Terms of Reference
WRMA	Water Resources Management Agency
WSUP	Water System Use Permit
WUP	Water Use Permit
YWSC	Yerevan Water Supply Company
YWWP	Yerevan Water and Wastewater Project

### Ukrainian case studies

UAH	Ukrainian hryvnia (local currency)
-----	------------------------------------

### Kazakhstan case study

ARNM	Agency for the Regulation of Natural Monopolies
WRM	Water Resources-Marketing Ltd.

### General

CPI	Consumer price index
DBT	Decreasing block tariff
EAP Task Force	Task Force for the Implementation of the Environmental Action Programme for Central and Eastern Europe
EECCA	Eastern Europe, Caucasus and Central Asia
EU	European Union
IBT	Increasing block tariff
IFI	International financing institution
IDA	International Development Association (World Bank)
Lpcd	Liters per capita per day
m <sup>3</sup>	Cubic meters
O&M	Operation and maintenance (costs)
PBC	Performance-based contract
PPP	Public-private partnership
RPI	Retail price index
UNCITRAL	United Nations Commission on International Trade Law
USD	US Dollars
USSR	Union of Soviet Socialist Republics
VAT	Value-added tax
WSS	Water supply and sanitation
WWTP	Wastewater treatment plant

## EXECUTIVE SUMMARY

### *Background*

1. Over the past decade, the countries of Eastern Europe, Caucasus and Central Asia (EECCA) have undertaken significant economic and market reforms, including in the water supply and sanitation sector. Despite the reforms, however, the governments of these countries are still experiencing serious challenges in providing high-quality water services to their population. The poor state of water infrastructure in EECCA is a result of many years of neglect and under-investment as well as inefficient management practices.
2. To improve the performance of water utilities some countries in the region have turned to performance contracting. Performance-based contracts are negotiated legal agreements between governments/municipalities and water utilities that deliver public water supply and sanitation services. Generally, performance-based contracts are developed to help define the utility development goals. These contracts include time-bound performance targets against which the performance of the operator is measured. If designed properly, performance-based contracts can help lay the basis for the long-term sustainability of the utilities, increasing their efficiency and creating conditions where investment capital can be attracted. Unlike traditional government contracts that focus on inputs (procedures and processes to be used in delivering a service; amount and type of equipment; and/or time and labor to be used), performance-based contracts focus on results thus encouraging operators to be innovative and to find cost-effective ways of delivering services.
3. To support EECCA authorities that will contractualise their relationship with their water utilities, in 2006, the OECD EAP Task Force developed “*Guidelines for Performance-Based Contracts between Municipalities and Water Utilities in EECCA*”. These Guidelines address the key elements that need to be considered in connection with the preparation, implementation and periodic revision of a successful performance-based contracting mechanism. The major elements usually include: performance indicators, tariff related issues, contract monitoring, mechanisms for conflict resolution, conflict enforcement, risk mitigation.
4. The present report builds upon the Guidelines and further complements them by providing specific examples from selected EECCA countries. The purpose of the report is to present a summary of the major lessons learnt from the reviews of five performance-based arrangements in Armenia, Ukraine and Kazakhstan and identify good practices for designing and implementing such contracts. In addition, the report discusses some new issues which were not covered in the first version of the Guidelines. Apart from including a new chapter on contract preparation, some of main contractual elements (e.g. tariff setting and revision, contract enforcement, risk management) were additionally developed.
5. The five case studies cover most of the existing types of performance-based contracts that exist in the water sector: they range from a management contract (for the Armenia Water and Wastewater Company with the French company SAUR), a lease contract (for the Yerevan Water Supply Company with the French company Véolia Water) in Armenia, concession contracts in Ukraine (with domestic private operators in the towns of Berdyansk and Kupyansk), and (near full) divestiture in Kazakhstan (the water utility in the city of Shymkent is owned by a domestic private operator).

6. Given the huge number of EECCA municipalities with responsibilities for managing water infrastructure, the penetration of performance-based contracts in the EECCA region is still rather low, compared to other regions of the world. Most often, it is some nascent types of contractual arrangements that exist between the municipality and the operator. One of the reasons may be the insufficiently developed regulatory basis in many of the EECCA countries but it may also be the lack of capacity of municipalities (human and financial) to embark on such, sometimes rather, complex arrangements.

***Major lessons learnt from experience with performance contracting in the reviewed countries***

7. Of the five reviewed case studies, the two Armenian contracts are at a more advanced level of implementation compared to the Ukrainian concession contracts which have hardly taken off the ground at the time of writing this report. As such, the Armenian contracts provide a number of useful insights into how contracts work in real life. The experience of the Armenian government with performance contracting shows that no contract, no matter how well designed, can provide for all possible cases that can occur during implementation. For this reason, it is important that the parties maintain good working relations which can help solve problems in a less formal but sometimes more efficient manner.

8. Some of the major lessons which emerge from the review of the case studies and the particular contractual elements are presented below.

***Legal and institutional reforms in the water sector in the reviewed countries***

9. Successful performance contracting requires a robust legal, regulatory and institutional framework, including among others, corporatisation of water utilities, increasing of tariffs to levels where at least operation and maintenance costs are recovered, introducing a system of subsidies for poor households to help them cope with higher tariffs, creating institutions to regulate and oversee contract implementation. Often, reform measures include inviting private operators to manage public water infrastructure as well.

10. Many of the above reforms have been implemented to some extent in Armenia, Kazakhstan and Ukraine. Experience shows that implementing these reforms takes time, efforts and political will. Many of the reform packages are still being designed and redesigned while the countries are struggling to find the best way to address the challenges in the water sector, challenges exacerbated with the global financial and economic crisis. Many of the reforms are not completed yet or are only partially completed (e.g. tariff reform in Ukraine and Kazakhstan, establishment of a regulator in Ukraine).

11. While decentralisation of the sector and the transfer of the responsibility for its management to lower levels of government was in the focus of the reform efforts in the 1990s, there is a reverse process underway now: countries, such as Ukraine and particularly Armenia, are making attempts to re-aggregate the water utilities in order to make them more attractive to potential investors and exploit the potential economies of scale that this process provides.

12. The reviewed countries have chosen different institutional models for managing their water sectors: from a significantly privatised (but malfunctioning) water sector in Kazakhstan where a multi-sectoral utility regulator has been established to oversee the compliance of utility operators with the law in force (and particularly with tariff setting, revision and implementation), to a largely aggregated sector in Armenia with a similar multi-sectoral utility regulator in place to a largely disaggregated water sector managed by local level authorities in Ukraine. As such, the role of the governments is changing - from a provider of services they are becoming a regulator and an enforcer of the legislation.



13. Private sector participation is also part of the reform efforts in the three countries. Relations with private operators are regulated through performance-based contracts. Of the three countries only Kazakhstan has allowed privatisation<sup>1</sup> in the water sector. In Armenia and Ukraine, privatisation is explicitly prohibited. Privatisation is not a panacea to the problems in the water sector, as exemplified by Kazakhstan, and it should not be resorted to before necessary reforms are in place. In addition, in Ukraine and Kazakhstan, more generally, there is a lack of domestic private water operators that have sufficient experience to manage utilities effectively which additionally undermines the competitive provision of water services in these countries.

14. The specific experience of Armenia with private sector participation shows that this is not an easy and straightforward process but it may be worth it. It is a learning exercise for both parties and particularly for the government in its new role of a regulator. The Armenian experience also shows that implementing effectively performance-based contracts requires a strong political will and support from the whole government to carry on with necessary reforms.

15. The overall conclusions from the reviews of the individual contracts is that the contracts generally comply with national legal requirements but only the two Armenian contracts were prepared in line with good international practices. In addition, the experience of the three countries shows that there is “no one model that fits all” approach. The “best” model is the one that is best adapted to the specific needs of the utility based on the technical, economic, social and institutional conditions in each country.

#### *Contract preparation stage*

16. The contract preparation stage is critical for the success of the future partnership. During this stage, the contracting authority needs to make some important decisions with regard to the type of contract, type of bidding process and methodology for selecting the contractor. In this context, the main lessons learnt include:

- The Armenian experience shows that starting public-private partnerships with less complex contracts, such as service or management contracts, can have a lot of benefits. This strategy allows authorities to gain experience with and confidence in dealing with intricate legal and technical matters before they move to more complex lease or concession contracts.
- Before drafting a contract, the contracting authority needs to conduct a thorough review of the relevant legislation and regulations as well as clarify the objectives that the contract will be expected to achieve. The contract needs to be harmonised with the legislation in force. This can help avoid future time-consuming disagreements or conflicts between the parties, as happened in the case of the Armenian contracts.
- Before entering into a contract, the contracting authority needs to carry out a thorough review and evaluation of the utility’s assets and liabilities. If the review shows the need for restructuring of the utility, this has to be done before the contract is in place and in line with good international practices. As in the case of the Armenian management contract, a late restructuring resulted into delay of contract implementation.

---

<sup>1</sup> Privatisation implies the transfer of water utility’s assets into the ownership of a private operator (in other words, the purchase of assets by the private operator).

- Competitive bidding may be the most appropriate method for selecting a contractor in EECCA. Setting simple, straightforward and well-designed technical and financial evaluation and selection criteria can help ensure transparency and encourage market choices in selecting a contractor. As Armenia shows, good organisation of a competitive bidding procedure takes time and money which the contracting authority needs to take into consideration from the outset of the process.
- The mere existence of a bidding procedure and selection criteria is not sufficient to make the process credible. Some anecdotal evidence from Ukraine suggests that the selection of operators in the water sector can be a highly politicised process. Unfortunately, political pressure and lobbying often seem to have precedence over rules and criteria.
- As exemplified by the Armenian case studies, the role of international financing institutions and donors is crucial in supporting reform efforts in the sector and in providing financial and human support to the design and implementation of performance-based contracts. Experience shows that IFIs and donors are even more willing to support efforts in the water sector when governments introduce market mechanisms and open up the sector to competition.
- International consultants have a supportive role to play in contract preparation and design. As the Armenian experience shows, no matter how skilled such consultants are, they can only be efficient in their assistance if the contracting authority plays the main role in this work.

### *Performance indicators*

17. Performance indicators allow the contracting authority to measure the performance of the operator in a more objective and transparent way. From an environmental point of view, it is the performance indicators that are of particular importance as they will usually include very specific water quality targets. For this reason, environmental authorities need to be closely involved in the process of contract preparation in order to ensure that environmental objectives are adequately reflected in the contract.

18. In addition, the bonus and penalty system which is often built into performance-based contracts may be also directly linked to the achievement of the performance indicators. This is one of the reasons why parties to contracts are so much concerned with the definition and methodology for setting and measuring indicators. In this context, the main lessons learnt include:

- While the Armenian contracts include clearly specified technical, financial and efficiency performance indicators, the Ukrainian and the Kazakh cases envisage investment indicators only. Investment indicators alone may not be effective as they do not necessarily translate into actual service improvements.
- Indicators should be few and easy to monitor and verify. They should be targeted at the needs of the individual utility and should reflect the most urgent and critical issues to be solved by the operator. Armenian experience with reducing the number of indicators with each subsequent contract (from 125 in the first performance-based contract to 4 major ones for the Yerevan lease contract) is indicative of the need to set more realistic indicators.
- Providing a clear definition of the indicators is crucial. Indicators need to be defined in terms of levels, timeframe for their achievement and methodologies for their monitoring, calculation and measuring. Armenian experience points to the importance of having these methodologies agreed upon well in advance between the parties in order to avoid future conflict situations.

- Where initial data are poor, it is better to set indicators as increments, or improvements defined in terms of percentage above a baseline, rather than as absolute values. Indeed, using a percentage of the improvement as an indicator makes it easier to integrate modifications to the baseline calculations, when necessary.
- Closely and regularly monitoring progress with achieving performance indicators makes the system credible and allows parties to the contract to better understand the challenges as well as encourages them to seek timely and effective solutions. Armenia has made use of a technical auditor to support the government to better monitor contract implementation. However, the powers and responsibilities of the auditor should be carefully defined and balanced with regard to the responsibilities of the operator and the contracting authority.

### *Tariffs and financial obligations of the financing authority*

19. Setting tariffs at the right level and structuring them appropriately is complicated by the need to address multiple policy objectives (economic, financial, social, environmental). Despite the existence of various water tariff practices around the world there is no consensus on which tariff structure best balances the objectives of the utility, customers and society as a whole. To ensure the financial stability of the utility, the tariff should be such that, at a minimum, it aims to cover the operation and maintenance costs of the utility.

20. Given the social character of the water sector, subsidies may be needed to ensure access of the poor to water services. Subsidies should be targeted and provided in a transparent manner on the basis of clear rules and procedures. In this context, the main lessons learnt include:

- Armenia and Kazakhstan have sought to improve their tariff setting methodologies: they have started implementing cap-price regulation and marginal cost pricing which requires data on actual water consumed. To effectively do so, Armenia has launched a massive programme of installing household and flow water meters. Ukraine is still calculating water tariffs on the basis of historic costs. Thus, while in both Armenia and Kazakhstan there is an attempt to link tariffs to costs and raise tariffs to cost recovery levels, tariffs in Ukraine are mainly a product of the political process which results in low rates and in utilities operating at a financial loss.
- Tariff structure in Armenia has been improved - Armenia now largely applies a (uniform) volumetric water charge in the sector. This helps avoid cross-subsidisation. In addition, the water bill in Armenia has been made more transparent to customers with the three major services (water supply, wastewater collection and treatment) invoiced separately in the bill. Kazakhstan is slowly moving in this direction while Ukraine generally has flat tariff rates based on construction norms. Cross-subsidisation is largely used in Ukraine.
- All three countries have introduced rules and procedures for adjusting and revising tariffs. However, rules alone are not sufficient if they are not respected. Despite the existence of such rules, all three countries have experienced problems with the timely and efficient adjustment of tariffs due to political interference.
- Of the three countries, Ukraine and Kazakhstan have put in place subsidy programmes to directly support poor families (output-based subsidies). These subsidies are generally channelled through combined housing allowances provided at a local level. Armenia has no water subsidy programmes targeted at the poor. In principle, the Armenian government can provide subsidies directly to the operator (input-based subsidies) as a way to cover its operating deficit when revenue generated from tariffs is insufficient. Experience shows that subsidising the delivery of actual services, rather than consumer consumption, is a more efficient way of providing public support to the sector.

***Contract monitoring, enforcement and conflict resolution mechanisms***

21. Contract monitoring and reporting obligations are a major element in all performance-based contracts. Regular, timely and consistent reporting by the operator on progress with contract implementation allows detecting problems early in the process. All reviewed contracts include reporting requirements but with a different degree of specificities. While reporting requirements are specified in detail in the two Armenian contracts, the Ukrainian contracts only vaguely touch upon these.

22. Similarly, all contracts reviewed envisage some kind of enforcement (e.g. insurance) and conflict resolution mechanisms which are either directly included in the contracts (Armenia) or more generally prescribed in the governing law (Ukraine). While the Armenian contracts are detailed and more prescriptive on these mechanisms, the Ukrainian contracts contain only basic requirements.

23. In this context, the main lessons learnt include:

- Reporting and disclosure of information should be regular but balanced. Too much or too little of it may impose additional and unnecessary burden on both the operator and the contracting authority. Reporting requirements (type of data and information to be collected and monitored, the format in which these will be provided, frequency of submission of reports, procedure for providing feedback by the contracting authority) should be specified in the contract as precisely as possible. If this is not feasible, the contract should envisage a procedure for developing such reporting requirements by some precise date after the contract starts. Armenian contracts provide a good example in this regard.
- Given the significant risks involved in water sector contracts, international experience shows that there is a need for more explicit mechanisms to ensure contract enforcement. These mechanisms need to be aligned with the legislation in force. Performance bonds are a particularly appropriate mechanism. This mechanism can only be effective however if it is well designed and if all its elements are properly covered by the contract. The two Armenian contracts contain well-designed clauses on performance bonds.
- In terms of conflict resolution, the Armenian contracts give preference to amicable non-binding solutions and arbitration. The procedures for applying the mechanisms are well established in the contracts. The Ukrainian contracts envisage negotiations as a possible mechanism but there are no clear rules and procedures for carrying out negotiations between the parties which may lead to even more conflict situations. The law in Kazakhstan favours court decision as a first instance.
- Arbitration through (a panel of) experts has proven its effectiveness as a working mechanism and is worth considering in contractual arrangements. However, its application also requires clear rules and procedures, as provided for in the Armenian contracts.
- Solving conflicts through courts usually costs a lot of time and money and should be a solution of the last resort. Envisaging going to international courts when conflicts arise between parties is a common practice in complex contracts particularly where international operators are involved, as in the case of Armenia.

### ***Risk management***

24. Including risk mitigation clauses in the contract helps prevent future costly failures for each of the parties to the contract as risks may be substantial (including revenue risks (low tariff collection), operation and maintenance risks, currency rate risks, regulatory and policy or political risks, and *force majeure*).

25. Defining risks and risk mitigation measures in the water sector is a difficult exercise and requires a good understanding of the conditions and the environment in which the contract will operate. As the reviewed case studies show, all countries envisage some kind of risk mitigation measures (tariff adjustment and revisions rules, bonuses and penalties, early contract termination clauses). While these measures are well detailed in the Armenian contracts, the two concession contracts in Ukraine do not provide specific rules and procedures for their implementation.

26. In this context, some of the major lessons are:

- Risk mitigation measures should be tailored to the objectives of the contract, to the type of contractual arrangement, the type of risks undertaken by each of the parties and the type of regulatory environment in which the contract will operate.
- Experience shows that bonuses are best applied with management contracts, penalties are mostly suited for lease contracts while regulating risk through tariff adjustment can be the preferred option in both lease and concession contracts.
- The rules and procedures for determining contract incentives as risk mitigation measures (tariffs revisions, bonuses and penalties) need to be clearly specified in the contractual arrangements. Methodologies for calculating bonuses and penalties need to be agreed upon by the parties as early in the process as possible in order to prevent future costly disagreements. The lack of a clearly defined methodology for the calculation of the bonus level of the management contractor in Armenia, for example, resulted in lengthy disagreements between the parties and in delays in contract implementation.

27. In considering implementing performance-based contracts, the public authorities should be aware of all costs, both direct and indirect, that such contracts may entail to the public sector. Apart from traditional “costs” (overheads or expenditures inherent to the contract), there are costs incurred due to indirect “losses” (e.g. costs of hiring consultants to help prepare the contract or hiring a technical auditor to monitor performance indicators, or dealing with un-monitorable performance targets). Usually, the contract does not include provisions related to indirect costs. However, during the negotiation stage, the parties should always consider all actual and potential costs inherently and indirectly associated with performance contracting.

## CHAPTER 1. INTRODUCTION

### 1.1 Objectives of the report

28. The purpose of this report is to summarise the major lessons learnt from the reviews of five performance-based contracts (under design or at an implementation stage) in Armenia, Ukraine and Kazakhstan. The OECD “*Guidelines for Performance-Based Contracts between Municipalities and Water Utilities in EECCA*” provided the analytical framework for these assessments. The present report builds upon the Guidelines, further deepening the analysis on the basis of specific examples from the reviewed contracts.

29. The case studies cover the main types of contractual arrangements that generally exist: they range from a management and lease contracts in Armenia to concession contracts in Ukraine to (near full) divestiture in Kazakhstan.

30. The major objective of these reviews was to conduct an independent and objective evaluation of all important aspects of the contracts and by doing so to support the efforts of local authorities to improve the effectiveness of the contracts in line with good international practices. The methodology developed to analyse the contracts is based on the recommendations provided in the Guidelines. It consists of a detailed questionnaire coupled with direct interviews with relevant stakeholders in the countries. This work resulted in reports which contain recommendations for the possible improvement of the contracts. The findings, conclusions and suggested recommendations were discussed at stakeholder meetings in each of the cities. A number of people worked with the review team<sup>2</sup> during this project and helped us understand the specifics of the contracts and the enabling legal, regulatory and institutional frameworks in each of the countries. They are too many to be mentioned individually but their contribution is gratefully acknowledged<sup>3</sup>.

31. In addition, through the analysis of the individual contracts, the reviews also sought to identify good practices for and challenges to designing and implementing performance-based contracts in the water sector. These practices provide the basis for the current report. While most of the analysis is focused on the five case studies (and a lot on the two Armenian cases as they are at a more advanced stage of implementation and provide more ample evidence of real life situations), examples from other countries have been also used throughout the text, as appropriate.

32. It should also be noted that the penetration of performance-based contracts in the EECCA region is rather low compared to other regions of the world and given the huge number of EECCA municipalities with responsibilities for managing water infrastructure. This became particularly evident during the implementation of this project while we were searching for countries and municipalities to work with us. Most often, it is some nascent types of contractual arrangements that exist between the municipality and the operator. One of the reasons may be the insufficiently developed regulatory basis in many of the EECCA countries but it may also well be the lack of capacity of municipalities (human and financial) to embark on such undertakings.

---

<sup>2</sup> The individual case studies were implemented with support from consultants from PriceWaterhouseCoopers.

<sup>3</sup> This is done in the individual case study reports. For more information, see the section on References at the end of the report.

## 1.2 Main types of contractual arrangements in the water supply and sanitation sector

33. There are different forms of private sector participation in water delivery: from the minimum involvement, the service contract, to full divestiture, as in the United Kingdom and Chile. The 7 major types of private involvement are the service contract, the management contract, the lease contract (also known as “affermage” because it is based on the French model), the Build Operate Transfer, the concession contract, the joint venture and the divestiture<sup>4</sup>.

- Under a **service contract**, the participation of the private sector is very limited. It provides technical and administrative tasks, such as repairs, meter reading or payment collection. The private sector does not bear any commercial risk regarding water supply. The contract period rarely exceeds one or two years. This contract is adapted to all situations even when the regulatory framework is particularly weak.
- Under a **management contract**, the private sector takes over operation and management responsibilities. However, the user remains legally client of the public entity. The private contractor is paid on a “fee per unit” basis defined in the contract: per volume of water sold, per number of connections. The duration of the contract is usually three to five years and the private company does not bear commercial risks regarding water supply (e.g. the Armenian management contract).
- The **lease contract** differs from the management contract in the sense that the private company assumes the legal responsibility for operating the service (but with a greater degree of autonomy than for management contracts) in exchange for payments for the use of the fixed assets. The main tasks are operation and maintenance. Users become direct clients of the private contractor, which bears a much more important part of commercial risks. However, while it is not in charge of capital investment it may be made responsible for providing working capital for repairs. In exchange for greater risks, the leaseholder receives a part or the totality of water revenues. The duration of the contract is usually of ten to twelve years (e.g. the Armenian lease contract).
- Under a **Build-Operate-Transfer contract**, the private sector is in charge of designing, building and financing a new investment project. It also has to operate and maintain it for the concession period and then hand it over to the public sector. This mechanism has the advantage of not increasing the sovereign debt. This type of contract is usually used for construction of water production and desalination plants and sale of bulk water to the public provider rather than for water distribution. Currency risks and the significant length of legal negotiation increase the cost of projects financed under a Build-Operate-Transfer contract.
- The **concession contract** is similar to the lease contract, but the contractor is in charge of financing the expansion and the rehabilitation of the network. As in the lease contract, users are direct clients of the private contractor. The duration of the contract ranges between twenty five and thirty years. At the end of this period, the private operator hands over the installation to the state (e.g. the Ukrainian concession contracts).

---

<sup>4</sup> The discussion in this section is based on OECD (2000).

- Under a **joint venture contract**, the state or municipality and a private operator co-own the water operator. Usually, the private sector holds the largest part of the newly created company, but in some cases the state can have a “golden share<sup>5</sup>”. The two shareholders share responsibilities and benefits. Even if this agreement seems adapted to the politically sensitive case of water supply, such kind of contract can be very unstable.
- The last form of private sector participation in water supply is the **full divestiture**. Under this arrangement, assets are entirely sold to the private sector. The private operator is in charge of financing, operation, management and bears all the risks. However, these private monopolies remain overseen by the public sector and independent regulatory agencies.

34. Table 1 below provides a schematic presentation of the division of responsibilities between public authorities and water operators across the major forms of performance-based contracts in the water sector.

**Table 6. Allocation of public/private responsibilities across different forms of PBCs in water services**

	Setting performance standards	Asset ownership	Capital investment	Operation	User fee collection	Oversight of performance and fees
Fully public provision						
Service contracts						
Management contracts						
Lease contracts						
Concession contracts						
Private provision						

**Key:** Dark grey = public responsibility

Light grey = shared public/private responsibility

White = private responsibility

### 1.3 Brief introduction of the case studies

35. The five case studies reviewed for this project include:

- Two contracts in **Armenia** – a management contract with the French operator SAUR for the Armenia Water and Wastewater Company (AWWC) and a lease contract with the French company Véolia Water for the Yerevan Water Supply Company (YWSC). Both contracts were signed by the State Committee of Water System on behalf of the Armenian Government.
- Two concession contracts in **Ukraine** – one in the town of Berdyansk signed between the Berdyansk Town Council and a domestic private operator – Chista Voda Berdyansk (Berdyansk Clean Water Company) and a second contract in the town of Kupyansk where the town authorities are preparing a concession contract for their water utility. At the time of the review, the private operator was already selected but the contract was not yet signed.

<sup>5</sup> Golden share is a nominal share which is able to outvote all other shares in certain specified circumstances, often held by a government organisation, in a government company undergoing the process of privatisation and transformation into a stock-company.



- A case study in **Kazakhstan** in the city of Shymkent where the water utility was largely privatised and is currently owned by the private water company “Water Resources-Marketing” Ltd.

36. The main types of performance-based contracts in the EECCA region, including in the three reviewed countries, are service, management, concession and lease contracts. The contracts analysed here exhibit the typical features of the contracts as described above. Except in Kazakhstan, where the Shymkent utility is not full but near full divestiture of assets. The 22% share of the Shymkent municipality in the equity capital of the private operator implies some dividends for the municipality but also a responsibility for making investments in extensions and the construction of new assets. As such, the Shymkent case is a hybrid model and comes close to a joint venture contract. However, there is no contract between the two sides in Shymkent and in reality it is the private operator that fully manages the utility. In a way, the Armenian management contract and the Yerevan lease contract can also be considered hybrid models as the private operators in both cases are made responsible for managing the investments financed with support by the World Bank which under a perfect lease should be a responsibility of the contracting authority.

37. Such mixed contracts exist in other countries as well. They reflect the realities in the countries where access to long-term credit for private operators is often difficult and the local governments need to step in and take over some of the responsibilities for investments in order to ensure the provision of water services to the population. Given the global financial crises such situations may become even more common.

38. It should also be pointed out that PBCs do not necessarily and exclusively imply contractual arrangements between municipalities and private operators only. On the contrary, such contracts can in principle be concluded with public-sector companies. However, the reality is that these are very rare. It seems that the public sector is less willing to control public sector entities in the way it does it with private sector operators.

#### **1.4 Target audience of the report**

39. This report is first and foremost targeted at decision-makers with responsibilities for water infrastructure at a municipal level in the EECCA countries that are considering introducing performance-based contracts for their water utilities. Decision-makers and politicians at a national level responsible for setting water sector standards and tariffs and supervising the performance of water sector operators may also be interested to learn from the experience of other countries with such contracts.

40. Although the main audience is decision-makers from EECCA, the main principles and approaches to designing and implementing performance-based contracts in the water sector are similar and may be relevant for countries from other regions that are envisaging to introduce or are striving to strengthen and improve such contracts in the sector in line with good international practices.

41. In addition, managers of technical assistance programmes from different donor agencies, international financing institutions (IFIs), international organisations concerned with the practical implementation of good practices in this area and consultants working on contractual arrangements in the water sector may also find the report useful in their professional work.

42. Last, but not least, the report does not deliver a complete, “ready-to-use” toolkit for immediate application. The good practices and approaches proposed here need to be further adjusted and tailored to the needs of the individual municipality and utility. Which of these approaches will be used by a given municipality will depend on the governance structure in the country as well as the maturity of the parties involved. It is also important to note that by no means does this report intend to replace the regular legal domestic advice that is key for the successful preparation of a performance-based contract.

## **1.5 Structure of the report**

43. The report consists of seven major chapters. Chapter 2 briefly presents the legal and institutional set-up in each of the countries that support the implementation of performance-based contracts in the water sector. It also describes the current status of each of the contracts as of the moment of the respective review. Chapter 3 discusses issues related to the pre-contractual period: bidding process and contract preparation.

44. Chapters 4 through 7 discuss the key elements that need to be in place in designing performance-based contracts and their actual application in the reviewed contracts, using abundant examples from the case studies. The chapters are structured around the main issues usually regulated through PBCs, including performance indicators (Chapter 4), tariffs and financial obligations of the contracting authority (Chapter 5), contract monitoring, enforcement and conflict resolution mechanisms (Chapter 6) and risk management (Chapter 7). Major lessons learnt are identified for each of the contract elements discussed and are then summarised in the last chapter of the report. In addition, each chapter starts with a Box which presents, in a concise form, the major good practices identified in the first Guidelines for Performance-Based Contracts between Municipalities and Water Utilities in EECCA, used as a starting point in the analysis of this report.

45. While this revised version builds on the original version of the Guidelines, there are a number of new elements which have been added to this edition. Apart from adding a new chapter on contract preparation, most of the chapters were further expanded. In particular, additional information was provided on tariff setting and revision, on contract enforcement and risk management.

