



universität
wien

DIPLOMARBEIT

Titel der Diplomarbeit

„Access to Water – Discourse and Comparison of
Urban Water Supply Systems in Casablanca,
Durban and Vienna“

Verfasser

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angestrebter akademischer Grad

Magister (Mag.)

Wien, 2010

Studienkennzahl lt. Studienblatt:

A 057 390

Studienrichtung lt. Studienblatt:

Individuelles Diplomstudium Internationale Entwicklung

Betreuer:

Univ.-Prof. Dr. Walter Schicho

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Danksagung

Die Phase eines beinahe winterlichen Tiefschlafes, die allerdings eher einem permanenten Nichtschlafens mit zeitigen Schüben der geistigen Verirrung ähnelte, scheint mit der Niederschrift dieser Diplomarbeit ein Ende gefunden zu haben. Es geht mir trotzdem sichtlich gut und ich betrachte diesen Abschnitt rückblickend als außergewöhnlichen Teil einer symbiotischen Verbindung mit mir selbst und meiner Umwelt. Letztere trat vor allen Dingen durch die Hilfe jener Menschen zum Vorschein, die mich während meines Studiums und im Rahmen dieser Diplomarbeit mit Geduld und liebevoller Hingabe unterstützt haben.

Mein besonderer Dank gilt daher meinem Papa; neuerdings selbst Student und lebender „Popperianer“, der mich nicht nur in Anlehnung an Popper das ständige Hinterfragen aller quasi existenten Dinge durch seine zahlreich handschriftlich verfassten Briefe angenehm eines Besseren belehrte. Herangereift vom „stud. viel“ oder auch zeitweiligen „stud. nicht viel“ bleibe ich meiner selbst treu und werde auch in Zukunft, trotz akademischen Grades, auf erdiger Höhe meinen Werdegang gehen.

Ein besonderes Dankeschön gilt ebenso meiner Schwester Andrea für ihre Besuche nach Wien und meinem treuen Freund Ivo, der mich dank profunder Kenntnisse zur Methodik nach einer Phase des Abschweifens wieder auf die wissenschaftliche Präzisionsarbeit hinwies. Weiterer Dank gilt meinen FreundInnen, die mir das Gefühl gaben und dies auch noch tun, in Wien zu Hause zu sein! Weiters möchte ich hier meinem Betreuer Walter Schicho danken, der die wertvolle Gabe besitzt, seinen StudentInnen als Mensch gegenüber zu treten. In diesem Sinne Euch allen ein herzliches Dankschön, auch jenen, die hier nicht namentlich genannt wurden, denen ich jedoch unschätzbaren Wert beimesse!

Wien, Juli 2010

Martin Böhnel

Abbreviations, Figures and Tables

Abbreviations

ACME	Association pour le Contrat Mondial de l'Eau
AK	Arbeiterkammer
ANC	African National Congress
ANHIS	Agence Nationale de lutte contre l'Habitat Insalubre
BG	Bundesgesetz
BOT	Build-Own Transfer
B-VG	Bundesverfassungsrecht
CPI	Consumer Price Index
CUC	Communauté Urbaine de Casablanca
DMA	Durban Metropolitan Area
DMWS	Durban Metro Water Services
DWAF	Department for Water Affairs and Forestry
EMA	eThekweni Municipal Area
EU	European Union
EWS	eThekweni Water Services
FBW	Free Basic Water
GNP	Gross National Product
GPOBA	Global Partnership for Output-Based Aid
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HDR	Human Development Report
HQL	Hochquellleitung
IBT	Increasing Block Tariffs
ICWE	International Conference on Water and Environment
IDWSS Decade	International Drinking Water Supply and Sanitation Decade
ILO	International Labour Organization
IMF	International Monetary Fund
INDH	National Initiative for Human Development
IWB	Industrielle Werke Basel
IWRM	Integrated Water Resources Management
LGBL	Landesgesetzblatt
MA	Magistrat
MDGs	Millennium Development Goals
MRG	Mietrechtsgesetz
OBA	Output-Based Aid
OB	Opérations de branchements bleus
OBS	Opérations de branchements sociaux
OECD	Organisation for Economic Co-operation and Development
ONEP	Office Nationale de l'Eau Potable
ÖVGW	Österreichische Vereinigung für Gas- und Wasserfach

PEP	Project d'Eau Potable
PPP	Public-Private Partnership
PSP	Private Sector Participation
RAD	Régie Autonome de Distribution
RDP	Reconstruction and Development Program
SADC	Swiss Agency for Development and Cooperation
SMD	Société Marocaine de Distribution d'Eau, de Gaz et d'Electricité
SSdA	Ständiges Sekretariat der Alpenkonvention
TWV	Trinkwasserverordnung
UDHR	Universal Declaration of Human Rights
UN	United Nations
UNCED	UN Conference on Environment and Development
UNDP	United Nations Development Programme
UNESCR	United Nations Committee on Economic, Social and Cultural Rights
UNICEF	United Nations Children's Fund
VS	Villes Sans Bidonvilles
WB	World Bank
WBG	World Bank Group
WHO	World Health Organization
WR	Wasserrecht
WRG 1959	Wasserrechtsgesetz 1959
WS NIS	Water Services National Information System
WVG 1960	Wasserversorgungsgesetz 1960
ZAR	South African rand

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I Introduction, Purpose and Outline

1. Preliminary thoughts

1.1. Background

Aristotle, 370 BC

“Denn alles, was wir am meisten und häufigsten für den Körper gebrauchen, trägt auch am meisten zur Gesundheit bei; von der Art ist aber von Natur die Wirkung des Wassers und der Luft. Deshalb muß in wohlberatenen Städten, wo nicht alles fließende Wasser gleich gut oder nicht in Fülle vorhanden ist, das Wasser zum Trinken und das zu anderem Gebrauch gesondert gehalten werden“

(Rolfes 1965: 260).

Back in the year 370 BC Aristotle did not only point out the importance of water for human beings to have good health, his thoughts also referred to the aspect of distributing water to areas where people did not have sufficient access to water of decent quality for drinking and other purposes. While Aristotle gave rise to reflect upon water as it is (besides air) *the* life spending good and should be kept separately from other goods, water has another general purpose that all people have access to meet basic needs for, at least, a person's *“bare survival”* (Streeten et al. 1978: 413)¹. Nevertheless, reliable supply has remained empty words to the satisfaction of all people. Still in 2008 1.1 billion people lacked access to safe drinking-water (cp. UNDP 2006: 35) even though there was enough water to meet the basic needs of the entire population (cp. Katzmann 2007). Competition

¹ At the lowest level, basic needs are those of a person's bare survival which are tantamount to a certain minimum of clean water for drinking and personal hygiene (cp. Streeten et al. 1978: 413).

on unequal allocation of water between different users in the sector and between different users within a sector still cast a shadow over access opportunities, especially for poor people in peri-urban and rural areas in countries of the “Global South”. Unequal access to water infrastructure primarily relates to other obstacles, e.g. poor sanitation, unemployment, diseases, high death rate among other things in poor, peri-urban settlements.

1.2. Purpose and research question

This research outlines the question about access opportunities to water, or rather access opportunities to safe drinking-water in major cities with the focus on end-users with both regular and non-regular status of residence. The methodology of this thesis is centered on a comparative study of urban water supply systems, all of which have been selected on the basis of municipality’s administrative organization in water delivery, whether it is carried out by private operators or is part of the municipal administration. Bearing in mind that having access to the municipal water network is not only guaranteed by pro rata payment to the connecting network and continued monthly payments for water, this thesis intends to enlarge the scope by focusing on statutory anchoring of water supply mechanisms, climate conditions (national water balance), structural problems (poverty, urbanization) in respective countries or examined city examples. This thesis therefore intends not only to examine access opportunities, but also elaborates whether water services are reliable, affordable and of good quality (clean supply) in relevant cities. Using examples in the “Global North” (Vienna, Austria) and within the “Global South” (Casablanca, Morocco and Durban, South Africa), the purpose of this thesis is to shift one’s requirements in this way, by pointing out respective assessments in the city’s water supply administration, which combines cost recovery as well as equity principles (in some places better localized than in others), which at first glance seems to be more or less opposite bases to enhance the provision of water to all people including poor people in peri-urban settlements. This procedure is important for reversal of euro-centric perspectives on structural incidents, since certain obstacles do not necessarily derive from “inside the country”, rather by external conditions being indicative of unequal power relations.

Private-sector participation (PSP) in infrastructure services (in this case water supply)

does pave the way for future investment at relevant locations. PSP does subsequently not exclude economic interests. In the cities of Casablanca and Durban, the main provider responsible for water supply has combined cost recovery and equity at the same time. Both aspects reflect the value of water how it is understood by the author. This thesis therefore investigates the general question of whether end-users in poor, peri-urban settlements in particular, have gained reliable access to water services through cost reflexive (water) pricing combined with equity standards (lifeline volume or social tariffs) in the period between 1997² until 2009? This thesis further copes with different opinions on the issue of cost recovery/privatization in order to point out pros and cons of private-sector participation in water supply.

1.3. Outline

In the **first chapter**, this thesis aims to conceptualize water from different point of views proclaimed on water within the United Nations (UN) proclaimed at major conferences during the last 40 years. Due to the fact that water is a sensitive topic, especially because it has been declared to be scarce and therefore is highly disputed among water use sectors and between water users in the sector, different interest groups have attached different importance to water. Conferences and declarations over the last 40 years gave an interesting spectrum in defining water, which contributed to the consolidation of my own definition of water.

The **second chapter** embarks with the basic idea that water delivery has always been included in those fundamental state tasks regarding general public service (cp. *Politeia*, Aristotle). In the case of the municipality having a monopoly on water supply (e.g. *Wiener Wasserwerke* in the city of Vienna) and is able to service all citizens with safe drinking-water (in an ideal world), the state can control, or can regulate limited private-sector participation in the water sector along a certain minimum of regulatory mechanisms (e.g. price- and quality controlling). Furthermore, this chapter intends to

² Originally the idea was to elaborate and collect statistics for all cities in the period between 1990 and 2009. Due to the fact that in the case of Casablanca Lydec's takeover in the management and supply of Casablanca's water network started in 1997, data collection had to be restricted. This was the same for Durban since all relevant data collection could only be done for the 1994 post-Apartheid era. As a consequence, comparison between different data must have been limited to the period between 1997 and 2009, unless complete data sets were available for the whole period.

depict additional “precautionary measures” (mainly statutory measures, property rights on water, division between private and public waters) the state has to consider in a state-run water sector.

In the **third chapter** the focus is centered on a comparison of different opinions regarding private-sector participation/privatization in the delivery of water services. Since cost recovery is a crucial step towards privatization of infrastructure services, and beyond that, may illustrate certain controversial points (financial, moral and commercial) on its example, proponents as well as opponents of private-sector participation must be brought into their arguments.

Chapter **four, five, and six** embraces the central part in this thesis in which each chapter elaborates certain criteria such as access to water, drinking-water affordability, quality of water (clean supply) and reliability (reliable supply) - necessary data for comparison. In the list of chosen case studies, the city of Vienna sticks out of this group. Anticipated from the perspective of having access to Vienna’s water supply network it can be generally said that Viennese do have reliable supply and therefore are not confronted with infrastructural water deficiencies. This fact gave rise to divide this chapter differently from those of Casablanca and Durban where access opportunities especially in poor, peri-urban settlements have been insufficient (e.g. paragraph “poverty” among others). Beyond the fact that Vienna is highly esteemed to serve all Viennese with one of highest quality of water, at first glance, this example may appear to be misplaced in the list with the cities of Casablanca and Durban. Nevertheless, Vienna’s drinking-water may be of high quality (I can absolutely agree on that!), and beyond that, is located in a country to be known as a water castle, I wanted to show in this chapter that particularly in cities where water is plenty, safe and cheap, sustainable water treatment is not as perfect as it appears to be. Secondly, the privatization of infrastructure services has been very common in industrialized as well as in countries of the “Global South” since the early 1980s. Due to the fact that the provision of water was seen to be part of general public service for many decades, these chapters give some controversial insights into whether water supply should “remain” under the guidance of the state, be handed to private operators, or water supply should be operated by the combination of both principles. The city of Durban (publicly organized) as well as the city of Casablanca (private-sector organized) had combined cost recovery and equity principles in the operation of water

services. At the end it is up to reader which “plan” is appropriate for end-users to gain access to water services.

II Conceptualizing Water on an International level

2. Conferences, Declarations and Definitions

2.1. The 1977 Mara del Plata Summit

According to Petrella (2000) political decision-makers recognized the extent of problems with respect to water resources, including access to water as well as the risks relating to increasing water scarcity and deteriorating water quality by the end of the 1970s (cp. *ibid.*: 38f.; translated in the general sense by the author). The first international conference on water organized by the UN took place in Mara del Plata in 1977. The eventuating primary goal of the conference was raised on the basic human water requirements of the 1977 Mara del Plata statement which meant typically by providing a basic amount of water to meet the essential needs of human beings (cp. Gleick 1998a: 574f).

The participating states commonly agreed on the premise that *„all peoples, whatever their stage of development and their social and economic conditions, have the right to have access to drinking water in quantities and of a quality equal to their basic needs“*.³

As mentioned in Mara del Plata`s subordinate clause, the premise to have *„the right to have access to drinking water in quantities and of a quality equal to their basic needs“*⁴ is important advice with regard to the implicit phraseology where it is written that *„all peoples [...] have the right to [...]“*⁵ rather than formulating water as a human right. The human right`s approach on water is further elaborated, first when I state with a definition of water, how it is seen within the UN as a result of the most worth Action Plans and Declarations, and secondly, when I conclude with a definition on water in view of the thesis` underlying objective.

3 UN, http://www.un.org/esa/dsd/agenda21/res_agenda21_18.shtml, 05.01.2010.

4 UN, http://www.un.org/esa/dsd/agenda21/res_agenda21_18.shtml, 05.01.2010.

5 UN, http://www.un.org/esa/dsd/agenda21/res_agenda21_18.shtml, 05.01.2010.

It established that through the launching of the International Drinking Water Supply and Sanitation (IDWSS) Decade in 1981, water became an urgent issue on the level of international political debates. Nonetheless, it was for the first time that the UN pointed out the link between water scarcity and distribution among sectors and between sectors and individuals. It can be seen that unequal water demands among sectors can diminish the access rate to water for people to satisfy basic needs. Water is not available because primarily it is scarce, but also because it is not distributed equally (De Marsily 2000: 1008f). Haftendorn (2000: 51) stated also an important criterion for distinction between relative and absolute scarcity: „*Scarcity is relative if water is plentiful but not distributed in an equitable manner, and it is absolute where there is not enough water available to meet all legitimate needs*“. Acknowledging that total accessible freshwater (= 0.4% of total 87 % freshwater resources⁶) is scarce because of unequal distribution, the UN has consequently deduced from this point that contamination of unequal water resources available (between sectors and among income groups) would have severe consequences on people`s health outcomes. As a matter of high priority the IDWSS Decade established the target to enhance clean supply and sanitation to underprivileged urban and rural areas by 1990 (cp. Salman 2005: 48). By the year 2000 the UN stated that 800 million underprivileged women and men in rural and urban areas obtained access to drinking-water since the launch of the IDWSS Decade in 1981. Remembering the objective that all people should have access to safe drinking-water by 2000, it is not wrong to assume that the final result did not fulfilled the UN`s expectations.

2.2. The 1992 Rio Summit

Subsequent to the Water Decade, several conferences and symposia took place around the world to initiate the protection of water resources which has been declared as a prerequisite to sustainable development. There is one conference to be mentioned in particular. Since the UN Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, in the year 1992, the role model of sustainability has been anchored undisputed in international water politics.

⁶ cp. IWRM, http://www.archive.cap-net.org/iwrm_tutorial/3_1.htm, 05.01.2010.

Following the most common definition on *sustainability*⁷, there was a fundamental consensus among member states that the task of a future water economy is to preserve an aquatic environment which is lasting, and thus, provides enough water of good quality for future generations. Nevertheless, the Rio Summit in 1992 was finally decisive that further discussions on sustainability contributed to a global discussion about sustainable water treatment (cp. Weber et al. 2002). Apart from the Programme of Action of the Rio Summit, the precedent recommendations (for action) formulated during the International Conference on Water and Environment (ICWE) held in Dublin in 1992 were decisive in the implementation of a “*water chapter*” (chapter 18) within the Summit’s adopted UN Agenda 21 (cp. Weber et al. 2002: 9). Here, the international community probably expressed strongly that water has a social value and the satisfaction to meet basic needs for poor people lies in the front line (chapter 18, §8): “[...] *on notera cependant que l’eau est un bien d’abord social puis économique et que la priorité est donnée à la satisfaction des besoins puis à la protection des écosystèmes, et qu’enfin la tarification au juste prix [...]*” (De Miras et al. 2005: 23).

2.3. The Dublin Principles

The Dublin Principles had a great impact on the creation of a water chapter within UN Agenda 21. The meeting gave rise to four principles which were formulated to become the basis for a water sector reform. The Dublin Principles emphasized that water is a finite and vulnerable resource and should be managed through participation (cp. Salman 2005: 49):

- i.) “*Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment*”;
- ii.) “*Water development and management should be based on a participatory approach, involving users, planners and policymakers at all levels*”;
- iii.) “*Women play a central part in the provision, management and safeguarding of water*”;

7 For more information see: Brundtland, Gro Harlem (1987): *Our Common Future. The World Commission on Environment and Development*. Oxford: Oxford University Press.

- iv.) “Water has an economic value in all its competing uses and should be recognised as an economic good” (ICWE 1992).

Not least because of the underlying objective to get closer to a common definition of water within the UN, I just want to list the Dublin Principles. The acknowledgement of water as an inherent social value in Mar del Plata (1977) and Rio de Janeiro (1992) aimed at stipulating access to drinking-water for all people; the 1992 Dublin conference contributed to declare water as having an additional value: as an economic good. Due to failure in sustainable water resources management in past decades, it has been expressed that the “full value of water” (following Rogers et al. 2002) was not fully recognized. *“Dahinter steht die Auffassung, dass die gesellschaftliche Vorstellung von Wasser als einem öffentlichen Gut und die damit einhergehende Missachtung des wirtschaftlichen Wertes von Wasser zur Verschwendung und umweltschädigenden Nutzungsweisen geführt habe”* (Weber et al. 2002: 9). This perspective has been derived from the author’s demand to introduce cost recovery measures in the water sector in general, and in the provision of water services in particular. Combining economic principles with equity, their arguments underlined that poor people benefit through cost reflexive water prices and will change consumer behavior in order to enhance lasting qualitative water resources. *„Charging (or not charging) for water is applying an economic instrument to support disadvantaged groups, affect behaviour towards conservation and efficient water usage, provide incentives for demand management, ensure cost recovery and signal consumers’ willingness to pay for additional investments in water services“*⁸. By extension, it has been expressed, that the economic value of water also makes water supply a feasible objective, especially regarding the allocation of water between different water use sectors and between different users within a sector.⁹ In summary, the “meaning of water”¹⁰ has fundamentally changed giving water an economic value. First of all, it has been argued that the economic value will change the behavior of the population towards conservation and efficient water use. Giving water a price, implies serving disadvantaged groups (as much as possible) through cost recovery measures. Secondly, due to differences in water allocation between water use sectors and between different use within the sector (tourism, water supply, etc.) water can not any longer be an infinite resource, which is why water has started to be acknowledged as an economic and social

⁸ IWRM, http://www.archive.cap-net.org/iwrm_tutorial/8_1.htm, 06.01.2010

⁹ cp. IWRM, http://www.archive.cap-net.org/iwrm_tutorial/8_1.htm, 06.01.2010

¹⁰ From the book title by Strang (2004)

good.

2.4. Water is a Basic Need! And what about access?

Around 310 BC Aristotle, one of the most influential philosophers of European history, had already left his mark on the issue of water and its correlation with physical subsistence and to health outcomes (cp. Rolfes 1965: 260). In his work *Politeia*, Aristotle spoke of human beings and good human life. This gave him grounds to think about planning of state-run institutions and their involvement in distinctive areas of life. As a result Aristotle combined those levels and made his own concept about the tasks of state-run planning (cp. Pauer-Studer 1999: 24). *“Diese Aufgabe besteht seiner [Aristotle, note by the author of this thesis] Ansicht nach darin, jedem Bürger die materiellen, institutionellen und pädagogischen Bedingungen zur Verfügung zu stellen, die ihm einen Zugang zum guten menschlichen Leben eröffnen und ihn in die Lage versetzen, sich für ein gutes Leben und Handeln zu entscheiden”* (ibid.). Aristotle`s concepts are worth mentioning and are to some extent important for this thesis since, to him, and according to Streeten`s elaboration, water would subsequently belong to the category of a *“material need”* (Streeten et al. 1978: 414; Streeten 1984: 974) which has to be met for people`s *“bare survival”* (Streeten et al. 1978: 413). Streeten on the one hand noted that any society which does not include some *“core basic needs”* (Streeten 1984: 973) such as nutrition, education, health, shelter, **water**, and sanitation in the definition of basic needs would be hard to envisage, even though those must not coincide with the list of basic needs expressed by all human beings (cp. Streeten 1984: 973). The question which has to be considered in advance finally means the persons, interest groups or institutions who determine a basic needs bundle (cp. ibid.). Nevertheless, everybody would probably agree upon the fact that water is part of the contents of a basic needs bundle for bare survival (cp. Streeten et al. 1978: 417), whether it was interpreted as subjective by consumers, nutritionists or doctors (cp. Streeten 1984: 973f.).

I will therefore refer to the definition of the International Labour Organization (ILO), which defines basic needs as: *„Includes certain minimum requirements of a family for private consumption (adequate food, shelter, clothing, household equipment and furniture) and essential services provided by and for the community at large (safe drinking water, sanitation, public transport and health, educational and cultural*

facilities)¹¹.

As follows, the remaining question to be answered is not whether water contributes to the necessary physiological conditions required to sustain a person's life (cp. Streeten et al. 1978: 413), but whether access to water, which is certainly indispensable for "*continued survival*" (Streeten et al. 1978: 413) is a basic need?

In his work *Politeia*, Aristotle revealed that the provision of material and institutional conditions is part of state-run duties. From Aristotle's perspective there are two points to be underlined. Firstly, water should be provided as a public service, and secondly, the state should define the institutional framework for access for its citizens. The question of whether water should be exclusively provided by the state, as Aristotle believed, is to be answered in a larger context, in which the details on access opportunities to water supply are in line with the central question in this thesis. Nonetheless, Aristotle made it clear that access opportunities would only be guaranteed by defining a certain minimum institutional framework. In his research on basic needs¹², Streeten differentiated between basic needs by stating that no definition would give objective criteria for a basic needs bundle (cp. Streeten et al. 1978: 413). Streeten stated, that: "[...], *basic needs vary between geographical regions, climates, cultures and periods. Even such a basic requirement as nutrition for the same sex, the same age and the same activity varies between different people*" (ibid.). He concluded in his research that there is no single level of basic needs, but instead a certain hierarchy of basic needs.

Firstly, and at the lowest level, are those basic needs to be met for "*bare survival*" (ibid.) such as water and nutrition (cp. ILO definition on basic needs). Secondly, there are those basic needs to be met for "*continued survival*" (ibid.) comprising a minimum of food and water, as well as the protection from fatal diseases [e.g. cholera, note by the author] and adequate shelter (cp. ibid.). The ILO's definition goes beyond the definition of water to be classified as a basic need for "only" bare survival. In the second level, the term '*continued survival*' indicates clearly that a certain minimum of water is centered on the provision of water on a regular basis. At the third level, Streeten spoke of continued productive survival, which level is to be covered by basic needs such as the protection

¹¹ ILO, <http://www.ilo.org/public/libdoc/ILO-Thesaurus/english/tr1021.htm>, 11.01.2010.

¹² Paul Streeten's outcome of his research was the *basic need approach* (cp. Streeten et al. 1978; Streeten 1984).

from debilitating diseases, a quantity of food and certain education (cp. *ibid.*). Last but not least, are “*non-material needs*” (*ibid.*), like participation, which certain decisions would affect people’s life and work, as well as relative components of poverty, which includes an average income to prevent one’s life from poverty (cp. *ibid.*). In the paper, there is common consent that water is one of the *core basic needs*. Even though it has not been directly mentioned that access is a basic need, the ILO confirmed that access to water is necessary for continued survival of human existence. The reason why access has not been included yet, relies on the fact that the institutional framework to guarantee access (as basic need) is bound to political and economic decisions through which it is to secure adequate supply of basic needs (cp. Streeten et al. 1978: 414). Streeten and Burki identify a set of five operational issues to be considered by national and international agencies. I will now only list them, without making further comments, but discuss them in further detail later.

- (i) Internal and external resources to meet basic needs of a large number of people in developing countries ;
- (ii) designing of public services that poor people benefit from;
- (iii) designing of social change, and institutions allowing poor people not only to make their needs known, but also to involve them in maintenance and services they need in particular (*Operation and maintenance, O&M*);
- (iv) signals and incentives; and last but not least
- (v) trade-between basic needs and other objectives

(cp. Streeten et al. 1978: 415)

2.5. Water is a human right

„The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use“

(UNESCR 2002).

Depending on the willingness of its member states, the UN claimed that the main principle agreed on for public action in water (and sanitation), is the recognition that water is a basic human right. The recognition of water within a human-rights based approach has chiefly followed on the principles of equality, universality and freedom

from discrimination (cp. UNDP 2006: 60). It eventually found its way on the same level, as was the case in recognizing food and shelter as basic human rights (cp. Windfuhr 2003: 4). That step emphasized once more the importance of upholding the government's duty to guarantee every citizen the provision of 20 litres per day (cp. UNDP 2006: 60) and the realization of the right to water and to halve the proportion of population who do not have access to water by 2015. Due to the soft law status of the 1948 Universal Declaration of Human Rights (cp. Nußberger 2009: 28; Salman 2005: 79), characterized by the non-legally binding normative framework (cp. UNDP 2006: 60), it is comprehensible that the legal realization of the human right to water has failed, since governments are obviously not willing to realize a human right status of water through "financial injections" effectively enough. Although its *quasi* non-binding status, it is nonetheless important to note that the recognition of water as a human right has replaced the mere right to have access equal to people's basic needs. This appreciation stresses the importance of being on the right path in relation to water access.

2.6. Conceptualizing ACCESS

2.6.1. The Access Gap and Goal 7 Target 10

„One in five people in the developing world lacks access to sufficient water to meet even the most basic requirements for well-being and child development“ (UNDP 2006: 35).

The improvement of access to water was first brought into importance during the *International Drinking Water Supply and Sanitation (IDWSS) Decade* in 1990 by aiming to provide safe drinking-water (and sanitation) to underprivileged urban and rural areas. This was not remotely achieved. Rather the depletion of fresh water resources made it necessary to reformulate the access-gap in the framework of the Millennium Development Goals (MDGs) Goal No. 7 (Ensure environmental sustainability), target 10, that voiced to *„halve, by 2015, the proportion of population without sustainable access to safe drinking water and basic sanitation“ (UN 2008: 40).*

As an international norm proposed by the WHO and UNICEF, access to safe drinking-water embraces *„a minimum requirement of 20 litres a day from a source within 1*

kilometre of the household sufficient for drinking and basic personal hygiene. This is sufficient for drinking and basic personal hygiene” (UNDP 2006: 34). This amount only includes the satisfaction of basic needs for bare survival (cp. in paragraph 2.4.). Not having access to safe drinking-water implies „that people live more than 1 kilometre from the nearest safe water source and that they collect water from drains, ditches or streams that might be infected with pathogens and bacteria that can cause severe illness and death“ (UNDP 2006: 33).

Another criterion to measure access is, if someone can „afford more than a small amount of water purchased in informal markets“ (ibid.). Affordability is therefore very close to the question of whether someone does have access to water. The range of access opportunities in the form of technological innovation in conventional water systems (cp. Hooper 2003: 83ff.; Kessides 2004: 226) for poor people, and in conjunction with limited access, the consequences when poor people can not pay for water services is discussed in chapter seven in this thesis about Durban`s water supply system.

2.6.2. Different standards of Access opportunities to Water

House connection/yard tap: *“Piped water from the public water distribution system that reaches the home or yard. When people have house connections, they usually have indoor plumbing as well; if they have yard taps, they have to go outside to get water”¹³.*

Shallow well: *“A well dug on public or private property for public consumption. Public wells usually provide water for little or no cost; water from private wells is usually more expensive. Shallow wells are not always reliable sources of water because they can become contaminated by run off in the rainy season or dry up in the dry season” (ibid.).*

Yard well: *“A shallow well in a yard usually intended for private use” (ibid.).*

Standpost: *“An outside tap to which a number of households can go to get water. Public standposts are connected to the public water distribution system and controlled by the water company. Private standposts are not connected to the public water distribution*

¹³ UNESCO,
http://www.unesco.org/education/tlsf/TLSF/theme_c/mod13/www.worldbank.org/depweb/english/modules/glossary.htm, 15.04.2010.

system nor controlled by the water company” (ibid.)

Private borehole and electric pump: *“A very deep well drilled into the ground using specialized machinery. Boreholes are used when the water is far below the surface or when the ground is too hard to dig a well by conventional means. Because they are so deep, they require an electric pump to bring water to the surface” (ibid.).*

Water from private “pushcart vendors” (UNDP 2006: 41): Private water vendors typically are found in so-called illegal settlements, periurban settlements or slum (*bidonville*, in French). Water can be purchased from plastic tanks, carried on wheelbarrows from private vendors in the slum. In cities like Jakarta, Lima, Manila and Nairobi for households living in low-income settlements payment for water from private vendors is five to ten times higher than what high-income residents from the same cities would pay for their water (cp. UNDP 2006: 52). Poor households in low-income settlements without in-house connection receive their water through intermediaries, which is why, prices rise steeply as water would pass through a connected network (cp. *ibid.*).

2.6.3. Global Access to Water in Numbers

Figures indicate the achievement in access to safe drinking-water until 2008:

- 1.6 – 1.8 billion people have gained access to safe drinking water since 1990 (this is equal to an amount of 20 litres per day within 1 kilometre from home).
- At this rate, 89% of world’s population will use improved drinking-water in developing countries by 2015.
- About 1.1 billion people still lacked access to safe drinking-water in 2008 (it relates to those people who live more than 1 kilometre from a water source and often use less than 5 litres of unsafe water per day).
- Rural-urban divide: 92-96 % improved drinking-water sources were available to the urban population in developing countries and 72-78% to the rural population. Around 742 million people in rural areas compared to approximately 137 million in urban areas lived without access to improved drinking-water. Part of this gap can be traced to differences in income deprivation which are more frequent in rural areas due to reduced service delivery to the dispersed rural population (c.p. UN 2008: 42; UNDP 2006: 35, 53; Brook et al. 2001: 1)

2.6.4. Recalling Goal 7 Target 10

After the launching of the IDWSS Decade in 1981 and the MDGs, a third decade for (water) action, namely *International Decade for Action*, was the next attempt to promote the fulfilment of commitments made on water and water-related issues by the year 2015. In December 2003, the United Nations General Assembly proclaimed the years 2005 until 2015 to be born under „*Water for Life*“.¹⁴ Among others, the UN proclaimed the fulfillment of the MDGs Goal 7 Target 10 to halve the proportion of people without access to safe drinking-water once again.

In most respects, the objectives envisaged in this decade did not necessarily distinguish from the 1992 Dublin Principles. Many aspects such as health and environment had been reconsidered, for example women's role in providing and safeguarding water, the sustainable use of water through the demand of management and last but not least, the demand for action to address the access gap premised in the MDG Goals in 2000.

2.7. UN's definition of Water and the Research Question

Aside from the unquestionable importance of having enough food and shelter to live, drinking-water is probably *the* essential good for a person's bare survival. This fact draws attention to the nonexcludable character of water from which no one should be barred from its consumption (cp. Kaul et al. 1999: xx). Therefore, it may be concluded from the ILO's definition on basic needs that drinking-water belongs to those essential services (in this case water supply) or material basic needs which have to be provided for the people. Due to the fact that water has become scarce and sustainable use inevitable, the UN has started to regard water as an economic good in recognizing its “full value”. This new concept of water did not mean to the UN to decide against the water's underlying social value, as it was first stressed in the 1992 Rio Summit statement, but acknowledged it as a human right in the UN General Comment in the year 2002. The widespread recognition of water's social and economic value has nevertheless remained a difficult task to pursue simultaneously. One problem remained, that still 1.1 billion people lack access to safe water sources worldwide (cp. UNDP 2006) and the international community has not fully

14 UN, <http://www.un.org/waterforlifedecade/background.html>, 08.01.2010.

pulled in the same direction. This was emphasized in one of Isabelle Vincent's article: „*The price of water for the poor: How to agree on the access-right with the payment of services?*“ (Vincent 2003: 119; translated from French by the autor). Vincent concluded that “*un accès gratuit à l'eau sans réflexion préalable sur les moyens de financer les services est voué à l'échec [...]*” (ibid.: 133). She pointed out that access to water can not being guaranteed without appropriate payment and that consumption subsidies for social or lifeline tariffs (cp. in chapter six and seven) can even discourage poor people from sustainable water use. Vincent therefore comes up with her suggestion, which derives from a common argument suggested by proponents of private-sector participation in the water sector, which says that poor people are willing to pay for water when supply is reliable and water is of high quality. Nevertheless, this is only one side of the coin.