46. Experience shows that having the main contractual elements in place is an essential prerequisite for a smooth contract implementation and achievement of the stated contract objectives. However, no contract can possibly cover all possible issues involved in contracting out water services. These become obvious only during the contract implementation stage. Hence, the need for some contractual flexibility and revision mechanisms built into the contract. In addition, good working relations between the parties is a good basis for overcoming potential conflicts initially not provided for in the contract.

## CHAPTER 2. LEGAL AND INSTITUTIONAL FRAMEWORK AND STATUS OF THE REVIEWED CONTRACTS

### Major good practices

#### Legal and institutional framework

The legal framework and institutional set-up should provide for proper regulation and monitoring of the contract implementation. The regulatory authority should be given a sufficient level of independence in order to ensure that the interests of all parties are well balanced and protected.

47. This chapter briefly presents the regulatory and institutional context in each of the three countries as well as describes the process which has led to outsourcing the management of the five water utilities and the signing of the contracts with the operators. In addition, it presents the current status of each of the contracts as of the moment of the respective review. The main elements of each of the contracts are discussed in more detail and as appropriate in each of the chapters that follow.

### 2.1 Armenian case studies

48. The two Armenian cases presented in this report are the management contract for the Armenian Water and Wastewater Company and the lease contract for the Yerevan Water Supply Company.

#### *Regulatory and institutional context*

49. In order to improve the management of the water sector, in the early 2000, the Armenian government launched a comprehensive water sector reform consolidated in the Water Code (adopted in June 2002, and amended in 2003). This Code introduced a number of modern concepts and mechanisms for managing the water supply and sanitation sector, such as river basin management, private sector participation, allowing for different types of performance-based contracts, confirming also the polluter-pays and user-pays principles as major policy principles.

50. These reform measures were also aimed at separating the regulatory aspects and standards setting from the operational functions of water management and handing them over to different independent bodies. This led to the creation of a number of new institutions, including the National Water Council, the Public Services Regulatory Commission and the Dispute Resolution Commission. Responsibilities for managing the water resources were clearly separated from the responsibilities for managing the water supply and sanitation infrastructure. In addition, the government carried out a financial reform in the water sector with the main objective of commercialising it over the period 2001-2008.

51. Apart from the Water Code, there are a number of other legal acts that directly shape the regulatory basis for the management of the water sector in Armenia in general and the performance-based contracts enforcement, in particular. Various laws and technical regulations were adopted to regulate the provision of high-quality drinking water to the population, the payments for water use and wastewater discharges and to formalise the contracts with water consumers.

52. There are three main institutions in Armenia with direct responsibilities for the management of the water sector in the country. These include: The State Committee of Water System (SCWS), the Public Services Regulatory Commission (PSCR) and the Water Resources Management Agency (WRMA). The SCWS is in charge of the optimisation of the management of water resources, including the improvement of the tariff policy. The PSCR is responsible for the regulations of the public utility sector and aims at contributing to the formation and development of competitive markets. The WRMA is in charge of issuing Water Use Permits.

53. The Water Use Permit regulates the extraction and discharge of water and should be held by all water companies. The WRMA monitors the compliance of water companies with these permits. The Water System Use Permit sets the tariff for water supply and wastewater collection. The PSCR monitors the quality of the service and the tariffs applied to consumers.

54. All water resources in Armenia belong to the state. The state-owned water systems can be under state or private management. The two largest water and wastewater utilities in Armenia are the Armenia Water and Wastewater Company and the Yerevan Water Supply Company (Yerevan Djur). Both utilities are owned by the State Committee of Water System. The Armenia Water and Wastewater Company is managed by the French company SAUR under a management contract. Yerevan Djur, managed by the French company Véolia Water, signed a lease contract with the SCWS.

#### ***Lease contract for Yerevan Djur***

55. During the Soviet times and the first years of independence of Armenia, water companies were exclusively owned and operated by the state. With the reforms in the sector, the government first fully decentralised the sector and transferred the responsibility for managing the water to municipalities. Soon, it became obvious that this disaggregation was counterproductive and did not allow making use of the economies of scale in the sector. The government then started aggregating the water utilities on a regional basis. In addition, it created opportunities for the private sector to participate in the management of water infrastructure.

56. In Yerevan, a management contract for Yerevan Djur was awarded to ACEA Company (the Rome water services operator) for the period 2000-2005. This was Armenia's first experience with private sector participation in the water sector.

57. Following the termination of the management contract, in 2005, a lease contract was awarded to Véolia Water. The contract was awarded for a 10-year period and was signed with the State Water Committee in December 2005. To implement the contract, the bidder created a new company: Yerevan Djur. Yerevan Djur is wholly owned by Véolia Water. Under the lease contract, the operator pays the lessor a fee on a semi-annual basis for the period of the contract.

58. Under the lease, the private operator is responsible for operating and maintaining the utility and more specifically for providing water and wastewater (collection and treatment) services to the population of the Yerevan municipality as well as 32 surrounding villages, or about 1 030 000 people. The network consists of 450 km of water mains, 1 800 km of a distribution network and 1 200 km of a wastewater network. About 91% of subscribers have installed water meters.

59. There are wholesale and retail tariffs for water supply and wastewater. The tariff is approved by the PSCR. The tariff level was agreed upon between the government and operator at the start of the contract over the period of contract duration with a possibility to adjust it on an annual basis taking into account such parameters as inflation, exchange rate fluctuations, changes in the electricity tariff and in the level of water consumption. The tariff is set to cover all operation and maintenance costs, excluding investment and depreciation costs. In addition, the lease contract envisages a number of performance indicators as well as penalties if the operator does not meet the indicators.

60. The government, on the other hand, is responsible for financing investments. To ensure investments for the Yerevan water utility, the government contracted a USD 18.5 million loan from the World Bank. The revenue from the lease fee paid by the operator is used to pay back this loan.

61. The funds from the loan were placed at the Yerevan Water and Wastewater Project Fund, managed by the World Bank Yerevan Project Monitoring Unit (PMU). However, it is the operator's responsibility to plan, design, develop the tender documentation for different works, tender and supervise works financed with resources from this Fund. Any new assets built with World Bank resources remain a state property but they are handed over to the operator to manage during the period of the contract.

62. A more comprehensive description of the main features of the contract is presented in Annex 1 to the report.

#### ***Management contract for the Armenia Water and Wastewater Company***

63. The management contract for the Armenia Water Supply Company Service Area was signed in August 2004 between AWWC and the French company SAUR SA for a period of four years. There is a provision in the contract that allows for its possible extension for two additional years. The contract was actually extended in 2008. The contractor is paid a fixed fee, on a monthly basis, out of a World Bank loan. In addition, the contract envisages a number of performance indicators for the operator to meet. While there are no penalties foreseen, a bonus (called "performance incentive compensation" in this contract) can be granted or not to the contractor according to the level of achieved performance.

64. SAUR provides services to 10 regions in the country (37 towns and 280 villages or about 700 000 people). The operator has full responsibility for the management, operations and maintenance of the water and wastewater system in the service area. All costs of the operator are financed through the tariff and government subsidies (operational deficit and investments). The tariff, approved by the PSCR, is volume-based and is identical for all users. In addition, it is split into 3 parts: tariff for water supply, for wastewater collection and for wastewater treatment. The tariff has been significantly increased since the start of the contract on several occasions.

65. As the World Bank initiated the project, it funded the project preparation phase and finances the management contractor's fixed fee, the performance incentive compensation and the Contract Monitoring Unit. It also finances the procurement of goods, services and works needed for the company's operations as well as investments in the networks and facilities. However, it is actually SAUR that is responsible for designing the works to be implemented with the World Bank funds and managing the related procurement process. Given the World Bank's involvement, the basic investment strategy has to be coordinated with and approved by the Bank.

66. As such, there are a number of actors involved in the oversight of the management contract in Armenia. These include:

- The Company Management Board (CMB) is appointed by the AWWC. Its responsibility is the coordination and supervision of all aspects of the activities related to contract implementation. The Board has the powers and rights to administer the contract on behalf of the company. The CMB consists of the Chairman (who is also the Chairman of the State Committee of Water System), the Director of the Contract Monitoring Unit, a representative of the Ministry of the Environment and the Ministry of Finance and Economy as well as the AWWC's General Director.
- The Contract Monitoring Unit (CMU) is a body of technical experts appointed by the government of Armenia to supervise contract implementation and advise the Company Management Board. CMU monitors the implementation of the World Bank loan used to support this contract.
- An independent auditor is appointed and financed by the CMU to audit the management contractor's performance achievements and calculate its performance incentive compensation (bonus).

67. A more comprehensive description of the main features of the contract is presented in Annex 1 to the report.

### ***Overall assessment***

68. Despite some problems at the initial stage of the implementation of the two contracts, the overall experience of the Armenian government with private sector participation is rather positive. Some of the major performance indicators that are regularly monitored have shown significant improvements compared to the pre-contract periods, including, among others, decreased energy consumption, increased water supply duration, increased tariff collection rate. For more information on the comparison of indicators for the two Armenian contracts (as provided by the Armenian government), see Annex II to this report.

69. The overall conclusion of the review of the two contracts is that they are generally well-designed and balanced and meet most of the international standards for such contracts. The main elements that need to be included in such contractual agreements are in place which creates a good basis for a smoother implementation of the contracts.

## **2.2 Ukrainian case studies**

70. The Ukrainian cases presented in this report cover two concession contracts for managing the water utilities in the towns of Berdyansk and Kupyansk, respectively.

### ***Regulatory and institutional context***

71. Since its independence in 1991, along with macroeconomic stabilisation, the agenda of the Ukrainian government focused on accelerating Ukraine's institutional transition toward a modern market economy. The municipal and housing sector has received particular attention. The government created a dedicated Ministry of Housing and Municipal Economy in March 2007 and is working on a new Housing Code and Law on a Water Regulator. The process of decentralisation has transferred the responsibility of managing the previously state-owned water and sanitation services to the municipalities. The water utilities were transformed into communal enterprises. In parallel, the central government decided to eliminate the budget subsidies to these utilities.

72. As a result and due to the quick deterioration of water supply and sanitation facilities, the sector needs significant capital investments. Private sector participation in managing water infrastructure has been seen as a possible way to finance these investments. The Ukrainian legislation has then been modified to allow a broader involvement of the private sector.

73. Water supply requirements in Ukraine are still largely based on former USSR regulations that are now out-of-date; however the government is trying to adjust its legislation and regulatory acts to approximate them with those of the European Union (e.g. Water Framework Directive). The main legislative act which identifies the roles and responsibilities of representative and executive bodies in regulating water relations in Ukraine is the Water Code of 1995. A number of other legal acts relevant to the management of the sector in general and performance-based contracts enforcement, in particular have also been issued.

74. The Ministry of Housing and Communal Economy is the main actor at a national level regarding water sector issues. It is responsible for the definition of procedures for monitoring drinking water quality and water supply systems. It also deals with the coordination of the implementation of programmes for the protection of drinking water supply centralised systems, calculation of tariffs for centralised water supply and wastewater systems, issuing regulations and water licences, designing of tariff setting rules. The Cabinet of Ministers, the Ministry of Economy, the Ministry of Environmental Protection and the Ministry of Health are also involved in issuing water sector regulations. The Antimonopoly Committee controls regulations associated with economic competition, prevention, detection, and termination of violations of the laws on anti-monopoly (as in the case of concessions).

75. At the local level, the Department of Housing and Communal Services of each oblast administration is responsible for licensing and financing enterprises transferred into their management, controlling tariffs for housing and communal services (including for water utilities), imposing fines and sanctions on water suppliers when water quality standards are not met.

76. Currently, the legal framework allows the operation of water infrastructure by the private sector in the form of management contracts, lease and concession but the main assets should always remain municipal property. Privatisation of water and wastewater infrastructure is prohibited by law.

77. In addition, the law allows the participation of international operators but it seems that there has been little interest in Ukraine by foreign companies. One of the major reasons is the overfragmentation of the sector. The Ukrainian government is aware of this problem and is looking into possible solutions to aggregating the utilities. In reality, this process has already started despite the lack of necessary regulatory framework (this is the case, for example of the Donetsk water utility which is bringing smaller utilities into a single operational and management system).

78. For the sake of comparison, it should be noted that many of the OECD countries have gone a similar path after the first decentralisation wave. Countries such as France<sup>6</sup>, Germany, Ireland, the UK have moved from an overly fragmented sector to a certain level of aggregation of the water utilities in order to exploit the economies of scale that this arrangement provides. In addition, at the level of the European Union, over-fragmentation is currently being reduced through the principles embodied in the EU Water Framework Directive which promotes integrated river basin management.

---

<sup>6</sup> In France, for example, the provision of water services is a responsibility of municipal authorities and many small towns have decided to combine service areas to improve service efficiency with private participation contracts. The local representative of the central government (the Prefect) can mandate or influence the creation and shape of proposed aggregated structures. In particular, the Prefect can apply the principle of “territorial continuity”, requiring that all aggregated municipal services have a geographical boundary in common to strengthen the technical coherence of the grouping.

***Berdyansk concession contract***

79. The concession contract between the Executive Committee of the Berdyansk Town Council and Chysta Voda-Berdyansk is one of the first contracts involving a private partner in the water sector in Ukraine. The operator was selected in late 2008 through a tender procedure and the contract was signed in September 2008 for a period of 30 years (the contract allows for an additional extension of 20 more years). Several months after the signature of the contract, the contract was cancelled by the mutual agreement of the parties, redrafted and resigned again in December 2008.

80. According to the contract, the contractor's main responsibilities include: management, operations and maintenance of the utility as well as the modernisation of the existing infrastructure and its development. The bulk of the commercial risk and all the capital and investment risks have to be supported by the operator (UAH 120 million during the first 15 years of the contract (about Euro 10 million). The operator also has to pay a concession fee to the contracting authority on a quarterly basis.

81. The contract service area covers the town of Berdyansk and one additional village, representing about 50 000 subscribers for the water supply service and about 36 000 subscribers for the sanitation service (or about 120 000 people altogether). The Berdyansk water utility is experiencing a lot of financial difficulties as the tariff level does not cover even operation and maintenance costs, although the Berdyansk tariff rates are one of the highest in the country. The concession contract does not include any performance indicators (except the annual level of investments required by the operator).

82. A more comprehensive description of the main features of the contract is presented in Annex 1 to the report.

***Kupyansk draft concession contract***

83. As most water utilities in the country, the Kupyansk water utility has suffered from years of disinvestment and as a result its assets have rapidly deteriorated. The lack of resources to maintain the infrastructure has prompted the town authorities to seek the involvement of the private sector. This process has led to inviting bidders and selecting a domestic operator to manage the water utility in the town on the basis of a concession contract.

84. In September 2008, following the Law on Concessions, the municipality of Kupyansk announced a tender for a concession for the water utility in the town. This was the second tender organised, the first tender was cancelled because only one company sent its bid which makes the tender invalid according to the Ukrainian legislation. During the second tender two companies participated. A tender committee, headed by the Deputy Mayor, was set up and the winner selected. The future 49-year concession contract will be concluded with All-Ukrainian Energy Systems-Kupyanskvoda.

85. The operation area of the water utility covers the infrastructure in the town of Kupyansk as well as two villages (suburban areas) (altogether about 60 000 people). The number of clients is 21 123 (of which 13 917 customers with meters). The water distribution network is about 120 km and the total length of the sewage network is 69.8 km.

86. The draft concession contract was prepared following the requirements of the Law on Concessions and implies that:

- The private operator is given a contractual right to use the existing infrastructure assets to provide customers with water supply and sanitation services;



- The assets remain a property of the Territorial Community of Kupyansk;
- Apart from regular operation and maintenance works, the private operator is obliged to finance the extension and upgrades of the existing networks and facilities (UAH 96 million or about Euro 8 million);
- The contract envisages that for operating the water utility in Kupyansk the operator will pay a concession fee to the town authorities.

### ***Overall assessment***

87. The general conclusion from the reviews of the two contracts in Ukraine is that they largely comply with the requirements of the national legislation but do not meet international standards for such contracts as they miss a number of important elements (e.g. lack of performance indicators and proper monitoring arrangements). In addition, the selected operators do not seem to have appropriate knowledge and skills to manage water infrastructure which may put at risk the contracts during their implementation stage. On the other hand, the municipalities do not have sufficient experience and expertise to adequately manage such complex contracts, either.

### **2.3 Kazakhstan case study**

88. This section introduces the experience of Kazakhstan with privatising water utilities by focusing on one of the most successful cases in the country - the water utility in the city of Shymkent owned by the domestic company Water Resources - Marketing Ltd.

#### ***Regulatory and institutional context***

89. Since the end of the Soviet Union, Kazakhstan has embarked on an ambitious plan to transform the country into a modern market economy. The reform measures included privatisation and price liberalisation, followed by devolution of a number of important responsibilities to lower levels of government.

90. The early years of the transition were rather difficult and the local governments were stripped of cash. Privatisation of state-owned enterprises was seen as one possible solution. The first wave of privatisation, including in the water sector, started in the mid-1990s, but it was carried out in a rather chaotic way and mostly in the form of management buy-outs. Not long after that, some of the privatised water utilities became insolvent and started going bankrupt. Many of the private water companies underwent a second bankruptcy because water tariffs could not cover even their operating expenses. As a result, the competences for managing such water utilities were transferred back to regional or local governments (akimats). About 40% of the water utilities are now fully privatised.

91. The regulatory context for water utilities is not sufficiently comprehensive in Kazakhstan. There are no specific laws regulating the rights, obligations and responsibilities of private water companies and only two main laws regulate the water sector - the Water Code and the Law on Natural Monopolies.

92. The Water Code mainly controls water resources management issues. It deals with water use rights and different forms of ownership. The only requirement related to water supply and sanitation services is the obligation for water companies to install meters for surface water abstraction.

93. The Law on Natural Monopolies applies not only to the sector of water utilities but also to other public services. It deals with tariff setting, customer rights and obligations and procurement oversight for natural monopolies. There are two major requirements in the law: the private operator should keep the initial activity of the company which has been privatised and the company's income has to cover at least its operational costs.

94. Before the 1990s, the water utility sector in Kazakhstan was regulated by the Ministry of Housing and Municipal Utilities. Since the dissolution of the Ministry in 1991, the water companies are under the control of akimats (local governments). The akimats regulate the water consumption standards for users without meters, they appoint the directors of the public water service companies, approve the investments plans and tariff increase requests before their submission to the Agency for the Regulation of Natural Monopolies and have a decisive say on the provision of subsidies through the country's Drinking Water Programme.

95. At a national level, four main institutions share responsibilities for the water infrastructure sector. These are the Agency for the Regulation of Natural Monopolies, the Water Resources Committee of the Ministry of Agriculture, the Sanitary and Epidemiologic Agency of the Ministry of Health and the Ministry of Environmental Protection. However, there is no authorised body specifically responsible for water utilities and the reforms in the water sector in Kazakhstan.

96. As a result, there is no clear vision and strategy for the development of the water utilities sector in the country. Some government representatives confirm that the privatisation of water utilities has not gone well and some of them are being taken back by the state or local governments. It is becoming clear that privatisation is not a panacea and that there is a need for other, more conventional, approaches to involving the private sector in managing water infrastructure. Such a discussion is currently being held within the government.

### ***Shymkent water utility***

97. Shymkent, with about 500 000 inhabitants, is one of the main cities with a private water operator in Kazakhstan, Water Resources - Marketing Ltd. (WRM). WRM became fully operational in 2005.

98. Privatisation of the Shymkent water utility took place through several stages:

- In 1993, the Shymkent water utility went through an important financial crisis related, among others, to the inefficient use of water and high electricity costs. At that time, the utility was completely broke and could not cover any of its costs. In order to improve the financial standing of the utility, the municipality of Shymkent decided to split it into several subsidiary enterprises. It was expected that this split would allow to reduce the level of corporate taxes and social contributions the utility was paying. As a result, the water utility was divided into 8 small public enterprises, of which 4 companies for water abstraction, 1 for repairs, 1 for water supply and 1 for customer management. All these enterprises were part of the State Communal Enterprise (SCE or GKP in Russian) for Water Supply and Sanitation. Each of the small enterprises had a contract with the SCE as well as contracts with each other.
- In 1997, the changes in the regulatory context made possible the sale of the individual public companies to private owners. These small companies were sold in an auction at a very cheap price and bought basically by staff of the company. The assets were sold together with the companies. That part of the SCE which was not financially viable was declared bankrupt but the municipality remained the owner of 22% of the shares (it owns mostly the garage and transportation workshop). A new company for selling and marketing the services was created: the Water Resources Marketing company, which is the name of the current water operator.

- In 1999, the individual companies were all reunified into a Limited Liability Company. This new company owns the licence for water abstraction and is registered as a natural monopoly company.
- In 2004, the Limited Liability Company and the SCE were transferred to WRM (under the “Act of Transfer”). The municipality transferred its share to the WRM as well (22%).

99. WRM finally became fully operational in its new activities covering all water supply and sanitation services in 2005. Since then, it has been a private company, which owns the assets, with a 22% municipal participation in its equity capital. This company is in charge of the maintenance, rehabilitation and operation of the existing water supply and sanitation assets (the water network is 1 700 km and the sewage network is 472 km). Investments in new infrastructure and extension of the system are a responsibility of the municipality which transfers the operation of the new assets to WRM.

100. As the utility is privatised, there is no performance-based contract in place. The private operator is monitored by a regulator, the Agency for the Regulation of Natural Monopolies, that provides guidance on tariff formulation and oversees tariff implementation. Recently, the regulator has introduced a medium term tariff (a price-cap type) methodology that provides basis for better investment and tariff planning over a period of 3 to 5 years (this methodology allows the inclusion of investment costs in the tariff). As the eligibility requirements for a 5-year tariff plan are very demanding only the Shymkent operator has been able to meet these criteria and qualify for such a tariff. In the absence of a performance-based contract, there are no company-specific performance indicators and service standards. However, the private operator has developed its own objectives and standards. These are specified in the company’s strategic documents, such as its multi-year investment programmes. The major issue is that these objectives are not translated into specific and measurable indicators and leave a lot of room for interpretation.

### ***Overall assessment***

101. While the privatisation effort in the water sector in Kazakhstan has not been particularly successful, the Shymkent private operator has done rather well but this has been mostly due to the smart and creative management of the company.

### **2.4 Major lessons learnt**

102. The selection of the case studies is representative of the main types of performance-based contracts that generally exist and that are in use in the water sector. These range from management and lease contracts in Armenia to concession contracts in Ukraine to divestiture of assets in Kazakhstan.

103. Experience from these and other countries shows that for performance-based contracts in the water supply and sanitation sector to be successful, there is a need for a robust legal, regulatory and institutional framework, including among others, corporatisation of water utilities, increasing of tariffs to cost-recovery levels, introduction of a system of subsidies for needy households to help them cope with higher tariffs, creating institutions to regulate and oversee contract implementation. These reforms and their sequencing are a crucial element in ensuring the success and stability of the contractual arrangements in the sector. In reality, the overall governance context that exists in the countries is often as important as the quality of the contract signed between the parties.

104. The main lessons that emerge from this brief introduction of the case studies in the three EECCA countries are:

- All three countries have launched significant reforms in the water sector with the aim of improving its performance and efficiency by also separating the functions of policy, regulation and oversight on the one hand and the operation of water infrastructure, on the other.
- While decentralisation of the sector and the transfer of the responsibility for its management to lower levels of government was in the focus of the reform efforts in the 1990s, there is a reverse process underway now: countries are now making attempts to re-aggregate the water utilities in order to make them more attractive to potential investors and exploit the potential of the economies of scale that this process provides, as exemplified by Ukraine (even if this is still done on a small scale only) and particularly Armenia which has been consistently doing so over the past 10 years.
- Of the three countries only Kazakhstan has allowed privatisation<sup>7</sup> in the water sector. In Armenia and Ukraine privatisation is explicitly prohibited. Privatisation is not a panacea to the problems in the water sector, as exemplified by Kazakhstan, and it should not be resorted to before necessary reforms are in place.
- The reviewed countries have chosen different institutional models for managing their water sectors: largely privatised (but malfunctioning) water sector in Kazakhstan where a multi-sectoral utility regulator has been established to oversee the compliance of utility operators with the law in force (and particularly overseeing tariff setting, revision and implementation), to a largely aggregated sector in Armenia with a similar multi-sectoral utility regulator in place to a largely disaggregated water sector managed by local level authorities in Ukraine. As such, the role of the governments is changing - from a provider of services they are becoming a regulator and an enforcer of the legislation.
- All three countries have opened the way for private sector participation in one form or another regulating the relations with private operators through performance-based contracts. However, in Ukraine and Kazakhstan, more generally, there is a lack of domestic private water operators that have sufficient experience to manage utilities effectively.
- While both Kazakhstan and Ukraine have seen basically only domestic operators express interest in water utilities, Armenia has openly invited international operators to participate in the management of water infrastructure in the country and has worked closely with donors and IFIs to prepare the contracts. This has resulted in significant improvements in the operations of the two water utilities.
- The overall conclusions from the individual reviews is that the contracts generally comply with national legal requirements but only the two Armenian contracts are prepared in line with good international practices. Hence, the participation of international operators in the management of water infrastructure encourages governments to improve the national legal and regulatory framework in an attempt to align it with international standards.
- As exemplified by the Armenian case studies, the role of international financing institutions and donors is crucial in supporting reform efforts in the sector and in providing financial and human support to the design and implementation of performance-based contracts. Experience shows that IFIs and donors are even more willing to support efforts in the water sector when governments introduce market mechanisms and open up the sector to competition.

---

<sup>7</sup> Privatisation or a full divestiture involves the transfer of property rights over assets to the private sector.

105. The specific experience of Armenia with private sector participation shows that this is not an easy and straightforward process but it may be worth it. It is a learning exercise for both parties and particularly for the government where the government needs to learn how to function in its new role of a regulator. The Armenian experience also shows that implementing effectively performance-based contracts requires a strong political will, consensus and support from the whole government to carry on with necessary reforms.

106. In addition, the experience of the three countries shows that there is “no one model that fits all” approach. The “best” model is the one that is best adapted to the specific needs of the sector based on the economic, technical, social and institutional conditions in each country.

### CHAPTER 3. CONTRACT PREPARATION STAGE

107. This chapter focuses on issues related to the pre-contractual period, namely the contract preparation and design stage. These issues were not explicitly discussed in the previous version of the Guidelines, hence we discuss this subject in more length here.

#### Major good practices

##### (i) Due diligence

Before entering into a performance-based contract, the applicable legal framework, including all relevant laws and regulations should be carefully studied and assessed. Based on this analysis (as part of the Due Diligence process), the best contractual model should be selected. If changes in the law are needed, these should be made before the contract is finalised. The selected type of contract should be tailored to the needs of the utility while making the best possible use of the legal framework.

##### (ii) Definition of contractual objectives and responsibilities

During contract preparation, the contracting authority should aim to define as precisely as possible the objectives to be achieved; establish the rights, obligations and responsibilities of each contractual party as well as joint responsibilities; identify a clear, reliable and efficient mechanism allowing the parties to quickly and efficiently respond to any new circumstances that may arise in the course of contract implementation.

##### (iii) Service area

The service area should be clearly identified early in the process and preferably before Due Diligence is conducted. The extent of the service area has a direct impact on the costs and revenues of the operator. A proper evaluation of the costs and revenues should be carried out in order to establish adequate contractual objectives and consequent performance indicators.

108. The period between taking a decision to invite a new operator to manage the utility (be it public or private) and the signing of the contract may roughly be referred to as the contract preparation period. This period is crucial for the success of the future partnership. It is a period when the contracting authority needs to make a number of important decisions. Some of the major issues that need to be considered include:

- The contract type and duration to be offered to the future manager of the utility, including setting clear objectives to be achieved through the contract;
- The need for a thorough review of the legal and regulatory framework (due diligence procedure) in order to avoid future conflicting situations stemming from discrepancies between the contract and the legislation in force;

- The need for a review and evaluation of the utility's assets and liabilities before entering into a contract and the need for restructuring of the utility (if necessary) to make it more attractive to the future operator;
- The preparation of the bidding process including the preparation of the bidding package, choosing the type of the bidding process and the method for selecting a contractor.

### 3.1 Contract type and duration

109. The choice of the contract usually depends on two main factors:

- the legislation in force and the options it allows; and,
- the objectives the contracting authority wants to achieve through the contract.

110. In principle, the legislation in all three countries allows the use of all types of contracts, except for privatisation which is prohibited in Armenia and Ukraine. Each type of contract implies different levels of responsibilities for each of the parties, hence the achievement of different objectives.

111. The two **Armenian** contracts clearly specify the objectives and the scope of the contracts. Some of the main objectives included in the two contracts are: improving the service quality, improving the technical and commercial management, perfecting the water metering system, staff development, investments management. These objectives are then specified as targets that the operators should meet each year. The contracts also identify the respective roles and responsibilities of all parties involved.

112. While the roles and responsibilities of the parties are extensively specified in the Ukrainian contracts, the objectives of these contracts are only vaguely defined and there are no specified service targets. As such, there is no clear vision as to which directions the companies should go.

113. Concession contracts and (near) full divestiture are among the most complex legal and technical contractual arrangements and involve a lot of risks. Of the three countries, only Armenia has chosen simpler types of contracts to start its experience with private sector participation – first, two management contracts followed by a lease. This development allowed the government to gain experience with contract design and implementation before it engaged in the larger and more complex lease contract. For example, the improved knowledge gained by the national authorities during the initial management contract allowed them to better define some of the key performance indicators in the next contracts. In addition, the government gained more confidence in dealing with (particularly international) private operators. The Armenian experience shows that moving from simpler to more complex contracts may well be the right way to follow.

114. In **Ukraine**, most of the municipalities, including the two reviewed ones – Berdyansk and Kupyansk, have chosen to offer long-term concession contracts to the selected operators. The local authorities in Ukraine have little experience (if any) with such contracts and for many of them this is an overwhelming task. There are several reasons why Ukrainian municipalities choose concession contracts mostly. First, there is a relatively well developed legal basis – the Law on Concessions – which provides a model contract which supposedly facilitates the preparation of such contracts. However, this model contract seems to be prepared to mostly respond to the needs of energy utilities and is poorly suited to deal with concession contracts in the water sector. Second, as municipal budgets are cash-stripped and the concession contract implies the operator's responsibility for all investments plus paying a concession fee, local authorities are more than happy to grant concession contracts. There is less consideration if the contractor really has access to financial sources to make these investments and if he will be able to honour

his contractual commitments. And third, according to the Ukrainian legislation, under lease contracts, all new assets built during contract duration remain the ownership of the contractor. This implies hidden privatisation which scares local authorities. For these reasons, Ukrainian municipalities often opt for concession contracts. In addition, the long term concession contracts in Berdyansk (30 years) and Kupyansk (49 years) may additionally complicate the situation for the authorities. International experience shows that the optimum period for concessions is not more than 30 years (even less) and such contracts should include mechanisms for the periodic reviews of the contracts. Such mechanisms are currently missing in the Ukrainian contracts. However, given that the two contracts have hardly become operational, it is too early to draw any definitive conclusions for their future implementation.

115. Similarly, in **Kazakhstan**, the main objective of the privatisation was to generate cash for utilities, hoping the private sector will be able to bring in significant funds. However, the domestic operators that bought the assets had neither the resources nor the experience to do this work well. This process resulted in numerous bankruptcies where utilities were sold and resold several times. The Shymkent water utility is rather an exception to this general rule.

116. In general, while, by commercialising the water sector, the Armenian authorities were mostly concerned with ensuring a better provision of water services to the population as well as the professional training of utilities' employees in line with good industry practice, Ukrainian and Kazakhstan authorities were more interested in obtaining cash and showed less concern about future actual performance of operators.

117. In conclusion, launching private sector participation through simpler service or management contracts and gaining experience through them, as this was done in Armenia, is a reasonably good strategy for learning the business. It is less risky and the possible mistakes will be less costly for the public purse.

### **3.2 Review of the existing legal and regulatory framework**

118. Of the 5 reviewed case studies, only the Armenian government conducted a thorough review of the legislation before the two contracts were drafted. Nevertheless, during implementation, certain discrepancies between the contracts and the existing legislation became evident. The two examples below speak of themselves.

119. Due to inconsistencies between the management contract and the legislation in force, the Armenian Water and Wastewater Company (AWWC) faced some serious challenges during contract implementation. Box 1 below provides an example of such challenges. This example also raises an important question: in case of discrepancies between the contract and the law in force, which of the two should be followed? International experience shows that often, from the point of view of the contractor (particularly foreign operators), the contract is the only legally-binding document that defines its obligations and responsibilities.



**Box 1. Inconsistencies between the management contract and the law in force in Armenia**

The difference in the understanding of the law in force and the contract has led to a serious disagreement between the government and the contractor. This example concerns the payment of water pollution charges imposed by the Ministry of the Environment. The calculation of and the procedures for paying environmental pollution charges is specified in the legislation. In accordance with the law, between 1999 and the end of 2002, the Armenian water supply and sanitation companies were temporarily exempted from paying water pollution charges. In addition, the pollution charges due between 2003 and 2005 were further rescheduled to be paid during the period 2006 - 2009. This was done with the view of helping companies to improve their financial health but the companies were required to spend this money on improving the wastewater infrastructure. The exemption has allowed the Armenian government to indirectly keep water tariffs for households low.

In the case of AWWC, the company was exempted from paying pollution charges due between 1 January 2003 and 31 December 2005 while the charges due for the period 2006 – 2008 were postponed to the 2009 – 2012 period. This debt amounted to an annual AMD 35 million (Euro 70 000). Legally, due to the postponement, the management contractor was not responsible for paying the charges as they went beyond the then current contract. Despite the legal exemptions, however, the Ministry of the Environment started claiming these payments from the contractor on the basis that the operator should comply with the law in force.

In addition, the contractor argues that the poor state of the wastewater collection networks and treatment plants and the long time needed to actually make necessary investments to bring the system in compliance do not allow to achieve significant water pollution reduction within the contract lifetime (as compared to the contract start date). More importantly, the investment funding (which is a government responsibility) was mainly oriented towards the water distribution infrastructure and facilities and little was invested in wastewater collection and treatment.

All this resulted in a long dispute between the parties which was not easy to resolve as everybody had good arguments. In fact, the real cause for this situation may well have been the poor communication and coordination among various government actors.

120. In addition, the example in Box 1 also shows that such exemptions may be a two-edged sword: they may create more problems than the solutions they are intended to provide. In addition, such derogations perpetuate a culture of non-compliance and may have a snowball effect. Once started, other sectors may claim similar exemptions and privileges which may have a detrimental impact on the public budget in the country.

121. Similar contradictions could be observed in the case of the Yerevan lease contract. One particular example relates to the payment of water use/abstraction charges. The law on such charges specifies that the water use/abstraction charge rate is 1 Dram / m<sup>3</sup>. The charge rate can be reduced to 0.05 Dram / m<sup>3</sup> if the company using the raw water is at least 50%-owned by the Armenian State Committee of Water System or by the Yerevan Municipality. On the other hand, the Water Use Permits (which regulate the extraction and discharge of water) issued to the company specify the charge rate of 0.05 Dram / m<sup>3</sup>. The previous Yerevan Water and Sewage Company was owned by more than 50% by the State Committee of Water System and was paying 0.05 Dram / m<sup>3</sup> which was consistent with the law. However, since the start of the lease contract, the water company is not predominantly owned by the State Water Committee. In September 2007, the authorities required that the Company Yerevan Djur should pay 1 Dram / m<sup>3</sup>, which is consistent with the law but not with the Water Use Permits (which are an integral part of the lease contract). The average yearly volume of raw water pumped by the operator is 300 million m<sup>3</sup>, therefore the change of the charge rate would lead to a significant increase of the related costs for the operator (approximately from AMD 15 to 300 million). Such oversights may sometimes lead to significant disagreements. In this particular case, the parties agreed to cooperate to find a solution and to harmonise the requirements of the law and the Water Use Permits.

122. In Ukraine, due to frequent changes in the legal and regulatory framework, Ukrainian contracts do not provide specific requirements but mostly refer to the legislation in force which makes them rather vague. While many people consider this the right approach which allows flexibility, such legal formulation is not sufficiently credible particularly if there is interest to attract non-domestic operators to manage the utilities.

123. Therefore, in order to ensure a good start for the contract and minimise future conflicts, the contracting authority needs to carefully review all relevant legislation and regulations that may impact contract implementation.

### **3.3 Review of the utility's assets and liabilities and restructuring of the utility**

124. Reviewing the utility's assets and liabilities (including financial, technical, managerial, staff, etc.) before entering into a contract is crucial. The results of such an evaluation will allow the contracting authority to better understand what the real state of the utility is and how to better formulate contract objectives. In addition, it will show the need for (financial) restructuring of the utility (if necessary) to make it more attractive to future bidders.

125. Restructuring of the utility before entering into a contract with a new operator is a common practice in many countries. Armenia did this on several occasions. One interesting example in this regard comes from the Armenian management contract. As the example in Box 2 shows the actual timing of such restructuring also matters. With the Armenian management contract, the restructuring took place after the contract with the operator was signed and the contractor was already in place. This brought about some challenges to the daily work of the operator.

126. In this particular case, the Armenian government claims that it has carried out similar financial and debt restructuring procedures in three other water utilities before offering them to private operators. Unlike with SAUR, this approach worked well in these three other cases. A possible explanation for this positive experience is that the three other water utilities were rather small with only a small number of customers and their debts were not comparable to AWWC debts.

127. In this context, it should be noted that transferring assets to a new company is a standard practice with lease or concession contracts. Creating a new company is a legal mandatory requirement in such cases. However, creating a new company under a lease contract has nothing to do with old bad debts. In the case of a lease/concession, all assets are transferred to the new company for the period of the lease contract.

**Box 2. Dispute over debt management at AWWC, Armenia**

Due to significant debts accumulated by the water utility before the contractor was in place (mostly electricity and salary arrears), the government decided to restructure the company by splitting it into two entities: the new company named Water and Sewerage CJSC received a substantial amount of the AWWC debts. The debts were split into short-term and long-term. The long-term debts were transferred to the new company, while AWWC kept the short-term debts.

The transfer of receivable (from water users) and payable (to suppliers) debts was a complicated and time-consuming process for the management contractor. This transfer created a lot of confusion in the AWWC's internal management system and its relationship with clients. The company had to divide its customers into groups in the database to separate long-term from short-term debts. This task was extremely difficult for the commercial services to carry out due to the poor state of the customers database. On the other hand, the new company, which had the task to recover the long-term debts of the worst customers, had only very few staff members. The new company's staff simply neither had the capacity to carry out this task effectively in order to recover the debts nor the tools available to the management contractor to collect the debts (e.g. the old company had the power to disconnect delinquent customers, impose penalties, take such customers to court which was not possible for the "virtual" new company). In addition, asking customers to pay to a new company which has not provided any services to them may be considered illegal.

Dividing the customers into groups in the database also resulted in difficulties with accounting. For instance, the management contractor could not show any bad debts for the next two years and these debt re-calculations changed the initial balance of receivables and payables. More importantly, with regard to debt owed to suppliers, the debts were transferred without requesting the approval of individual creditors for such an action (e.g. electricity company, telecommunications company, banks). There was thus the risk that some suppliers could have refused the transfer of their debts to another entity without their written consent. This risk materialised as some legal actions were taken against the company. In addition, these practices have been also identified and criticised by the company's financial auditor.

128. This situation is a classical example of how good intentions can go wrong. The debts were split and a new company was created to manage some of the debts with the best of intentions to create a healthy financial environment for the new contractor. But the lack of experience with operations of this scale and the fact that certain legal issues were overlooked created other problems. In general, there are a lot of good elements in this approach that are worth considering but in certain cases other approaches could be used. First, if splitting the debts and creating a new company is the preferred option under management contracts and in order to avoid future possible legal disputes:

- The government should check that the national legislation allows debt transfers (for both suppliers and customer debts);
- Even if legally possible, the government should aim to agree this option in advance with the company's creditors. International experience shows that this is best done when a panel of creditors is convened to discuss and agree on this approach;
- Even if legally possible, the government should consider how technically feasible this option is in relation to both debts and assets. If feasible, it is preferable to carry out the actual restructuring before the contract is signed so that the contract can properly reflect these changes.

129. Experience shows that in cases similar to AWWC's (where the utility covers an extended network including in rural areas), the cost of a review is estimated in the amount of at least Euro 2 to 3 million. It is a long and heavy work and to properly conduct such an evaluation the contracting authority should be prepared to pay the price. To cover such initial costs, the contracting authority may need to create a kind of "Initial Costs" Fund. The Fund can be funded by revenue from the state budget or by international grants. In addition, with regard to management contracts, the contracting authority should aim to keep all payables and receivables within one company. In such case, the management contractor could take a short-term bank loan to cover the initial debt. The operator could then be reimbursed through the state budget or through the tariff.

### 3.4 Preparation of the bidding and selection process

130. The organisation of the bidding process starts with market investigations of and soliciting interest from potential candidates. To do so, the contracting authority needs to draft Terms of Reference which provide essential information on the objectives and the scope of the contract as well as specify the main conditions and requirements for preparing proposals. The Request for Proposal (i.e. the Terms of Reference together with the administrative requirements) should be widely advertised so that all potential candidates can be informed.

131. Once the authorities have decided on the kind of contract they want, they need to choose the type of bidding procedure. There are three basic approaches to the selection of an operator. These include:

- Competitive bidding (through an open or restricted tender);
- Competitive negotiation (when the contracting authority engages in simultaneous negotiations with several operators);
- Direct negotiations (when the contracting authority engages in negotiations with one operator only).

132. Despite some difficulties in implementing competitive bidding (e.g. it may be hard to implement due to the need to standardise all technical parameters that will be evaluated and ensure that all bidders prepare standardised outputs), it is widely recognised that competitive bidding generally encourages transparency and stimulates interest among a broad range of potential bidders. Experience shows that this is the procedure that is most widely used in selecting contractors in the utilities sector.

133. A competitive bidding process generally has the following steps:

- The government notifies the public that it seeks an operator to provide water services and requests expressions of interest from private companies.
- A formal process is developed for screening potential bidders and a list of qualified bidders is finalised.
- Bidding documents and draft documents are distributed to potential bidders.
- A formal, public process is used to present and evaluate bids and select a winner.

134. Setting appropriate technical and financial evaluation criteria and scoring mechanisms is one of the most challenging tasks during this process. In general, the technical evaluation criteria usually focus on the quality of the business plan submitted by the bidder, including operational and investment-related issues, but it may also contain details of the bidder's financing plans for working capital and capital investment. Financial evaluation criteria are many and differ according to the type of contractual arrangement. Table 2 below shows some of the most commonly applied financial criteria by type of contractual arrangement.

**Table 7. Possible financial criteria by type of contractual arrangement**

Arrangement	Typical financial criteria
Management contract	Lowest fixed management fee
Lease	Lowest customer tariff, highest lease fee paid to (or lowest subsidy paid by) contracting authority
Concession	Lowest customer tariff, highest concession fee paid to (or lowest subsidy paid by) contracting authority, coverage expansion targets
Divestiture	Highest amount paid for utility

Source: World Bank and PPIAF (2006).

135. Usually, competitive bidding is a two-stage process: the first stage is the prequalification of candidates and the second stage is the evaluation of the technical and financial proposals of the successfully pre-qualified companies.

136. Many of the practices described above can be also observed in the context of the reviewed contracts. For example, before launching the tender for the Yerevan water utility, the Armenian government conducted a market survey to identify alternative private sector participation options and assess their respective advantages and disadvantages with respect to the water utility. As part of this analysis, the government interviewed 13 water operators, among them Berlinwasser International, Gelsenwasser, SAUR, Véolia. As a result of this research, it was decided that the most suitable option for the Yerevan water utility is a lease contract.

137. The bidding package and the evaluation and selection procedures for both the management and lease contracts in Armenia were conducted in line with good international practices. The bidding and selection procedure for the lease contract in Armenia are outlined in Box 3 below.

138. Several issues are worth noting in relation to the bidding process for the lease contract in Yerevan:

- The bidding process lasted for more than 1.5 years. In order to organise this process, the government set up an inter-agency committee which included representatives of all interested ministries. This committee was also charged with the task of selecting the technical and financial criteria and the scoring system which will be used in evaluating the bids. At the same time, the government hired an international consultant (paid from World Bank funds) to work with the committee. The experience from Armenia shows that while international consultants bring in significant value added to the process, their sole involvement is not sufficient to prepare good contracts and bidding documents.
- In general, the evaluation and selection criteria are few, simple and straightforward. They are easy to understand (but they could be even further specified, e.g. how is quality of the business plan determined). This makes the process more transparent and credible.
- Using only one selection criterion – the lowest Average Discounted Bid Tariff calculated over the lease term and fulfilling the minimum technical requirements - allows making an objective and easily comparable selection of the operator.
- Actually, the evaluation and selection criteria show clearly the main priorities of the Armenian authorities with regard to this contract. The formulation of these criteria is just another way to state contract objectives.

**Box 3. Bidding and selection procedure for the lease contract for the Yerevan water utility**

**A: Bidding package**

The bidding package the government prepared for the Yerevan water utility consisted of:

- Request for Proposals - which specifies the format and content of bidder's proposals, which in turn had to contain a technical proposal and a financial proposal. Each of these proposals had to contain a number of documents but the main elements included a business plan and staffing information as part of the technical proposal and financial projections and a cash flow model as part of the financial proposal. The financial proposal of bidders consisted of the basic tariffs adjusted according to the tariff adjustment components.
- Lease Contract – the draft contract was included in the package so that candidates could get a better idea of its objectives and scope as well as of the specific terms and conditions of the offer.
- Water System Use Permit – this permit regulates the tariff approval and adjustment methodology and sets the tariff for water supply and wastewater collection. The permit is issued for a period of 10 years since the start of the contract.
- Project Information Document (non-contractual document).

**B: Evaluation criteria**

1. *Criteria for the evaluation of technical proposals:*

- *the quality of the methodology and business plan (45 points); and,*
- *the quality of the staffing plan (55 points).*

To qualify, a bidder's technical proposal has to obtain at least a total score of 75 points ("technical threshold").

2. *Criteria for the evaluation of financial proposals:*

- *the level of tariff proposed by the bidder.*

During the overall evaluation of proposals both technical and financial proposals were taken into consideration.

**C: Selection criteria**

The bidder is selected on the basis of the lowest required Average Discounted Bid Tariff calculated over the lease term, which has fulfilled the minimum technical requirements.

**D: Contract negotiations**

Negotiations over the contract with the successful bidder were not envisaged. Negotiations can be held in exceptional cases and they are usually related to payments required by law (e.g. lease fee, environmental pollution charges).

Source: Adapted from Khachatryan, G. (2009).

139. The bidding and selection process in Armenia can be compared to how this was organised in Ukraine. For example, in Berdyansk, the authorities conducted an open, publicly-announced tender, as required by the law. The main criteria identified for the selection of the winner generally reflect the most common criteria used in many countries in such a process. They roughly correspond to criteria, such as: technical soundness of the proposal, operational feasibility, quality of service, social development potential of the utility. However, the criteria are defined in only generic terms and leave room for different interpretations by the members of the tender commission (see Box 4 below) (e.g. how is the best level of satisfaction of public needs defined). The absence of precisely-specified criteria can lead to a more

subjective approach to the selection process. It seems that in reality in Berdyansk it was the level of the concession fee and certain political pressure that have determined the winner. There is some anecdotal evidence that the selection of operators in the water sector in some EECCA countries is still a highly politicised process. Political pressure and lobbying have precedence over rules and criteria.

**Box 4. Evaluation criteria for the concession contract in Berdyansk, Ukraine**

The main criteria for evaluating and selecting the winner from the tender are specified in the bidding package for the concession. There are seven criteria:

- Reliability of the operator, seriousness of its intentions and of the intentions of its partners;
- Most advantageous and reliable financing proposal;
- Level of the operation costs (providing maximum profitability and optimum cost recovery);
- Earliest date of investments in the repair and upgrading of the facilities;
- Best level of tariff collection rate;
- Best level of satisfaction of public needs;
- Largest number of utility's current staff kept by the operator after the contract comes into force.

140. During the tender period in Berdyansk, the five bidders who applied, were allowed to meet with representatives of the water utility to obtain more information on its technical and financial situation. Individual meetings for the different bidders were organised. In theory, this implies that all bidders were given equal access to information. However, in practice, some bidders may have had obtained more information than others. While this may not have been the case in Berdyansk, the good practice should have been to organise a meeting for all five bidders with utility representatives at the same time.

141. In Armenia, tender organisers usually hold a pre-bid conference for all bidders which is intended to provide a technical presentation and a brief overview of the request for proposal. The other objective of the pre-bid conference is to allow bidders to make suggestions on the contents of the contract and its scope of work.

### **3.5 Accuracy of initial data and information**

142. The quality of the initial (or baseline) information provided to bidders through the Terms of Reference is crucial for the preparation of good proposals and business plans. Normally, the Terms of Reference should provide sufficiently reliable data and information on the financial and technical status of the utility as well as on the operational and performance targets to be achieved through contract implementation.

143. There are several generally accepted “rules-of-the-thumb” with regard to initial (baseline) information:

- First, the data provided in the Terms of Reference by the contracting authority should be as comprehensive and accurate as possible. Therefore, there is a need for an accurate initial inventory and valuation of the assets carried out by the contracting authority. Where the contracting authority does not have sufficient experience to do this well, it may hire a consultant.

- Second, these initial data should not be changed between the moment the Terms of Reference are issued and the starting date of the contract. The logic is that if data are changed, this may make some of the key indicators, used to select the contractor, irrelevant.
- Third, exceptions to this rule can be made when the initial data are known not to be accurate, due to, for example, completely missing or poor technical designs prepared many years ago. If this is the case (particularly for key indicators), such data should be clearly identified and provisions made in the contract for their adjustment. All other baseline data indices however should stay the same until the starting date of the contract.
- Fourth, if the quality of the initial data is low, there is a need for the re-valuation of assets before the actual transfer of assets to the operator. This task may be assigned to the operator. It is best if the contractor is required to conduct the evaluation during the first several months of the contract (between contract signature and its actual starting date)<sup>8</sup>. To avoid conflicts, the methodology for asset evaluation should also be specified and agreed upon by the parties in advance.

144. The initial evaluation should at least focus on the following issues:

- Utility's current and proposed service area;
- Current characteristics of the service (quantities supplied, metered and paid for);
- Basic inventory of the assets of the utility as well as their conditions;
- Tariffs (level, structure, subsidies);
- General financial performance;
- Management of human resources.

145. Although the Armenian authorities generally followed these rules, there were several cases which raised concerns over the quality of the initial data and further asset evaluation.

146. One such example concerns the Yerevan lease contract. Between the tender and the starting date of the contract, the labour legislation in Armenia changed and as a result the salaries of the utility's staff increased by 35%. In addition, the contract requires the operator to maintain the salaries of all local staff during the first year of contract implementation at the same level. As such, already at the outset, the business plan prepared by the operator became less realistic. While such situations are not completely uncommon, it is important that the contract specify the procedure for dealing with such risks.

147. In addition, EECCA authorities generally have little experience with asset evaluation and asset transfer as this was not really a concern in Soviet times. In the case of the lease contract in Yerevan, for example, the asset evaluation conducted by the government was not supplemented by an evaluation of the contractor. The government did not require explicitly the contractor to carry out its own asset evaluation. Instead, the contractor started discovering data discrepancies once it entered regular operations. As a result, during the first year of contract implementation there were a lot of disagreements between the parties over the quality and interpretation of the initial data. Should the government have required the contractor to carry out its own asset evaluation at the beginning of the contract many of the disagreements could have been avoided or resolved at an early stage and the start-up phase of the contract could have been easier.

---

<sup>8</sup> It should be noted that there is a difference between the date when a contract is signed and the actual starting date of the contract. There is usually a period of several months between the two. This period is usually provided for in order to allow the contractor to get better acquainted with the operations of the utility and check its assumptions for future work. For example, in the case of the Yerevan lease contract, this period was 6 months.



### 3.6 Major lessons learnt

148. The contract preparation stage is critical for the success of the future partnership. During this stage the contracting authority needs to make some important decisions with regard to the type of contract, type of bidding process and methodology for selecting of the contractor.

149. In this context, some of the main lessons learnt from the experience with the preparation and design of the reviewed contracts are:

- The Armenian experience shows that starting public-private partnerships with less complex contracts, such as service or management contracts, can have a lot of benefits. This strategy allows authorities to gain experience with and confidence in dealing with intricate legal and technical matters before they move to more complex lease or concession contracts.
- Before drafting a contract, the contracting authority needs to conduct a thorough review of the relevant legislation and regulations as well as clarify the objectives that the contract will be expected to achieve. The contract needs to be harmonised with the legislation in force. This can help avoid future time-consuming disagreements or conflicts between the parties, as this happened in the case of the Armenian contracts.
- Before entering into a contract, the contracting authority needs to carry out a thorough review and evaluation of the utility's assets and liabilities. If the review shows the need for restructuring of the utility, this has to be done before the contract is in place and in line with good international practices.
- The quality of the initial data and information is crucial for the preparation of the contract. If the quality of the initial review and data are not sufficiently good, the authorities may require the contractor to carry out its own asset evaluation. This is best done at the beginning of the contract before actual operations commence. In this case, the methodology for re-valuation of assets needs to be clearly specified and agreed upon by the parties.
- Competitive bidding may be the most appropriate method for selecting a contractor in EECCA. Setting simple, straightforward and well-designed technical and financial evaluation and selection criteria can help ensure transparency and encourage market choices in selecting a contractor. In addition, as experience worldwide, including in Armenia, shows organising well a competitive bidding procedure takes time and money which the contracting authority needs to take into consideration from the outset of the process.
- However, the mere existence of a bidding procedure and selection criteria is not sufficient to make the process credible. Some anecdotal evidence from Ukraine suggests that the selection of operators in the water sector is a highly politicised process. Political pressure and lobbying often have precedence over rules and criteria.
- International consultants have a role to play in contract preparation and design. As the Armenian experience shows, no matter how skilled such consultants are, they can only be efficient in their assistance if they are fully supported by and work closely with the contracting authority.

## CHAPTER 4. PERFORMANCE INDICATORS

### Major good practices

#### (i) Initial evaluation

Before selecting the performance indicators, the parties to the contract should conduct detailed evaluation of the technical and financial conditions of the water utility in order to fully assess its pre-contractual performance. Such an evaluation will allow the parties to agree on realistic performance indicators given the existing state of the utility.

#### (ii) Selection of performance indicators

The contract should clearly specify all performance indicators that will be monitored during contract implementation and the mechanisms for their adjustment. If the operator's remuneration is based on the achievement of selected indicators, these should also be clearly identified.

Performance indicators could be linked to the financial performance of the utility (e.g. operating ratio, collection efficiency), efficiency of operations (unaccounted-for-water, pipe breaks), operating performance (average hours of service, population served). The performance indicators should be few, simple, realistic and easy to measure to be able to properly monitor their achievement.

150. Performance indicators are a key element of the performance-based contracts. Including performance indicators in contracts allows measuring and evaluating the performance of operators against stated contractual objectives and commitments they have agreed to. Using well-designed indicators makes the process more transparent and objective. From an environmental point of view, it is the performance indicators that are of particular importance as they will usually include very specific (drinking and effluent) water quality targets. For this reason, environmental authorities need to be closely involved in the process of contract preparation in order to ensure that environmental objectives are adequately reflected in the contract.

151. In addition, the bonus and penalty system which is often built into performance-based contracts may be also directly linked to the achievement of the performance indicators. This is one of the reasons why parties to contracts are so much concerned with the definition and methodology for setting and measuring indicators.

152. This section looks into three main issues related to performance indicators. These include:

- Definition and selection of key performance indicators;
- Definition of the baseline data for setting the indicators;
- Monitoring of indicators.

#### 4.1 Definition and selection of performance indicators

153. Performance indicators can broadly be divided into three main groups reflecting different aspects of the work of the operator. These groups include:

- The financial performance of the contractor;
- The efficiency of its operations; and,
- The operating performance of the contractor.

##### *Financial performance indicators*

154. The most commonly-used financial indicators are: operating ratio<sup>9</sup>, growth of the total collected revenue, salary or energy costs, profitability ratios<sup>10</sup>, debt service.

##### *Indicators measuring the efficiency of operations*

155. This group of indicators mostly includes: number of staff (often measured by the number or the surface of the area served by the operator), unaccounted for water, number of pipe breaks (measured against an indicator such as time period or length of the pipe system), type of and response time to customers' inquiries and complaints, metering coverage and metering effectiveness.

##### *Indicators measuring operating performance*

156. This group of indicators mostly includes: continuity of service (or average hours of service); population served, average water production, average water consumption, average pressure in the distribution system, water quality, level of treatment and quality of effluents discharged by wastewater treatment plants into the environment.

157. While financial indicators are less relevant for concession contracts (as all investments are a responsibility of the operator and he is expected to make rational choices), they may be more relevant in the case of management and lease contracts. And yet, experience shows that only very few of these indicators are closely monitored and regularly measured in performance-based contracts. Financial indicators are also rarely used as a basis for calculating bonuses/penalties for the operator. This reflects the objectives of the contracting authority where real efforts are focused on the delivery of good water services to the population.

158. The indicators measuring the efficiency of the operations and the operating performance of the utility are better suited to measure the quality of services to the population. These indicators form the core of the key performance indicators in many performance-based contracts.

159. To be able to monitor and realistically measure indicators, the contracting authority needs to specify them further in terms of:

- The specific definition of each service standard;
- The level of service to be attained, for each customer category and area;

<sup>9</sup> This ratio is measured by dividing a company's operating expenses by its operating revenues.

<sup>10</sup> Profitability ratios measure how well a company is performing by analysing how profit was earned relative to sales, total assets and net worth.

- The date by which the standard is to be met. The baseline value should be the level currently achieved by the utility, with a realistic timetable set for improvements;
- How compliance will be measured and monitored;
- Events which justify non-compliance;
- Sanctions in the event of non-compliance.

160. The detailed description of the service requirements that will be monitored should be annexed to the contract. At a minimum, they should be specified in terms of coverage (the number of people who receive service) and quality (potability, reliability, pressure, effluent treatment, customer service). It is essential that the operator be required to report on the achievement of these indicators. In addition, this information should also be made public.

161. Some generally accepted minimum standards include:

- Pressure should be a minimum of 1.5 bar to avoid contamination;
- Availability should be a minimum of 20 litre per capita per day;
- Continuity should be 24 hours per day;
- Water quality should meet World Health Organisation standards.