Opponents on the other hand have repeated that water is only fully acknowledged when water is accepted globally as a human right. The introduction of the free basic water policy which should guarantee a lifeline volume (a certain amount of water which is delivered free of charge per day) to any household in South Africa reflected the dimension when economic interests on the basis of cost-benefit calculation (cost recovery) were incidental with social targets. In this case, the main question remains whether economic interests and equity can be combined at the same time that eventually end-users in poor, peri-urban settlements have gained access to water services through cost reflexive (water) pricing (suggested by proponents of private-sector participation in the water sector) in combination with equity standards (lifeline volume or social tariffs).

The question which addresses the central research question in this paper is discussed last but not least in analysis of the cities of Casablanca and Durban. In Casablanca, the city's water supply system is put under contract in the context of private sector participation while in Durban and Vienna they remain under the authority of the municipalities. By means of comparing the examples of Durban and Vienna the author focused on distinctions centered on the possibilities in terms of carrying out problems relating to water provision to urban settlements, e.g. urbanization and possibilities at the statutory level within the urban water supply.

2.8. Hypothesis and definition of Water

2.8.1. Hypothesis

With reference to above-mentioned considerations, the underlying research question of this thesis develops from following hypothesis:

As long as business-minded utilities guarantee contractual long-term improvements in urban water supply systems, equity based statutory adjustments have to be left whereby profit-oriented water suppliers do not intend to exclude people in mostly poor, peri-urban settlements from the water supply network. The UN repeated in the General Comment No. 15 on the right to water to guarantee basic needs for personal use (drinking and hygiene) for all people. In the case where governments and multinational firms develop a profitable strategy out of water and declares it as an exclusively economic good, the right to water would be significantly violated and hence access to water for people's bare survival would not be guaranteed, whether on statutory level or in reality.

2.8.2. So what type of Good? Defining Water

Due to the fact that the provision of basic services has belonged to the public sector over many decades (and still does at many places), the ongoing privatization of water supply systems has eventually changed the scope of interpreting water. In order to define the essence of a public good, it is useful to examine at first its counterpart, which is a private good.

Figure 1: Private and public goods

	Rivalrous	Nonrivalrous
Excludable	Private Good	<i>Network Club Good (mostly nonrivalrous in the club)</i>
Nonexcludable	<i>Good subject to congestion Or depletion, yet accessible to all</i>	<i>Pure public goods</i>
	<i>Some global commons (geostationary orbit)</i>	<i>Existence value Some global commons (high seas, ozone layer)</i>

Note: Features of a public good marked in italics.

Source: Adapted from Kaul et al. (1999): 5

From Figure 1 it has to be discussed what it means to have a market for private goods. Considering a market transaction, Kaul et al. (1999) identified that a buyer gained access to a good, or service in exchange for money or another good. Both buyer and seller met through price mechanisms. If it works out, the economy could reach a state of maximum efficiency in which resources are put to their most productive uses. For market transaction, a key condition is that the ownership¹⁵ or use of a good can be transferred or denied conditional on the offsetting exchange. In other words: the payment of its price. Thus, private goods tend to be excludable and rival in consumption (Kaul et al. 1999: 3).

As follows, a pure public good is exactly the opposite to a private good. They are characterized by nonrivalry in consumption and nonexcludability. The first feature of a pure public good means that countless persons can use it in the same way without lowering its quality. The second distinguishing feature implies that nobody can be excluded from using it and that all members of a given community have equal rights in their possibility to use water (cp. Kaul et al. 1999: 3f.)¹⁶. There are only a few examples of pure public goods: High seas, which normally do not belong to the nation's territory, as well as the ozone layer or sun light are other examples to be used by any person.

¹⁵ Ownership here means self-responsibility and self-determination (cp. following Nuscheler 2005: 630).

¹⁶ cp. Attac Deutschland,

<http://www.attacmarburg.de/privatisierung/?id=Nahverkehr.Was+sind+%F6ffentliche+G%FCter+und+Dienstleistungen%3F>, 13.01.2010.

Impure public goods are more common since they partly meet one or both defining criteria: purely public or private. Due to the fact that only a few pure public goods exist, Kaul et al. (1999) proposes to use the term public good instead of impure public goods. I will continue my elaborations based on their proposal while concluding with my own definition on water.

With reference to the ILO definition of basic needs (cp. in paragraph 2.4.), water is clearly stated to be a basic need. First, it belongs to an essential service for the community, and not least, it is essential for a person's bare survival. But the provision of water whether it is private-sector or publicly managed is often determined by political decisions (normative). Martens and Hain (2002, 14, quoted in: Brand 2004: 23) emphasised, that the provision and distribution of public goods (here I refer to the definition suggested by Kaul et al. 1999) is therefore not always a technical question. It is rather the point of which goods will be produced at all and in what way this should happen considering the alternatives to capitalistic forms of production. An example of such debate concerns the issue of human security (cp. following Altvater 2003; quoted in: Brand 2004: 23). In this context, one person's human security means that a person does not fear from being free and does not suffer from any kind of shortage. Exactly because the term is very elastic and highly disputed, Brand suggested to reflect upon human security as *"democratic conditions under design"* (Brand 2004: 23; translated in the general sense by the author). Hence, whether this approach enables all people a material satisfactory life, it may be considered as a starting point, since „[...] *profitorientierte und marktförmige Bereitstellung von Gütern – und damit verbunden: von notwendiger Kaufkraft, um diese nachzufragen – in vielen Fällen eben nicht die menschliche Sicherheit erhöht*“ (Brand 2004: 23). In the case, the definition of water is to be based on a people-centered approach, while stressing equity principles water can be conceptualized as a common good.

A common good is defined as a specific good shared and beneficial to all members (or as much as possible) of a given community (cp. SADC 2005: 20). As mentioned-above, the definition is also dependent on whether powerful international institutions and governments have proclaimed their concerns, which are mostly economical, how to define water (cp. Brand 2004: 22).

Based on these remarks, apart from defining water and its access as **basic need**, water is also a **human right**. Without defining water from a human right's based approach, signed by all UN member states, which entitles a person to a certain minimum amount of safe drinking-water and personal hygiene (cp. Streeten et al. 1978: 413), access to basic needs (such as water) for all is not nearly ready to implement on a national level. Furthermore I will descend my own definition of water from the SADC's definition proposal about common good, even though I want to clarify, that any commercial profit-oriented strategy from water - which does not mean to accept fair pricing as long as people are not excluded from water services if they are not able to pay for water – would violate water's underlying human right character (cp. following Altvater 2003: 182ff.).

The Swiss Agency for Development and Cooperation (SADC) defines therefore water following a common good as follows:

“Water should be considered as a composite good combining elements of public and private goods. Water does possess an important characteristic of a public good, i.e. non-excludability – since the consequences of denying access would be culturally and politically unacceptable to much of mankind. Water ownership and use might be classified as “a good belonging to and managed by the community”. Water should therefore be considered as a “common good” that qualifies for both private and communal ownership and use. This would allow for a wide range of water management systems that can suit various socio-economic, ecological and ethical conditions” (SADC 2005: 20).

III Different Assumptions on Water

3. Conditions within the law, services of general interest and the possibilities of national regulation of the water sector in Austria

Due to the fact that the *Industrielle Werke Basel* (IWB)¹⁷ – in charge of the drinking-water supply within the canton of Basel City and the municipality of Binningen (both in Switzerland) - started up its own business per 1st January 2010, and has carried out their duty within a PPP¹⁸, I decided to focus on Vienna instead of Basel's municipal water supply system to Vienna (see more of this in part two in this thesis) and consequently the country, too.

This chapter examines the discourse between a “state's duty” to provide basic services whether operating the system through private operators, or through state-led supervision. The broad public shares the opinion that a state has to guarantee essential basic services in its role as possessing social functions on the scale of a „*Gewährleistungsstaat*“ (Brand 2004: 24). In German, the expression embraces those social functions which can be summarized as general public service (*öffentliche Daseinsvorsorge*). On the other hand, as the title has already indicated, apart from the states' social duties, the state is also guarantor for the functioning of regulatory processes within a competitive market. Accommodating one state's twofold effectiveness, Raza et al. (2004) compared it with a market of social-liberal discourse (cp. Brand 2004: 24).

Due to the Austria's membership in the European Union (EU), in conjunction with its supranational engagement in political manners and the creation of European Union's domestic market, statutory provisions have been raised in the scope of the EU competition law. Many critical observers, e.g. Attac, have regarded the equality between public and private enterprises towards same market rules (EU competition law) as an imminent danger for the provision of public services. Unfortunately I can not stretch that

¹⁷ cp. IWB, <http://iwb.ch/de/unternehmen/index.php>, 12.01.2010.

¹⁸ Private- Public Partnership (PPP)

point further, since I will only focus on mechanisms dealing with the regulation of the Austrian water sector (in this case water supply).¹⁹

Before looking at specific elements of state-run possibilities in regulating the water sector (in this case water supply) I will start with a historical outline regarding the meaning of general public service and add relevant services belonging to the field of general public service.

3.1. General public service: Historical outline and definition

3.1.1. Historical outline about general public service

The term general public service stems from Max Weber²⁰: In relation with the industrial development since the end of 19th century, he described social-spacious changes in people`s living conditions while elaborating that an increase in the dependence of individuals in safekeeping elementary life conditions has occurred. One example reflecting those conditions was the provision of drinking-water (garbage collection, etc.) in high populated cities in the beginning of the 19th century. In the wake of the industrialization centered on an increase in population and the emergence of certain obstacles caused by urbanization, general public service has been established as part of the municipalities` obligations. The construction of necessary infrastructure - the expansion of the supply grid and sanitation – was being put in the centre in order to safeguard elementary life conditions from the effects of industrialization.²¹

3.1.2. Defining general public service

Ernst Forsthoff first embossed the term in 1938, while he imported it to German administrative law. He defined general public service as follows: „*Die Darbietung von Leistungen, auf welche der in die modernen massentümlichen Lebensbedingungen*

19 See more to EU`s competition law in Article 86 and Art. 86.2 of the EC-Treaty; EC, http://ec.europa.eu/competition/consumers/legislation_liberalisation_de.html, 19.01.2010.

20 Max Weber was a German political economist and sociologist (1864 – 1920).

21 cp. Kommunalpolitisches Forum Sachsen e.V., <http://www.kommunalforum-sachsen.de/pdf/infothek/kommunallexikon/daseinsvorsorge.pdf>, 16.01.2010.

verwiesene Mensch lebensnotwendig angewiesen ist“²². Generally, *Daseinsvorsorge* defines the provision of social, economic and cultural services (including all necessary fittings) for the general public by the municipality. “Für den Begriff *Daseinsvorsorge* gibt es weder eine Legaldefinition noch steht für alle Zeiten seine inhaltliche Ausfüllung fest“ (ibid.).

Schulz-Nieswandt (2004: 13) therefore distinguished three sectors in which general public service should be applied:

- social services (sector)
- technical-economic (sector)
- monetary- and credit-policy (sector)

As follows, technical infrastructure - as part of the second type – for the construction of the water supply grid (pipes, etc.) belonged to the idea of (municipal) general public service.²³

General public service is to be reckoned among the core of municipal self-administration, in which not all communal services are compulsory with general public service. “*Welche Leistungen der Daseinsvorsorge den Pflichtaufgaben und welche den freiwilligen Aufgaben zugeordnet werden, richtet sich hauptsächlich nach den kommunalrechtlichen Bestimmungen der Länder*“²⁴.

Although there is no general definition, there are nevertheless four criteria of services to be applied to general public service:

- reliable access with equal rights to services for all inhabitants, and at affordable prices;
- constant and sufficient provision of services in quantities demanded and sufficient scale;

22 Kommunalpolitisches Forum Sachsen e.V., <http://www.kommunalforum-sachsen.de/pdf/infothek/kommunallexikon/daseinsvorsorge.pdf>, 19.04.2010.

See for more details: Forsthoff, Ernst (1938): *Die Verwaltung als Leistungsträger*, Stuttgart.

23cp. bpb, <http://www.bpb.de> (→ Infrastruktur), 16.01.2010;

Attac Deutschland, <http://www.attacmarburg.de/privatisierung/?id=Einf%FCrung+Kr%FCger.3>, 16.01.2010.

²⁴ Kommunalpolitisches Forum Sachsen e.V., <http://www.kommunalforum-sachsen.de/pdf/infothek/kommunallexikon/daseinsvorsorge.pdf>, 19.04.2010.

- back-up of services and guarantee of functioning public life also for future generations;
- democratic control over services within general public service, back-up of transparency over quality and scale of yielded services²⁵

Summarizing these points, the political authority (from governments up to municipalities) is subject to the obligation of providing drinking-water to all inhabitants (to guarantee access to all inhabitants). That implies that access must be reliable, that everybody can lean on constant and sufficient water flow to satisfy his/her basic needs at any time. Further, water must be available at an affordable price and every municipality is responsible for sufficient and qualitative (safe) water for future generations (= meaning of sustainability). Last but not least, the concluding remarks refer to the quotation, emphasized in the General Comment No. 15, that „[...] *everyone has a right to sufficient, safe, acceptable, physically accessible and affordable water*“ (Salman 2005: 79). In part three in this thesis, I will pick up that consideration literally, while comparing access, affordability, quality and reliability of each examined water supply systems in the cities of Casablanca, Durban and Vienna.

3.2. Is there sufficient Water? Austria's Water Balance

Due to the Alps central location in Europe, it is not without reason the natural water provider for many surrounding countries (cp. SSdA 2009: 9). With an estimated stock of 83 billion m³ a year, Austria is regarded as a real water castle. The State draws on large fresh water stocks being traceable to rainfall during the whole year (cp. SSdA 2009: 32) and thaw (cp. Katzmann 2007: 51). Most rainfall is from June to August with maximum rainfall of 200 mm³ in Bregenz (June) compared with 160 mm³ in Salzburg (June) and 70 mm³ in Vienna (June).²⁶

Nonetheless, warm weather months and an effect of droughts can also occur at these latitudes. This occurred between 2003 and 2007 (cp. SSdA 2009: 32), even though no households were affected in drinking-water shortages (cp. *ibid.*: 36) during that time.

²⁵ cp. Kommunalpolitisches Forum Sachsen e.V., <http://www.kommunalforum-sachsen.de/pdf/infothek/kommunallexikon/daseinsvorsorge.pdf>, 19.04.2010 (translated in the general sense by the author).

²⁶ cp. Aktuelles Wetter Österreich, <http://www.wetter.at/wetter/satelliten-bilder/klima/>, 18.01.2010.

General water consumption in Austria is approximately 2.5 billion m³ per year. This is less than 3 % of the total available water balance. The biggest Austrian water consumer is the industrial sector with around 1.7 billion m³ per year ($\approx$ 56 %). The second biggest water user is claimed by private households with an estimated quantity of 700-750 million m³ per year ($\approx$ 39 %). 99% of drinking-water requirements are covered from ground and spring water resources. The lingering 200 million m³ are used for irrigation purposes (5 %) (cp. Katzmann 2007: 51)²⁷.

These figures indicate a vast difference in consumption between sectors: While consumption for irrigation remains very low in quantities, consumption in the other two sectors rested very high. It might be said that huge reservoirs on water and low prices (cp. for water charges in the city of Vienna later in chapter five of this thesis) still have been regarded as little incentive to treat water resources as economically sustainable, whether this concerns private households or industry („remember yourself at home“)²⁸. Anyway, there is enough evidence to recognize that hot and lasting summer months and short winter periods have been changed usual habits in spending winter and summer in the Alps Region. It is true that the water situation has not changed in a way that drinking-water resources are not getting significantly scarce because of hot periods regardless of personal physical nor economic purposes (cp. SSdA 2009: 36; SADC 2005: 28). Nevertheless, the focus on the planning of effective strategies to avoid and reduce drought risks has started to become an urgent task (cp. *ibid.*: 32).

The following table lists, in detail, the water balance in Austria for the year 2010 (Table 1). Second, it revealed an overview of water costs for private household purposes in surrounding Alps countries (Table 2).

²⁷ cp. ÖVGW, <http://wasserwerk.at/>, 18.01.2010.

²⁸ Around 44 litres are used for having a bath and shower, 40 litres per toilet flush, 6 litres per dishwasher, 100 litres per washing machine, 9 litres for daily personal hygiene, 2 litres for cooking, 2 litres for drinking and 13 litres for house cleaning, garden and car wash per day (cp. ÖVGW, <http://wasserwerk.at/home/alles-ueber-wasser/verbrauch>, 19.04.2010).