#### *Issues to consider in selecting performance indicators*

162. In general, to be able to meaningfully measure and monitor performance indicators, they need to be:

- Carefully designed for and targeted to the specific contract: Indicators have to be selected based on an initial evaluation of the conditions of the water utility. The performance indicators should be selected with the aim of making the operator work on the most urgent and critical aspects of the management and investments.
- Realistic: The indicators have to be carefully chosen so that they can be easily monitored and realistically achieved by the operator. The capacity of the operator to achieve the performance targets is also of high importance. For example, fixing a 100% continuity of service if this is not technically and financially realistic is meaningless.
- Limited in number: The number of performance indicators should be limited. In some recent EECCA contracts more than 100 indicators have had to be followed by the operator. Monitoring so many indicators can be counterproductive as the operator may need to spend more time on monitoring and producing reports than achieving results. Experience shows that about 20 is a reasonable number of indicators.

## 4.2 Definition of baseline scenario

163. Setting realistic performance indicators is not an easy task. To set targets right, it is necessary to have good data and a good baseline scenario. Such a scenario would provide a starting point for any future revision of standards or tariffs. A baseline business case is essential to determine the parameters and the assumptions that have been taken into consideration at the contract negotiation time.

164. Operators are generally required to commit in their bids to particular financial and service targets – typically the tariff they will charge, and specified service improvements such as increased coverage and improved service. To make such a commitment, operators need information on customer numbers, commercial and financial performance, service levels, the extent and state of the infrastructure assets, so that they can forecast investment needs and possible efficiency gains, and arrive at the likely cost of service, and feasible service improvements.

165. As discussed earlier, the problem is that generally the available data on these factors are poor. It would take too long and be too expensive to collect good data on everything, so usually the contracting authority provides estimates in the bidding documents, but neither the public authority nor the transaction advisor preparing the documents would take responsibility for the accuracy of the estimates.

166. The result is that bidders have to commit to service targets and tariffs without knowing whether it is possible to achieve them. After the contract is awarded and the operator starts work, it gathers more information. Often the operator finds out that the real situation is significantly different from what was described in the bidding documents. For example, there may be more or fewer customers than expected, the length of the network may be longer or shorter (affecting maintenance and renewal costs), consumption levels may differ from what was assumed, and so on.

167. Experience shows that this is a common situation with many performance-based contracts. To minimise these problems, in cases where the initial data is poor, performance indicators or standards are often set as increments above a baseline rather than as absolute values.

168. In addition, and as discussed earlier, the contract could allow a certain period of time (e.g. 6 months) for the operator to update the baseline scenario and to have it agreed with the contracting authority. This could be done jointly with the update of the assets revaluation. To create a financial model of the business prior to contract award, the contract needs to specify that the financial impact of deviations from the assumptions will be assessed by replacing the assumed data in the model with the actual data. In addition, the contract needs to envisage a procedure for reviewing data quality problems some time after the start of the operations.

169. In addition, other measures can be envisaged in order to improve the knowledge about the real status of assets and services. This knowledge can be further used in adjusting the contract and in monitoring the performance of the operator. These measures could include, among others, requirements for the operator to:

- Prepare customer inventory and connection mapping;
- Prepare network mapping and geographic information system (GIS) system;
- Establish a supply zone demarcation;
- Develop zonal metering monitoring regime, including the procurement and replacement of meters;
- Develop a production monitoring programme;

- Install bulk meters at each water production site and service reservoir;
- Determine the level of service monitoring regime;
- Establish a consumer complaints database.

#### **4.3 Monitoring of indicators – the choice of a technical auditor**

170. To be credible, performance indicators need to be closely and regularly monitored in order to clearly assess the performance achievement of the operator. This monitoring function can be assigned either to the regulator (if there is one), or regular government agencies with responsibilities for the water sector (or alternatively to the respective local authorities where the utility is located) or to some other unit specifically designed to carry out this function.

171. One other option is hiring an independent technical auditor to monitor the achievement of the (main) performance indicators. Some of the major tasks that can be assigned to such an auditor include:

- Validating the baseline values that are set at the start of the contract;
- Assessing the achievement of performance indicators and particularly of the key indicators used to calculate the operator's bonus or penalty (if there are such incentives envisaged in the contract);
- Developing a methodology for measuring and calculating indicators.

172. While the technical auditor is supposed to play a key role in contract monitoring, the process for selecting such an auditor should be carefully carried out. The procedure for selecting the auditor should be transparent and credible. Experience shows that the technical background of and the methodologies proposed by the auditor to evaluate the contractor's performance need to be at the heart of the selection process. In addition, the contract can require that these methodologies be agreed upon by all major parties involved in the monitoring of the contract.

173. Another issue to consider with regard to the auditor is linked to his remuneration. If, because of a lack of funding, the auditor's technical capacity is not guaranteed or if the auditor cannot perform his duties properly, this may lead to significant problems between the parties, as it has happened in some EECCA countries.

174. Therefore, in choosing to appoint an independent technical auditor, the contracting authority needs to consider two major issues: the technical capacity of the auditor and the availability of funds to pay him so that he can do his job properly.

#### **4.4 Performance indicators in the reviewed cases**

175. Of the five case studies reviewed only the 2 Armenian contracts clearly specify performance indicators to be achieved by the operators. Performance indicators are practically not envisaged in the 2 Ukrainian contracts. If there is anything that comes close to an indicator, it is the annual level of investments that the Ukrainian concession operators need to make over a period of 5 years. However, this indicator *per se* is not sufficient and cannot show real changes in service quality. The operators may be able to prove they have invested the money but this may not necessarily translate into improvements in service levels for the population.

176. The local authorities in Shymkent do not require the private owner of the Shymkent utility to measure, monitor or report on any specific indicators. However, the WRM company in Shymkent, for its own sake, do monitor some indicators (mostly used when the company needs to justify its request for tariff increase before the national regulator). The real issue is that there are no clear requirements for the level of the services to be achieved or the timeframe for their achievement. The national regulator monitors mostly the level of investments made by the company and the related tariff.

177. For the sake of comparison, in the UK, where the water utilities in England and Wales are fully privatised and a national regulator has been established to monitor their compliance with the legislation, apart from tariff regulation, the regulator, Ofwat, closely monitors and regularly compares the performance of the privatised companies. There is an extensive database containing a number of indicators which is available on Ofwat's web-site and everybody interested can consult it. This is a good practice that countries which have privatised their water utilities or are planning to do so can learn from.

178. With regard to the experience with the two contracts in Armenia, there are a number of valuable observations that are worth making.

179. The first management contract for the Yerevan water utility with an Italian operator contained 125 performance indicators. Soon after the start of the contract, it became evident that it was not possible for the operator to realistically measure and monitor all of them, the government was not in a position to check the information provided either. The lesson was learnt and with the current lease and management contracts the number of indicators was drastically reduced<sup>11</sup>.

180. Currently, the lease contract contains 4 major groups of indicators where each indicator is specified for each year. The two most important indicators in the lease contract are the continuity of service and water quality. The continuity of service is the most important indicator from the operator's point of view as the contract provides for particularly heavy penalties if the operator does not meet the requirements set for this indicator. Some of the major challenges in setting and measuring the continuity of service indicator identified in the Yerevan lease contract are briefly described in Box 5 below.

**Box 5. Challenges in measuring service continuity in the Armenian lease contract**

The contract sets the yearly targets for the indicator related to the continuity of service: the percentage of customers with constant supply (weighted hours of supply / total hours for all customers). These targets range from 78.8% from the first contract year to 80.5% for the second year and 95% for the tenth year. These targets were established on the basis of the information made available during the tender preparation: the baseline target for the first year was set at 76.7%.

The calculation of the service continuity made by the operator for the first contract year shows a share of about 70% instead of the 76.7% which served as a baseline for the targets set in the contract. This discrepancy is related to the difference in the number of pressure loggers used for taking measurements (76 current loggers instead of 33 loggers by the time of the tender) and the location of these loggers. In addition, measurements have been carried out during the month of April only, which is a rather favourable period for ensuring uninterrupted water supply compared to the winter season, when water consumption increases considerably, mainly because of heating purposes, and compared to the summer season – because of high temperatures and irrigation. Therefore, data from measurements taken during one month only cannot be considered as relevant indicators of the entire contractual year. This shows that a detailed definition of the calculation methods is not sufficient if it is not specified together with a clear definition of the measuring equipment supporting the calculations.

<sup>11</sup> Some of the major performance indicators for both the management and lease contracts are shown in Annex II of the report.

181. There are 25 indicators specified in the management contract. Four of them are particularly important as they are used to calculate the performance incentive compensation (the bonus) for the management contractor. These four indicators are:

- Weighted average number of daily hours of drinking water services;
- Percentage of individual subscribers billed on the basis of metered consumption;
- Weighted average water bacteriological safety compliance;
- Company's working ratio.

182. Although the performance indicators for this second management contract were selected to better reflect the overall performance of the operator, their actual measurement was not without problems. These problems were mainly due to the poor quality of initial data used to set the level of indicators as well as due to disagreements over the methodologies for measuring the indicators.

183. One particular issue in the management contract that is worth mentioning is the role of the independent technical auditor. The auditor has been appointed by the Contract Monitoring Unit (CMU) following an open tender procedure. The auditor is paid by funds provided by the World Bank. The first task of the auditor is to validate the baseline values at the start of the contract as calculated by the management contractor and submitted to the CMU. His second task is to assess the achievement of the four main performance targets used to calculate the contractor's compensation and propose changes in subsequent years, if such are deemed necessary. The review of the performance criteria starts at the end of the second year of the contract. In addition, the decision of the independent auditor with respect to the calculation of the performance incentive compensation for the contractor is final and is not subject to the settlement of the disputes resolution procedures identified in the contract.

184. Altogether, the independent auditor has very strong powers particularly with regard to the performance incentive compensation. This has led to some serious tensions and disagreements between the contractor and the auditor.

**Box 6. Disagreements over the measurement of performance indicators between the contractor and the technical auditor under the management contract in Armenia**

Over the past couple of years, serious tensions have arisen between the contractor and the independent auditor particularly with regard to the methodologies used by the technical auditor to assess the value of the performance indicators applied in the calculation of the bonus of the contractor.

The methodologies used by the technical auditor to assess the value of the performance indicators were not agreed upon with the management contractor. This concerned mainly the following two indicators:

- The measurement of coliforms concentrations (used for the "weighted average water bacteriological safety compliance" indicator). For this indicator, the management contractor considered that no or too few analyses had been made by the auditor to be able to realistically assess the contractor's performance.
- The number of daily hours with drinking water services (used for the "weighted average number of daily hours of drinking water service" indicator). In this case, the independent auditor and the management contractor disagree over the level of reliability and representativeness of the measurements taken by the auditor. The contractor's concerns are that the major part of the assessment has been made on the basis of few interviews only and in a limited number of locations.



185. While these disagreements are important, they are mostly technical in nature. Most of these issues could have been solved technically if there had been a real willingness between the parties to cooperate. Thus, problems related to personal relations should not be underestimated as they can impede the smooth implementation of the contract and the achievement of its objectives.

186. Another issue linked to the conflict on the assessment of the performance indicators is the lack of financing for the technical auditor. The limited measurements made by the auditor could simply be due to the lack of funding to perform them properly. This was the case of the measurement of the coliforms concentrations as the auditor did not have sufficient resources to sample extensively the networks and to have the samples analysed. In addition, the work methodologies for calculating the performance indicators were not included as a selection criterion for choosing the auditor. Thus, the auditor's technical capacity was not necessarily guaranteed. The role of the auditor is a sensitive issue as he is strongly involved in the monitoring of the contract. If, for one or another reason, the auditor cannot perform his duties properly, this may lead to significant problems between the parties, as evidenced in this case.

#### **4.5 Major lessons learnt**

187. Including performance indicators in water contracts is critical as it allows the contracting authority to measure the performance of the operator in a more objective and transparent way. The examples provided by the Armenian case studies with regard to setting, measuring and monitoring performance indicators are indicative of the great number of challenges that they pose in practice.

188. The main lessons that can be drawn from the reviewed contracts are the following:

- While the Armenian contracts include clearly specified technical, financial and efficiency performance indicators, the Ukrainian and the Kazakh cases envisage investment indicators only. Investment indicators may not be sufficiently effective as they do not necessarily translate into actual service improvements.
- Indicators should be few and easy to monitor. They should be targeted at the needs of the individual utility and should reflect the most urgent and critical issues to be solved by the operator. Armenian experience with reducing the number of indicators with each subsequent contract is indicative of the need to set more realistic indicators.
- Providing a clear definition of the indicators is crucial. Indicators need to be defined in terms of levels, timeframe for their achievement and methodologies for their monitoring, calculation and measuring. These methodologies can be specified in the contract. If this is not possible at the start of the contract, the contract should at a minimum provide for the procedure of determining the methodologies at some later stage. As Armenian experience shows, it is better when the methodologies are agreed upon at the outset by all parties to the contract. This helps avoid misinterpretations and future conflict situations.
- Where initial data are poor, it is better to set indicators as increments above a baseline rather than as absolute values. Indeed, using a percentage of the improvement makes it easier to integrate baseline modifications when necessary.
- It is important to closely and regularly monitor progress with achieving the indicators. This makes the system credible and allows parties to the contract to better understand the challenges as well as encourages them to seek timely and effective solutions.
- Appointing an independent technical auditor to help monitor the indicators has merits. However, the powers and responsibilities of the auditor should be carefully balanced. In addition, the auditor should be selected through a transparent and competitive process. The auditor will cost money and the contracting authority needs to ensure that it can allocate sufficient resources for the auditor to be able to carry on his tasks effectively.

## CHAPTER 5. TARIFFS AND FINANCIAL OBLIGATIONS OF CONTRACTING AUTHORITY

### Major good practices

#### (i) Tariffs setting and adjustment

A sound tariff policy should balance considerations related to the utility's financial viability, its social objectives and economic efficiency. The contract should allow for tariffs to be adjusted over time (tariff revision mechanisms) both in relation to inflation and improvement of services as well as in response to force majeure events or changes in the legal regime. Cross-subsiding should be avoided and replaced, if necessary, by transparent subsidy schemes targeted at well-identified poor households.

#### (ii) Financial obligations of the contracting authority

When public authorities are fully (e.g. service or management contracts) or partially (e.g. lease contracts) responsible for financing the investment programmes of the water utility, these obligations should be clearly defined in the contract, both in terms of amounts and timeframe of investments. In order to avoid conflicts during the implementation phase, the contract should draw a clear distinction between maintenance works, replacement works and emergency situations.

189. Tariffs are the price consumers pay for receiving water supply and sanitation services. The tariff issue is at the heart of contractual arrangements as the tariff is the main management and cost recovery tool for the operator. Setting the tariff right is a hard task. This is largely due to the fact that the water tariff design aims to meet multiple, often competing, policy objectives.

190. This section discusses the major issues related to tariff design and then analyses how these are dealt with in the reviewed case studies. In addition, the section looks at the financial obligations of the contracting authority within the context of performance-based contracts as well as discusses issues related to subsidising water services. The analysis starts by introducing some general concepts related to the economics of water pricing.

191. Thus, the main issues discussed in this section include:

- Economic context of water pricing - objectives of water tariff design and water pricing principles;
- Types of water tariff structures;
- Mechanisms for tariff adjustment and revision;
- Financial obligations of the contracting authority and provision of subsidies.

192. Most of the issues related to tariff design are well documented and discussed at length in the literature and in a number of cases reference is made to these analyses<sup>12</sup>.

### 5.1 The economic context of water pricing

193. It is now widely recognised that water, in its competing uses, has an economic value and exhibits features of a private commodity and thus, should be priced accordingly. Setting the water price right is difficult due to the multiple policy objectives embodied in tariff design. In addition, tariff setting is further complicated by the specific nature of water infrastructure which makes it somewhat different from other infrastructure sectors.

#### *Objectives of water tariff design*

194. There are four main objectives embedded in the design of water and sanitation tariffs: financial viability (or cost recovery), economic efficiency, equity and affordability.

- *Cost Recovery.* From the operator's point of view, cost recovery is the main purpose of the tariff. Cost recovery requires that tariffs faced by consumers should produce revenue equal to the financial costs of supply. Moreover, the revenue stream should be relatively stable and not cause cash flow or financing difficulties for the utility.
- *Economic efficiency.* Economic efficiency requires that prices be set to signal to consumers the financial, environmental, and other costs that their decisions to use water impose on the rest of the system and on the economy. Therefore, if economic efficiency is an objective the price of water should include not only the financial cost of public works undertaken but also the social (opportunity) cost of diverting water resources into public supply rather than using it for other purposes. In addition, water tariffs should be designed to discourage "excessive" uses of water, thus promoting water conservation as well.
- *Equity.* The term "equity" generally implies that the water tariff treats similar customers equally, and that customers in different situations are not treated the same. This usually means that users pay monthly water bills that are proportionate to the costs they impose on the utility by their water use.
- *Affordability.* Affordability implies that poor households are able to obtain adequate supplies of clean water. The terms "fairness," "poverty alleviation," and "affordability" are often used interchangeably to express this desire.

195. It is unlikely that all these objectives can be met simultaneously, so even the most carefully designed tariff will require certain trade-offs. For example, providing water free through private connections in order to achieve the objective of affordability conflicts with the objectives of cost recovery and efficient water use. Which objectives will be met through the tariff at any point in time will largely depend on the priorities and objectives of the government and the utility.

196. Additional objectives and considerations may also be involved in tariff design. For example, a tariff design should be easy to explain, understand, and implement. A tariff design should be acceptable both to the public and to political leaders.

---

<sup>12</sup> In particular two recently published OECD reports, namely "Innovative financing mechanisms for the water sector" and "Pricing water resources and water and sanitation services" may be of interest to water experts and decision-makers in EECCA.

197. Apart from multiple objectives, tariff design is further complicated by the specific features that water infrastructure exhibits. Box 7 below lists some of these features.

**Box 7. How is the water and sanitation sector different from other infrastructure sectors?**

The main distinctive features of the water and sanitation sector that make it different from other infrastructure sectors include:

**First**, capital intensity in the water sector is high. The capital assets used in water supply cannot be moved to another location and are generally unusable for any other purpose, thus they represent an extreme type of fixed capital, associated with sunk costs. This limits the scope of direct competition and creates the need for a credible regulatory framework to protect consumers from excessive charges and investors from creeping expropriation. Water assets often last 30-50 years, with depreciation rates of only 3-5 percent a year. To keep tariff levels low, the payback period for water investments is usually amortised over 15-30 years. Long-term financing is thus needed to finance these investments. The lack of effectively functioning domestic capital markets in many developing countries and economies in transition represents an important obstacle to investments in the water sector.

**Second**, multiple public policy objectives (economic efficiency, fiscal viability, environmental enhancement, the protection of health, and the affordability of tariffs, as well as broader fiscal and political goals) accentuate political and regulatory uncertainty. All infrastructure sectors must meet multiple policy objectives, but the problem is particularly acute in water and sanitation because of the serious health and environmental consequences of substandard service provision.

**Third**, the sector is highly fragmented. Water differs from other network industries in that, relative to its value, the product is expensive to transport and cheap to store. This reduces the scope for long-distance transmission and makes water a more local service than other infrastructure services. The local nature of water and sanitation services means that investments tend to be smaller than they are in infrastructure sectors, such as power, in which investment is centralised.

**Finally**, the water and sanitation sector is characterised by a high degree of uncertainty about the condition of assets and thus the investment requirements. Public and private investors have only limited information about the state of the physical infrastructure (the pipes) and the customer base (the extent of illegal connections, for example). The condition and value of water and sanitation infrastructure is generally more difficult to determine than assets of other utility sectors because many of these assets are underground. As a result, underinvestment and improper maintenance can go unnoticed for years.

***Water pricing rules and principles***

198. Economists have long argued for prices that reflect costs and against subsidies that distort price signals. The oldest debate in the literature on water pricing is whether to price water by its average cost (based on financial reasons of cost recovery) or by its marginal cost (based on the economic reasoning of promoting an efficient use of the resource). Modern pricing theory calls for pricing based on marginal costs<sup>13</sup>; that is, prices should reflect the incremental cost of producing an additional unit of a good or service. Marginal costing requires metering of water flows therefore the cost of installing meters should be always kept in mind.

199. Prices based on marginal costs can help achieve long-term efficiency in using resources as they reflect not only the **financial costs** of providing water (which include operation and maintenance (O&M) costs and the costs of investments (capital charges) but also the **economic costs** of providing water services (such as the scarcity rent and environmental externalities). Marginal cost can be used to signal the scarcity of water and the need for conservation or alternatively, for further expansion of the system capacity.

<sup>13</sup> In the short run, marginal cost pricing is a function of the level of output (that is, of variable costs, such as the cost of electricity or chemicals) and is independent of fixed costs which must be paid regardless of the level of production.

200. The economic costs of providing modern water and sanitation services are thus the sum of seven principal components:

1. Opportunity costs of diverting raw water from alternative uses to the household (or resource or scarcity rents<sup>14</sup>);
2. Storage and transmission of untreated water to the urban area;
3. Treatment of raw water to drinking water standards;
4. Distribution of treated water within the urban area to the household;
5. Collection of wastewater from the household (sewerage collection);
6. Treatment of wastewater (sewage treatment);
7. Any remaining costs or damages imposed on others by the discharge of treated wastewater (negative externalities).

201. For a number of reasons, applying strict marginal cost pricing in determining the price of water services is problematic. These difficulties are related, among others, to the calculation of financial costs due to the lack of information on current consumption, future investments, and O&M costs, and forecasting future demand; to the large capital indivisibility, or "lumpiness," associated with large block investments (such as treatment plants, reservoirs, and trunk mains) that leads to relatively high start-up costs in the initial period contrasted with relatively low operation and maintenance costs over the lifetime of the investment as well as to the fact that capital indivisibility often results in excess capacity at periodic points<sup>15</sup>.

202. As a result of these and other difficulties, many countries set tariffs based on average costs, which allow, at a minimum, the recovery of financial costs of the utility. However, this pricing mechanism can send misleading messages to consumers and result in water being priced more cheaply than economically efficient.

203. While economists agree that, for efficiency reasons, prices should be set equal to the marginal cost of producing an additional cubic meter of water, given the practical difficulties of applying the marginal cost pricing in the water sector, there is now a general recognition that some kind of mixture between the resource allocation advantages of marginal cost pricing on the one hand and the achievement of satisfactory financial performance on the other are needed in determining the price of water.

204. In this context, a tariff can be designed to have a fixed part which will aim to recover the financial costs of the utility (based on the average cost pricing approach) and a variable part which will account for the economic costs of water services calculated on the basis of the marginal cost pricing approach. The practical implementation of these principles is reflected into the various tariff structures that have been designed and put in place by different countries across the world.

205. In addition, the OECD has recently developed the concept of sustainable cost recovery based on the "three Ts" – a mixture of tariffs, taxes (or budgets) and transfers (donor contributions) that can help ensure the financial stability of the utility as well as contribute to the achievement of efficiency and environmental objectives.

---

<sup>14</sup> The scarcity rent is the difference between the price at which an output from a resource can be sold and its respective extraction and production costs, including normal return.

<sup>15</sup> For a more detailed discussion on marginal cost pricing in the water sector, see Annex III.

## 5.2 Types of tariff structures

206. A tariff structure is a set of procedural rules used to determine the conditions of service and the monthly bills for water users in various categories. Table 3 below presents a simple classification of the different types of water tariff structures that are most commonly used by utilities<sup>16</sup>.

207. Two main types of tariff structures are used in the municipal water sector: a single-part tariff and a two-part tariff. With a single-part tariff, a consumer's monthly water bill is based on a single type of calculation. With a two-part tariff, a consumer's water bill is based on the sum of two calculations. The single type of calculation used in a single-part tariff can be one of two kinds: a fixed charge or a water use (volumetric) charge; volumetric charges can be handled in several different ways.

**Table 8. Basic types of water tariff structures**

<b>Single-part tariffs:</b>
A: <i>Fixed charge</i> – monthly water bill is independent of the volume consumed
B: <i>Water use charge</i>
a. Uniform volumetric tariff
b. Block tariff – unit charge is constant over a specified range of water use and then shifts as the use increases
(i) Increasing block tariffs
(ii) Decreasing block tariffs
c. Increasing linear tariff – unit charge increases linearly as the water use increases
<b>Two-part tariffs</b> (fixed charge + water use charge)

### *Single-part tariffs*

208. *Fixed charges.* In the absence of metering, fixed charges are the only possible tariff structure. With a fixed charge, the consumer's monthly water bill is the same regardless of the volume used. In many countries renters in multi-story apartment buildings have unmetered connections to their units and thus effectively pay a fixed charge for water (perhaps incorporated into the rent). The fixed charge itself can vary across households or consumer classes depending on characteristics of the consumer. For example, historically a common way to charge differential fixed charges was to set higher fixed charges on more valuable residential properties, sometimes on the assumption that people living in higher-value dwellings tend to use more water and/or have a greater ability to pay for the water they use. It was also common to assign businesses a different fixed charge than households, on the assumption that firms use more water than households, and notions of fairness (e.g., that firms have a greater ability to pay for water than households).

209. From the perspective of economic efficiency, the problem with a fixed-charge system is that consumers have no incentive to economise on water use, as using more water will not increase their water bill. If the short-run marginal cost of supply is very low due to excess capacity in the system, this may not be a big problem. However, from a cost recovery perspective, a fixed-charge system creates a potentially large problem for the utility if some households still lack individual connections: customers that do have a connection can supply water to other users (e.g., unconnected households, vendors) without incurring an increase in the household water bill. Moreover, because the fixed charge offers no incentive to economise on the use of water, a fixed charge that provided sufficient revenues at one point in time will become increasingly inadequate as the economy and incomes grow and water use increases. Water service providers will be reluctant to expand coverage because more customers may mean more financial losses.

<sup>16</sup> This discussion draws heavily on Whittington, D. (2006).

Fixed-charge tariffs are thus especially prone to locking communities into low-level equilibrium traps of few customers, low revenues, and poor service.

210. *Volumetric charges.* The second way to structure a single-part tariff is to base consumers' water bills on the amount of water they use. There are three main options to achieve this: (1) a uniform volumetric charge; (2) a block tariff where the unit charge is specified over a range of water use for a specific consumer, and then shifts as use increases; and (3) an increasing linear tariff whereby the unit charge increases linearly as water use increases. All volumetric charges require that the consumer has a metered connection and that this meter works reliably and is read on a periodic basis.

211. *Uniform volumetric charge.* With a uniform volumetric charge, the household's water bill is simply the quantity used (e.g., cubic meters) times the price per unit of water. A uniform volumetric charge has the advantage that it is easy for the consumer to understand, in part because this is how most other commodities are priced. From an economic efficiency point of view, it can be used to send a clear, unambiguous signal about the short-run marginal cost of using water.

212. *Block tariffs.* Block tariffs come in two main varieties: increasing and decreasing. They create a stepwise price structure. With an increasing block tariff (IBT), consumers incur a low volumetric per-unit charge (price) up to a specified quantity (or "block"); for any additional water consumed, they pay a higher price up to the limit for a second block, even higher for the third, and so on. With a decreasing block tariff (DBT), on the other hand, consumers face a high volumetric charge up to the specified quantity in the first block, pay less per unit for additional water up to the limit for second block, then less still for the third, and so on.

213. The rationale commonly given for an IBT structure is that, in theory, it can achieve three objectives simultaneously. It promotes affordability by providing the poor with affordable access to a "subsistence block" of water (the "lifeline" rate). It can achieve efficiency by confronting consumers in the highest price block with the marginal cost of using water. And it can raise sufficient revenues to recover costs. However, if poorly designed, they may fail to meet any of these objectives. An IBT may provide more expensive water to poorer households than to richer households, because in many cities the poor share connections, and in such cases the resulting higher volumetric use in turn results in higher prices for most of the water that those households consume. Many IBTs also fail to achieve cost recovery and economic efficiency objectives, usually because the upper consumption blocks are not priced at sufficiently high levels and/or because the first subsidised consumption block is so large that almost all residential consumers never consume beyond that level.

214. The DBT structure was designed to reflect the fact that when raw water supplies are abundant, large industrial customers often impose lower average costs because they enable the utility to capture economies of scale in water source development, transmission, and treatment. Also, large industrial users typically take their supplies from the larger trunk mains and thus do not require the expansion of neighborhood distribution networks. Although it is still used in some countries, the DBT has gradually fallen out of favor in part because the DBT results in high-volume users paying lower than average water prices.

215. *Increasing linear tariff.* The increasing linear tariff structure is rarely used. It is of interest largely because it illustrates that there are many ways in which the water bill can be related to the quantity of water used. In this tariff structure, the price that a consumer pays per unit increases continuously (rather than in block increments) as the quantity of water used increases. This tariff structure sends the consumer a powerful signal that increased water use is costly.

### ***Two-part tariffs***

216. With a two-part tariff, the consumer's water bill is based on the sum of two calculations: (1) a fixed charge, and (2) a charge related to the amount of water used. There are many variations in the way these two components can be put together. The fixed charge can be either positive (a flat fee) or negative (a rebate). The water use charge can be based on any of the volumetric tariff structures described above (a uniform volumetric tariff, an increasing or decreasing block tariff, or an increasing linear tariff.) In many cases, the fixed charge is kept uniform across customers and relatively low in value, and is used simply as a device for recovering the fixed administrative costs associated with meter reading and billing that are unrelated to the level of water consumption.