Table 1: Water balance in Austria 2010

Details in Billion m ³						
Country	Inexhaustible Water Resources	Rainfall	Vaporization	Inner Resources	Inflow	Outflow
Austria	77	92	42	50	27	77

Explanations:

Inexhaustible Water Resources = Rainfall and Inflow (coming from neighbouring countries) minus Vaporization; Inner Resources = Difference between Rainfall and Vaporization

Source: Adapted from Statistisches Jahrbuch Österreichs 2010

Table 2: Costs of drinking-water in alpine countries

Country	Minimum Euro/m ³	Maximum Euro/m ³	Average/m ³
Austria	0.33	-2.00	-1.00
France	0	-4.00	-1.32
Germany	0.52	3.95	1.85
Italy	0.78	0.96	No details
Slovenia	0.12	0.45	No details
Switzerland	-0.40	-2.00	-1.00

Source: Adapted from SSdA 2009: 36

Most figures only showed costs for drinking-water supply. In some cases waste water charges were included. SSdA (2009: 37) referred to different sources in its statistic separately indicated, which is why all figures do not allow exact comparison between different water charges. ÖVGW-Statistik²⁹ confirmed the lowest average price on drinking-water in Austria compared with other alpine countries. Different regional situations and historical developments have determined prices for water costs in those countries. As an example, Swiss mountain villages have profited from water charges gained through generation of electricity. The background of such procedure can be explained through the location of hydroelectric power stations. Those regions accommodating such power stations are allowed to make a profit out of them (cp. SSdA 2009: 36).

29 cp. ÖVGW, http://www.ovgw.at/wasser/themen/index_html?uid:int=294, 19.01.2010.

However, the delivery of drinking-water supply and price mechanisms assume a range of regulatory measures. The State, as an example of a regulatory body, carries out such measures on different administrative levels. I will pick up some elements published in a working paper by the World Bank Group (WBG) and discuss them applicable to the Austrian case and to the water supply system in Vienna (discussed later in this thesis). I do consider the fact that the WBG pursues a strategy in regulating infrastructure services based on market liberalization (cp. Brook et al. 2001: 11), which in fact, is subject to a tendency in Austria as well (e.g. telecommunications), and in some cases to the water sector.

3.3. Regulation/Regulatory System

The World Bank Group (WBG)³⁰ proposes a design of a regulatory system to govern the infrastructure sector which has been established as an attempt to expand access to poor households in particular. The WBG noted that the concept, applied to private providers in regulating infrastructure services, refers to experiences in the regulation of telecommunication in the United States and other OECD countries. It further mentions

³⁰ The **World Bank Group (WBG)** was formed at the Bretton Woods Conference, New Hampshire, U.S. in 1944 and founded essentially to finance the reconstruction of post-Second World War states. The World Bank is owned by 184 member countries and gives loans to middle-income countries and creditworthy poorer countries with the aim to reduce poverty. Voting power of Member States (MS) is determined by the size of MS prevailing economies. The U.S., Japan, Germany, France and the UK each have a representative on the board of directors (cp. Sjölander Holland 2005: 92).
The World Bank Group (WBG) comprises of following units:

1. **The International Bank for Reconstruction and Development (IBRD)**'s main task consists of lending money to „poor countries“, while it also aims to reduce poverty in middle-income countries by the same task (cp. Sjölander Holland 2005: 92; cp. <http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/EXTIBRD/0,,menuPK:3046081~pagePK:64168427~piPK:64168435~theSitePK:3046012,00.html>, 20.02.2010).
2. **The International Development Association (IDA)** is the part of the WBG that gives loans to the „world's poorest countries“ [see *literal translation*, WBG (cp. <http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/IDA/0,,contentMDK:21206704~pagePK:51236175~piPK:437394~theSitePK:73154,00.html>, 20.02.2010)].
3. **The International Finance Cooperation (IFC)** is the part of WBG that encourages privatization through investments in the form of loans and capital (cp. Sjölander Holland 2005: 93). The IFC holds shares in companies worldwide whereas the biggest percentage goes to Central Bank & Official Institutions (≈ 58 %) in Europe, Middle East and Africa with 74 % of the total share (cp. [http://www.ifc.org/ifcext/treasury.nsf/AttachmentsByTitle/InvestorFactSheet-February2009/\\$FILE/Fact+sheet+2009.pdf](http://www.ifc.org/ifcext/treasury.nsf/AttachmentsByTitle/InvestorFactSheet-February2009/$FILE/Fact+sheet+2009.pdf), 20.02.2010).
4. **The Multilateral Investment Guarantee Agency (MIGA)** encourages foreign investment and gives guarantees to investors and granters of loans. They are insured against risks of all kinds, e.g. broken contracts, outbreak of war (cp. Sjölander Holland 2005: 93).
5. **The International Centre for Settlement of Investment Disputes (ICSID)** is an autonomous institution and can be regarded as an „arbitration court“ (Sjölander Holland 2005: 93) in conflicting situations between multinational companies and countries.

that many of the key elements are not easily transferable to developing countries because of different policy priorities and institutional conditions (cp. Brook et al. 2001: 21). I will use this proposal to focus on best practices in market access of infrastructure services, since the case of Vienna falls into a different heading I will not use it as a “*pro-poor*”³¹ strategy. Instead, I will pick up some elements which, among others, belong to the rules of “*state’s regulation*” (translated from German by the author)³² and discuss them on the basis of statutory measures, price mechanisms (tariffs) and (water) quality.

The regulatory system is defined by three distinct elements which are closely related to each other (cp. Brook 2001: 21ff.):

- a) *Regulatory rules* which are embodied by laws, licenses, contracts and similar instruments;
- b) *Regulatory bodies* responsible for administering and enforcing those rules;
- c) *Regulatory processes* undertaken or managed by regulatory bodies to discharge their responsibilities

I will itemize those elements underscored which are considered for further elaborations.

a) *Regulatory rules*:

- *Controlling Market Entry*;
- *Controlling Prices*;
- *Controlling Quality*;

b) *Regulatory bodies*:

- *Expertise*;
- *Independence* (which means that the regulator operates at arm’s length from regulated firms on the one hand, and operates at arm’s length from political

³¹ „Focusing activities on the on the low-income segments of society, which often have inadequate access to water and other resources or services. “Pro-Poor” implies that the overall aim is beneficial towards the poor while “poverty focused” implies a greater degree of targeting” (SADC 2005: 26).

³² cp. Gabler Wirtschaftslexikon, <http://wirtschaftslexikon.gabler.de/Definition/regulierung.html?referenceKeywordName=staatliche+Regulierung>, 20.01.2010.

authorities on the other hand. This is applicable to the World Bank's understanding to give private utilities as much space as necessary to operate freely and in order to reduce the risks of failed investment capital);

- *Tiers of Government*: factors supporting decentralisation

c) *Regulatory processes*:

Regulatory processes have to be seen in view of market liberalization in developing countries. The WB points out that regulatory bodies, no matter where they are located, what kind of expertise they have, or how independent they are, should have access to information about the needs and priorities of consumers, firms and other stakeholders. The WB's design is aligned to a range of factors which include:

- *Effectiveness*;
- *Accessibility/access to parties in remote areas or with limited sophistication* (it is not further explained if remote areas thus belong to areas with limited sophistication);
- *Safeguards* (to be close to any particular interest);
- *Impact on the costs and delays* (associated with regulatory decision-making processes)

3.3.1. Controlling Prices

The States' area of responsibility is applicable to general public service. The existence of a constitutional claim (*verfassungsrechtlicher Anspruch*) implies that any municipality can perform their tasks – to be part of general public service – on its own. This claim is justified in Art³³ 118 Abs³⁴ 2 B-VG (cp. Mayer 2007: 375). Not without reason is the municipality *the* local authority closest to the population. This „proximity aspect” derives from the principle of subsidiarity (lat. „subsidium“; engl. “assistance”) defined as:

“Subsidiarität ist ein Legitimations-, Kompetenzvermutungs- und Entscheidungsprinzip. Es umfasst zwei Wesensmerkmale: (a.) Aufgaben, welche das Individuum allein nicht zu leisten

³³ Art = Artikel (article, in English): For further elaborations I will use the German abbreviation.

³⁴ Abs = Absatz (paragraph, in English): For further elaborations I will use the German abbreviation.

vermag, sind jener Gemeinschaft anzuvertrauen, die dafür am besten geeignet ist; (b.) Für die Zuweisung solcher Aufgaben gilt die Kompetenzvermutung zugunsten der kleineren bzw. der nichtstaatlichen Gemeinschaften“ (Riklin et al. 1994: 443f.).

And with regards to the overcoming of water related services, the SADC suggests for definition:

„Responsibilities for water related services and resource management need to be decentralised to the lowest appropriate administrative level according to the concept of subsidiarity“. It is further written, that: „Subsidiarity must not be allowed to mean abandonment of responsibility; rather it should encourage the mobilisation of resources and inputs at all levels, as well as capacity building to allow greater decentralisation of decision making on a progressive basis“ (SADC 2005: 28f.).

According to Riklin (1994) there are four fields of application of subsidiarity to be distinguished (cp. *ibid.*: 444). One of those affects the theory of state structures, which might be summed up as the field of application between confederation (*Bundesstaat*) and its member states (*Gliedstaaten*) or the state and its sub units (e.g. federalism). Regarding subsidiarity's underlying decentralization intentions, at best, the principal body assigned the responsibility to the lowest level possible corresponding to the affected area (cp. WMO 1992; quoted in: Kessides 2004: 229) to carry out those tasks belonging to the general public service such as drinking-water supply. With reference to the municipality's given right to self-administration³⁵, which is not only applicable to the provision of drinking-water, the area of responsibility can also be enlarged to fairly pricing (tariffs) and good quality of water (cp. Bocklet 2001, quoted in: Astl 2006: 82).

Tariffs for drinking-water supply and for the disposal of waste water are usually charged by the operator (this can be either a municipal or private operator). For this reason, there is no article to be found in any official law, whether at federal or at regional level, that confirms pricing to be part of “national” or “regional” relevance. In the follow, I will clarify the necessary legal requirements about pricing.

According to the Austrian Water Law Art 10 Abs 1 Z³⁶ 10 B-VG, drinking-water supply

³⁵ Art 116 Abs 1 B-VG

³⁶ Z = Zeile (Line, in English): For further elaborations I will use the German abbreviation.

belongs to competence of the Federal Republic of Austria, in which federal states according to Art. 10 Abs. 2 B-VG in accordance with § 36 Abs 1 WRG 1959 (cp. Astl 2006: 101) are applied to the so-called “*Ausführungsgesetzgebung*” (Astl 2006: 101). For practical purposes and on the basis of the principle of subsidiarity most municipalities are vested with the right to exercise the provision of water (cp. Astl 2006: 101; BMLFUW 2003).

According to TWV § 5 § 6 the operator which runs the water supply is obliged to inform customers about water quality standards once a year (cp. Astl 2006: 102f.). According § 6 Z 2, there are some options of how to inform the public. Either through water bills, municipal information sheets or in other appropriate way.³⁷

Regarding the implementation statute, it has been stipulated that either municipalities or private operators (in consultation with the municipality) are finally allowed to define tariffs³⁸ (cp. Mayer 2007: 364). In nearly every Austrian municipality, water is charged on a volumetric basis through water metres, which are installed close to households (depending on plot size and number of households belonging to the plot) by the operator (= hire charge, *Benützungsgebühr*). In addition, all households wishing to be connected to the public supply grid have to pay for a connection fee (*Anschlussgebühr*, in German) (cp. among others Astl 2006: 104). In Vienna, pricing mechanisms are stipulated in § 11 Z 1 and § 11a. Z 1 WVG 1960).³⁹

In the case that the provision of water has been devolved to a private utility⁴⁰, the latter has to decide on pricing in consultation with the local authority since the private utility took over a service that generally is being executed by the local authority. In theory, if the municipality is not able to execute appropriately, and therefore has to hand it down to a private operator, pricing is usually made in consultation. In reality, tariffs usually try to cover the full cost (for more details see the principle of cost recovery in the next chapter), e.g. administration costs, as well as infrastructure and investment costs, etc. In certain

³⁷cp. RIS, <http://www.ris.bka.gv.at/Dokumente/Bundesnormen/NOR40021623/NOR40021623.pdf>, 21.01.2010.

³⁸ Art 116 Abs 2 B-VG

³⁹ cp. Wiener Stadtverwaltung, <http://www.wien.gv.at/recht/landesrecht-wien/rechtsvorschriften/pdf/f8200000.pdf>, 21.01.2010.

⁴⁰ In the scope of the principle of subsidiarity, on a local level, the handing over of water delivery to a private operator is authorized when, as follows, the latter is able to manage and operate the supply system (cp. Astl 2006: 100).

alpine countries, sometimes water tariffs additionally include tax write-offs (*Abschreibungen*) for the use of infrastructure and the value-added tax (*Mehrwertsteuer*) (cp. SSdA 2009: 35). Tariffs for water therefore become more expensive. Administrative costs especially generally take a big share within water tariffs. Although I will not compare prices for “food” in this thesis, it is confirmed that drinking-water is the cheapest food in Austria. Unfortunately this information did not reflect whether in this case water had been provided by a public or private operator⁴¹ which would reveal, as follows, if all additional costs above the real price were higher either when private or public operators generally had been responsible for the provision of water.

3.3.2. Controlling Quality

3.3.2.1. Statutory measures at a national level

The protection of water supply is anchored in § 30 ff WR by protecting spring and ground water (Baumgartner 2008: 205), as well as in § 34 Abs 2. The authority authorizes measures of the protection of water supply plants, e.g. wells, spring sources, pipes, containers, as wells as against pollution according to § 30 Abs 2 and any other restrictions (cp. Baumgartner 2008: 209f.; translated in the general sense by the author).

The legal anchoring of water supply is decisive for water quality. This was stipulated in TWV BGBl II 304/2001⁴² on the basis of the Foodstuffs Act⁴³ (BGBl 86/1975) (cp. Astl 2006: 102). All water operators (public or private) are obliged to carry out water examinations on a regular basis through either the “*Lebensmitteluntersuchungsanstalt*” (Astl 2006: 102) or other appropriate person responsible (cp. *ibid.*: 102). The examinations of water quality are usually conveyed to the citizens of the municipality along above-mentioned possibilities (TWV §§ 5 and 6⁴⁴) (cp. Astl 2002: 102f.).

⁴¹cp. ÖVGW, <http://wasserwerk.at/> (→ Trinkwasser), 23.01.2010.

⁴² cp. RIS, <http://www.ris.bka.gv.at/Dokumente/Bundesnormen/NOR40021623/NOR40021623.pdf>, 20.04.2010.

⁴³ *Lebensmittelerhaltungsgesetz*, in German

⁴⁴ cp. RIS, <http://www.ris.bka.gv.at/Dokumente/Bundesnormen/NOR40079604/NOR40079604.pdf>, 21.01.2010.

3.3.2.2. Statutory measures within the EU

Most bacteria evoking diseases reach human bodies through groundwater. The likelihood of infection from soiled water is higher for those households not connected to the public network. That concerns especially owners of private wells. There is no statutory rule for private well owners that makes samples of water quality of groundwater (cp. Katzmann 2007: 54). In order to guarantee quality groundwater on a high level by special measures to prevent and limiting groundwater pollution (cp. *ibid.*: 56) the EU adopted a specific guideline known as the “*EU-Wasserrahmenrichtlinie*” in December 2006. In summary, the “*EU-Wasserrahmenrichtlinie*” is based on following guidelines (cp. *ibid.*: 58; translated in the general sense by the author):

- *Limit for quality groundwater (chemical conditions)*
- *Regulation of trends and reversal of harmful (chemical) substances in groundwater*
- *Prevention and limitation of harmful substances entering groundwater*

3.3.2.3. Measuring the quality of water

For illustration, I add the official values (*Richtwerte*) for Vienna`s supply grid (*1st and 2nd Hochquellleitung (HQL)*, *3rd Wiener Wasserleitung (= Mossbrunn) and Lobau*) whose values list natural content and possible range. The quality of water is usually measured by different parameters (you will find all relevant parameters in the first column of the table below). The seventh column indicates the parameter values for nitrate (*Nitrat*), nitrite (*Nitrit*), fluoride (*Fluorid*) and pesticide (*Pestizide*) in accordance with the drinking water ordinance (Trinkwasserverordnung (TWV) BGI. II Nr. 304/2001 as amended).

Table 3: Official parameters for the quality of drinking-water

Parameter	Einheit	1. HQL	2. HQL	3. Wr WL	Lobau	Parameterwert gemäß Trinkwasserverordnung (Grenzwert)
pH-Wert		7,5 bis 8,3	7,6 bis 8,4	7,4 bis 7,6	7,3 bis 7,8	
Leitfähigkeit	µS/cm	240 bis 390	200 bis 310	565 bis 639	480 bis 570	
Gesamthärte	° dH	7 bis 12	6 bis 8	17 bis 20	12 bis 16	
Carbonathärte	° dH	7 bis 12	6 bis 8	12 bis 14	12 bis 15	
Härtestufe	I, II, III	I bis II	I	III	II	
Calcium	mg/l	43 bis 58	32 bis 40	79 bis 94	65 bis 83	
Magnesium	mg/l	6 bis 16	5 bis 10	25 bis 29	15 bis 22	
Sulfat	mg/l	9 bis 24	1 bis 9	71 bis 80	27 bis 39	
Chlorid	mg/l	1 bis 5	1 bis 2	13 bis 15	12 bis 18	
Natrium	mg/l	1,0 bis 2,5	≤ 1,0	5,5 bis 6,1	8,5 bis 11,0	
Kalium	mg/l	1,0 bis 2,7	1,0 bis 2,1	< 1,0 bis 1,1	1,7 bis 3,9	
Nitrat	mg/l	4 bis 8	2 bis 5	15 bis 18	1 bis 5	50
Nitrit	mg/l	< 0,008	< 0,008	< 0,008	< 0,008	0,1
Fluorid	mg/l	< 0,2	< 0,2	< 0,2	< 0,2	1,5
Pestizide insgesamt	µg/l	Pestizide im untersuchten Umfang nicht bestimmbar	Pestizide im untersuchten Umfang nicht bestimmbar	Pestizide im untersuchten Umfang nicht bestimmbar	Pestizide im untersuchten Umfang nicht bestimmbar	0,50
Blei	µg/l	≤ 1,0	≤ 1,0	≤ 1,0	≤ 1,0	25,0

Source: Data received per E-mail from Ing. Gabriele Bayer (MA 31 – Wr. Wasserwerke) on 9th March 2010

Nitrate for example is found in groundwater reached through agricultural fertilization. The TWV BGII, Nr. 304/2001 stipulates a maximum limit of 50 mg Nitrate per litre of drinking-water.⁴⁵ The maximum limit of nitrite, for example, is much lower. In that case,

⁴⁵ cp. RIS, <http://www.ris.bka.gv.at/Dokumente/Bundesnormen/NOR40021623/NOR40021623.pdf>,

the law stipulates an amount of 0.1 mg nitrite per litre. It is generally rare to find nitrite in Austrian fresh water sources. Nevertheless, it can occur that some amount reaches groundwater through chemical reactions in mislaid new pipes. A certain amount of Nitrat in groundwater has already dramatic consequences to human beings' health by disturbing a person's oxygen transport through blood circulation (cp. Katzmann 2007: 55).

3.4. Statutory measures on ACCESS

“Nach Art 10 Abs 2 B-VG kann in den nach Art 10 Abs 1 Z 10 B-VG ergehenden Bundesgesetzen die Landesgesetzgebung ermächtigt werden, zu einzelnen näher zu bezeichnenden Bestimmungen Ausführungsgesetze zu erlassen“ (Astl 2006: 103). As follows, federal states are entitled to authorize *“Ausführungsgesetze”* (ibid.) in the scope of drinking-water supply according to § 36 Abs 1 WRG 1959. All federal states, with the exception of Tyrol dispose of respective drinking-water supply laws⁴⁶ (cp. Astl 2006: 103). Due to the fact that the *“Landesgesetzgebung”* (ibid.) is exclusively entitled to authorize respective *“Ausführungsgesetze”* (ibid.), the case of Tyrol meant that Tyrolian municipalities have to compensate for corresponding legal enforcements (cp. Astl 2006: 103). Statutory measures at national level, including Tyrol's exception, confirmed that apart from a zero deficiency of freshwater resources in the entire country (SSdA 2009: 36), access to water is guaranteed to all people with legal residency status through a so-called compulsory connection (*Anschlusszwang*) (Astl 2006: 104).

3.5. Water Supply in Austria: General Data

Approximately 7.4 million people (90% of the total population) are provided with water

20.04.2010.

46 **Burgenland:** Gesetz über die Einhebung einer Wasserleitungsabgabe durch die Gemeinden, Landesgesetzblatt 1962/6 und Gesetz über die Bildung eines Verbandes zur Errichtung und zum Betrieb einer öffentlichen Wasserleitung für Gemeinden des nördlichen Bundeslandes, Landesgesetzblatt 1956/10; **Kärnten:** Gemeindewasserversorgungsnetz 1997, Landesgesetzblatt 1979/107; **Niederösterreich:** Gemeindewasserleitungsgesetz 1978, Landesgesetzblatt 1978/61 und Wasserleitungsanschlussgesetz 1978, Landesgesetzblatt 1978/105; **Oberösterreich:** Wasserversorgungsgesetz, Landesgesetzblatt 1997/24; **Salzburg:** Gemeindewasserleitungsgesetz, Landesgesetzblatt 1976/78 und Benützungsgebührengesetz, Landesgesetzblatt 1963/61; **Steiermark:** Gemeindewasserleitungsgesetz 1971, Landesgesetzblatt 1971/42; **Voralberg:** Wasserversorgungsgesetz, Landesgesetzblatt 1999/3; **Wien:** Wasserversorgungsgesetz, Landesgesetzblatt 1960/10 (cp. Following foot note 307 in Astl 2006: 103).

from public operators. The remaining 900,000 inhabitants get their water from wells belonging to personal facilities. The *Österreichische Vereinigung für Gas- und Wasserfach* (ÖVGW) serves nearly two thirds of the entire population with a total water amount of around 500 million m³ per year. The fourteen biggest water supply companies (serving more than 50,000 inhabitants) provide drinking-water to 3.6 million people. The remaining 1.8 million connected to public networks are delivered by more than 4,000 small and very small companies with a total water amount of around 200 million m³ per year.⁴⁷

3.6. EXCURSUS: Are there property rights on water?

In order to answer that question all the evidence is to be revealed in the “1959 Wasserrechtsgesetz (1959 WRG)”. The 1959 WRG makes a distinction between so-called public water (*öffentliche Gewässer*) (§ 2 WRG 1959) and private water (*private Gewässer*) (§ 3 WRG 1959). Both types are subject to different restrictions of use. Public water can be summarized as lakes, rivers as well as all water not indicated as private water`s in the federal legislation. Private water are summarized as „water“ to be contained and collected at one single plot. These are predominantly ground-, spring- and rainwater, which are contained by wells, cisterns and ponds. Other examples contain lakes which are not connected to any public water on the one hand, and not registered as running water on the other hand. Private water is also indicated as outflow before running into public water (cp. Astl 2006: 101; WRG 1959: 6f.).

As a result, it is important to underscore that the property right on water exists considering all water in one single plot (cp. § 3 Abs 1 WRG 1959). Property rights are nonetheless strongly restricted through legal measurements accomplished by the WRG 1959. In the case that a person demands water from public water he/she is allowed restricted withdrawal for practical purposes such as soaking, scooping, washing ashore, washing and swimming (cp. § 8 Abs 1 WRG 1959). The person is also entitled to withdraw water by respecting, that this occurs „[...] *ohne Verletzung von Rechten oder öffentlicher oder privater Interessen mit Benutzung der dazu erlaubten Zugänge* [...]“ (cp. § 8 Abs 2 WRG 1959). Any use of water from public water which exceeds common use

47 Cp. ÖVGW, http://www.ovgw.at/wasser/themen/index_html?uid:int=294, 22.01.2010.

requires acknowledged licences. Also the use of private water requires a licence if unfamiliar rights (*fremde Rechte*), gradient (*Gefälle*) and course of water (*Wasserlauf*) are not influenced from outside (cp. Astl 2006: 102 or in § 9 Abs 1 and 2 WRG 1959). Finally, there is need for a licence if water is used for requirements such as house and economic needs except where the person withdraws water by using hand-operated pumps, scoop utensils or by withdrawing water corresponding to plot surface (cp. Astl 2006: 102 or in § 10 Abs 2 WRG 1959). It is important to note that the 1959 WRG foresaw that a certain amount of water is kept on reserve for “higher purposes” such as the provision of drinking-water during breakdown of the supply system (cp. Astl 2006: 102 or in § 13 Abs 4 WRG 1959). In any case, a certain amount of water is always available to guarantee water supply in Austria.

3.7. Statutory Definition on Water

Aside from the chemical notation of water (H₂O) in its natural circulation (cp. Baumgartner 2008: 198), water is to be found for both, private and public legal use. With the exception of certain restrictions under private law, water is defined by legal enforcements as a good of common use (cp. § 8 WRG 1959). In all law enforcements (the use of) water has never been associated with profit-oriented purposes.

4. What does “cost recovery” have to do with “privatization”? Opinions from the proponents and opponents perspective

Since the 1980s and particularly since the mid 1990s the World Bank (WB) was heavily involved in subsidization in Africa subject to conditions of privatization, e.g. infrastructure companies. Of the total 193 structural adjustment loans pledged between 1996 and 1998, 58 % were subject to conditions for privatization (cp. Center for Public Integrity 2003, quoted in: Küblböck 2004: 8). On the contrary, so called investment loans were dealt in credits for specific projects. In this case, a survey highlighted the fact that more than 80 % of the total 276 credits pledged between 1990 and 2002 were subject to conditions for privatization (cp. Center for Public Integrity Analysis 2003, quoted in: Küblböck 2004: 8f.). The privatization of public services is understood as intervention into national guidance within services of general interest. Particularly within countries of the “Global South”, private sector management and maintenance of water supply had augmented in the past. This shift went in line with the infrastructural improvement of basic service delivery centered on cost recovery analysis (from a highly subsidized national water supply system) which at least has aimed at attracting foreign capital for massive investment projects in the local water sector.

Privatization efforts in general and the privatization of public infrastructure services in particular have expected certain conditions. Amongst the most important ones seen are the concepts of cost recovery. I will point out the most controversial parts of private sector management of water supply from the view of proponents and opponents of private sector management in the following.

Regarded as a „*crucial step in the privatization of municipal services*“ (McDonald et al. 2002: 26), cost recovery went along with the growing recognition that water should be managed as an economic good (cp. chapter 2.3. *The Dublin Principles*) and that water scarcity⁴⁸ “*requires policies and institutions that can achieve economically and*

⁴⁸ “*An area is experiencing water scarcity when annual water supplies drop below 1,000 m³ per person. Water scarcity is grouped into three categories: physical water scarcity, economic water scarcity, and little or no water scarcity. If the primary water supply (PWS) of a country exceeds 60 percent of its potentially utilizable water resources (PUWR), it faces physical water scarcity. Even with the highest efficiency and productivity, the country will not be able to meet the demands of its domestic, industrial*

financially sustainable provision” (WMO 1992, quoted in: Kessides 2004: 219). At the same time, the inclusion of a water access target among the MDGs to seek to halve the number of people without sustainable access to safe drinking-water between 1990 and 2015 emphasized the sector’s link to social equity (cp. *ibid.*). It is argued that the state owned monopoly provision is far from where it needs to be in ensuring access for poor households, and that the state further has become more or less synonymous with high level of water waste and inefficiency (cp. Kessides 2004; Brook et al. 2001). The challenge for regulation now is *“to meet both efficiency and social welfare objectives in the water sector, balancing the needs of operators, consumers, governments, and the environment”* (Kessides 2004: 219).

Exactly because the dynamic between cost-recovery and equity concerns is more than a theoretical disagreement (cp. Hooper 2003), since both cost recovery and equity are crucial to meet the needs of the poor, it may be seen as most sustainable yet opposing concepts in order to illustrate private-sector participation in the water sector.

The WBG for example, sought to secure finances for programs which could help meet the goal (e.g. Output-Based Aid (OBA); for more detail see in chapter six) while focusing on private-sector participation (e.g. concession contract). Multinational companies such as Suez/Ondeo (former Lyonnaise des Eaux)⁴⁹ have been regarded as potential investors for maintaining and the enlarging infrastructure services in developing countries.

The *Association pour le Contrat Mondial de l’Eau* (ACME), Petrella (2000) and Sjölander Holland (2005) on the other hand stated that poor and underprivileged persons must gain access to basic services in particular based on subsidization. They also revealed

and agricultural sectors, nor satisfy its environmental needs. Water will be diverted from agriculture to other sectors and food will have to be imported, while costly investments will have to be made in desalinization plants. Countries, facing economic scarcity have sufficient PUWR to meet the additional PWS, but have to increase their PWS through storage and supply systems by more than 25 percent. Most of these countries will face serious problems, both financially and in terms of capacity, in increasing their PWS by these levels. They need to put considerable efforts into improving the efficiency of their water use by applying a policy of sustainable management of water resources” (SADC 2005: 28).

⁴⁹ It is known that French multinational companies are the worldwide giants in financing water supply finance so far. After *Veolia Water*, the second biggest water giant *Suez* reached a total turnover of 12,364 million € in December 2008. *Suez/Ondeo* generated a total 1,971 billion €. 76 million people have been supplied with drinking-water and 44 million people have benefited yet from wastewater treatment services (cp. *Veolia Water*, <http://www.veoliawater.com/>, 20.02.2010; *Veolia Environnement*, <http://www.veolia.com/en/>, 20.02.2010; *Lyonnaise des Eaux*, <http://www.lyonnaise-des-eaux.fr/>, 20.02.2010; *Suez Environnement*, <http://www.suez-environnement.com/>, 20.02.2010).

that water is a common and social good served by (following general public service) and for the community and therefore as part of the general public service should be free of charge.

Before I concentrate my elaborations on the cost recovery/equity debate, the chapter embarks upon depicting the meaning of Private-Sector Participation (PSP) and elaborates briefly what is understood by the term privatization. I list further some options for direct competition of private operators in a regulated water sector (= “competition for the market”) (cp. Kessides 2004: 228ff.).

4.1. What is behind the term Privatization, Full Privatization, Private-Sector Participation (PSP) and Private-Public Partnership (PPP)?

4.1.1. Privatization

„The term privatization embraces different forms of private participation and does not ultimately mean the complete transfer from public into private ownership. Privatization means, in a wider sense, that the private sector gains responsibilities in the management and substantial control which is shifted from the public into the private sector” (cp. Küblböck 2004: 7; translated in the general sense by the author).

4.1.2. Full Privatization

Referring to the definition above, the meaning of *full privatization* is subsequently distinct from a Public-Private Partnership (PPP). The model adopted in England and Wales only explained that a company purchased water assets and ran the operation as a business on a permanent basis (Sjölander Holland 2005: 81). Compared to a full privatization, PPPs, “*which are increasingly popular in the wake of disappointments with privatization and concerns about inadequate fiscal space*” (Brinceño-Garmendia et al. 2004: 28) can be referred to as one of the forms of private-sector participation in a water sector under regulatory arrangements which are lasting but are normally handed over to the public after the contract is due (cp. Figure 2). Hemson (1998: 1), from the World Bank`s perspective, stated that “*the enthusiasm for PPP rested on the idea that the public*

sector was incapable of delivering alone, and that partnerships would assist in releasing resources from the private sector to implement major developments objectives". Not least because of the intervention in the water sector, Hemson further mentioned why privatization gained its recognition so far: „Privatization, is argued, will lead to the reduction of costs, improved delivery, a stimulus to the private sector, and better managerial practices associated with private corporations“ (Hemson 1998: 1).

4.1.3. Private-Sector Participation (PSP)

„Privatization is a much-discussed and controversial topic both in industrial- and developing countries. The term became increasingly unpopular because of negative experiences in recent years and disappeared from official documents. Instead the terms “Private Sector Participation (PSP) or Public Private Partnership (PPP) have been used” (cp. Kessler 2004, quoted in: Küblböck 2004: 7; translated in the general sense by the author).

The GTZ⁵⁰ understands Private- Sector Participation (PSP) in infrastructure services as a wide composing concept where local, national and international private companies accept basic services provided on a traditional approach by public utilities. Thereby, the possibilities for private operators through PSP can be very great. Whether in order to finance and operate the company, or read electricity meters. Thus, ownership, competence and risk levels can vary enormously.⁵¹

In practice, there are five common types of PPPs which enhance private-sector participation in the water sector. Concession contracts are by far the most common type (cp. Kessides 2004: 235). I will therefore reduce my elaborations to the following five examples.

⁵⁰ Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH

⁵¹cp. GTZ, <http://www.gtz.de/de/themen/umwelt-infrastruktur/15288.htm>, 22.02.2010.