217. The principles that a water utility should follow to determine the volumetric and fixed-charge components of a two-part tariff is that short-run marginal costs change depending on the regional water resources situation. Therefore, both the volumetric and the fixed-charge components of the two-part tariff must change in response to changes in short-run marginal costs. The key issue is that the volumetric charge should be continually adjusted to reflect the real short-run marginal cost of using water (including any opportunity costs associated with forgone uses), and the fixed-cost component should be adjusted to meet the financial needs of the utility.

218. Note that regulatory authorities will have an important role to play in the establishment of an optimal two-part tariff. Particularly in times of water scarcity, when a high volumetric price and possibly a negative fixed charge is required, a regulatory body needs to ensure that the public understands the rationale for the pricing policy adopted. Unregulated private water service providers cannot be expected to reduce their fixed charge as the volumetric charge increases.

219. The major objection to using a two-part tariff in this way is the possible instability in the volumetric price for services. Some water resource professionals and utility managers feel that changing volumetric prices will confuse customers and prevent them from engaging in careful long-range planning. From this perspective, price stability is a major objective of tariff design. Experience shows however that households and businesses are able to deal with changing prices in the telecommunications and energy sectors, so there is reason to believe that these fears are unfounded.

### ***Seasonal and zonal water pricing***

220. In some circumstances the short-run marginal costs of supplying water to customers may vary by season. For example, a community may have relatively plentiful water supplies in the rainy season, but much more limited supplies in the dry season; water storage (reservoir capacity) will also be a factor. In such cases, it makes economic sense for water tariffs to reflect the varying circumstances. By charging higher rates in the dry season and lower rates in the wet season, water tariffs can be used to signal to customers that the water supply is not constant across the seasons, and that the costs of maintaining and distributing the water supply may vary as well. The higher dry season rate also serves as a reminder that each user's consumption of water reduces the amount available for others. Chile is one of the few developing countries that currently uses seasonal water tariffs.

221. Similarly, it may cost the water utility more to deliver water to outlying communities due, for example, to increased pumping costs for higher elevations or more distant settlements. A zonal water pricing structure charges users who live in such areas more for their water because it costs the utility more to serve them. Zonal prices can be used as an economic signal to users that living in such areas involves substantially higher water supply costs and that such information should be factored into customers' locational and water use decisions. However, this practice is comparatively rare, in part because it requires the water supplier to collect detailed geographically referenced accounting information.



### 5.3 Mechanisms for tariff adjustment

222. Due to changing economic conditions, tariffs based on input costs need to be adjusted accordingly. For example, frequent changes in electricity tariffs and inflation increases which in turn affect water tariffs is a particularly acute problem in many EECCA countries. In addition, the rules for adjusting tariffs are also an important mechanism for allocating risk among customers, the operator, and the contracting authority. The main tariff adjustment mechanisms include<sup>17</sup>:

- Cost pass-throughs;
- Tariff indexation;
- Tariff resets; and,
- Extraordinary tariff resets.

#### *Cost pass-throughs*

223. The rules for adjusting tariffs often allow changes in the costs of certain inputs to be immediately passed through to customers. Cost pass-throughs should be considered for important costs over which the operator has no control. Items that might be treated as pass-throughs include the cost of changes in sales tax or value-added tax and changes in regulations governing the quality of water or wastewater.

#### *Tariff indexation formulas*

224. Indexation formulas serve a purpose similar to cost pass-throughs. The formulas adjust tariffs according to the change in an index of prices, not the operator's actual costs. Tariffs are adjusted at regular intervals - every six months, for example - rather than in response to particular events. Indexation formulas attempt to anticipate changes in certain determinants of the cost of service. They automatically adjust tariffs according to specified rules. One kind of tariff indexation formula simply adjusts the tariff according to the change in the average level of prices measured by, say, the consumer price index or alternatively, the retail price index, as this is done in the United Kingdom (see Box 8 below).

#### **Box 8. Price-cap regulation in the United Kingdom**

CPI-X is an indexation formula used in the United Kingdom. It is based on changes in the consumer price index (CPI) minus some proportion  $X$ . So, if the consumer price index increases from 100 to 105 - or by 5 percent and  $X$  is 1 percent, the tariff increases by 4 percent. CPI-X indexation is also known as RPI-X indexation, where RPI stands for the retail price index. In water, the indexation formula is called  $RPI + K$ , where RPI is the retail price index and  $K$  represents both expected productivity gains and a permitted annual increase in the real price of water to allow for quality improvements.

One particular challenge with using this approach is choosing the correct value of  $X/K$ . If  $X$  is set too high, the firm will not be able to cover its costs, but if  $X$  is set too low then the firm will earn supernormal profits and prices will remain excessive. Ideally, the value of  $X$  will be based on expected future productivity improvements, however, this determination involves a degree of subjectivity. Exceptional firm performance has raised difficulties in some cases. For example, the electricity regulator in the United Kingdom reneged on the previous announced price cap in 1995 owing to high profit potential. Also, the Labour government in the United Kingdom introduced a 'windfall' tax on regulated utilities justified on the basis of excess profits earned by these companies.

This approach is also known as price-cap regulation. In the United Kingdom, price caps typically are reviewed every five years.

<sup>17</sup> Discussion is based on World Bank and PPIAF (2006).

225. This kind of tariff indexation formula protects the utility from general inflation, but exposes it to risks of changes in prices of particular inputs. If the prices of electricity and chemicals increase by more than the average rate of inflation, the utility will lose. Conversely, if the price of those inputs rises by less than the average rate of inflation, the utility will gain.

226. Other tariff indexation formulas adjust prices according to a customer price index that more nearly reflects changes in the utility's likely costs, such as changes in the prices of inputs like fuel, personnel, imported goods, and import taxes. This second kind of indexation is more complicated but it also exposes the utility to less risk.

### *Tariff resets*

227. Tariff resets recognise that no tariff indexation formula can adequately cover all eventualities. If it were possible to identify in advance all the factors that might affect an operator's profits - and how they would change - it would be possible to write an indexation formula into the arrangement to adjust tariffs or the operator's remuneration in the desired way with any possible change in costs. But in practice it is generally not possible to predict profit drivers with accuracy and certainty, so more flexible approaches are often required. The design of reset formulas and processes assumes a long-duration contract, such as lease, concession, or divestiture. Resets are usually unnecessary in management contracts.

228. Tariff resets involve a set of rules, principles, and processes that can be used to adjust tariffs in a predictable manner. The rules are agreed on before the arrangement, and their design is a major determinant of the allocation of risk between operator and customers.

229. The reset adjusts tariffs so that a firm can earn the target rate of return. The regulator or other decision maker estimates what it would cost an efficient operator to provide the service, including assumptions about the level of non-revenue water an efficient operator would have been able to achieve. The regulator resets tariffs based on this cost estimate which passes through only those costs an efficient operator would not have been able to avoid, such as exchange rate and electricity price effects.

230. This mechanism is also known as rate-of-return regulation. To be effective, the regulator needs to compare the costs that an operator would use to set his tariff on with some ideal case. This can be done in various ways, including:

- Benchmarking the operator against other similar companies;
- Obtaining advice from an independent expert on how an efficient company would perform;
- Market testing (Box 9).

231. In developing countries and economies in transition, determining an appropriate benchmark may be problematic. There may be no or very few comparator firms in the domestic economy against which to benchmark performance; while international comparisons are complicated by different operating environments and exchange rate movements.

**Box 9. Market testing - A way to determine whether the operator's costs are reasonable**

To market test costs the operator says it must incur to perform a particular activity, the contracting authority calls for bids from other firms to perform the activity. If the other firms' bids differ little from the cost submitted by the operator, the operator's costs are assumed reasonable. If bids are much lower than the operator's submitted cost, the contracting authority reduces the tariff accordingly and contracts - or requires the operator to contract - the function out to the preferred bidder.

This approach can give the operator strong incentives to ensure its submitted costs are as low as possible. But it is only effective for activities that can be effectively separated from the rest of the business (for example, meter reading). It also increases the complexity of the tariff reset. The transaction costs of calling for bids and possibly contracting with a new firm need to be weighed against the potential benefits.

232. Tariff resets may also raise additional questions which a regulator needs to take into account. Some of these questions are:

- How should the reasonable rate of return be determined?
- How should the value of assets on which a return is allowed be set?
- Should a return on operations, or a management fee, be allowed, in addition to the return on capital?

***Timing of tariff resets***

233. The timing of tariff resets determines the length of time during which the operator must bear risk before passing it on to customers. Three main approaches to the timing of tariff resets are possible:

- *Review on request.* The timing of tariff resets is not set in advance. Resets are triggered at the request of an affected party, such as the operator or a customer, if the operator's profitability diverges too far from a reasonable rate of return. In principle, this approach allows the operator to pass changes in costs or revenues on to customers before the value of the business is significantly affected. This is the approach traditionally used in the United States.
- *Periodic reviews.* Permitted tariffs are reviewed and reset on a regular basis, say every five years. In principle, the operator retains profits or losses earned between resets. This approach is used in the United Kingdom.
- *Event-based reviews.* This approach is appropriate where the review seeks to adjust for specific variables. The arrangement specifies certain events that, if they occur, will trigger a tariff review. For example, the arrangement may specify that a tariff review will be held if demand varies from forecast by plus or minus 10 percent, if the local currency depreciates by more than 15 percent, or in response to changes in relevant legislation, for example on standards.

234. Hybrid approaches are also possible. Tariffs may be reviewed if certain events occur and one of the parties requests a review, or they may be reviewed in any case after a certain period if no event-based reviews have occurred.

***Extraordinary tariff resets***

235. Even with very carefully thought-out rules regarding cost pass-throughs, indexation, and tariff resets, circumstances can change in ways that cause the operator to suffer very large losses or make very large profits. The contracting authority may find both of these outcomes difficult to accept in practice.

When the operator is on the verge of going bankrupt, for example, the contracting authority will probably be under strong pressure to renegotiate the agreement in order to prevent bankruptcy. Similarly, if profits are very high, there will be political pressure to reduce tariffs.

236. To deal with these pressures in an orderly way, contractual arrangements might provide for an extraordinary tariff review if a major unforeseen event occurs that is outside the control of the operator.

#### **5.4 Financial obligations of the contracting authority**

237. With performance-based contracts, the government is not only a regulator but often has specific financial obligations. These financial obligations will depend on the type of contract under implementation. In general, they are related to two major issues:

- Providing public support for investments in extension and/or rehabilitation of the water infrastructure; and,
- Providing subsidies to compensate when tariffs are not set at cost-recovery levels. Subsidies can be provided either to the operator or to customers.

##### *Financial obligations related to investments*

238. As discussed earlier, the financial obligations of the contracting authority will vary with the type of contract. With the exception of concession contracts, under all other contracts the contracting authority is usually responsible for investments in new extensions of the infrastructure. Under service and management contracts, the contracting authority is usually responsible for investments in both extension and rehabilitation. With lease contracts, the contracting authority will usually have an obligation for investments in the extension and rehabilitation of the infrastructure or alternatively, may transfer the responsibility for investments in rehabilitation fully or partially to the operator. With divestiture, all costs remain with the operator that owns the assets. There are exceptions to this rule however. For example, in Shymkent (a divestiture), the municipality bears responsibility for investments in new water infrastructure.

239. Given that government and municipal budgets often lack resources to provide investment funds, it is usually the case that the government raises funds for such investments from donors (grants) or international financing institutions (concessional loans). The fee paid by the contractors for having the right to operate the infrastructure is usually used as a source for repaying these loans.

##### *Provision of subsidies to tariffs*<sup>18</sup>

240. Another major financial obligation of the contracting authority is related to compensating for tariffs that fail to cover the full financial costs of the utility. In this case, the contracting authority needs to ensure that total revenue from tariffs and subsidies must at least equal the total cost of service.

##### *Categories of subsidies*

241. Subsidies can be categorised according to where the money comes from and who subsidies are paid to and for what. There are three sources of money for subsidies:

- Revenue from other customers (usually called a cross-subsidy from one class of customers to another);

---

<sup>18</sup> In its Toolkit on Approaches to Private Participation in Water Services, the World Bank and PPIAF (2006) discuss this issue in detail. The analysis below draws heavily on this work.

- Government revenue, collected from taxpayers;
- Grants from development agencies.

242. Subsidies can also be categorised by who they are paid to and what the payment is contingent on. There is a distinction between subsidies paid on the provision of outputs and those provided generally to help the utility cover its costs. Subsidies are thus divided into two major groups: output and input-based subsidies. Subsidies may be paid either directly to the consumer or to the operator.

243. Table 4 below shows the various types of subsidies that are possible, given these three sources of revenue and the four things for which subsidies may be paid.

#### Output-based subsidies

244. Within the general category of output-based subsidies, there are subsidies paid directly to the consumers to help them pay their bills and subsidies paid to the utility or operators that are contingent on providing service. Subsidies have traditionally been paid to help utilities cover their costs. The problem with this approach is that it remunerates the utility on the basis of its costs, not its results. A better approach, especially when a private operator is involved, may be to make payment of the money contingent on provision of outputs. These outputs can include delivery of water to a household, connection of new households in poor areas, or treatment of specified quantities of wastewater to the required standard. The two main types of output-based subsidy include:

- *Social security provision linked specifically to water services.* In this approach, the government may help low-income households by paying part of their water bill. Chile is an example where this is done.
- *Donor-financed output-based aid paid to utilities.* New structures have been developed in which, rather than lending to finance the construction of infrastructure such as a new distribution network, development agencies will lend or grant money to a government-controlled subsidy fund. This fund then pays the operator when particular outputs are produced. Such a scheme has been put in place in Armenia.

245. A difficult question in designing output-based subsidy schemes is whether to target the subsidies specifically at poor households. Effective targeting should make sure the money goes where it is most needed, but it also tends to be difficult and costly to administer. In the Chilean scheme, eligible households are identified by a questionnaire that covers living conditions, housing conditions, income, ownership of durable goods, and so on. Such a system demands a high degree of institutional capacity.

**Table 9. Types of subsidy**

	Output-based		Input-based	
Paid to	Customer to help pay the bill	Utility/operator for outputs	Utility/operator for inputs	Utility or operator as implicit or <i>ad hoc</i> support
Money from				
Customer revenue			Cross-subsidy	Customer bail-out
Government revenue	Social security provisions			Implicit subsidy or bail-out
Development agency grant or loan with concessional element		Donor financed output-based aid	Input subsidy	

### Input-based subsidies

246. These include general support to the utility to meet its costs, paid regardless of outputs. Such subsidies may be planned or *ad hoc*. Input subsidies can also be implicit, such as government debt guarantees. The main types of input-based subsidy include:

- *Cross-subsidies*. A cross-subsidy occurs when one customer pays more than the cost of service so that another customer can pay less. Cross-subsidies can be an effective way of achieving social goals, while ensuring that water and sanitation utilities as a whole are self-financing. One of the most common types of cross-subsidy is the increasing-block tariff. Another common approach is to charge industrial customers more than the cost of service so that residential customers are charged less. While cross-subsidies are common, they can have disadvantages:
  - ⇒ If the poorest people are not connected to the network, they will not benefit from the subsidy;
  - ⇒ If connected poor households are large or share a single connection, they may not benefit from increasing block tariffs;
  - ⇒ If cross-subsidies reduce the revenue from poor households below the cost of serving them, operators have an incentive to keep poor households unconnected;
  - ⇒ If tariffs are too high for customers that pay the cross-subsidy (large users, for example), some of those customers may disconnect from the network and get water from other sources, such as their own wells. This is inefficient and can deprive the operator of revenue.
- *Direct cash subsidies to the utility*. In many countries, governments finance new infrastructure for water and sanitation. Governments sometimes explicitly fund a portion of operating costs as well, a subsidy that can continue with performance-based contracts. Lease and management contracts typically involve continued government finance for infrastructure. When not covered by the tariff, this financing amounts to an input subsidy.
- *Implicit and ad hoc subsidies*. Sometimes governments provide subsidies in ways that are not immediately obvious. These may include, among others:
  - ⇒ *Subsidies for the cost of debt*. Governments can subsidise a water utility's cost of debt by lending money at concessional rates. Subsequent write-offs of these loans can be a further subsidy.
  - ⇒ *Customer bailouts*. An *ad hoc* subsidy from the customer to an operator occurs when risks that the operator was supposed to have borne under the arrangement are transferred to customers through a tariff increase in order to protect the operator from financial distress.
  - ⇒ *In-kind grants and tax exemptions*. Governments may also provide subsidies to private water and sanitation utilities through in-kind grants and tax exemptions. In-kind grants might take a variety of forms, such as water abstraction rights, which would otherwise be subject to some form of charging regime, or land grants for treatment works. Tax exemptions are commonly applied to publicly operated water and sanitation utilities, and may be extended once the utility is privately operated. When developing an arrangement, the government should be aware of such

implicit or *ad hoc* subsidies. It should consider its strategy for avoiding unintended *ad hoc* subsidies, and think about converting implicit subsidies into explicit subsidies that target the government's particular goals.

### *Targeting methods*

247. Whereas subsidies through tariffs can be applied to all customers irrespective of their condition, it is often the case that some degree of targeting is involved: subsidies do not apply across the board, but are limited to consumers meeting certain criteria. It is customary to distinguish explicit targeting from implicit targeting.

- **Explicit targeting** is based on *a priori* classification of consumers into groups eligible for different subsidies, based on observed variables. Ideally, such classification should be based on individual household status in terms of income or levels of water use (and perhaps other socio-economic characteristics), in order to target subsidies to those households who really need them. However, this supposes that income is easily observable, and that an administrative system to monitor it is put in place. In many countries, these two conditions are not met. On the one hand, due to the importance of the informal economy, household income is hard to estimate. On the other hand, putting in place an administrative system for the purpose of administering water subsidies often proves very costly. These obstacles have prevented most countries from going into that direction. In the absence of a system to monitor income directly, selection of eligible households has to rely on proxy variables for income. The most commonly used systems are geographic targeting and community based selection.

⇒ Geographic targeting consists in defining the eligibility for subsidies based on the residence in certain zones or neighborhoods (e.g. districts) which are identified as “poor”, while residents of “non-poor” districts are not eligible.

⇒ Community-based selection consists in letting community members decide which of their members “merit” the subsidy the most.

- **Implicit targeting** refers to mechanisms where households self-select into the different categories of service (subsidised or unsubsidised), rather than being selected *ex ante* by the government. This approach is increasingly used to deliver subsidies or benefits in a variety of sectors. An example of implicit targeting is the case of the two-part tariff which can be designed so as to allow low-consumption users to be separated from high consumption users.

248. Experience from around the world shows that it is very difficult to find good targeting variables for water subsidies. While it is important to screen customers carefully for subsidy eligibility, the screening process can itself be quite costly in administrative terms. Thus, it is important to balance the need for greater targeting accuracy against the associated administrative costs.

### **5.5 Tariff setting in the reviewed cases**

249. Since the break-up of the Soviet Union, the EECCA countries have undertaken significant water tariff reforms. The previously state-controlled prices were largely liberalised and new approaches to tariff setting have been introduced.

250. In **Armenia**, there is a national regulator that controls costs and related tariffs for all water operators. Tariff levels in Armenia are set in a Water System Use Permit that any water operator should hold. With performance-based contracts, this Permit sets the tariff for each year over the whole period of the contract (e.g. 10 years in the Yerevan lease contract). The tariff is designed to cover all financial costs and is based on marginal cost pricing. At the same time contracts envisage annual tariff adjustments.

251. The main objective of the tariff design in Armenia is first affordability for the population and then financial viability of the utility. Armenia has started introducing individual meters and where these are installed the water bill is calculated on the basis of actual consumption. In case of non-metered water, consumption is estimated on the basis of past consumption. With both contracts, the Armenian government made installation of meters a major requirement and has provided support (through donor funds) to help households install meters in an attempt to encourage better water conservation.

252. Armenia operates a uniform volumetric tariff. The tariff is identical for all customers. Three types of costs are included in the tariff: fixed costs, variable costs of water supplied, wastewater collected and treated and consumer services costs (mainly costs related to water meter data reading, billing and collection costs). The water bill is split across the three major types of services and these are invoiced separately: water supply, water collection and wastewater treatment. This makes the bill more transparent and understandable for consumers. In addition, it avoids the “cross subsidy” issue (e.g. customers not connected to sewerage but paying for the service and then subsidising the customers connected) and leads to a sounder management.

253. The tariff rate with both the lease and management contract has been increased significantly since the start of the contracts (for more information, see Annex II). Both reviewed operators in Armenia are responsible for the collection of revenue from water tariffs. One of the reasons for this increase is the high rate of meters installed and changes in the collection mode. Customers can now pay their bills at designated banks, an option which has facilitated the payment procedure.

254. Despite this tariff rate increase, the rate under the management contract is still low (particularly viewed against the low collection rate) which limits the operating revenue available to the operator. Analytical studies carried out by the government show that there is room for additional increase in the case of AWWC while remaining within the affordability limit of 4-5% of disposable household income.

255. In addition, as in the case of the management contractor, the operator’s staff have made a lot of efforts to better understand the structure of their customers with the aim of establishing closer contacts with them and in an attempt to recover the bad debts to the extent possible. Thus, the AWWC customer database has been divided into several groups: regular payers (3 to 7%), irregular payers (20 to 30%), quality-oriented payers (15 to 25%) and regular non-payers (30 to 40%), poor households (5 to 10%)<sup>19</sup>. As this statistics shows, it is not the poor people who most often do not pay their bills. The persisting culture of non-payment inherited from the Soviet times, particularly in areas outside of Yerevan, as well as the large number of illegal connections (e.g. for example, only in the second quarter of 2007, around 1 200 illegal connections were identified representing a loss of an AMD 12.5 million for the operator), specifically in summer (irrigation) periods, significantly undermine the collection rate and, most importantly, result in a huge operational deficit.

256. The national regulator is responsible for monitoring the tariff plan and related costs. As mentioned earlier, contracts envisage annual tariff adjustments. In the case of the lease contract, the tariff adjustment formula is based on four indicators selected to cover the average increase of the operator’s costs. These include: retail water supply volume, annual inflation, exchange rate AMD/EUR and electricity tariffs. The

---

<sup>19</sup> 2008 data.



tariff adjustment formula is based on the supplied water volume but water losses are not taken into account. The operator considers that this practice can lead to hidden impacts on the calculation of the tariff.

257. In addition, if the annual automatic tariff adjustments calculated using the formula lead to a decrease or increase of the tariff by more than 30%, the contract provides for the possibility to temporarily suspend the adjustment and discuss and re-negotiate the new situation with the Regulatory Commission. It is also worth noting that the contract requires that in case of excess profits (after-tax profits higher than 10% of the annual turnover in the respective year) the operator should reinvest 50% of this excess profit in the following year in the rehabilitation of facilities in addition to other agreed plans.

258. While, in principle, the tariff in Armenia is designed to cover the full financial cost there may be cases when the operator's revenue is insufficient to cover its costs. This is the case when the collection rate is low and the revenue generated is not enough. In this case (as this happened with the management contract), and in order to compensate the operator for a low tariff collection rate and allow sufficient maintenance works on the networks and facilities, the government provides an input-based (operating) subsidy directly to the operator on the basis of the delivery of actual services. There were some problems with regard to these subsidies however. Over a period of several years the government kept transferring to the operator only half of the expected subsidy. As a result, the contractor had to cut down the operational costs and, in particular, the repair and maintenance costs which led to a quicker deterioration of the networks. There was no obvious reason why this happened apart from the lack of proper communication between the parties. Apart from input-based subsidies, there are no output-based (or direct) subsidies to poor customers in Armenia.

259. With regard to its financial obligations under the two contracts, as discussed earlier, the Armenian government has been particularly successful in raising funds from donors and IFIs for investments in the two utilities. The lease fee paid by the contractor is used to partially repay the loans.

260. In **Kazakhstan**, there is also a national regulator which approves and monitors the tariff developed and proposed by private operators<sup>20</sup>. Municipalities within whose jurisdiction the utility is located have to also approve the tariff before it is sent to the regulator at the national level.

261. One important issue related to this approval procedure is the legal requirement for public hearings at a local level when discussing tariffs. This is a very good practice as this arrangement makes the process more transparent and allows citizens and customers to better understand the rationale of the tariff design and tariff increase. It also legitimises the proposed tariff before higher levels of government. While it seems that the Shymkent operator manages the process rather well, it is important to go beyond the proforma activity and utilise fully this opportunity.

262. The main stated objectives of the tariff reform in Kazakhstan are financial viability and affordability. However, affordability seems to be the real priority as exemplified by the fact that politicians can unilaterally decide to freeze tariff increases at any moment. The great number of bankruptcies of private operators in the sector and the subsequent transfer of assets into municipal ownership also seems to suggest so.

263. In Shymkent, there is a uniform volumetric tariff for all consumer categories. Where water meters are not installed, there is a flat tariff based on construction norms. In addition, the water bill is split into two parts: water treatment tariff and wastewater treatment tariff which introduces a certain level of transparency in the billing process.

---

<sup>20</sup> For public water utilities, tariffs are approved by the respective Regional Administration.

264. The private operator in Shymkent collects the revenue from water tariffs. The collection rate is very high, close to 100%. Illegal connections however are also very high (they accounted for 70% out of all water losses in 2007).

265. Tariffs for natural monopolies in Kazakhstan can be set according to two different methodologies:

- *Yearly tariff methodology (a cost-plus system):* This is a standard methodology where the tariff is approved yearly and does not include any investment expenditure. This basic tariff is composed of operational costs and profit. All costs are identified but costs related to physical water losses or commercial losses from the non-payment of water bills by customers are not explicitly calculated. Instead, a standard loss factor of 3% is provided. In addition, the profit that a company may gain is fixed and if it turns out to be higher, then the regulator requires the company to reduce the tariff.
- *Medium term tariff methodology (a price-cap type):* The tariff is approved for a period of 3 to 5 years. This methodology allows to include some investment expenditure in the tariff, on top of operation costs and profit. This methodology requires the preparation of an investment plan which takes into account the expenditure included in the tariff. The regulator is required to closely monitor the implementation of the investment plan and associated expenditure. The methodology envisages that within the 3-5 year period, operators can have a review upon a request whenever they consider it necessary (e.g. changes in inflation or exchange rate) on the condition that they prepare and submit an updated investment plan.

266. In 2004, the Shymkent water operator applied for a tariff increase using the price-cap methodology. The first investment plan was prepared for the period 2004-2007, and later a second investment plan was approved for the 2008-2012 period. Shymkent is the only city in the country which succeeded to meet all eligibility criteria under this methodology and complete the process for a 5 year investment plan procedure.

267. Water operators in Kazakhstan are now free to choose between the two methodologies. In reality, however, the eligibility criteria under the Medium term tariff methodology are so heavy that they discourage many utilities from trying. The fact that, so far, the Shymkent operator has been the only city in the country to successfully complete a five year tariff plan (and not without problems) shows the complexity of the procedure. Box 10 below provides a list of the eligibility requirements under this methodology.

268. On the basis of the price-cap methodology, in 2008, the tariff increase for the Shymkent water utility was approved for a period of 5 years. According to the plan, the tariff had to increase in the following manner: increase by 25% for the first year, 7% for year 2 and year 3, 4% for year 4 and year 5. This corresponds to an increase by about 10% per year on average. Such an increase allows for an efficient and early implementation of the investment plan but requires that the population pays significantly during the first year.

**Box 10. Eligibility criteria under a price-cap regulation in Kazakhstan**

These criteria include:

- Fixed assets must be owned by the company;
- Financial results for the 2 years preceding the application must be positive;
- The collection rate of revenue from tariffs must be at least 97%;
- The utility should not have any loans taken without the approval of the Agency for the Regulation of Natural Monopolies (ARNM);
- The utility should not be subject to any compensatory tariffs imposed in previous years by the ARNM;
- Water demand for the 2 years preceding the application should be stable as should be the projected demand;
- The utility should keep separate accounts for primary water supply and wastewater activities on the one hand and other secondary activities, on the other.

269. There is no special (water) subsidy programme in Kazakhstan to support those who cannot afford paying water tariffs. In Shymkent, there is instead a combined subsidy scheme - the City Administration provides housing allowances to the poorest families in the city. This allowance is provided to the families for whom the total invoices for housing maintenance, all municipal services and communication services exceed 20 % of their total income. The Department of Employment and Social Programmes of the City Administration is in charge of this allowance allocation.

270. Unlike the other two countries, **Ukraine** does not have a national regulator to set and control water tariffs. Tariff setting and control in Ukraine are left to the local/regional level. However, there is a lot of confusion with regard to the division of responsibilities across different levels of government in this regard also due to conflicting legislation. For example, the national government adopts general requirements related to the identification of costs that can be recovered through water and wastewater tariffs and the local self-governments are charged with setting tariff rates. However, it is not clear whose responsibility tariff setting is (oblasts' or local self-governments') in case a water utility serves more than one municipality or when a utility is managed by a private operator. More importantly, though, local authorities do not have sufficient capacity to set tariffs properly and to subsequently control them. The tariff setting process seems to be particularly politicised in Ukraine (e.g. in the case of Berdyansk).

271. Tariffs are calculated using the cost-plus approach. This implies that in calculating tariffs, historic costs are used and a certain level of profit is allowed (5.2% which is far below the inflation level). In theory, capital costs can also be recovered through the tariff but their amount is limited to 12% of all operating costs. The tariff rate is a fixed flat rate based on construction norms. At the same time, the Ukrainian government has been talking for several years now about moving to price-cap regulation in the water sector but little has been achieved so far in this direction.