4.1.4. Forms of private participation

Figure 2: Forms of private participation or PPP models

Option	Ownership	Financing	Operations
Service contract	Public	Public	Public then some private
Management contract	Public	Public	Private
Lease contract	Public	Public	Private
Concession	Public	Private	Private
BOT (build-operate-transfer) contract	Private then public	Private	Private
BOOT (build-own-operate-transfer) contract	Private then public	Private	Private
Reverse BOOT	Public then private	Public	Private
Joint ownership	Private and public	Private and public	Private and public
Sale	Private	Private	Private

Source: Ringskog 1998, adapted from Kessides 2004: 228

- *Service contracts* are typical short-term contracts ranging from several months to two years. Service contracts are usually subject to rebidding, so the private company takes responsibility for specific (smaller) jobs, such as installing and reading metres, collecting bills and repairing plumbing. Without open bidding those contracts would not encourage increased efficiency. The private company remains, in this case, responsible for operations and fixed assets, and therefore can gather information regarding operational costs (cp. Kessides 2004: 230f.; Sjölander Holland 2005: 81).
- *Management contracts* usually last about five to ten years and are limited to operations and maintenance. As the public sector retains the responsibility for investment and expansion, the contract does not entail any financial risks for the company. The public sector can also choose to keep control of billing and revenue collection. To increase operational efficiency, management contracts depend largely on how performance targets are defined, what further incentives are provided for the private operator, and in what way the contract is monitored. Due to the fact that finance remains in the public sector, management contracts do need a supportive environment, at least institutional and political (cp. Kessides 2004: 232; Sjölander Holland 2005: 81f).
- In a *lease contract*, revenue is determined by tariffs. The contractor is responsible for collecting tariffs. The contractor pays a lease fee and retains the difference in

which the fee is fixed to periodic payments. Lease contracts thus have a major drawback. The company is only allowed to install water connections in legal settlements (cp. Kessides 2004: 233, 250; Sjölander Holland 2005: 81). Notably, illegal settlements would not offer a favourable area of investment for private operators since good water infrastructure is often absent and therefore not affordable to poor households because of high fixed costs (cp. Kessides 2004). This makes potential investors very reluctant to investments in infrastructure in these settlements.

- *Concessions* are the common type of PPP (cp. Kessides 2004: 235). There are two types of concession, even although there is no sharp distinction between both of them. A *full concession contract* usually runs for twenty to thirty years, sometimes they even run for forty years or more (cp. Sjölander Holland 2005). In this case a private contractor acquires a long-term right to use all utility assets. The operator further invests in maintenance and expansion of the supply system, and also takes the whole financial risk, while the municipality retains ownership of the assets. From a financial point of view the private operator is therefore dependent on payments from users of the supply system. This is usually the main reason why private operators are not willing to invest in poor, peri-urban settlements. As a residual claimant, the private operator „*keeps whatever cash it receives after paying operations and maintenance costs and a preset fee to the public utility related to investments (which are the utility's responsibility)*“ (Kessides 2004: 233). Finally, the assets are returned to the public utility at the end of the contract, and the contractor is compensated for own investments which were not fully amortized. Another form of concession contract is an *operations concession*. An operations concession is distinctive from a full concession because in this case the operator can be made responsible for a limited range of investments (cp. Sjölander Holland 2005: 81; Kessides 2004: 233). Sjölander Holland claimed that long contracts would principally enforce the firm to minimize the risks by re-negotiating the contract before the contract is due (cp. *ibid.*: 81).
- *The Build-Own Transfer (BOT) contract* appears to be a more equitable form of contract. The contract lasts three or eight years making this form more

appropriate for smaller infrastructure projects. For example, under a BOT contract a private operator plans and constructs an urban water supply system. At the end of the contract the operator transfers the assets back to the government. In some cases they also remain with the private company (cp. Buchsteiner et al. 2006: 143; GTZ 2010).

4.2. Cost Recovery: Definition and cost recovery for practical purposes

4.2.1. Defining and conceptualizing cost recovery⁵²

Principally, cost recovery implies the recovery of all - or at least recovering *fuller* - costs incurred by a service provider in providing a particular service (cp. McDonald et al. 2002: 18; Hooper 2003: 12). Here, I want to advert to Komives and Prokopy (2000)/McDonald et al. (2002) reference regarding cost recovery. According to them, the costs maintain the service of providing infrastructure (1.), e.g. pipes, (2.) the service of connecting a household to the water network, and the costs of the service of operating and maintaining the water network (cp. Komives and Prokopy 2000, quoted in: Hooper 2003: 12; McDonald et al. 2002: 18). Cost recovery can be distinguished between public-sector- and private-sector providers. While private-sector providers generally include a surplus above and beyond the cost of production to allow profit for public providers, a surplus may or may not be included (cp. McDonald et al. 2002: 18). *“In both cases, however, the objective is the recovery of the full cost of production”* (Hooper 2003: 12). At first glance, that short outlook sought to give an idea about recovery of the cost of production in the water sector. On closer examination: *“beyond recovering the straight-forward financial costs of operation, maintenance and capital expenditure”* (Hooper 2003: 12), Rogers et al. (2002) mentioned that full cost recovery is much more ambiguous when a definition has to include the *“intrinsic value”* (Rogers et al. 2002: 3) of water associated with the use and depletion of water resources (cp. Raftelis 1989, quoted in: Hooper 2003: 12). With particular reference to the quotations: *“Consumers like high quality water at an affordable and stable price [...]”* and *“Suppliers like to cover all costs and have a table revenue base”* (Rogers et al. 2002: 5), Rogers et al. (1989), as an economist and due to

⁵² Idea and elaborations taken from Hooper (2003)

the belief in sustainable and efficient use of water, proposes tariffs which include costs of supply (i.e. Operation and Maintenance (O&M) costs and capital costs), opportunity costs, economic externality costs, and environmental externality costs (Rogers et al. 1998, quoted in: Rogers et al. 2002: 7). Thus, if a water system faces high costs from externalities, for example if there are problems with drainage or wastewater pollution, cost recovery, through metering, allows prices based on use in order to internalize these (environmental) externalities (cp. Noll, Shirley, and Cowan 2000, quoted in: Kessides 2004: 226). Rogers et al. (2002: 7) mentioned that too often tariffs for water do not even meet the full supply costs, and that the value of water is therefore lower than the cost of supply.

4.2.2. Cost Recovery for practical purposes⁵³

Services based on cost recovery can only be measured in volumetric terms. For example in the case of water, cost recovery is going to be achieved by charging end-users the (full) short-run marginal cost of production including a portion of long-term operating and maintenance costs (cp. McDonald et al. 2002: 18). Even though there are different ways of calculating end-user costs (cp. Dinar 2000, quoted in: *ibid.*), most models incorporate a downward-sloping⁵⁴ marginal cost⁵⁵ curve. In that case, because of economies of scale⁵⁶, *“those who consume more of a service are charged less per unit consumption than those who consume less. In practice, this has meant that poor households are in effect penalized on a per-unit basis because they consume less than wealthy households and industry”* (McDonald et al. 2002: 18).

However, it is important to note, that not all services can be measured on a volumetric basis. In other words, there is an accurate and easy way of measuring water (or electricity) in households. In that case, cost recovery follows a model that covers the average fixed⁵⁷ and variable costs⁵⁸ of the service, which can be achieved through a

⁵³ Idea taken from Hooper (2003)

⁵⁴ Downward slope usually reflects the existence of economies of scale. The larger the firm's output is, the lower the firm's cost per unit (cp. Krugman et al. 1997: 126).

⁵⁵ Marginal cost is the amount it costs the firm to produce one extra unit (cp. Krugman et al. 1997: 126).

⁵⁶ Economies of scale are distinguished between external and internal economies of scale: *“External economies of scale occur when the cost per unit depends on the size of the industry but not necessarily on the size of any firm. Internal economies of scale occur when the cost per unit depends on the size of an individual firm but not necessarily on that of the industry”* (Krugman et al. 1997: 123).

⁵⁷ The average costs of production are total costs divided by its output (Krugman et al. 1997: 126).

separate flat-rate charge or an account of general rates (cp. *ibid.*).

Whether volumetric charged services or flat charges are applied, cost recovery depends on the concept of “ring-fencing”. This concept implies *“the isolation of cost and revenue associated with a given service and the removal of subsidies in or out of that sector”* (*ibid.*). Ring-fencing means that resources (human or capital) can not be shared between different service sectors (e.g. water or electricity), unless they are paid for on a cost recovery basis to the unit that provided them. For example, the water department would pay the accounting department of a municipality for the cost of doing the bookkeeping (cp. *ibid.*). In other words, ring-fencing intends to ensure that, for example, water providers know all the fixed and variable costs of the service (cp. *ibid.*). Ring-fenced units are controlled by officials who operate independently of all other service sectors and at arm’s length from elected authorities and regulated firms (cp. Mc Donald et al. 2002: 18; Brook et al. 2001: 24). Political authorities generally keep the right to set standards and service delivery goals for a service unit, monitoring and evaluating their activities. But the daily management and long-term planning of the unit, including decisions about cost recovery, are carried out by the ring-fenced unit. Operating independently in that case compromises the idea to reduce concerns over abstraction or other forms of inappropriate influence (cp. Brook et al. 2001: 24). In theory the regulator, respectively the ring-fenced unit, operates at arm’s length from political authorities to reduce the regulatory risks faced by investors, and hence the cost of investment capital (cp. Smith 1997c, quoted in: Brook et al. 2001: 24). McDonald et al. (2002) stated nevertheless that the only concern of the regulator is the management of its own sector/business (cp. *ibid.*: 19). Insofar as the regulator controls prices or other political sensitive issues (cp. Brook et al. 2001: 24) – depending on the contract – and the actual costs of service production are rarely known due to constant changes because of the “lumpy” nature of infrastructure investments (cp. McDonald et al. 2002: 19), in the end, it is always the *fuller* cost recovery that agencies are after (cp. *ibid.*). They try to charge prices that are as close as possible to the marginal cost in the short run, and to the average cost in the long run in order to achieve full cost recovery (cp. *ibid.*).

⁵⁸ The variable costs of production are those costs to be covered by the output. Variable costs for example are those raw materials necessary for the production of a single good (cp. Investopedia, <http://www.investopedia.com/terms/v/variablecost.asp>, 05.07.2010).

4.3. Positive and negative effect of private-sector participation⁵⁹

4.3.1. Positive effects

- fast and economical realization of *water-, electricity and sewerage services* [examples added by the author] among others through private-sector participation/management and know how;
- better use of competition mechanism (removal of insufficient readiness to innovate);
- high consciousness of costs in the planning, construction and operation of *water supply systems* [example added by the author]
- higher flexibility and proper dealing with *water services* [example added by the author] because of higher economic and organizational independence
- releasing of private-sector capital
- higher transparency of cost calculations by the stringent enclosing of services

(cp. BMLFUW 2001: 6f.; translated in the general sense by the author)

4.3.2. Negative effects

- profit-oriented management of *infrastructure services* [example added by the author] contribute to price/tariff increases as well as to the deterioration of service quality
- the public sector's political freedom of action can be reduced by insufficient contractual fixings (external restrictions in regulatory processes)
- reduction of employment in the water sector by concurrent moving of work force to other forms of employment
- dependence of the public sector on private companies in the loss of know how

(cp. BMLFUW 2001: 7; translated in the general sense by the author)

⁵⁹ Idea and elaborations taken from BMLFUW 2001: 6f.

4.4. Risks within private-sector participation⁶⁰

In the assessment of risks within private-sector participation it is important to distinguish between political, economic and financial risks. It can be drawn from the fact, that the higher the risk, the higher the level of privatization. With it concessions and service contract appeared to be the highest level (cp. BMLFUW 2001: 8). All examples are related to the water sector.

4.4.1. Political risks

“These include modifications of basic conditions through political influence on privatization tasks. For example, the economic success of private sector headed water supply systems depends on the bearing of the public sector in terms of spatial planning within concerned supply areas” (BMLFUW 2001: 7; translated in the general sense by the author).

4.4.2. Economic risks

“These include every economic consequence of entrepreneurial bearing. Marketing measures, for example, may accentuate the quality of drinking water and hence generate positive impacts through changes in the demand for this product” (ibid.; translated in the general sense by the author).

4.4.3. Financial risks

“These include the impacts of financial planning regarding its success in the field of service completion. The stock price of a water supply company acting on the stock market determines, for example, the costs of external finance in terms of new investments for water supply extensions and maintenance of the network” (ibid.; translated in the general sense by the author).

⁶⁰ Idea and elaborations taken from BMLFUW 2001: 7

4.5. Cost Recovery and its link to Privatization: some diverging opinions

Proponents of cost recovery argued that, “*if consumers pay enough to cover the costs associated with a service, there will be an increase in the financial and social sustainability*” (Kalbermatten and Listorti 1984, quoted in: Hooper 2003: 14). The argument’s underlying idea here links the effort to cover all costs of adequate water supply and quality (combined with sanitation) to improve health (and education) outcomes (cp. Esrey 1996, quoted in: Kessides 2004: 222).

Opponents of cost recovery denounced this argument because a cost recovery model ignores *a priori* basic social conditions, and that basic support for people in need does not exist. They criticized that low income groups in particular who live in the outskirts of major cities are not connected to the water network above RDP (cat. 1) and at RDP (cat. 2/3) and therefore pay much more for water than well-to-do people in the city centre (cp. Reimon et al. 2003: 75).

On the basis of achieving basic needs for low income groups, Gleick broadens the 1948 UDHR⁶¹ rights approach⁶² while emphasizing specifically the right to sufficient water of appropriate quality to sustain people’s life (cp. Gleick 1998b: 493). Petrella enlarges water’s underlying human right approach by saying that the biological, economical and social security of every human being and every human community (all human life) depends on water (cp. Petrella 2000: 79). “*Es ist folglich nicht möglich, ein solches Recht zu kommerzialisieren, zu verkaufen, zu kaufen, an der Börse zu handeln, einzutauschen, so wie auch alle modernen demokratischen Verfassungen der Welt es verbieten, den menschlichen Körper zu kommerzialisieren – zu verkaufen oder zu kaufen* (Petrella 2000: 79f.)

⁶¹ Universal Declaration of Human Rights (UDHR)

⁶² With reference to the 1948 UDHR, Gleick noted that access to water can be inferred as a “derivative right” (cp. Gleick 1998b: 492), which is imperative in meeting the explicit rights to health and an adequate standard of life [Article 25, note by the author] since “*the contrary would mean that there is no right to the single most important resource necessary to satisfy the human rights more explicitly guaranteed by the world’s primary human rights declarations and covenants*” (Gleick 1998b: 493).

4.5.1. Fiscal arguments⁶³

According to the World Bank (1998), the most important reason given for cost recovery is to “*balance the books*”, as to say, as “*a matter of good public fiscal practice*” (cp. World Bank 1998: 44, quoted in: McDonald et al. 2002: 22). From the World Bank’s perspective, that would governments allow to reduce tax burdens and thus attract and retain human and financial capital (cp. *ibid.*) where “surplus” finally allows the improvement of health outcomes. With regards to increasing competitive pressures at national and more commonly at municipal level, the World Bank argued that applying cost recovery in lower-income areas would reduce the need for cross-subsidies from industry and higher-income groups in order to make a municipality (cp. in case studies i.e. Casablanca and Durban) more financially attractive for foreign companies (cp. McDonalds et al. 2002: 22). In either way, opponents of cross-subsidies - as a means to support low-income groups - raised the argument that cross-subsidies have given investors only little incentives to expand access to users with higher than average connection costs - that typically includes low-income groups in periurban and rural areas (cp. Brook et al. 2001: 14). Furthermore, it is argued that cost recovery is essential to sustain services on a long-term basis, because without cost recovery, “*the state will not have the funds to invest in future and infrastructure upgrades and extensions*” (McDonald et al. 2002: 22).

It is a common cited argument from the private-sector perspective that the state does not have the necessary funds for infrastructure improvements, and instead, the private sector can help to expand access through competition used to the maximum extent (cp. Harris 2003: 5). In response to these concerns, it is also true that some countries (e.g. Morocco) degraded negatively scarce water resources, while not charging full-cost from industrial users, or even highly subsidizing certain sectors (e.g. agriculture) that undertook major improvements in the provision of water to peri-urban settlements (cp. Rogers et al. 2002: 12; De Miras et al. 2005). However, because of a decline in the disbursement of public funds for subsidization of service delivery, there are growing concerns that poor households therefore face a decline in delivery services (cp. McDonald et al. 2002), which was true in developing countries where public spending generally declined over the

⁶³ Idea taken from Mc Donald et al. (2002)

last two decades (cp. Brinceño-Garmendia 2004), and investments in private infrastructure projects increased, but after reaching its peak in 1997, declined too (cp. Harris 2003; Küblböck 2004). During this time, even Mats Karlsson, former director of the World Bank in Ghana, and appointed Vice-President for External Affairs and UN Affairs today, said that, *“We are not so dogmatic that we believe that private sector does everything better”* (Sjölander Holland 2005: 90). He also underlined that the state’s ability to provide water and sanitation did not succeed in the 1970s; nor did subsequent solutions proposed by the IMF⁶⁴ and the World Bank. He concedes therefore that *“There must be a very strong public sector, which lays down the rules and can negotiate with private companies, and this has been missing”* [...]. *“We still have a top-down perspective”* (Sjölander Holland 2005: 90f.). It is exactly because the prevailing pessimistic mood, *“driven by recent apparent reversals and some disappointing outcomes”* (Harris 2003: 2), that new models (i.e. Public-Public Partnerships) earn more attention in infrastructure provision in low-income areas (cp. Petrella 2000; Küblböck 2004).