272. In principle, tariffs can be adjusted for inflation but there are no strict rules and procedures for doing so. In Berdyansk, for example, at the time of doing the review, for affordability reasons, the water tariff had not been changed for about 2 years. The escalating inflation in the country means that even when adjusting water tariffs they always lag behind and utilities suffer significant operating losses. This is exactly the case of the two water utilities in Berdyansk and Kupyansk which have been operating at a financial loss for many years now.

273. There are different tariff rates for households and industrial users in Ukraine. Cross-subsidisation is a typical feature of the Ukrainian system where industrial users subsidise households: the tariff rate for industrial users, in general, is almost twice the rate for domestic users. Water supply and sanitation services are invoiced separately. Although tariff rates have been significantly increased they are below cost-recovery levels.

274. The concession fees that the two concessionaires are going to pay to the respective municipality are not calculated in the water tariff. While this practice aims to protect consumers' interests it is not clear how the operator is going to recover his money. In addition, the Berdyansk contract envisages that there will be no tariff increase during the first year of the contract. Not having increased the rate for 3 years altogether is unrealistic in Ukrainian conditions and may jeopardise the contract. Although the tariff collection rate in Berdyansk, for example, seems very good as it reaches 98.3% of the water billed, revenues are not sufficient to cover even operating expenditure.

275. By law, Ukraine can provide subsidies for water both to customers and to water operators. Similarly to Kazakhstan, Ukraine has a joint subsidy programme for low-income families who cannot afford paying for communal services (water, sanitation, electricity, hot water, heating). Subsidies to such families are capped at 15% of their disposable income. These are paid by the Ministry of Labour and Social Protection. In addition, the Law on Housing and Municipal Services indicates that the Local Executive Committee can provide subsidies directly to the operator when there are losses resulting from the absence of full cost recovery. Moreover, the Law on the State Budget allows compensating such losses if local budget subsidies are not sufficient. However, state subsidies are simply an offset and are not directly paid to the water utility but are used for paying debts (such as electricity, taxes, etc.). Thus, although these subsidy mechanisms are legally available in reality utilities cannot benefit from them.

## **5.6 Major lessons learnt**

276. Setting tariff at the right level and structuring it appropriately is a difficult task. This task is complicated by the multiple policy objectives embodied in water tariff design as well as by the specific nature of water infrastructure.

277. For efficiency reasons, it is recommended that water tariff should be set equal to the marginal cost of providing the water service. However, due to various problems with its practical implementation, other pricing approaches have been designed. There are various tariff structures developed on the basis of these pricing rules. Despite the existence of various water tariff practices around the world there is no consensus on which tariff structure best balances the objectives of the utility, customers and society as a whole. What matters though is that the tariff should be such that, at a minimum, it covers the full financial cost of the utility.

278. Given the social character of the water sector, subsidies may be needed to ensure access of the poor to water services. Subsidies should be provided in a transparent manner on the basis of clear rules and procedures. Mechanisms for identifying the people who need support should be put in place. In this context, the major lessons learnt from the experience of the reviewed countries with tariff design can be summarised as follows:

- Both Armenia and Kazakhstan have established national regulators which control and monitor tariff design and tariff implementation. To provide a fair and unbiased judgement, a regulator should be politically independent. While this may not be completely possible, and in order to minimise political influences, it is important that there should be clear rules and procedures for setting, calculating and revising the tariffs. In Ukraine, different aspects of these functions are split between the national, regional and local levels. The insufficient capacity of local authorities in setting tariffs additionally and significantly complicates the process.
- Both Armenia and Kazakhstan have introduced a number of modern tariff setting approaches while Ukraine has done less so. Armenia and Kazakhstan have started implementing cap-price regulation and marginal cost pricing. To effectively do so, Armenia has launched a massive programme of installing individual and flow water meters. Ukraine is still calculating water tariffs on the basis of historic costs. Thus, while in both Armenia and Kazakhstan there is an attempt to link tariffs to costs and raise tariffs to cost-recovery levels, tariffs in Ukraine are a product of the political process mainly which results in low tariffs and in utilities operating at a financial loss.
- Tariff structure in Armenia has been improved – Armenia now largely applies a uniform volumetric water charge in the sector. This helps avoid cross-subsidisation. In addition, the water bill in Armenia has been made more transparent to customers with the three major services invoiced separately in the bill. Kazakhstan is slowly moving in this direction while Ukraine generally has flat tariff rates based on construction norms. Cross-subsidisation is largely used in Ukraine.
- The fact that water supply and sanitation services are bundled together in all these countries (a legacy from and a distinctive feature of the system in Soviet times) facilitates the acceptance of the wastewater part of the tariff.
- As a general rule, tariff collection rates have increased in all three countries. In Armenia, this is mostly due to the introduction of meters and new management practices of billing customers. Problems with non-payment and illegal connections are still persistent though. In Skymkent, the introduction of meters has resulted in a very high collection rate (close to 100%). In Ukraine, the relatively high collection rate seems to be mostly due to very low tariff rates and the existence of cross-subsidisation and state subsidies.
- All three countries have introduced rules and procedures for adjusting and revising tariffs. However, rules alone are not sufficient if they are not respected. Despite the existence of such rules, all three countries have experienced problems with the timely and efficient adjustment of tariffs due to political interferences.
- Of the three countries studied, Ukraine and Kazakhstan have subsidy programmes to directly support poor families (output-based subsidies). These subsidies are generally channelled through combined housing allowances provided at the local level. Armenia has no water subsidy programmes targeted at the poor. In principle, the Armenian government can provide subsidies directly to the operator (input-based subsidies) as a way to cover its operating deficit when revenue generated from tariffs is insufficient. Experience shows that subsidising the delivery of actual services and not consumer consumption is a more efficient way of providing public support to the sector.

## CHAPTER 6. CONTRACT MONITORING, ENFORCEMENT AND DISPUTE RESOLUTION

### Major good practices

#### (i) Contract monitoring

Setting an effective system to monitor contract implementation is crucial for evaluating if parties meet their obligations and achieve specified targets. Monitoring provisions should focus on the contractor's success to meet the targets rather than on how it meets these targets. In countries where governments face limited monitoring and regulatory capacity, the monitoring function could be outsourced to an auditing company. The government should then reconfigure its task as monitoring the auditor.

#### (ii) Mechanisms for conflict resolution

Performance-based contracts should include formal dispute resolution procedures (e.g. judicial, quasi-judicial, administrative, arbitral). Arbitration should be the preferred dispute resolution mechanism in contracts that include a foreign private entity. The main advantages of arbitration include confidentiality (as it relates to commercial secrets); expertise (arbitrators are selected on the basis of their technical expertise); neutrality (arbitrators are chosen from among individuals unrelated to the parties in the dispute); integrity (arbitrators are chosen from among individuals of high moral repute).

279. Monitoring not only of performance indicators but monitoring all aspects of the contract is crucial for ensuring that parties to the contract fulfil their contractual obligations. In addition, monitoring provides the contracting authority with a possibility to learn from the experience with contract implementation and use this knowledge in improving future contracts. Monitoring of contract implementation along with a discussion of possible mechanisms for conflict resolution and contract enforcement are in the focus of this chapter.

### 6.1 Monitoring of contract implementation

280. Effective monitoring implies that:

- The contractor is contractually obliged to regularly report to the contracting authority on progress with contract implementation – this includes providing data and information on both technical and financial matters;
- The contract envisages clear rules and procedures for communicating this information to the contracting authority, including a procedure for submitting, processing and providing feedback on the reports as well as the frequency of reporting;

- The contract specifies clear reporting requirements by type of data/information and in terms of format for presenting the information. If these requirements cannot be specified in detail before the start of the contract, the contract needs to envisage a procedure for doing so after the contract comes into force;
- The contract specifies the bodies which are responsible for monitoring the contract implementation and clearly states their rights and responsibilities.

281. All contracts reviewed attempt to regulate contact monitoring to one extent or another.

282. For example, the lease contract in Yerevan requires regular reporting from the operator. This includes both annual and semi-annual reporting as well as one-time submissions and *ad hoc* reports. The contract specifies reporting requirements as well. Some of these are very specific and detailed, particularly with regard to reporting on performance. For example, the contract requires information on new connections, illegal connections, operation and maintenance summary - by source, transmission system, distribution system, sewage system, electricity consumption, continuity of supply, water quality monitoring results and customer service reports. While this information may be useful, it is questionable if the contracting authority is in a position to effectively review and control all such data. Hence, it is important to balance the reporting requirements against monitoring capacity. The exact format and contents of reporting however is left to be decided upon at a later stage. The contract provides that this will be done jointly between the operator and the independent technical auditor. The contract also specifies the main monitoring bodies and their responsibilities: the Project Monitoring Unit, responsible for the quality of services and quality of water and the Regulator – responsible for the application of the tariff. The independent technical auditor is appointed to help the government in its monitoring function.

283. In Ukraine, the Berdyansk concession contract, for example, provides for regular reporting by the operator. The contract requires that the operator prepare an “annual report on the concession facilities, the depreciation deductions and investments made”. However, the contract requirements for the coverage of the annual report are practically missing: no indication is provided with regard to the level of detail, the kind of data or service indicators to report on. The draft Kupyansk contract has similar drawbacks.

284. Experience from other cases shows that when reporting requirements are not specified, this may lead to conflicts during the implementation stage due to the fact that different parties may have different understanding of what information and data should be provided in the annual reports. Unlike in the Armenian case, the Berdyansk contract does not envisage any mechanisms for the contracting authority to control the information and provide feedback on the reports, or for that matter, react on possible problems, if this is needed. Coupled with the fact that the official report is prepared once a year, some problems may become evident only too late in the process. Hence, with complex agreements, it is important that the two parties maintain regular contacts and inform each other of any important developments without waiting for the official reporting deadlines. Such an approach can also help improve the level of confidence between the parties.

### ***Mechanisms for conflict resolution and contract enforcement***

285. Due to uncertainty factors, very few contracts will operate in the long run without disagreements arising at some point between the parties to the contract or with other players. This is particularly true for longer term agreements such as lease and concession contracts. Thus, the parties will want to think in advance about dispute settlement.

286. This section looks into two main issues: conflict resolution and contract enforcement mechanisms and how these are applied in the reviewed contracts. These issues are also closely linked to risks and risks mitigation measures which are discussed in more detail in Chapter 7 below.

## 6.2 Types of conflict resolution mechanisms

287. In general, contractual agreements can include a number of techniques to help resolve problems, including judicial, quasi-judicial or administrative, arbitral and non-binding alternative dispute resolution techniques. Each of these techniques has its advantages and disadvantages and is more or less appropriate for different types of contracts and under different circumstances.

288. As a general rule, disputes relating to an agreement are subject to the jurisdiction of the courts. Taking a dispute to courts however may be a long and costly exercise. This may be particularly true for EECCA courts which lack experience and capacity (or are simply believed to be corrupted) to deal with complex infrastructure contracts.

289. Quasi-judicial or administrative bodies, such as independent regulatory agencies, where these exist, may be another option. These bodies will be better informed about the history and current status of affairs with the contract and may be in a better position to make relevant decisions, and make them faster and more cheaply.

290. Arbitration is a technique for dispute resolution under which the parties agree to submit some or all of their disputes to an arbitral tribunal that is empowered to render decisions that are binding on the parties. Arbitration tribunal usually comprises one, three or five members. The parties typically choose members based on their expertise on a particular subject matter. Arbitration is generally accepted as the best approach in contracts with international operators.

291. Non-binding dispute resolutions include a wide range of techniques that are non-binding on the parties (that is, they are designed to be purely advisory). Some examples of such techniques include: informal dispute resolution mechanisms which range from consultation meetings between the parties to the use of technical advisors with powers to recommend a settlement, to conciliation and mediation techniques (which implies the involvement of a third party helping to resolve a conflict).

## 6.3 Dispute settlement in the reviewed cases

292. All the four contracts reviewed include conflict resolution clauses. While the two Armenian contracts focus on arbitration and non-binding amicable solutions in case of disagreements, the Ukrainian contracts refer to negotiations between the parties in case of conflicts. However, there is no procedure prescribed as to how these negotiations will take place which may make the resolution of conflicts less transparent and more difficult and cumbersome.

293. In case of significant technical and financial disputes between the parties, the Armenian management contract, for example, envisages the use of an independent auditor and a panel of arbitrators. The recommended procedure to follow is:

- **Resolving the conflict by referring to the independent auditor.** Within two months after the identification of a problem, the auditor should make a proposal to the parties on how to resolve the problem.



- **Involving one or several (a panel of) arbitrators.** If the proposal made by the independent auditor does not resolve the conflict an arbitrator or a panel of arbitrators should be appointed. The arbitrators are selected jointly by the two parties involved, or, if they fail to agree on the nomination, by the International Chamber of Commerce (as a solution of last resort).

294. The situation with the Yerevan lease contract is similar. The contract provides that both parties will act in good faith and to no detriment of each others' interests. The contract envisages settling all conflicts first and foremost in an amicable manner through discussions and arriving at a mutually-beneficial solution. It also allows for a facilitator, a third party, with a substantive knowledge in water and wastewater management who will be able to judge the problem and propose solutions. The facilitator may consult the parties separately but its final decision is not binding for the parties and cannot be used by the parties in legal proceedings, if the case is taken to court. The contract envisages that the costs of covering the facilitator's work will be borne equally by both parties.

295. The conflict resolution mechanism of last resort for the two Armenian contracts is court arbitration. Arbitration is envisaged to be administered by the London Court of International Arbitration<sup>21</sup> and in accordance with the rules of procedure for arbitration of the UN Commission on International Trade Law (UNCITRAL)<sup>22</sup>. The arbitrator will be an internationally-recognised expert in adjudicating disputes involving water supply and sanitation services and will not be a national either of Armenia or the bidder's or operator's home country. The contract also clarifies the meaning of home country with regard to each of the parties. Involving international courts is a common procedure in dispute resolution in large contracts with the participation of international operators.

296. Both Armenian contracts recognise that it is impossible to specify all possible cases of potential conflicts of interest in the contract. Instead, they provide for the most important mechanisms for solving such problems. They identify the major conflict resolution mechanisms - ranging from acting in good faith, through discussions and finding mutually-advantageous solutions, to using a facilitator to going to an international arbitrator. These mechanisms are based on international good practices.

297. In reality, there have been a number of conflict situations in Armenia between the parties to the contracts. All these conflicts were resolved by amicable means, meetings and discussions in an attempt to find mutually-acceptable solutions or through the use of an independent auditor. As many participants in the process recognise, the formal conflict resolution mechanisms are a necessary but not a sufficient condition to effectively resolve conflicts of interest. The willingness of the parties to cooperate, talk to each other, maintain good working relations and find solutions is equally important.

298. In a totally private divestiture arrangement, such as in the Shymkent case study, conflicts and conflict resolution mechanisms are of a considerably different nature compared to a contractual relationship between a municipality and a water service provider. Conflicts may arise on a regular basis. When conflicts occur, the law prescribes taking the cases to court or negotiating.

---

<sup>21</sup> The London Court of International Arbitration (LCIA) is a London based institution providing the service of international arbitration. LCIA is an international institution and provides a forum for dispute resolution proceedings for all parties, irrespective of their location or system of law.

<sup>22</sup> The UN Commission on International Trade Law (UNCITRAL) was established by the UN General Assembly in 1966 "to promote the progressive harmonization and unification of the law of international trade." In 1985, it drafted the UNCITRAL Model Law on International Commercial Arbitration. Agreements which cite the UNCITRAL Arbitration Rules may be bound to this form of dispute resolution.

**Box 11. Conflict resolution in privatised water utilities**

In Shymkent, a conflict occurred in relation to the yearly increase of the tariff. As agreed with the Regulator (ARNM), under the new 5-year tariff plan, the tariff was supposed to be increased starting at the beginning of 2008. However, the Prime Minister Cabinet imposed a freeze on the tariff increase in 2008. The conflict was solved through negotiations between the operator and the ARNM. An agreement between the parties was signed which established a new intermediate date for the application of the tariff increase.

299. Conflicts in Kazakhstan can be solved in court as specified in the law, or through alternative direct negotiations, as shown in the WRM example. There is, however, a lack of regulation between the two extreme cases. This can lead both to a very great number of cases which are arbitrated by the court, or alternatively, to a lack of transparency while negotiating under a direct procedure. In addition, given the lack of experience of national courts with such complex water issues, alternative conflict mechanisms as arbitration or expert panel may be more appropriate. The example of Chile (Box 12 below) may provide some additional inspiration particularly for large concession contracts and privatised utilities.

300. As the example of Chile shows, arbitration can be a very useful mechanism for solving conflicts. However, to apply it effectively, clear rules and procedures are needed. To avoid any misinterpretation, these rules and procedures should be known to all parties in advance.

**Box 12. Conflict dispute mechanisms in Chile**

The Chilean water sector is characterised by a number of large concession contracts. A key institutional feature of the Chilean model is the expert panel, created for each concessionaire particularly for resolving conflicts related to tariff rates that might arise with the regulator. Each panel has three members (usually engineers or economists), one named by the concessionaire, another by the regulator, and the third picked by the regulator from a list of candidates previously agreed on with the concessionaire.

As a first step, the regulator and the concessionaire each carries out a study taking a position on tariff adjustments. Then they exchange their studies and begin a discussion process. If the regulator and the concessionaire do not reach an agreement on the new rates, discrepancies are submitted to the expert panel along with all supporting material. The panel must decide on a value or position for each parameter or aspect on which a discrepancy exists. On each point, the panel must choose the position of the first or the second party; the panel is not allowed to propose other values. But because of the many discrepancies normally submitted to the panel, the panel's decisions, taken together, have usually translated into an intermediate value between the parties' overall positions.

The panel must reach a decision, by a simple majority, in 30 days. Its decision is final and cannot be appealed in court, a feature that has proved to be crucial in keeping the process at a technical level and ensuring prompt results. Of all the arbitration mechanisms used in regulated sectors in Chile, this one has been the strongest and most effective.

Beyond tariffs, other issues also often lead to conflicts, such as compliance with quality standards and investment plans. Conflicts related to such issues are normally dealt with by ordinary courts, making judicial independence a critical factor in the regulatory process.

Sources: World Bank, Public policy for the private sector, Note No 286.

301. In Ukraine, the main possible dispute settlement mechanism envisaged by the two concession contracts is negotiations between the parties. If these fail to produce any results, the cases will be dealt with in accordance with Ukrainian legislation. But what the Ukrainian legislation exactly requires is not specified any further. The risk is that such a vague formulation can actually create more problems than helping find a solution. At a minimum, the contract needs to specify the law on which further conflict resolution will be based.

#### 6.4 Contract enforcement mechanisms

302. Several techniques can be built into an arrangement to make contract enforcement for all parties involved easier. Some of the most common contract enforcement mechanisms include:

- Parent company guarantees;
- Performance bonds;
- Set-off rights;
- Escrow accounts;
- Insurance.

303. These mechanisms are briefly discussed below.

- **Parent company guarantees.** Parent company guarantees are used when a company entering into a contract is required to provide a guarantee of its performance by its parent company. This document is usually drafted from the parent company's perspective and the wording makes it clear that the parent company's liability only arises if its subsidiary commits a breach of its contract and fails to rectify the breach. Also, the liability of the parent is limited so that it will be no greater than that of the subsidiary under its contract with the client.
- **Performance bonds.** The operator is required to put up a bond of a specified sum of money, which the contracting authority may call on if the operator breaches or cancels the arrangement. Should the operator prove unable to perform its obligations under the arrangement, the money is forfeited. Performance bonds can also help cover any costs to the contracting authority arising from the operator's failure. For this reason, it is common to require contractors to provide a bond issued by an independent bank or insurance company so that the contracting authority can recover its costs that result from the contractor's default but up to a stipulated limit, often the estimated cost of construction works.
- **Set-off rights.** Set-off rights allow a party to recover sums owed to it by not paying money it owes the other party. For example, the contract between the contracting authority and the operator may provide for payments of certain revenues or fees to the contracting authority. The operator could withhold payment of these fees or payment of management fees or other sums as a set-off against money owed to it.
- **Escrow accounts.** An escrow account is a bank account where funds are held and can generally be accessed only under certain strict conditions. The advantage of an escrow account is that it enables funds to be kept separately from other funds of the contracting authority and to be accessed according to objective criteria. For example, the contracting authority may be responsible for past environmental liabilities. But the private operator may have to clean up and remediate a site because of environmental problems. The operator would have to rely on payment from the contracting authority, which may be problematic, particularly if all the budgeted funds for the year have been spent or allocated for other purposes. An escrow account that keeps funds for certain liabilities provides greater protection to the operator.

- **Co-naming on insurance.** The operator is normally required to take out insurance against many risks. The contracting authority should seek to be co-named on the insurance policy and have its interest noted on all insurance taken out by the operator. This offers more protection than simply being named “loss payee” under the policy, because the contracting authority can make the claim itself rather than rely on the insured party to do so. Normally, the operator should deliver to the contracting authority certificates of the insurance, or copies of the insurance policies, as evidence that the required policies are in full force and effect. Specialised advice on local insurance should be obtained for individual projects.

304. Penalties are also used as a contract enforcement mechanism but these are discussed separately in the section on risk management further below.

### **6.5 Contract enforcement mechanisms in the reviewed cases**

305. Of the above listed mechanisms, the insurance is the most common mechanism for contract enforcement among the reviewed contracts, followed by performance bonds and parent company guarantees.

306. An insurance requirement is built in all contracts reviewed. The Ukrainian contracts require only a basic insurance of the property which is less than sufficient given the complexity of the contractual agreements there. The two Armenian contracts provide a good example of the range of insurance policies that can be required from the operator. For example, the Yerevan lease contract requires insurance for third party liability, third party motor vehicle liability, professional liability, employer’s liability and worker’s compensation, insurance against loss or damage of equipment, property, documents. In addition, the lease contract also requires that the operator’s sub-contractors should also obtain and maintain insurance policies for such liabilities. The contract however does not explicitly require the operator to co-name the contracting authority on the policies.

307. Apart from insurance, the two Armenian contracts envisage also performance bonds (also called performance security). The lease contract, for example, provides very detailed requirements related to the issuing of the performance security. These include among others:

- A requirement that the security should be issued by an “acceptable bank”. The term “acceptable bank” is further specified to mean a first class international bank whose long term debt is rated at least AA- by Standard and Poor’s or has an equivalent rating of Moody’s International Services.
- The security should be issued for an initial period of 36 months with a possibility for renewal, as needed.
- A special format in which the security should be provided.
- In case the security is called by the contracting authority, the authority is obliged to give the operator a 30-business day notice during which period the operator should strive to remedy the damage.
- If the operator believes the demand to call the security is wrongful, the contract envisages a procedure to solve the disagreement.

308. The management contract also contains similar clauses. The amount of the security, in this case, is estimated equal to 10% of the total management fee for the whole (4-year) period of the contract.

309. In addition to the above mechanisms, the lease contract also envisages a parent company guarantee. Experience shows that it is good practice to ensure that the operator should have sufficient resources to carry out its statutory obligations. The government of Armenia required Yerevan Djur, the locally registered company and a subsidiary to the French company Véolia Water, to present such guarantees. What is more important Véolia Water was made a party to the lease contract which gives additional reassurance to the Armenian government that the contract will be duly implemented.

310. In general, such guarantees are common practice particularly in large and complex contracts. However, this is not the case in Ukrainian contracts. For example, in the case of Kupyansk, the selected operator was asked to provide a guarantee, in the form of a bank letter, that he will be able to honour the investment commitments specified in the contract. A bank letter in this case is not a sufficient guarantee given the instability of the local bank system in the country. Also, given that there is a parent company, it might have been good if the contract required a parent guarantee for cases when the operator is not able or willing to implement some of the investments (or other) obligations under the contract.

311. Requiring the parent company to provide unlimited guarantees however is neither possible nor reasonable. Instead, the equity or guarantee requirements need to take into account the willingness of the parent and daughter companies to bear risk, and accept that each of the companies will need to limit their risk to a specified level, as this is done in the case of the lease contract in Armenia.

## 6.6 Major lessons learnt

312. Monitoring contract implementation through reporting obligations is an important element of contractual agreements. All reviewed contracts include reporting requirements but with a different degree of specificities. While in the case of the Armenian contracts, reporting requirements and the bodies responsible for overseeing contract implementation are specified in detail, the Ukrainian contracts only vaguely touch upon these.

313. With regard to contract enforcement, all countries envisage some kind of conflict resolution and contract enforcement mechanisms directly included in the contracts or more generally prescribed in the governing law. While the Armenian contracts are much more detailed and more prescriptive, the Ukrainian contracts contain only basic requirements in this regard.

314. In this context, the main lessons learnt include:

- Reporting should be regular but balanced. Too much or too little of it may impose additional and unnecessary burden on both the operator and the contracting authority. The format and frequency of reporting should be tailored to the needs of the contracting authority and should allow it to better understand the progress with contract implementation towards the achievement of contract objectives.
- Reporting requirements (type of data and information to be collected and monitored, the format in which these will be provided, frequency of submission of reports, procedure for providing feedback by the contracting authority) should be specified in the contract as precisely as possible. If this is not possible, the contract should envisage a procedure for developing such reporting requirements by some precise date after the contract starts. Armenian contracts show a good example in this regard.
- The contract should also specify as clearly as possible the body (bodies) responsible for monitoring different aspects of the contract.

- Apart from formal monitoring, and in order to improve trust between the parties to the contract, it is important that the parties maintain regular contacts all around the year without waiting for the official reporting deadlines.
- The Armenian contracts give preference to amicable non-binding solutions and arbitration. The procedures for applying the mechanisms are well established in the contracts. The Ukrainian contracts envisage negotiations as a possible mechanism but there are no clear rules and procedures for carrying out negotiations between the parties which may lead to conflicts in the future. The law in Kazakhstan favours court decision as a first instance.
- Arbitration through (a panel of) experts has proven its effectiveness as a working mechanism. However, its application also requires clear rules and procedures, as provided for in the Armenian contracts. This is a good practice and EECCA countries may want to start using it more consistently in their contractual arrangements.
- Solving conflicts through courts usually costs a lot of time and money and should be a solution of last resort. Envisaging going to international courts when conflicts arise is a common practice in complex contracts particularly where international operators are involved, as in the case of the Armenian contracts.
- As exemplified by the Armenian cases, it is impossible to specify all possible cases of potential conflicts of interest in the contract or in law. Instead, the contract should prescribe the specific mechanisms for conflict resolution and the rules and procedures of their application.
- Given the significant risks involved in water sector contracts, international experience shows that there is a need for more explicit mechanisms to ensure contract enforcement. These mechanisms need to be aligned with the legislation in force. Performance bonds are a particularly appropriate mechanism. This mechanism can only be effective however if it is well designed and all its elements are properly covered by the contract. The two Armenian contracts provide a good example in this regard.
- It is worth considering including requirements for parent company guarantees in contracts where the operator is a subsidiary to a larger company. As exemplified by the Yerevan lease contract, making the parent company a party to the contract may be seen as an additional guarantee.
- Experience shows that it is better if all insurance policies required are clearly specified in the contract. In countries with less developed insurance industry (as in the EECCA region), the contracting authority may require to approve the choice of the insurer as well as be co-named on the insurance policy before the insurance policies are issued.

## CHAPTER 7. RISK MANAGEMENT

### Major good practices

#### (i) Risk allocation

Any long-term contractual relationships involve risks such as: operation and maintenance risks, revenue risks, regulatory risks, political risks. The allocation of key risks should be carefully considered when designing performance-based contracts. Risks should be fairly allocated among parties. The risks should be allocated to the party that is best suited to assume them both in terms of technical expertise and the possibility to mitigate the risk at least cost.

#### (ii) Financial penalties

In the context of EECCA water utilities, which often face significant financial difficulties, penalties should be used with utmost prudence. In order to avoid putting at risk the general financial health of the utility, and consequently its operational capacity, penalties should be used only when utilities are operated by private contractors. Imposing a penalty would directly affect the ability of the utility to meet the performance levels specified in the contract.

#### (iii) Bonuses and incentives

If properly designed, bonuses and incentives could contribute significantly to the achievement of the level of services provided by a contractor. When the utility is run by a publicly-owned contractor, bonuses should be provided directly to individuals and not to the utility because no individual will benefit directly from higher performance levels of the utility. When the utility is run by a private operator, incentives should reflect the productivity gains of the utility.

315. Any long-term contractual relationships involve risks for all parties involved. These risks are well known and well documented in practice and in the literature. There are two fundamental principles in designing risk mitigation measures for performance-based contracts in the water sector:

- First, risks should be allocated among parties in a fair manner; and,
- Second, the risks should be allocated to the party that is best suited to assume them both in terms of technical expertise and the possibility to mitigate the risk at least cost. Usually, the party that is assigned a certain responsibility under the contract is also given the task to mitigate it. Each area of responsibility for delivering water services entails a set of corresponding risks.

316. The risks can be shared across the parties concerned: the contracting authority and the operator on the one hand, and the operator and customers, on the other. Thus, two main issues are discussed in this section: types of risks and allocation of risks primarily between the contracting authority and the operator. The most common way to share risks between the operator and customers is through the tariff adjustment and indexation rules which were discussed earlier in Chapter 5. Many of the contract enforcement mechanisms are also used as risk mitigation measures.