Since larger cities vie for increasing flows of private capital, it is true that municipal governments are under pressure to reduce tax and tariff rates to make it cheaper for multinational companies to operate (cp. McDonald et al. 2002: 23). On the outskirts of larger cities – where mainly low-income groups have settled – are by far those areas which are most attractive for companies due to lower property prices and reduced taxes to set up their hub. Since these areas contribute to the municipalities financial loss, the issue of upgrading those areas raises tensions between the municipality’s pressure to attract firms on the one hand, and the unsolved reality that habitants of peri-urban settlements often lack a minimal standard of basic services. To illustrate that concern, the example of Casablanca provides necessary insights into how the municipality sought to “tackle” that problem. At the same time, however, the private operator dealt indifferently with the solution of access opportunities for people in poor, peri-urban settlements.

In contrary response to the concern that cross-subsidies from higher-income groups and industry would be replaced by cost recovery to endure competitive pressures at financial attractive zones, opponents of cost recovery argued that cross-subsidies in particular can be set up to address basic water needs for low-income groups (cp. McDonald et al. 2002;

⁶⁴ International Monetary Fund (IMF)

Olivier et al. 2009). Even though the outcomes of subsidizing poor households in Durban and Casablanca have been developed differently, subsidies for drinking-water were mainly generated through Increasing Block Tariff (IBT) in those cities (cp. Olivier et al. 2009; McDonald et al. 2002). This kind of tariff system brings the benefit of making the initial levels of consumption more affordable, or even free, when it takes into account household size, while charging increasingly higher prices as consumption level rises (cp. McDonald et al. 2009: 18, Olivier et al. 2009: 1). *“The difference with more orthodox pricing models is that block tariffs charge higher than marginal cost prices at upper levels of consumption in order to make up for lower-than-marginal cost prices at lower levels, efficiently cross-subsidising the poor”* (cp. McDonald et al. 2002: 18).

4.5.2. Moral arguments⁶⁵

Another set of arguments which are used to justify cost recovery are moral (cp. McDonald et al. 2002: 24). One of the arguments is based on the (liberal) notion, *“if people have the “right” to a service like water, they also have the “responsibility” to pay for it”* (ibid.). That argument is also apparent in the South African Bill of Rights (1996: 24) by linking cost recovery with sustainability which entails the belief that people are responsible for the well-being of future generations (cp. McDonald et al. 2002: 24). *“Everyone has the right to an environment that is not harmful to their health or well-being; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation”* (ibid.: 24). A related argument is the commonly cited *“willingness to pay”* argument (cp. Vincent 2003; Kessides 2004; Rogers et al. 2002; Brook et al. 2001): *“The rationale here is that most people – low-income households included – accept their civic responsibility to pay the full cost of service delivery, and are happy to do so as long as the services are reliable, affordable, and of good quality* (McDonald et al. 2002: 24).

Last but not least, from the proponent`s perspective (see in particular Rogers et al. 2002) it is argued that *“only by paying the full cost of a good or a service can one appreciate its true “value”. Receiving a service for free, or having it heavily subsidized, distorts not*

⁶⁵ Idea and most elaborations taken from Mc Donald et al. (2002)

only its exchange value but its use value as well” (McDonald et al. 2002: 25). In response to those prevailing concerns, the World Bank (1999: 44, quoted in: McDonald et al. 2002: 25) wrote in a paper that only *“a fee reflecting the costs will encourage users to correctly value the service they receive”*, and that charging a fee can moreover *“help reverse the ‘entitlement mentality’ that has been the historical result of subsidizing public services”*.

All these arguments, it is the “right to have water” in line with someone’s “responsibility to pay”, or related to this, the “willingness to pay” for reliable supply and qualitative water, and not forgetting the intrinsic “value” of water when charging its full costs, refers to common principle that the *“ability to pay comes before the need”* (Sjölander Holland 2005: 69).

Cost recovery relies principally on the mechanism of consumption in order to ensure affordable water (if this happens at all) for poor households. Opponents reject this procedure and focus on access rather than on consumption, since many customers still simply can not afford the water bills (cp. *ibid.*: 69ff.). Even connection costs, the so-called “entry ticket”, typically pose a great barrier to affordability (cp. Tynan 2000, quoted in: Kessides 2004: 248). For that reason efficient targeted subsidies are required to ensure accessibility to water pipes, especially in those areas where households have extremely poor water facilities and quality. Additionally, residents of quasi-legal and peri-urban settlements finally have to be considered as part of urban jurisdiction be included in official data (cp. Kessides 2004: 246). In the case of Casablanca, where the private company Lydec has been in charge of the extension of the water and sewerage network, it is claimed that connection to the network does not necessarily mean water is supplied to every home. Especially people who were living “illegally” had not been considered in the formal network extension and finally ended the contract (see more of this in chapter six). If indeed the right to water is justified by corresponding payment, appropriate access to the network has to be ensured to all residents where accruing expenses are covered in the end. This assumes the commitment of governments and corporate sectors for the individual right to water. The General Comment No. 15 of the United Nations adheres analogously that every human being has the right to have access to existent water supplies, the protection from enforced disruption of supply (i.e. cut offs) and ultimately to have the right to clean water for personal needs and household (cp. Windfuhr 2003: 4).

4.5.3. Commercial Arguments⁶⁶

As a leading argument that finally made the link between commercialization and cost recovery states, cost recovery engenders efficiency, accountability and transparency by giving service providers an easily understandable performance indicator: Financial surplus leads to success, while deficit simply means failure. On the contrary, subsidies made it difficult to evaluate service performance in the water sector, and contributed to mismanagement and fraud (cp. McDonald et al. 2002: 25). Therefore, the introduction of cost recovery principles in the cities of Casablanca and Durban are strongly connected with business principles (cp. *ibid.*: 26). Cost recovery approach finally is seen as component of a larger drive to commercialize urban water supply systems (cp. Hooper 2003), or the water sector as a whole, as it has first started with vast telecommunication and electricity projects in many developing countries (cp. Brook et al. 2001; Brinceño-Garmendia et al. 2004; Harris 2003).

“The stated rationale here is that finances are the only true and reliable indicator of service performance [...]. Cost recovery, engenders creativity, forces transparency, and provides and incentive to improve service delivery constantly through performance-based salaries” (McDonald et al. 2002: 26).

Spurred by fiscal beliefs, the enclosure of water in a commercial space has engendered perhaps the strongest opponents (cp. Petrella 2000) against cost recovery (and privatization as a whole). On the part of its opponents, it has been said that the commercial drive has outstripped quite clearly the universal dimension where water may only be treated as an economic good, and privatization will capture certain “areas of life” by excluding *“[...], the majority from participating in a collective environmental relationship”* (Strang 2004: 130). To illustrate that dimension on different levels of human beings existence, the ACME listed the following remark on its homepage:

“Qu'est-ce qu'un bien économique sinon une marchandise? Un bien commun à tous, un bien social, une ressource vitale à la survie individuelle et collective doit-elle être gérée par la main (“invisible”?) de quelques-uns ou les choix de tous? Ces trois grandes problématiques se posent pour nombre de ressources et de services publics, mais la question de l'eau touche à toutes les dimensions de l'être humain, à sa nature même (elle est l'un des premiers constituants du corps

⁶⁶ Idea taken from Mc Donald et al. (2002)

humain), à ses activités (industrielles, agricoles, loisirs,...) en passant par certains grands principes qu'il tente d'établir comme étant universels (le droit à la vie entre autres et donc l'égalité d'accès à certaines ressources essentielles). Cette question est aussi présente à tous les niveaux géographiques, de la ville au niveau planétaire en passant par les échelles nationale et continentale. Elle se pose enfin en terme de choix politique, le citoyen devant reprendre dans ce domaine toute la place qui lui revient en pesant sur les décisions qui engagent non seulement l'individu, mais aussi la collectivité présente et surtout à venir”⁶⁷.

Probably the most diverging argument which is directed at the proponents of commercialization of water, seizes the aspect of “choice” that goes in line with the definition of water according to economic assessment. Due to the fact that acquisition and use of water in terms of economic principles goes hand in hand with a certain exclusion according to the principle of “who can afford it has the most benefit”, access to water boils down to the choice for a product (piped water, bottled water, water for irrigation purposes), the opponents have objected to the fundamental obligation of mankind to basic access⁶⁸ to water despite all expenses to make this goal real. Since access to water, where use and retention causes natural costs of different types (economical, social, political, individual and collective) to be considered neither separately nor compatible, it is therefore essential, according to Petrella (2000) to control the administration of water supply and the expenses of water accrued from retention, distribution, consumption and reprocessing by the whole society. It is the only way to guarantee basic access to water for every human being according to Petrella (cp. *ibid.*: 79). Hence, following market principles it is comprehensible that an exchange emerges between different goods and between goods in the same line where prices and qualities are different unless there is only trade with one good (cp. *ibid.*: 76f.).

„Wenn wir Wasser benutzen, ist das jedoch keine Frage der Wahl. Alle brauchen Wasser. Aufgrund seiner Unersetzbarkeit ist das Wasser also ein fundamentales Gut, das nicht dem alleinigen Profitprinzip der Wirtschaft unterworfen werden kann. Das Wasser untersteht den Funktionsprinzipien der ganzen Gesellschaft und ist eben das, was man ein gesellschaftliches Gut nennt. Es ist dementsprechend ein fundamentales Gemeingut jeder menschlichen Gemeinschaft“

⁶⁷ ACME, http://www.acme-eau.org/PRIVATISATION-font-color-red-size-4-EAU-PRIVEE-OU-PRIVES-D-EAU-L-enjeu-de-la-gestion-de-l-eau-font_a830.html, 14.04.2010.

⁶⁸ Petrella defines basic access to water for every human being as the amount and quality of water, which an individual or family requires for living. He further defines basic access to water for any community as the amount and quality of water, which is necessary in order to satisfy collective needs, and to guarantee social and economic well-being of its members (cp. Petrella 2000: 79).

(Petrella 2000: 77).

IV ANALYSIS

5. Urban Water Supply in Vienna (Austria)

The discourse about the Austrian “*Gewährleistungsstaat*” and its statutory measures in order to fulfil general public service has to be seen as the theoretical basis to this chapter. Reliable provision of drinking-water for any Austrian citizen notified by the authority with legal residence status, including homeless people, must be put down to the fact that the state has sufficient water resources at its disposal. This can be seen as optimal prerequisite since other sectors such as agriculture and industry do not claim those undeniable water resources targeted for the purpose of drinking-water. The discourse reveals that the state is able to influence pricing, quality and access to drinking-water through regulatory measures as long as the state keeps a monopoly over the water sector which is not impractical for centralized water provision which might lower economies of scale (cp. Kessides 2004: 223f.).

In this chapter I primarily focus on the outputs of Vienna’s supply network. Choosing a very pragmatic approach, my elaborations descend from data covering the period between 1990 until 2009, while focusing on following question: Does the municipality address service affordability and fulfil statutory measures sufficiently with regard to access opportunities to water for all citizens? My elaborations embark form criteria such as access to water⁶⁹, affordability⁷⁰, safe supply⁷¹ and reliable supply⁷².

The first two criteria (access and affordability) are subject to particular law enforcements on municipal level. Safe supply (quality of water) as another criterion is to be measured by different parameters. I will therefore descend my considerations by concentrating on the amount of nitrate, nitrite and pesticide found in the water carried in the 1st and 2nd

⁶⁹ See “standard levels” (above RDP, at RDP, etc.) in chapter 7.5.1. of this thesis.

⁷⁰ To have enough income to satisfy basic needs for a person’s drinking and personal hygiene including family members (following Streeten et al. 1978: 413; UNDP 2006).

⁷¹ Including category 1, 2 and 3 without category 4 (cp. “standard levels” in chapter 7.5.1. of this thesis).

⁷² „In urban areas “reasonable” access means there is a public fountain or water spigot located within 200 meters of the household“ (UNESCO, http://www.unesco.org/education/tlsf/TLSF/theme_c/mod13/www.worldbank.org/depweb/english/modules/glossary.htm, 12.05.2010).

Wiener Hochwasserleitung, the 3rd *Wiener Wasserleitung (Moosbrunn)* and additionally from samples taken at the *Lobau* in order to make concluding remarks on the level of purity of Vienna's drinking-water. I will further outline the reliability of water supply in Vienna along relevant statutory measures.

5.1. Defining Water Supply

The provision of water (water supply) usually includes the capture of water (rain water, ground and surface water as well as water from aquifers), treatment and delivery of water to rural and urban areas for domestic purposes (drinking-water) as well as commercial and industrial purposes (cp. Buchsteiner et al. 2006: 152).

5.2. Defining Monopoly

A monopoly is characterized by an imperfect competitive market, where only one single utility serves the market with a good (water) or a service, for example the provision of drinking-water (cp. Krugman et al. 1997: 124). Typically for a monopoly there are low marginal cost, where marginal revenue is always less than the price (cp. *ibid.*: 125) and high fixed costs because water has a low unit value relative to its costs for obtainment, treatment, transportation, and delivery to users (cp. Kessides 2004: 223). It is very common that a single utility operates in small and medium-size markets (cp. Kessides 2004: 223), however metropolitan areas with larger markets are often ran through several coexisting entities (cp. *ibid.*: 224). From the perspective of a person who is advocating a perfectly competitive market, a “*pure monopoly*” (Krugman et al. 1997: 124) would be characteristic of an imperfectly competitive market structure. Anyway, the “*Wiener Wasserwerke*” is an example of utility with pure monopoly characteristics.

5.3. The City of Vienna

5.3.1. Administration: Wiener Wasserwerke

The “*Wiener Wasserwerke*”⁷³ is the biggest Austrian water provider and the monopolistic water supplier for the city of Vienna with total water amount of around 400,000 m³ per day (149 million m³ per year) for around 1.76 million customers (= 20 % of the entire Austrian population). One person uses on average 150 litres per day.⁷⁴ Average rainfall in Vienna is around 682 mm which is very low compared to average rainfall in Austria.⁷⁵ Due to low rainfall and low quality of ground and surface water in Vienna, the city obtains its water almost completely from natural sources in the Alps⁷⁶ (cp. Luther 2010: R3).

5.4. Historical Outline of Vienna`s Water Supply Network

Vienna is known for its progressive water supply grid which stems back to the reign of ancient Romans. By the migration of people in 400 AD, Vienna`s water supply grid fell more and more into decay. Most people again started to drink surface water or contaminated water from wells (cp. Katzmann 2007: 52; Luther 2010: R3). In line with the fall of the Roman Empire, the construction of aqueducts stopped. It was in the 18th and 19th Century when the construction of aqueducts reemerged in order to supply large cities with drinking-water. Built in 1873, Vienna`s 1st *Hochquellwasserleitung* dated back to that time when it had already provided the Viennese with alpine water over a 120 km long pipeline from Kaiserbrunn an der Rax towards Vienna (cp. *ibid.*)

In the former Austro-Hungarian Monarchy, during the 19th century, Vienna was administered as “*Reichs, Haupt- und Residenzstadt*” (Katzmann 2007: 52). Vienna`s threefold statute was finally responsible for the treatment of water intensively, since due to the Industrial Revolution the demand on public officials increased as well as the demand of new labourers for manufacturing which forced people into the city. The

73 cp. Wiener Stadtverwaltung , <http://www.wien.gv.at/wienwasser/fakten.html>, 30.01.2010.

74 cp. Wiener Stadtverwaltung , <http://www.wien.gv.at/wienwasser/verbrauch.html>, 30.01.2010.

75 cp. ÖVGW, <http://www.wasserwerk.at/wien.htm>, 30.01.2010.

76 cp. ÖVGW, <http://www.wasserwerk.at/umfwien.htm>, 30.01.2010.

consequence was a rapid urbanization and the provision of water supply from house wells was no longer enough to satisfy basic needs (cp. ibd.). People lived with around five litres per day at that time (cp. ibid.), which is fifteen litres less than the amount established by WHO/UNICEF to satisfy basic needs today (cp. UNDP 2006). Finally, it was the Emperor of Austria and Hungary, Franz Josef, who made an effort above all to provide Vienna with fresh drinking-water. He asked Eduard Strauss, geologist and district council in Vienna, to construct a water pipe. After the three years required for the construction, the 1st *Hochwasserleitung* was inaugurated on the 24th October 1873. It is interesting to note that the water from its source in the Alps reaches Vienna's households at free fall without any additional pumps or other requirements. At the turn of century drinking-water was in short supply due to an increase in population. Finally, the 2nd *Hochquellwasserleitung* was put into operation on the 2nd December 1910. The pipe was over 60 km longer than its predecessor. Water rose from the region in Hochschwab next to the border to Steiermark (cp. Katzmann 2007: 52f.). In the 1970s, Vienna's water supply grid encroached already to 3,260 km⁷⁷. At this time, water loss reached nearly 25 % of total water resources. A redevelopment programme was launched to contain water loss of around 10%. A third water pipe (see in figure 3 below) was put into operation in 1998. The *Grundwasserwerk Moosbrunn* is situated on the foothills of the *Mitterndorfer Senke*, or more specifically, within the Vienna Basin of Lower Austria. A nature restoration initiative finally saved the *Mitteldorfer Senke*, which was a former disposal site at that time, but in the end known for its large groundwater resources. At present, both supply lines (the 1st and 2nd HQL) transport 400,000 m³ drinking-water to Vienna's households, including the surrounding rural communities, users on the federal state borders, as well as users along the supply lines (cp. Katzmann 2007: 53).