## 7.1 Types of risks

317. The process of identifying, assessing, and assigning risks is a difficult one. This is due to the fact that water and sanitation contracts are exposed to a large number of risks that need to be taken into account. The fact that the risks are often interrelated additionally complicates the process. The main risks include: commercial (market and payment risks, also called revenue risks), operation and maintenance risks, currency rate and convertibility risks, regulatory and policy or political risks, and *force majeure*. Various strategies to mitigate these risks exist and have been put into practice. These are discussed in more detail below.

### *Market risks*

318. Market risks take the form of demand (ability and willingness to pay) risk and payment (or credit) risk. Under a lease contract, concession, or asset privatisation, the demand and payment risks are borne by the private operators, who sell services directly to individual consumers. Market risk arises because consumption by retail consumers may decline as a result of increased tariffs or greater measurement of consumption through metering. Accurately predicting the consumer's response to a tariff increase is critical to ensuring that future revenue requirements are met.

319. Demand risk affects many elements of the water and sanitation sector and can have a significant impact on business value. Fluctuations in demand can make new investments too big or too small, which can increase costs. Demand risk can affect all parts of a water and sanitation company, including commercial performance, operation and maintenance, and new investment. Usually, the operator will be reluctant to accept full demand risk, and will seek to pass it onto customers through tariffs or reduced service levels.

### *Construction or completion risks*

320. Construction risks imply failure of the operator to complete a project on time, within budget, and per contract design specifications. Construction risks are especially important in long term (lease and concession) contracts. These types of risks may manifest themselves in many different ways: delays in completion, abandonment, cost overruns, and failure of the operator to achieve stipulated performance levels, all of which may adversely affect the timing and level of cash flows. In order to avoid such risks, the contracts usually require that reputable engineering construction companies should be hired (through a competitive procurement). The performance of the contractor may also be backstopped with an insurance package that includes a performance bond or a letters of credit from reputable financial institutions.

321. Governments or contracting authorities are able to impose heavy penalties for failure to meet completion dates. In some agreements, for example, the operator is required to pay the government water authority a substantial lump sum for each week beyond the scheduled construction period during which the plant remained uncompleted. Once the maximum delay is reached, the water authority can terminate the contract.

### *Operational risk*

322. The main operational risk in water and wastewater facilities is that they fail to meet the agreed upon performance parameters. Operators are generally required to put up performance bonds as guarantees of their operational obligations and to pay penalties if performance standards are not met. The amount of the performance bond is typically equal to an average year's capital expenditure programme, so that if the operator were to default on performance targets and be asked to leave, the contracting authority could use the performance bond to fund capital expenditures before a new operator was put in place.



### *Currency risks*

323. Currency risk is made up of exchange rate risk and convertibility risk. Exchange rate risk comes from unpredictable variation in the exchange rate. Convertibility risk comes from uncertainty as to whether the government will allow the operator to convert local currency into foreign currency and send it overseas. Currency risk affects the value of the business through several mechanisms:

- **Operational costs:** The exchange rate affects the price of imported inputs. For example, a change in the exchange rate alters the cost of imported fuel oil, which may affect the domestic price of electricity used to pump water.
- **Maintenance and construction costs:** The exchange rate directly affects the price of imported parts or other inputs required to maintain existing plants and construct new assets.
- **Finance costs:** If loans are denominated in a foreign currency but are serviced from local currency revenues exchange rate fluctuations will affect business profitability. If the local currency depreciates, return on equity will fall.

324. Exchange rate fluctuations are not readily amenable to control. Central governments influence the exchange rate through macroeconomic policies, but the degree of influence is imperfect. Central governments can decide whether currency can be converted and transferred. But local or provincial governments may have no ability to influence the exchange rate or convertibility.

325. The operator also lacks control over the exchange rate and convertibility. An operator may be able to mitigate the impact of exchange rate changes by reducing its reliance on imported inputs or foreign-currency borrowing, but this has a cost. The operator may be able to hedge exchange rate risks by entering into swaps or futures contracts, but this is costly, and not possible in most EECCA countries. For largely uncontrollable risks, the operator should be able to diversify its exposure to exchange rate risk across projects in different countries. After dramatic currency crises in EECCA countries, operators may be unwilling to accept substantial exchange rate risk. This makes an argument for the contracting authority to bear some exchange rate risk (for example, through guarantees or through retaining responsibility for financing new investment) or to allow the operator to share risk with customers.

### *Regulatory and political risks*

326. Regulatory and political risks include the risk of expropriation, regulatory interference (such as unilateral changes in contracts), early termination, and change of law. These are risks that the operator is not in a position to evaluate or shoulder. The special attributes of water and wastewater contracts, their local nature, the need for tariff and environmental regulation, the difficulty of determining the asset value of underground pipes accentuate these risks. Municipalities with little, if any, regulatory experience often become responsible for significant regulatory functions.

327. The high level of exposure to regulatory and political risks creates significant investment uncertainty. To mitigate these risks, operators, particularly in concession contracts, have relied on various mechanisms. A basic level of protection is established by the contract whose credibility depends on how well it assigns and enforces the rights and obligations of the operator and provides for a fair and workable contract and tariff revision rules. Ensuring the credibility and fairness of the regulatory entity charged with monitoring and enforcing a concession agreement's obligations and regulatory requirements further mitigates regulatory and political risk. The presence of an independent regulatory agency diminishes the risk of political interference.

### ***Force majeure***

328. *Force majeure* risks are those that are beyond the control of the private sector or the government parties to a contract. Under *force majeure*, either party has the right to suspend obligations under the contract. *Force majeure* events include domestic political events, such as wars, riots, general strikes, and changes in laws, and “acts of God”, such as natural disasters, fires, and epidemics. The operator may be given the risk to share it with insurers.

## **7.2 Risk allocation**

329. Bearing risk has a cost. In addition to tariffs revisions, some of the major approaches to allocating risk between the operator and the contracting authority include:

- **Bonuses and penalties:** Performance payments, such as penalties and bonuses, encourage efficiency gains by sharing some element of risk with the operator. The contract may lay out a list of penalties if the operator does not perform or a list of bonuses if the operator exceeds certain targets.
  - ⇒ Bonuses are the main mechanisms for transferring risk in a management contract. A management contract without performance bonuses only gives an operator a weak incentive to improve performance.
  - ⇒ The contract can also set out penalties for failing to meet performance requirements. These penalties usually vary according to several factors, including the type of breach and its severity, duration, frequency, and effect on customers. The benefit of this approach is that the penalties are clear, agreed on, and more easily enforceable than a general claim for damages.
- **Government guarantees:** The contracting authority or a government entity may provide guarantees to the operator against certain risks, such as: operating debt or exchange rate guarantees related to foreign debt. This makes the risk more attractive to the operator. Care must be taken not to include risks that the operator might be able to cover by himself more effectively.
- **Termination triggers and payments:** An arrangement will usually set out a list of triggers that entitles parties to terminate early, for example:
  - ⇒ Requisition, expropriation or seizure of water systems by government;
  - ⇒ The occasion of *force majeure* that makes the contract unworkable;
  - ⇒ If penalties exceed a certain threshold the contracting authority may have the right to terminate.

330. Termination payments compensate the operator for costs that would otherwise be lost under early termination (e.g. sunk investment costs by the operator). The way that these payments are calculated and applied helps to determine the allocation of risk.

- **Transition periods at commencement:** Where information problems increase the risk a transition period can be built in at the commencement of the arrangement. This allows an initial grace period when the operator can collect the information needed to run the business on a commercial basis, without accountability for performance improvements. Terms can be adjusted to reflect any major differences from the initial assumptions.

- **Contract duration:** The longer the contract duration the more difficult it is to predict the effect of various parameters over the life of the contract. This may make the risks and the costs become unacceptably high to the various parties. Reset mechanisms can help reduce risks to manageable levels for long duration contracts, particularly where private investment is involved.

331. Each of the standard models of performance-based contracts - management contracts, leases, and concessions - is associated with, and to some extent defined by, a particular allocation of responsibilities and risks. One way of designing the arrangement is to determine whether one of the three standard models can deliver the desired outcome. If not, a common practice is to establish a hybrid of different models that best suit the contract's objectives.

#### *Management contract*

332. The risk transferred to the operator depends on the performance bonus. If there is no performance bonus, the operator bears the risk of not being paid by the contracting authority, but bears little of the risks of the water business. If there is a performance bonus, the formula for the bonus determines in large part how much risk is shifted to the operator.

#### *Leases*

333. Under a lease, the risk transferred from the contracting authority to the operator is usually significant, but depends on the details of the contract and, in particular, the way the operator's remuneration is determined. Under a lease, the tariff adjustment rules that matter most are those applying to the operator's tariff (or lease fee).

#### *Concessions*

334. Under a concession, the risk transferred from the contracting authority to the operator is usually substantial, but depends on the details of the contract, and particularly on the rules for adjusting the customer tariff.

#### *Hybrids*

335. Various types of customised risk-sharing arrangements are possible. These could include:

- A “**management contract plus**” arrangement. In this case, the management contract might provide substantial bonuses, but only pay these if the operator succeeds in increasing the operating cashflow of the utility by more than the amount of the bonus. If the bonus is large, the operator might risk providing inputs in addition to those paid for by the fixed fee, if this improves the utility's performance enough to secure the bonus.
- A “**lease plus**” arrangement. Under a standard lease, the contracting authority retains full responsibility for undertaking and financing new investment. However, it may be desirable to transfer some responsibility for investment to the operator. For example, the operator is usually better placed to manage construction of new assets. Contracting authorities may also wish to share other investment-related risks and responsibilities, particularly those related to financing, with the operator. A lease contract, for example, can include responsibility of the operator for some investments (such as network extensions) or rehabilitations.

*Services after the contract end date (transition assistance)*

336. Providing that the contract is fully implemented and reaches its expected deadline, one additional issue that needs to be considered is services after the end date of a contract (the so-called transition assistance). The purpose of this assistance is to ensure a smooth transition and transfer of assets between the operator in place and a subsequent operator at the end of the contract (particularly in the case of long-term contracts). The usual practice is that the contracting authority, no later than one year prior to the end date of the contract, requests the operator, in writing, to provide such assistance in closing the contract. This transition period may last up to 180 days after the end date of the contract. Usually, the contracting authority pays the operator a fixed fee for the transition assistance, at a price to be negotiated between the parties.

**7.3 Risk management in reviewed cases**

337. All contracts reviewed envisage some kind of risk mitigation measures related to major risks faced by the sector. Many of these risks were already discussed in one context or another earlier in the report (e.g. tariff adjustment and revision issues, contract enforcement issues). A *force majeure* and an early termination clause are among the most common measures and they are included in all contracts.

338. At the same time, given the relatively early stage of implementation of most of the contracts, the risk allocation measures have not been really used but some of the inherent risks have already manifested themselves. For example, under the management contract, there were serious problems with completion of the construction works (that is, a completion risk). There was a significant tension at some point of project implementation related to the operator's failure to implement the investment plan as agreed upon.

339. In Armenia, the regulatory risk (related to the miscommunication between national authorities with regard to environmental legislation - the payment of water pollution charges) or the demand risk (related to the delay of the government in transferring operating subsidies to the management contractor or the postponement of tariff increase in the case of the lease contractor leading to reduced revenue) all point to the importance and the need for coherent and rigorous risk mitigation measures tailored to the needs of the specific contract.

340. With regard to financial incentives - bonuses and penalties - both Armenian contracts regulate these issues well. As with all management contracts, the AWWC management contract envisages a bonus (performance incentive compensation) for the operator for exceeding some of the quality standards required by the contract. The bonus is calculated by the technical auditor and can be paid on an annual basis. The contract details the procedure for determining and agreeing on the level of the bonus. The bonus is paid from the World Bank loan contracted for this water utility. If the contracting authority is late in paying the bonus, the operator gets an additional interest rate on the amount for each day of delay. Despite the fact that the contract regulates this issue rather well, there were conflicts between the operator and the technical auditor related to the calculation of the bonus. This points to the fact that the contractual requirements need to be further substantiated and transformed into practical methodologies for making these calculation. Given the important role in regulating the relations between the parties with regard to the operator's performance, these methodologies need to be agreed upon by the parties at the outset of the contract.

341. In the case of the lease contract, financial penalties related to not achieving the performance indicators are included. These are detailed in a separate annex. The most significant penalties are imposed when the service continuity indicator is not fulfilled: the penalties are paid in local currency. Penalties are calculated by the independent auditor. For example, the penalties for the major indicator (continuity of water supply) are AMD 30.24 million for each percentage point below the yearly performance standards

defined in the contract. The penalties are however limited to a maximum of 3 percent of the total collection revenue in the calendar year. The lease contract does not foresee any incentives related to performance indicators.

342. In addition, both Armenian contracts envisage early contract termination. They also include procedures for closing the contract. The contracts may be terminated for convenience or for cause (in case of bankruptcy, insolvency of the operator or because of fraudulent and corrupt practices).

343. The only penalty envisaged in the Berdyansk concession contract is related to the delay in the payment of the concession fee by the operator. In case of delay, the operator will pay a penalty equal to the double National Bank of Ukraine rate applied to the delayed payment per each day of delay. Payment of the penalty will not free the operator from the fulfilment of its obligations. There are no penalties or bonuses in the Ukrainian concession contracts related to specific service standards.

344. Although there is no specific contract in the case of the Shmkent utility, some financial penalties can apply if the company invests 5% below what is included in the investment plan agreed with the national regulator. In that case, the approved tariff would be revised according to the corrected investment plan, and the company should repay its customers the difference between the tariff applied and the new tariff calculated.

#### **7.4 Major lessons learnt**

345. Identifying risks and including risk mitigation clauses in water contracts help prevent future costly failures for each of the parties to the contract as risks may be substantial (including revenue risks (low tariff collection), operation and maintenance risks, currency rate risks, regulatory and policy or political risks, and *force majeure*).

346. Defining risks and risk mitigation measures is a difficult exercise and requires a good understanding of the conditions and the environment in which the contract will operate. As the reviewed case studies show, all countries envisage some of risk mitigation measures (tariff adjustment and revisions rules, bonuses and penalties, early contract termination clauses). While these measures are well detailed in the Armenian contracts, the two concession contracts in Ukraine do not provide specific rules and procedures for their implementation.

347. In this context, some of the major lessons are:

- Risk mitigation measures should be tailored to the objectives of the contract, to the type of contractual arrangement, the type of risks undertaken by each of the parties and the type of regulatory environment in which the contract will operate.
- Experience shows that bonuses are best applied with management contracts, penalties are mostly suited for lease contracts while regulating risk through tariff adjustment is the preferred option in both lease and concession contracts.
- The rules and procedures for determining contract incentives as risk mitigation measures (tariffs revisions, bonuses and penalties) need to be clearly specified in the contractual arrangements. Methodologies for calculating bonuses and penalties need to be agreed upon by the parties as early in the process as possible in order to prevent future costly situations. The lack of a clearly defined methodology for the calculation of the bonus level of the management contractor in Armenia resulted in lengthy disagreements between the parties and in delays in contract implementation.

## MAJOR GOOD PRACTICES

348. Although no two single contracts can be exactly the same, performance-based contracts in the water sector usually share a number of common elements. The major elements include, among others, performance indicators, tariff related issues, contract monitoring, mechanisms for conflict resolution, conflict enforcement and risk mitigation. These as well as issues related to the contract preparation have been analysed in the reviewed contracts and summarised in this report.

349. Of the five reviewed case studies, the two Armenian contracts are of particular interest. They are at a more advanced level of implementation compared to the Ukrainian concession contracts which have hardly taken off the ground at the time of writing this report. As such, the Armenian contracts provide a number of useful insights into how contracts work in real life. The experience of the Armenian government with performance contracting shows that no contract, no matter how well designed it is, can provide for all possible cases that can occur during implementation. For this reason, it is important that the parties maintain good working relations which can help solve problems in a less formal but more efficient and less costly manner.

350. The good practices that have emerged from this analysis should not be seen as a ready-to-use toolbox. There is hardly one single model that fits all countries' requirements. These guidelines should be adjusted to the specific needs of a contracting authority and the type of contract that will be offered to an operator.

351. Some of the major good practices, identified as part of this project, are summarised in Table 5 below.

Table 10. Major good practices identified in the Revised Guidelines

Principle	Best practice	Comments
<i>Legal and institutional framework</i>		
<p>1. The legal framework and institutional set-up should provide for proper regulation and monitoring of contract implementation.</p> <p>2. The regulatory authority should have a sufficient level of political independence.</p>	<p>Separate the regulatory aspects and standard setting from operational functions of water supply and sanitation management.</p> <p>Introduce relevant legislation which supports these reforms.</p> <p>Establish an independent regulator and assign clear functions and responsibilities to this body in order to ensure that the interests of all parties (contracting authority, operator, customers) are well balanced and protected.</p>	<p>The regulator could be a multi-sectoral utility agency or a single sector regulator or even a dedicated unit in a relevant government ministry. What matters is that the regulator has clear responsibilities and that there is no overlapping of tasks across different levels and bodies.</p>
<i>Contract preparation stage</i>		
<p>1. Conducting proper Due Diligence is a key element of the contract preparation stage.</p>	<p>Before entering into a contract, conduct due diligence, which implies a thorough and careful review of the existing legal and regulatory framework that will impact the contract. Select a type of contract that is tailored to the needs of the utility and not the existing legislation.</p> <p>Review the utility's assets and liabilities (including financial, technical, managerial, staff, etc) as part of the due diligence procedure.</p>	<p>The due diligence procedure helps avoid future conflicts between the parties due to possible mismatches between the contract and the legislation in force. If, as a result of the review, changes in the law are needed, these should be introduced before the contract is finalised.</p> <p>If, as a result of the review, it becomes clear that there is a need for a financial restructuring of the utility, this should be done before the contract comes into force.</p> <p>Restructuring is a common practice under lease or concession contracts (when a new company is created) and less common under management contracts.</p> <p>Experience shows that such reviews are costly. The contracting authority needs to ensure that it has sufficient resources to properly conduct such an analysis (e.g. budgets, international grants).</p>

Principle	Best practice	Comments
<p>2. The contracting authority defines as precisely as possible the objectives and responsibilities of the parties during the preparatory stage.</p> <p>3. Competitive bidding may be the most appropriate method for selecting a contractor in EECCA.</p> <p>4. The quality of initial data is crucial for the preparation of the contract.</p>	<p>Start the public-private partnership with less complex contracts (service or management).</p> <p>Define objectives on the basis of a clear specification of the service area and the scope of the project. Establish, in a clear and unambiguous way, the rights, obligations and responsibilities of each contractual party as well as joint responsibilities.</p> <p>Formulate the bidding and selection procedure, rules and criteria in a simple and clear manner before the competition is launched.</p> <p>The technical and financial evaluation and selection criteria should be few, straightforward and easy to understand and calculate.</p> <p>Organise pre-bid meetings, to provide information on the objectives and scope of the contract, for all bidders at the same time.</p> <p>Do not change initial data between the moment the Terms of Reference for the contract are issued and the starting date of the contract.</p> <p>If the quality of the initial data is low, allow for a re-valuation of assets before the actual transfer of assets to the operator is carried out.</p> <p>Specify the methodology for asset evaluation in advance and have it agreed upon by the parties to the contract.</p>	<p>Starting with simpler contractual models allows the contracting authority to gain experience with and confidence in dealing with intricate and technical matters before moving to more complex lease or concession contracts.</p> <p>The service area should be clearly identified early in the process and preferably before Due Diligence is conducted. The extent of the service area has a direct impact on the costs and revenues of the operator.</p> <p>Unambiguous criteria and rules enhance transparency and encourage market choices.</p> <p>Experience shows that organising the bidding procedure well takes time and money that the contracting authority needs to take into account from the outset of the process.</p> <p>Holding meetings with all bidders simultaneously ensures equal access of all bidders to information and a fair competition.</p> <p>The logic is that if data are changed, this may make some of the key indicators, used to select the contractor, irrelevant.</p> <p>This task may be assigned to the operator. It is best if the contractor is required to conduct the evaluation during the first several months of the contract (between contract signature and its actual starting date). Such a re-evaluation can help avoid future conflicts.</p>



Principle	Best practice	Comments
<i>Performance indicators</i>		
<p>1. The accurate definition and selection of performance indicators is crucial for the success of contract implementation.</p>	<p>Select few, realistic and easy to measure performance indicators. Tailor them to the capacity of the operator and the contracting authority.</p> <p>Define indicators in terms of levels, timeframes for their achievement, how compliance should be measured, events that justify non-compliance and sanctions in the event of non-compliance.</p> <p>Specify the methodology for monitoring, calculation and measuring of performance indicators in the contract.</p> <p>Where the initial data (baseline scenario) are poor, include in the contract a clause that allows some initial period (e.g. 6 months) for the operator to update the scenario and jointly with the contracting authority to revisit the indicators, if needed.</p>	<p>Armenian experience is particularly instructive in this regard where each subsequent contract identifies fewer and fewer indicators, as it becomes obvious that not all indicators can be meaningfully and realistically monitored.</p> <p>Performance indicators could be linked to the financial performance of the utility (e.g. operating ratio, collection efficiency), efficiency of operations (unaccounted-for-water, pipe breaks), operating performance (average hours of service, population served). Financial indicators are less relevant for concession contracts and more appropriate in management and lease contracts.</p> <p>If this is not possible, the contract should, at a minimum, provide for a procedure of determining the methodologies at some later stage. If the methodology is unclear, this may lead to conflicts, particularly with regard to indicators used as a basis for determining bonuses or penalties.</p> <p>To minimise this problem, often indicators are set as increments (an improvement expressed as a percentage) above a baseline number rather than as absolute values.</p>
<p>2. To be credible, performance indicators need to be regularly and closely monitored.</p>	<p>Clearly identify in the contract the body(ies) responsible for monitoring progress with achieving indicators. Specify the procedure for monitoring and reporting.</p>	<p>This monitoring function can be assigned either to the regulator (if there is one), or regular government agencies with responsibilities for the water sector (or alternatively to the respective local authorities where the utility is located) or to some other unit specifically designed to carry out this function.</p>

Principle	Best practice	Comments
	<p>If the contracting authority does not have sufficient capacity to conduct monitoring properly, appoint an independent technical auditor to do this task.</p> <p>If the choice is to use the services of a technical auditor, select the auditor through a transparent and competitive process. Carefully balance his powers and responsibilities in order to avoid conflicts.</p>	<p>The auditor will cost money and the contracting authority needs to ensure that it can allocate sufficient resources for the auditor to be able to carry on his tasks effectively.</p>
<i>Tariff setting and financial obligations of the contracting authority</i>		
<p>1. A sound tariff policy should balance considerations related to the utility's financial viability, its social objectives and economic efficiency. These are often difficult objectives to reconcile.</p>	<p>Whatever the tariff setting-methodology, for the sake of transparency, include the tariff formula in the contract.</p>	<p>There is not a best model to design the tariff. The best practice is the one that meets the objectives of the contracting authority. In order to ensure cost recovery of the utility, tariffs are often bundled together with taxes (budgets) and transfers (donor contributions). The practical implementation of these principles is reflected into the various tariff structures that have been designed and put in place by different countries (single or two-part tariffs).</p> <p>One option to design the tariff and meet its multiple objectives is to have a fixed part which will aim to recover the financial costs of the utility (based on the average cost pricing approach) and a variable part which will account for the economic costs of water services calculated on the basis of the marginal cost pricing approach (volumetric tariff).</p>
	<p>If the tariff structure is based on actual volumetric consumption, ensure that there is a clause in the contract which specifies whose responsibility the installation of water meters in households is.</p> <p>Clearly specify tariff revision mechanisms in the contracts, both in relation to inflation and improvement of services as well as in response to <i>force majeure</i> events or changes in the legal regime.</p>	<p>Installing water metres can be costly for the population. Support from the budget or donor grants may be needed.</p>

Principle	Best practice	Comments
<p>2. With performance-based contracts, the government is not only a regulator but often has specific financial obligations. These financial obligations will depend on the type of contract under implementation.</p>	<p>Define the meaning of excess profits in the contract and require that part of these profits be reinvested by the operator.</p> <p>Organise public hearings when discussing tariff increases.</p> <p>When the contracting authority is fully (e.g. service or management contracts) or partially (e.g. lease contracts) responsible for financing the investment programmes of the water utility, clearly define in the contract its financial obligations.</p> <p>Define these obligations both in terms of amounts and timeframe of investments.</p> <p>When the contracting authority is responsible for subsidising the utility as a way of compensating for tariffs which fail to cover the financial costs of the utility, avoid cross-subsidisation and replace it, if necessary, by transparent subsidy schemes targeted at well-identified poor households.</p>	<p>This practice ensures that some social justice be achieved.</p> <p>This makes the process more transparent and allows citizens and customers to better understand the rationale of the tariff design and tariff increase.</p> <p>In order to avoid conflicts during the implementation phase, the contract should draw a clear distinction between maintenance works, replacement works and emergency situations and whose responsibility it is to cover each of these works financially.</p> <p>Experience shows however that subsidising the delivery of actual services and not consumer consumption is a more efficient way of providing public support to the sector.</p>
<b><i>Contract monitoring, dispute settlement and contract enforcement</i></b>		
<p>1. Setting an effective system to monitor contract implementation is crucial for evaluating if parties meet their obligations and achieve specified targets.</p>	<p>Specify, as precisely as possible, the monitoring and reporting requirements in the contract. Clarify requirements in terms of type of data and information to be monitored and collected, the format in which reports will be provided, frequency of submission of reports, procedure for providing feedback by the contracting authority.</p>	<p>If this is not possible, the contract should envisage a procedure for developing such reporting requirements by some precise date after the contract starts.</p> <p>Reporting should be regular but balanced. Too little or too much of it may impose additional and unnecessary burden on both the operator and the contracting authority.</p>

Principle	Best practice	Comments
<p>2. Clearly defining in the contract the conflict resolution and enforcement mechanisms can help ensure smooth contract implementation.</p>	<p>Specify in the contract the body (bodies) responsible for monitoring different aspects of the contract.</p> <p>Define, as precisely as possible, all possible conflict resolution mechanisms in the contract and the order and procedure for their application.</p> <p>While contracts should include formal conflict resolution procedures (e.g. judicial, quasi-judicial, administrative, arbitral), identify arbitration through (a panel of) experts as the preferred dispute settlement mechanism (particularly in contracts that include a foreign private entity).</p> <p>Include in the contract, contract enforcement mechanisms such as performance bonds, parent company guarantees, insurance policies.</p>	<p>In countries where governments face limited monitoring and regulatory capacity, the monitoring function could be outsourced to an auditing company. The government should then reconfigure its task as monitoring the auditor.</p> <p>The main advantages of arbitration include confidentiality (as it relates to commercial secrets); expertise (arbitrators are selected on the basis of their technical expertise); neutrality (arbitrators are chosen from among individuals unrelated to the parties in the dispute); integrity (arbitrators are chosen from among individuals of high moral repute).</p> <p>Usually, the costs of covering arbitrators' involvement are borne by the two parties.</p> <p>These mechanism can only be effective however if well designed and if all their elements are properly specified in the contract.</p> <p>In countries with less developed insurance industry (as in the EECCA region), the contracting authority may require to approve the choice of the insurer as well as be co-named on the insurance policy before the insurance policies are issued.</p>
<p><i>Risk management</i></p>		
<p>1. Any long-term contractual relationships involve risks that need to be properly managed.</p>	<p>Carefully consider the allocation of key risks when designing contracts. Allocate risks fairly among parties.</p>	<p>Major risks include: operation and maintenance risks, revenue risks, regulatory risks, political risks.</p> <p>Allocating risks fairly implies that risks should be allocated to the party that is best suited to assume them both in terms of technical expertise and the possibility to mitigate the risk at least cost.</p>

Principle	Best practice	Comments
	<p>Tailor the risk mitigation measures to the objectives of the contract, the type of contractual arrangement, the type of risks undertaken by each of the parties and the type of regulatory environment in which the contract will operate.</p> <p>Clearly specify in the contractual agreement the rules and procedures for determining contract incentives as risk mitigation measures (tariffs revisions, bonuses and penalties).</p> <p>Specify the methodologies for calculating bonuses and penalties in the contract.</p>	<p>Experience shows that bonuses are best applied with management contracts, penalties are mostly suited for lease contracts while regulating risk through tariff adjustment could be an option in both lease and concession contracts.</p> <p>If this is not possible, the contract should specify, at a minimum, the procedure and timing for establishing these methodologies.</p>

## REFERENCES

- Alexander, I. and Irwin, T. (1996), *Price Caps, Rate-of-Return Regulation, and the Cost of Capital*, Note No.87, The World Bank Group, Washington DC.
- Boland, J. J. and Whittington, D. (2003), *The political economy of increasing block tariffs in developing countries*, Special papers, The John Hopkins University and University of North Carolina at Chapel Hill.
- Castro, J.P (2008), *Water services in Latin America: experience with public-private partnerships*, *International Journal of Water*, Vol. 4, No. 3/4, Erasmus University, Rotterdam.
- European Commission (EC) (2003), *Guidelines for successful public-private partnerships*, EC Directorate General Regional Policy, EC, Brussels.
- Haarmeyer, D. and Mody, A. *Tapping the private sector: Approaches to managing risk in water and sanitation*.
- Kerf et al. (1998), *Concessions for infrastructure – A guide to their design and award*, World Bank and Inter-American Development Bank, World Bank Technical paper No 399, World Bank, Washington DC.
- Khachatryan, G. (2009), *Overview of the private sector participation in the water supply and sanitation sector in Armenia*, Yerevan.
- Kirkpatrick, C. and Parker, D. (2004), *Infrastructure regulation: models for developing Asia*, ADB Institute Discussion Paper No 6, ADB, Manila.
- Le Blanc, D. (2007), *A framework for analyzing tariffs and subsidies in water provision to urban households in developing countries*, Division for Sustainable Development, United Nations.
- Lobina, E. and Hall, D. (2003), *Problems with private water concessions: a review of experience*, Public Services International Research Unit, School of Computing and Mathematics, University of Greenwich, London.
- Office of Government Commerce (OGC) of UK (2002), *Principles for service contracts - Contract management guidelines*, OGC, London.
- OECD (Organisation for Economic Cooperation and Development) (2000), *Global trends in urban water supply and waste water financing and management: changing roles for the public and private sectors*, OECD, Paris.
- OECD (2006), *Guidelines for performance-based contracts between municipalities and water utilities in Eastern Europe, Caucasus and Central Asia (EECCA)*, OECD, Paris.

- OECD (2008a), *Public-private partnerships – In pursuit of risk-sharing and value for money*, OECD, Paris.
- OECD (2008b), *Regulatory reform review of China*, Group for Regulatory Policy, OECD, Paris.
- OECD (2009a), *Managing water for all: the OECD perspective on pricing and financing*, OECD, Paris.
- OECD (2010a), *Innovative financing mechanisms for the water sector*, OECD, Paris.
- OECD (2010b), *Pricing water resources and water and sanitation services*, OECD, Paris.
- Perard, Ed. (2007), *Understanding privatisation policy: Political economy and welfare effects*, A FEEM FP6 Project, UPP, Paris.
- Shugart, Ch. (2004), *Private sector participation in water and wastewater services in Central and Eastern Europe: Brief case studies: Sofia and Brno*, Prepared for the World Bank, Washington, DC.
- The US Conference of Mayors' Urban Water Council (2005), *Mayor's guide to water and wastewater partnership service agreements: terms and conditions*, The US Conference of Mayors' Urban Water Council, Washington DC.
- USAID (United States Aid for International Development) (2007), *Operating contracts for managing infrastructure enterprises under difficult conditions*, USIAD, Washington DC.
- Whittington, D. (2006), *Pricing Water and Sanitation Services, Human Development Report 2006*, UNDP.
- World Bank (2005), *Public policy for the private sector*, Note No 286, World Bank, Washington DC.
- World Bank and Public Private Infrastructure Advisory Facility (PPIAF) (2006), *Approaches to private participation in water services – A toolkit*, World Bank and PPIAF, Washington DC.
- OECD PBCs case studies**
- OECD, (2008), *Promoting the use of performance-based contracts between municipalities and water utilities in EECCA - Case study no. 1: Yerevan Water Supply Company - Lease contract*, OECD, Paris.
- OECD (2008), *Promoting the use of performance-based contracts between municipalities and water utilities in EECCA - Case study no. 2: Armenian Water and Wastewater Company - SAUR management contract*, OECD, Paris.
- OECD (2008), *Promoting the use of performance-based contracts municipalities and water utilities in EECCA - Case study no. 3: Shymkent Water Utility “Water Resources – Marketing” Ltd.*, OECD, Paris.
- OECD (2009), *Promoting the use of performance-based contracts between municipalities and water utilities in EECCA - Case study no. 4: Berdyansk City Water Public Utility: Chysta Voda-Berdyansk concession contract*, OECD, Paris.
- OECD (2009), *Promoting the use of performance-based contracts between municipalities and water utilities in EECCA - Case study no. 5: Kupyansk Water Supply and Sanitation Utility - Draft water concession contract*, Paris, OECD.

## ANNEXES

## Annex I: Contract summary tables

## A: Yerevan Water Supply Company, Armenia

<b>General provisions</b>	
Contracting authority	State Committee of Water System of the Ministry of Territorial Administration
Operator	Yerevan Djur (Véolia Water)
Type of contract	Lease contract
Award, date, duration, possible extension	Contract signed on 14 December 2005 Came into force on 1 June 2006 Duration: 10 years Extension possible if both parties agree and if the lessor notifies the lessee at least 6 months prior to the original end date
Scope of the contract:	
Coverage area	Yerevan Municipality and 32 surrounding villages 325 552 clients connected
Types of operations	Drinking water production Water supply Wastewater collection Wastewater treatment (primary treatment)
<b>Service operation and monitoring</b>	
Service operation / operator obligations	The main obligations of the operator are: 1. Technical management, including: Operation of the water supply and wastewater facilities, including EUR 6.4 million to finance equipment (vehicles, construction machines, information technologies, information-graphical system, materials for leakage detection, supervision of water production) Management of the implementation of the investment Yerevan Water and Wastewater Project (YWWP) (financed mostly by the World Bank with a contribution by the Armenian government) 2. Commercial management 3. Implementing an Enhanced Maintenance and Repairs Programme (EMRP) of a minimum amount of AMD 8.87 billion within the duration of the contract (financed by the operator) 4. Payment of the lease fee 5. Submission of reports according to the contract requirements
Performance indicators	Main performance indicators: Continuity of service Water quality Handling customers' complaints
Relations between users and the operator	Management of customers' complaints is part of the performance indicators. The operator also has to ensure water supply in case of incidents or works on the network
<b>Maintenance/repair and new investments</b>	
Responsibility, financing of the maintenance/repair investments	The operator is fully in charge of the maintenance and repair investments through the EMRP
Responsibility and financing of the new investments	Responsibility: the operator under Project Management Unit (PMU) monitoring Financing: World Bank loan to Armenia: USD 18.75 million



<b>Financial provision</b>	
Remuneration of the parties	The operator is paid by the water tariff and pays a lease fee to the contracting authority The lease fee is defined in the contract: AMD 4 billion in total for the duration of the contract The contract includes a financial equilibrium clause
Tariff structure	Tariff structure is defined in the Water System Use Permit: Single-rate tariff for drinking water supply, water discharge and wastewater treatment services 10 year-baseline tariff updated yearly
Conditions for revision of the tariff	Yearly update to be approved by the Public Services Regulatory Commission (PSRC), mainly based on 4 indicators: retail water supply volume annual inflation exchange rate AMD/EUR electricity tariffs Negotiated procedure with the PSRC if the yearly adjustments vary by more than 30%
<b>Control and reporting</b>	
Control by the authority	The PMU responsibilities are clearly defined in the contract. The PMU is mainly in charge of: Payments and fund management Signing contracts with suppliers Communication with the World Bank main office Written communications with suppliers Review and approval of reports submitted by the lessee Assignment of one member to the lessee's Procurement Committee  The PMU is responsible for the approval of the YWWP Fund annual plan.  The PSRC controls: tariffs adjustments quality of the service (quality of water supplied, quality of water discharged, minimum of the service continuity)
Reporting by the operator	Reporting requirements are described in the contract: Base year data report (initial figures of the performance indicators) Annual submissions (including financial yearly statements) Semi-annual reports on performance assessed by the independent auditor
Independent technical auditor	The independent technical auditor is selected by the contracting authority, with the agreement of the operator. He is hired jointly by the lessor and the lessee, from a reputable firm, paid from the World Bank loan for the first 5 years and by the lessee for the 5 last years.  Technical auditor is mainly in charge of: The compilation of the base year data report The reconciliation on the assets transfer (including valuing of the assets) The assessment of the operator's meeting contract requirements (performance indicators and reporting) The calculation of penalties
<b>Guarantees and sanctions</b>	
Guarantees	The lessee is established and exists under the laws of Armenia. The lessee is wholly owned by the bidder
Arbitration	Arbitration under the UNCITRAL rules at the London Court of International Arbitration
Change of applicable law	The contract provides a fair protection of both parties in case of changes of the applicable law. If changes in laws, agreed between both parties, result in net costs or net savings to the lessee in excess of: AMD 25.2 million in any contract year or

	AMD 50.4 million from the starting date of the contract an extraordinary tariff adjustment can be negotiated with the PSRC
Financial penalties	Financial penalties related to not achieving the performance indicators. The main penalties are based on the service continuity indicator: AMD 30.24 million for each percentage point below the performance standards defined in the contract, up to a maximum of 3% of the total revenue collected for the services
Emergency measures	The operator is in charge of any cost related to an emergency event (due to a third party or to the contracting authority) up to the limit of AMD 50.4 million  Above that limit, the costs will be allocated between the parties through negotiations
<b>Responsibilities of the operator</b>	
Insurance obligation	The operator shall contract the following types of insurance, each for the minimum amount of: Third party vehicle liability: AMD 252 million Third party liability insurance: AMD 504 million Professional liability insurance: AMD 504 million
<b>Organisation of the service</b>	
Operator's staff	The operator should employ the local staff in accordance with the relevant Armenian employment laws. There is one more major requirement: the operator should maintain the salaries of all local staff during the first contract year
<b>Assets of the service</b>	
Transfer of the assets at the beginning of the contract	The transfer of the assets at the beginning of the contract will be monitored by the PMU
Fate of assets at the end of the contract	The assets should be handed back to the state in a condition allowing continued operation of the facility meeting the performance standards for a period not less than 5 years

**B: Armenian Water and Wastewater Company, Armenia**

<b>General provisions</b>	
Award date	21 July 2004
Type of contract	Management contract
Duration and possible extension	4 years with a possible 2-year extension
Contracting authority	Armenia Water and Wastewater Company
Operator	SAUR
<b>Scope of the contract</b>	
Coverage area	10 marzes (a marz is an administrative region) – 700 000 inhabitants and around 260 000 households (2001 data)
Types of operations	Operations covered by the contract are water supply and wastewater collection and treatment
<b>Service operation and monitoring</b>	
Operator's obligations	The operator has full responsibility for the management, operations and maintenance of the water and wastewater system in the service area
Types of subsidy	Two kinds of subsidy: For covering the company's operational deficit (financed by the Ministry of Economy and Finance) For financing of investments (financed by the International Development Association (World Bank) and the Armenian Government)
<b>Maintenance/repair and new investments</b>	
Responsibility and financing of the maintenance/ repair investments	The operator is in charge of the maintenance and repair works. Costs are financed through the tariff and government subsidies
Responsibility and financing of new investments	The operator is in charge of designing and implementing urgent investments. Costs are covered by the Municipal Water and Wastewater Project Fund (financed by the IDA (World Bank))
<b>Financial provision</b>	
Remuneration of the parties	The operator is remunerated through: a fixed fee a performance incentive compensation (variable fee)
Tariff structure and conditions for revision of the tariff	The tariff adjustment will be evaluated and proposed by the contractor. The adjustment is then approved by the Company Management Board before submission to the Public Services Regulatory Commission (PSRC). Final approval is made by the PSRC
<b>Control and reporting</b>	
Control by the authority	Control is performed by a Contract Management Unit (CMU) (a body of technical experts appointed by the government to supervise the contract and advise the Company Management Board)
Reporting by the operator	Reporting deliverables mainly consist of quarterly and annual reports reviewed by an independent technical auditor. The annual reports include information on the performance indicators
Independent technical auditor	An independent technical auditor monitors the company's performance indicators and calculates the performance incentive compensation of the contractor
<b>Guarantees and sanctions</b>	
Guarantees	Not applicable
Arbitration	1) The first step is to refer to the independent technical auditor to try to solve a conflict 2) If a resolution of the conflict cannot be achieved, the dispute will be submitted to another arbitrator or an arbitration panel  Arbitration is made under the United Nations Commission on International Trade Law (UNCITRAL)
Financial penalties	No financial penalty is planned in the contract. However, the management contractor does not get the performance incentive compensation if it fails to achieve its objectives

Emergency measures	In case of "Force Majeure", the contract specifies that: the management contractor is not considered responsible of failure to fulfil its obligations the contract period can be extended the management contractor must receive its fixed fee during the Force Majeure period
<b>Responsibilities of the operator</b>	
Insurance obligations	Not applicable
<b>Organisation of the service</b>	
Management staff (i.e. operator's staff)	The management contractor will provide all administration, accounting, personnel, commercial, economic, financial, technical, design and operations and maintenance expertise needed to perform the service
Company's staff	The management contractor is responsible for: hiring, firing, lay-off, demotion or disciplinary action of the company's staff determining the rates of pay of staff and benefits day-to-day direct supervision and control of staff, organisational structure of staff, assignment of various responsibilities and tasks to staff
<b>Assets of the service</b>	
Transfer of the assets at the beginning of the contract	No transfer from the company to the operator (management contract) Some assets (unusable) were transferred from AWWC to a new company created to sell these assets in order to reimburse part of the company's debts
Fate of assets at the end of the contract	Not applicable

**C: Shymkent Water Utility “Water Resources - Marketing” Ltd., Kazakhstan**

<b>General provisions</b>	
Contracting authority	Shymkent water utility is privatised, there is no specific (performance-based) contract. The Law on Natural Monopolies which regulates most of the company's activities can be considered as a contractual framework for the Water Resources – Marketing operations
Operator	Water Resources Management (WRM)
Type of contract	Private company
Award, date, duration, possible extension	Private company fully operational since 2005 Medium term tariff contract for the period 2008-2012 Water Use Permit for a period of 10 years
<b>Scope of the contract:</b>	
Coverage area	Shymkent Municipality - 500 000 inhabitants
Types of operations	Drinking water production - water supply Wastewater collection - Wastewater treatment (primary treatment only)
<b>Service operation and monitoring</b>	
Service operation / operator obligations	<p>The main obligations of the private operator are identified in the documents below:</p> <p><i>“WRM 2005-2007 Multi-Year Investment Programme for the Water Supply and Sanitation Sector of the City of Shymkent”:</i></p> <ol style="list-style-type: none"> <li>1. Keep operational, rehabilitate, and renovate fixed assets used in the production and sale of the water supply and sanitation services;</li> <li>2. Provide adequate amount of water to the population;</li> <li>3. Improve the service quality;</li> <li>4. Reduce unaccounted-for-water;</li> <li>5. Improve resource-saving (in the river basin);</li> <li>6. Reduce electricity consumption.</li> </ol> <p><i>“Integration contract of the individual companies within the Limited Liability Company”:</i></p> <p>Set up an economic division;</p> <p>Develop a new staffing policy allowing to accommodate all the changes in connection with the integration;</p> <p>Set up a new accounting service and staff it with skilled personnel;</p> <p>Hire the employees transferred from the integrated partnerships as per the new staffing policy;</p> <p>The production and technical service shall develop a rationale for drastic improvement of the condition of the environment in connection with the use of natural resources by WRM Ltd.</p> <p>The immediate objectives of the partnership created are:</p> <p>Lower the costs / improve the service quality;</p> <p>Improve the state of environment</p>
Performance indicators	No performance indicators, only general recommendations from the legal framework
Relations between users and the operator	Legal requirements: Public hearings for the tariff plan validation. Voluntary: WRM also keeps records of all consumers' complaints as part of the client satisfaction monitoring

<b>Maintenance/repair and new investments</b>	
Responsibility, financing of the maintenance/repair investments	WRM is responsible for the rehabilitation works on the existing facilities ( <i>Law on Natural Monopolies, Article 6</i> )
Responsibility and financing of the new investments	The municipal Akimat is in charge of investments in the extension and development of the distribution system
<b>Financial provision</b>	
Remuneration of the parties	WRM: Profit + depreciation – Investments for maintenance and repairs
Tariff structure	Medium term tariff, including: some investment expenditure in the tariff operational costs and profit
Conditions for revision of the tariff	WRM can submit an updated investment plan and request a tariff revision when necessary (e.g. changes in inflation or exchange rate)
<b>Control and reporting</b>	
Control by the authority	Implementation of the investment plan included in the tariff plan (under the Law for Natural Monopolies) Environment and health criteria monitored separately by the Ministries of Environment and Health
Reporting by the operator	Exhaustive monitoring of the investment plan implementation (5 matrices – up to 15 indicators each – every 3 months) Indicators common for all natural monopolies sectors
Independent technical auditor	WRM is currently negotiating a loan from the EBRD. The feasibility study is prepared by independent technical auditor(s) Under current legislation, an independent third party can also be involved in conflict resolution
<b>Guarantees and sanctions</b>	
Guarantees	No guarantee or contract excluding precisely the natural risks resulting from force majeure
Arbitration	Conflict solved by the General Prosecutor's office in accordance with the Law on Natural Monopolies
Change of applicable law	No protection for the WRM
Financial penalties	Some financial penalties can apply if the company invests 5% below what is agreed in the investment plan. In that case, the approved tariff would be revised according to the corrected investment plan, and the company should reimburse the difference between the tariff applied and the new tariff calculated. The estimation of the penalties is based on the compulsory "annual report on tariff budget execution and investment"
Emergency measures	No protection for the WRM
<b>Responsibilities of the operator</b>	
Insurance obligation	No obligation for the WRM
<b>Organisation of the service</b>	
Operator's staff	No special obligations apart from the standard regulatory obligations
<b>Assets of the service</b>	
Ownership of the assets	Fully owned by the WRM whose capital includes a 22% equity of municipal shares

*D: Berdyansk Water Public Utility, Ukraine*

<b>General provisions</b>	
Contracting authority	The Executive Committee of the Berdyansk Town Council represented by the Mayor, acting on the basis of the Berdyansk Territorial Community Charter
Operator	Chysta Voda-Berdyansk Llc. (Limited liability company) represented by its Director
Type of contract	Concession contract
Award, date, duration, possible extension	<p>Contract signed in September 2008, renegotiated and finally resigned in December 2008</p> <p>Contract comes into force: upon its signature by the parties and state registration</p> <p>Duration: 30 years</p> <p>Extension is possible for additional 20 years under the same conditions unless either of the parties receives – six months before the contract expiry date - a letter from the other party expressing its intention to terminate this contract or change its conditions</p>
<b>Scope of the contract</b>	
Coverage area	<p>Integral property complex of the Berdyansk Water Utility:</p> <p>1 town and 1 village representing:</p> <ul style="list-style-type: none"> <li>- 49 431 subscribers for the water supply service</li> <li>- 35 688 subscribers for the sanitation service</li> </ul>
Types of activities	<p>Water supply</p> <p>Sewage collection</p> <p>Wastewater treatment services to private and corporate consumers</p>
<b>Rights and obligations of the contracting authority and the operator</b>	
Contracting authority's obligation	<p>The main obligations of the contracting authority are to:</p> <ul style="list-style-type: none"> <li>support the operator in the exercise of its rights and fulfilment of its obligations</li> <li>abstain from increasing prices for the purchased water without consulting the operator and abstain from interfering into the operator's business</li> </ul>
Operator's rights and obligations	<p>The main rights and obligations of the operator are to:</p> <ul style="list-style-type: none"> <li>fund the concessions facilities</li> <li>have the exclusive right to manage/operate the concession facilities</li> <li>own the profit received from the management of the concession facilities</li> <li>contract third parties, including foreign companies, organisations and individuals, for the performance of special works on the concession facilities without prior authorisation by the contracting authority</li> <li>make suggestions to the contracting authority and Berdyansk local self-governance bodies on the level of tariff</li> <li>be responsible for the observance of this contract and the law by any third parties contracted for the fulfilment of special works on the concession facilities</li> <li>return the concession facilities to the contracting authority upon the expiry of the contract in proper technical conditions in accordance with the contract terms, while the land plots will be transferred in accordance with the relevant land lease contracts</li> </ul>

<b>Financial conditions</b>	
Concession fees	The operator will pay a fee to the contracting authority on a quarterly basis. The amount of the first contribution is UAH 296 569 (or Euro 38 700)
Provision of concession facilities to the operator and their return to the contracting authority	<p>The legal regime of the property provided into concession (or created) will be defined with due consideration of the Law on Concessions, in particular it will be considered that it is owned by the Berdyansk Territorial Community. Its provision into concession does not entail the transfer of the ownership title to the operator and does not terminate the municipality ownership.</p> <p>Upon expiry of the term of validity or cancellation of the contract as well as in the case of the operator's liquidation, the operator will return the concession facilities (all property received under an acceptance act) to the contracting authority in a proper technical condition with due consideration of the investments made, including those that have not been compensated by the operator as a result of the concession activities.</p> <p>The operator will receive into its lease the plots of land that are necessary for the management of the concession facilities. The land plots are for the term which will not be smaller than the term of the contract validity. The terms and conditions of the land lease contracts will be defined separately and in accordance with the law in force.</p> <p>The rent for the land where the concession facilities are located will be defined in the amount of the land tax to be calculated in accordance with the legislation in force.</p>
Improvement of the concession facilities and a compensation procedure for the improvements	<p>In order to use the concession facilities efficiently for the provision of services to satisfy public needs for uninterrupted district water supply and sewage and wastewater treatment, the operator will make improvements to the concession facilities.</p> <p>Upon return of the property to the contracting authority, the contracting authority will reimburse the operator for the expenses made due to the improvements of or for the cost of the created/purchased property in the part that has not been compensated by the operator as a result of concession activities if the contract is cancelled on the initiative of the contracting authority.</p>
Price and tariff setting	The prices/tariffs for the water supply and sewage and wastewater treatment services will be established in accordance with relevant Berdyansk Town Council Resolutions. The prices/tariffs for the services will be changed in accordance with the procedure established by the Ukrainian law. The investments will not be included in the tariffs for water supply and sewage and wastewater treatment.
Conditions for the revision of the tariff	The operator must not change the established tariffs for water supply and sewage and wastewater treatment services on its own initiative.
<b>Guarantees and sanctions</b>	
Legislation	For the failure to fulfil or improper fulfilment of their obligations, the parties will be liable in accordance with the Ukrainian legislation. Losses of one party caused by the violation of its obligations by another party will be indemnified by the default party in full.
Dispute and governing law	Any disputes will be settled by the parties through negotiations. If they fail to agree, the issue will be considered in accordance with the law in force. The contract and its interpretation will be governed by the Ukrainian law in force.



Financial penalties	<p>If the operator does not meet the dates set for the payment of the concession fees, the operator will pay a penalty of the double National Bank of Ukraine (NBU) rate applied to the delayed payment per each day of the delay.</p> <p>If the contracting authority violates the reimbursement of the operator's expenses, the contracting authority will pay a penalty of the double NBU rate applied to the delayed payment per each day of the delay.</p> <p>Payment of the penalty will not free the operator from the fulfilment of its obligations.</p> <p>If the operator admits the deterioration of the conditions of the facilities or theirs destruction, the operator will indemnify the contracting authority for the losses, unless it proves that such losses or destruction have not been its fault.</p>
Force majeure	<p>The parties will be free from any liability in case of full or partial failure to fulfil their obligations under this contract if such failure is caused by circumstances of insurmountable force which occurred upon the signature of the contract due to reasons that either could not be foreseen or could not have been avoided in a rational manner.</p>
<b>Responsibilities of the operator</b>	
Insurance obligation	<p>The operator will bear the risk of the incidental loss of the concession facilities. The conceded property will be insured by the operator at its own expense. The operator will conclude a civil liability contract for its actions related to the operation of the concession facilities and insure the concession facilities as required by the Ukrainian law in force.</p>
<b>Organisation of the service</b>	
Operator's staff	<p>The operator may employ both Ukrainian and foreign citizens. The operator will employ 100% of the staff transferred from the public utility and will preserve the social guarantees as well as conclude a collective agreement in accordance with the regulations and provisions of the sector agreement.</p>

**Annex II: Performance results of the two Armenian private operators*****A: The main results registered in the Yerevan Water Utility after involving two private operators in its management***

<b>Standards</b>	<b>Unit</b>	<b>One year before Private Sector Involvement /2000/</b>	<b>At the end of the Management Contract with A-Utility /2005/</b>	<b>After 3 years of Lease Contract with Véolia Water /2009/</b>
Water supply duration	Hours	4-6	18.4	19.3
Unaccounted for water	%	72	79	84
Energy consumption	Million kiloWatt-hour	240.3	124.2	116.2
Collection efficiency	%	21	86	95
Installed water meters	% of customers	0.8	87	96
Water consumption	l/cd	By norm 250	110	97
Quantity of pressure measuring loggers	units	-	33	76
Tariff	USD/ m <sup>3</sup>	0.1	0.27	0.57
Number of employees per 1,000 customers	people	4.3	4.9	4.4
Number of employees	people	1165	1588	1430
Average monthly salary per employee	USD	36	160	370
Average yearly public subsidies	Million USD	4	0.7	-

Source: Khachatryan, G. (2009).

***B: Progress registered in the Armenia Water and Wastewater Sewerage Company based on the main performance indicators of the Management Contract after 4 years of operation***

<b>Indicators</b>	<b>Unit</b>	<b>2004 Base Year</b>	<b>2008</b>
Water supply duration	hours	4-6	12.1
Unaccounted for water	%	74	86
Energy consumption	Million kiloWatt-hour	64.4	55.2
Weighted average water bacteriological safety compliance	%	94	97
Collection efficiency	%	48	76
Installed water meters	% of customers	40	65
Tariff	USD/ m <sup>3</sup>	0.09	0.46
Total staff per 1000 individual subscribers	people	9.5	6.9
Number of employees	people	2400	1820
Average monthly salary per employee	USD	46	200
Average yearly public subsidies	Million USD	1.8	3.9

Source: Khachatryan, G. (2009).

### **Annex III: Difficulties with marginal cost pricing of water services**

For a number of reasons, applying strict marginal cost pricing in determining the price of water services is problematic. First, there are difficulties related to the calculation of financial costs due to the lack of information on current consumption, future investments, and O&M costs, and forecasting future demand. Some argue that only when metering is used can this pricing mechanism send effective market signals.

Second, the large capital indivisibility, or "lumpiness," associated with large block investments (such as treatment plants, reservoirs, and trunk mains) leads to relatively high start-up costs in the initial period contrasted with relatively low operation and maintenance costs over the lifetime of the investment. Practically, this means that once the pipes are laid, it costs very little to the utility to pump more water down the pipe. When marginal costs are much lower than the average cost of the utility, a tariff set equal to the marginal cost will result in insufficient revenue and large financial deficits unless a fixed charge for capital recovery and other fixed costs is also imposed.

On the other hand, if marginal costs rise above average costs, excessive profits made through monopoly supply of what is perceived to be an essential good may not be acceptable to the public opinion or by legal standards. This raises the question of aiming at efficiency while respecting a revenue requirement. The problem associated with the generation of excessive revenues by an industry such as water supply which typically does not operate in a competitive environment is that there is inadequate control over the disposition of the revenues. Wasteful and inefficient operation of the enterprise may be encouraged.

Another characteristic of capital indivisibility is that it results in excess capacity at periodic points. As new capacity is added in lumps or blocks of investment which are typically designed to meet future demand over a number of years, recovering the full cost of the investment from existing consumers is not equitable. This is so because consumers are being asked to pay for capacity of which they can only use a small proportion and which is added in anticipation of future demand.

## Annex IV: Main elements of a performance-based contract

<b>General conditions</b>		
	Headlines	Parts of the contract Authorised representatives Bank accounts Acknowledgement and waiver (e.g. between the operator and its parent company, if applicable)
	Applicable law	
	Confidentiality	
	Contract documents	
	Definitions	
<b>Duration and termination</b>		
	Effectiveness of contract	Conditions for the contract to come into force (e.g. necessary licenses, registration)
	Commencement of services	
	Contract termination	Continuity of service upon contract expiry Services after the contract end date
	Renewal of the contract	
	Transitional arrangements	
<b>Obligations of the operator</b>		
	Possible obligations of the operator	To perform the service according to service description annex, including objectives of the contract, service area
	Human resources management	
	Law governing services and licenses	
	Payment of management / lease / concession fee	
	Asset management	
	Services and standards of performance	
	Penalties for failure to meet performance standards	
	Performance security	
	Contract records and reporting obligations	
	Accounting and auditing	
	Procurement – sub-contractors	
	Insurance	
	Anti corruption	
<b>Obligations of the contracting authority</b>		
	Transfer and return of assets	Acceptance of assets Update of the asset acceptance report
	Granting the contractor an exclusive right of service	
	Access to land, facilities and other	
	Contract supervision	Independent technical auditor
	Tariff settlement and revision	
	Approval of contractor's investment plan	
	Auditing	Technical and financial audits
<b>Periodic review and 5 year plans</b>		
	Baseline scenario	
	Purpose	
	Procedure	
<b>Extraordinary review</b>		
	Purpose	
	Procedure	
<b>Incentives and penalties</b>		
	Performance indicators	
	Success fees	
	Penalties	
<b>Seizure, suspension and termination</b>		

<b>Force majeure</b>		
<b>Settlement of disputes</b>		
	Amicable settlement	
	Arbitration	Right to arbitration Selection of an arbitrator Rules of arbitration procedure
	Good faith	
<b>Miscellaneous and final provisions</b>		
<b>Appendices</b>		
	Assets list	
	Description of the services	
	Service area map	
	Performance	Standards of service Measurement of performance Key Performance Indicators chart Performance objectives Incentives and penalties
	Reporting requirements	Monthly / quarterly/ semi-annual reports Annual reports Contract records
	Tariff setting methodology and procedure	
	Baseline case	
	Economic equilibrium of the contract	
	Management / lease / concession fee calculation	
	Procedures of compensation	
	Human resource management	Detailed training plan
	Information system procurement	
	Insurance	
	Performance security	
	Land lease agreement	
	5-year investment programme	