77 cp. ÖVGW, <http://wasserwerk.at/>, 25.01.2010.

Figure 3: Location of natural fresh water sources and supply network to the city of Vienna



Source: Adapted from <http://wasserwerk.at/home/wasserwerke/wien/umfeld>, 20.04.2010.

5.5. ANALYSIS: VIENNA

5.5.1. ACCESS to Water

Regarding the analysis criterion of having access to water, it is necessary to cast a glance over the “*Wasserversorgungsgesetz*”⁷⁸ in Vienna. In the entire area of Vienna, access to water is regulated through § 2 WVG by means of a compulsory connection (*Anschlußzwang*) of any dwelling house on (or within) the public network (cp. Marent 2009: 1117). The provision only includes cold water which is charged through water metres (§ 11 WVG) (cp. *ibid.*: 1121). Consequently, all dwelling houses/coumpounds are

⁷⁸ LGBI Nr. 10/1960 as amended LGBI Nr. 33/2007

charged through water meters by the utility (*Magistrat 31, MA 31*), which are connected to the supply network as follows. A query to the *MA 31* about the number of water meters installed at dwelling houses in the period between 1990 and 2009⁷⁹ gave following results:

Table 4: Totality of water meter installations in Vienna from 1990 to 2009

Date	Water Meters
1.1.2009	102,523
1.1.2008	102,353
1.1.2007	102,092
1.1.2006	101,853
1.1.2005	101,579
1.1.2004	101,399
1.1.2003	100,408
1.1.2002	100,155
1.1.2001	99,956
1.1.2000	99,816
1.1.1999	99,615
1.1.1998	99,774
1.1.1997	99,180
1.1.1996	98,815
1.1.1995	98,384
1.1.1994	98,082
1.1.1993	97,791
1.1.1992	97,286
1.1.1991	97,465
1.1.1990	96,654

Source: Data received per E-Mail from Mr Rupp (*MA 31*) on 26th January 2010

According to Mr Rupp all water metres had been calculated on a fixed date at the prevailing turn of the year. Mr Rupp`s elaborations emphasized further that the constant change in the number of water meters, which he confirmed, occurs almost daily. The number of water meters includes new connections, which raises the number, as well as

⁷⁹ Data received per E-Mail from Mr Martin Rupp (*MA 31*) on 26th January 2010.

cancelled connections reducing the total number of water meters. Frost damage and construction work among other things can change the number of water meters, too. Looking at the results, the list concludes that there is a tendency of light decrease in the number of installations during the whole period. Mr Rupp mentioned that there was a difference between calculations in recent years where lists only existed relating to water meter installations in the heartland of Vienna. Subsequently there are lists relating to water meter installations since the year 2000 separating the heartland of Vienna from other zones. Since then, data collection included twenty three districts within the federal state borders, rural communes on the federal state borders, as well as some isolated users along the supply lines.

Nevertheless, these lists only revealed the number of water meters installed during the entire period. The number of water meters did not include the number of people served with cold water in the entire supply network of Vienna. Apart from the compulsory connection (*Anschlusszwang*) enactment, it could be proved, that access to water for people with and without (e.g. homeless people) “legal” residence in Vienna is guaranteed. Hence, *Statistik Austria* published the number of houses and apartments after carrying out a (irregular) census in 2001 (the results were finally published on 1st June 2007). According to the list, there was a total 168,167 houses of which 28,610 had been stated as non-buildings (e.g. garden houses, bike sheds etc.). There were 139,557 objects stated to be buildings in 2001.⁸⁰ Due to the changing number of water meters a day, the number of water meters would principally cover the number of buildings counted in 2001.

Furthermore, it is to be noted that there are currently several hundred homeless people living in Vienna. According to Caritas there are 500 to 1,000 emergency shelters which have enough beds to accommodate all homeless people. Homeless people do not have to pay for drinking water and water for personal hygiene at those places. In this respect access to water is also guaranteed to those people.⁸¹

⁸⁰ Apartments with one or two rooms, apartments with three to ten rooms, apartments with eleven or more rooms and apartments for communities (Wiener Neubau); cp. Statistik Austria, http://www.statistik.at/web_de/statistiken/wohnen_und_gebaeude/bestand_an_gebaeuden_und_wohnungen/index.html, 12.05.2010.

⁸¹ Information received per E-Mail from Mrs Schwarzberger (Caritas Vienna) on 14th May 2010.

5.5.2. Affordability

Table 5 (page 83) illustrates the most relevant modifications of water tariffs which occurred along alterations to by-laws on municipal level. Since 2002 there were four modifications on water tariffs. Although there was no significant tariff change as a result of the modification in 2001, the district council decided however to round part-payments down being less than 0.5 Cent, and to round part-payments up more than 0.5 Cent at the final payment. By-laws usually stem back to modifications in the “*Wassergebührenordnung*” authorized in § 6 Abs 1 and entered into practice in 1960. The municipal council is entitled to raise tariffs (vice versa), unless they correlate with the changes in the *Consumer Price Index 2005* (CPI 2005), which informs the public of general price trends (eg. inflation)⁸². The CPI is usually announced by *Statistik Austria* and is asserted in the city’s *Amtsblatt* (official gazette)⁸³.

The most significant tariff change occurred in 1993 with an increase of 0.35 Cent, which was raised by nearly 0,8 Cent again in 1995. Since 1995 the price for cold water has stayed constantly at about € 1.30. According to Amann, tariffs for water supply, sewerage and waste disposal had increased in the run-up to Austrias joining the EU and due to the realization of the EU-Maastricht criteria⁸⁴ in the early 1990s. It was finally, because of the financial deficit in the public sector, that some water supply and waste disposal companies were required to be outsourced. Notably the strong influence of recycling has caused a tariff increase in municipalities (cp. Amann 1999: 2). For practical purposes it is important to note that the tariff for water supply is included in operating costs, which as a result why tariff modifications automatically affect the payments in operationg costs. A 5.3 % tariff increase on the level of operating costs occurred in Vienna in the period between 1989 and 1999 (cp. *ibid.*: 3).

Thus, does the price (€ 1.30) for cold water in the year 2010 mean that water can be “*provided at minimal cost*” (Whittington, Boland, and Foster 2002, quoted in: Kessides 2004: 237) for all Viennese citizens - when necessary “*through well-targeted subsidies if*

82 cp. Statistik Austria,

http://www.statistik.at/web_de/statistiken/preise/verbraucherpreisindex_vpi_hvpi/index.html, 29.01.2010.

83 cp. Wiener Stadtverwaltung, <http://www.wien.gv.at/recht/landesrecht-wien/rechtsvorschriften/pdf/abl/abl2007047.pdf>, 29.01.2010.

84 For more details please refer to the Nice Treaty especially here in Article 121 (cp. Nice Treaty, http://ec.europa.eu/dgs/secretariat_general/nice_treaty/, 05.07.2010).

needed” (ibid.)? In order to make a clarification on that issue, it is necessary to have a look at the Consumer Price Index (CPI)⁸⁵.

“*Warenkorb*” (basket of good) and “*Gewichtung*” (evaluation)⁸⁶ are crucial factors for the structure of the prevailing CPI. The CPI 2005 contained all expenses of private consumptions (without expenses for tourists in the relevant period) within the economic overall account in the period between 2004 and 2005 according to the “*Inländerkonzept*”.⁸⁷

For relevant comparison between expenses for water with other consumption goods (including mineral water), I chose typical Austrian food as well as basic goods. It can be ascertained that expenses for water on the basis of its fixed costs were relatively low compared with other consumption goods such as a *Semmel* (the Austrian term for roll), cooking oil (*gemischtes Pflanzenöl*), flour, milk and last but not least for mineral water. The whole range of consumption goods revealed that Austrians did not hesitate to consume these goods reflected by the Consumer Price Index (CPI)⁸⁸. Furthermore, it is to be mentioned, that water is an important ingredient for the production of these goods, which as follows confirms that accruing costs for water probably do not make a difference in the level of variable costs.

⁸⁵ „The consumer price index (CPI) corresponds to the benchmark for general market trend or inflation”, http://www.statistik.at/web_de/statistiken/preise/verbraucherpreisindex_vpi_hvpi/index.html, 11.05.2010.

⁸⁶ “This corresponds to the percentage share of single index positions [= basket of goods, note by the author] upon total expenditure of average salary”, http://www.statistik.at/web_de/statistiken/preise/verbraucherpreisindex_vpi_hvpi/warenkorb_und_gewichtung/index.html, 22.04.2010.

⁸⁷ Statistik Austria, http://www.statistik.at/web_de/statistiken/preise/verbraucherpreisindex_vpi_hvpi/warenkorb_und_gewichtung/index.html, 22.04.2010.

⁸⁸ cp. “Basket good and weight of H/VPI”, http://www.statistik.at/web_de/statistiken/preise/verbraucherpreisindex_vpi_hvpi/warenkorb_und_gewichtung/index.html, 22.04.2010.

Table 5: Water Tariffs in Vienna**Tariffs applied to Water Meters between 1990 and 2002**

By-law (städt. Verordnung, in German)	Tariff Modification	Tariff
Wassergebührenordnung 1990, Amtsblatt der Stadt Wien Nr. 51/1989	15.12.1989, came into force on January, 1 st 1990	12 ATS or € 0.87 ⁸⁹ (10 % sales tax is included)
Amtsblatt der Stadt Wien Nr. 52a/1992	18.12.1992, came into force on January, 1 st 1993	16,80 ATS or € 1.22 ⁹⁰ (10 % sales tax is included)
Amtsblatt der Stadt Wien Nr. 49/1994	24.11.1994, came into force on January 1 st 1995	18 ATS or € 1.30 ⁹¹ 10 % sales tax is included)
Amtsblatt der Stadt Wien Nr.1/2001	Came into force on January 1 st 2002	€ 1.30 (10 % sales tax is included)

Source: Adapted from Amtsblatt der Stadt Wien/Nr. 51/21. Dezember 1989/S. 33⁹², Amtsblatt der Stadt Wien Nr. 49/8. Dezember 1994/S.48⁹³, Amtsblatt der Stadt Wien Nr.1/4. Jänner 2001, S. 26f.⁹⁴, <http://www.wien.gv.at/amtshelfer/finanzielles/abgaben/wassergebuehr.html>, 25.01.2010.

Table 6: CPI 2005 for water and other consumption goods

	Cold water	Cooking oil	Mineral water	Roll	Milk	Flour
CPI	0.0237	0.0455	0.1451	0,1157	0,3549	0,0736

Source: Adapted from Statistik Austria⁹⁵

89 The Tariff was quoted in Austrian Schilling (ATS) at that time. It was replaced with the Euro (€) on 1st January 1999, <http://www.economist.com/markets/currency/fullconverter.cfm>, 22.04.2010.

90 *ibid.*

91 *ibid.*

92 <http://www.wien.gv.at/recht/landesrecht-wien/rechtsvorschriften/pdf/abl/abl1989051.pdf>, 25.01.2010.

93 <http://www.wien.gv.at/recht/landesrecht-wien/rechtsvorschriften/pdf/abl/abl1994049.pdf>, 25.01.2010.

94 <http://www.wien.gv.at/recht/landesrecht-wien/rechtsvorschriften/pdf/abl/abl2001001.pdf>, 25.01.2010.

95 “Basket good and weight of H/VPI”, http://www.statistik.at/web_de/statistiken/preise/verbraucherpreisindex_vpi_hvpi/warenkorb_und_gewichtung/index.html, 30.01.2010.

5.5.2.1. EXCURSUS: Operating Costs

According to Austrian “Mietrechtsgesetz” (MRG) § 21 Z 1, water supply from the connected pipe, maintenance of water supply from house wells or any other water pipe which does not belong to the public network is to be charged through operating costs (cp. Prader 2009: 418; AK 2009: 13).

„[...] die Versorgung des Hauses mit Wasser aus einer öffentlichen Wasserleitung (Wassergebühren und Kosten, die durch die nach den Lieferbedingungen gebotenen Überprüfungen der Wasserleitungen erwachsen) oder die Erhaltung der bestehenden Wasserversorgung aus einem Hausbrunnen oder einer nicht öffentlichen Wasserleitung; [...]“ (Prader 2009: 418).

Operating costs have to be paid if a person is renting an apartment characterized in Vienna under the term “Altbau” or “geförderter Neubau” (AK 2009: 3)⁹⁶. Considering only the costs for water, there is a difference between cold and warm water. Since costs for cold water are part of the operating costs, and therefore counted volumetrically through the water meter, the costs for warm water are part of the energy costs (electricity, gas) and hence subject to the “Heizkostenabrechnungsgesetz” (cp. AK 2009: 10). Operating costs generally rely on the space (m²) hired, and calculated on the basis of a “Nutzflächenschlüssel” (AK 2009: 7).

The “Nutzflächenschlüssel” is to be represented schematically as follows:

$$\text{Nutzflächenschlüssel} = \frac{\text{usable space of object to be hired}}{\text{Total of usable space of the building}} \quad (\text{divided by})$$

Explanation: The total usable space includes the whole floor space of the apartment or any other space, minus width of available walls and existing break through of walls. Stairs, open balconies and terraces as well as cellars and lofts do not belong to usable space except they belong to space for living and business purposes. Terraces and balconies which are only open on one side and are not encroached by walls on any other

⁹⁶ This particular municipal project focused on the construction of so-called “geförderte Neubaus” started by the Social Democrats spearheaded city government in the period after first World War in the early 1920s (for more details see: Wiener Stadtverwaltung, <http://www.wien.gv.at/wohnen/wienerwohnen/geschichte.html>, 22.04.2010).

side belong to the usable space and hence are completely charged as part of operating costs (cp. AK 2009: 7; translated in the general sense by the author).

5.5.3. Clean Supply⁹⁷

Water supply in the urban area of Vienna principally occurs from spring waters from the Limestone Alps of Lower Austria and Styria by means of the 1st and 2nd *Wiener Hochquellleitung* (1st and 2nd water supply line to Vienna). Source region of the 1st *Wiener Hochquellleitung* encroaches the *Schneeberg*, *Rax* and *Schneealpe*, whereby headwaters of the 2nd *Wiener Hochquellleitung* encroaches the massif of the *Hochschwab*. The supply level of Vienna with pure spring water (1st and 2nd *Wiener Hochquellleitung*) is around 93 % to 97 % of annual balance.

In days of increased water demand and particular supply situations, for example in periods of extreme heat, when restoration works at the supply lines which address deficiencies are undertaken, it is possible to provide the network with drinking water from the *Brunnenfeldern Lobau* and hard water from *Mossbrunn* (the 3rd water supply line) for a few days or weeks in the year. This supply follows proportionally in the 21st and 22nd Vienna precinct, but infrequently in some parts of the 2nd, 3rd, 11th and 20th precinct (in the case of the *Brunnenfeldern Lobau*) and in some parts of the 4th, 5th, 6th and 10th precinct (in the case of *Mossbrunn*). Drinking water from the *Brunnenfeldern Nussdorf* will be used for supply to the next-door environment. That water and all water from the supply lines correlate with the drinking water ordinance and it is going to be constantly examined.

- **Nitrite:**

The pollutant nitrite was not found in Vienna's drinking water in the period between 1990 and 2009 whereby ongoing analysis reflected constant measurement data below the limit of quantification in the procedure. The limit of quantification for nitrite is around 0.008 mg/l. The quality of measurement is indicated as < 0.008 mg/l.

⁹⁷ Test results and relevant elaborations transmitted online from engineer Gabriele Bayer (MA 31) on 9th March 2010. Test results for nitrite, nitrate and pesticide out of the 1st and 2nd HQL and the Lobau for the period between 1990 and 2009 consulted by the author.

- **Nitrate:**

Generally tap water in Vienna shows a limited/ very low level of nitrate. This refers to the metered value in the period between 1990 and 2009. Metered values of drinking water from the 1st supply line is around 4 to 8 mg/l at annual range, and drinking water from the 2nd supply line ranges around 2 to 5 mg/l in the same spectrum. Drinking water from the *Brunnenfeld Moosbrunn* (which was finally redirected to the Viennese supply network in 2006) is around 15 to 18 mg/l at annual range. The limit value (parameter value) was stipulated at 50mg/l within drinking water ordinance BGBl. II, No. 304/2001 as amended.

- **Pesticide**

Even though there is an annual examination for pesticides in tap water according to drinking water ordinance, there was no pesticide sources found in tap water in the period between 1990 and 2009. Due to standards in the drinking water ordinance regarding pesticide analysis annual examination intervals for the 1st and 2nd supply line and examinations at quinquennial interval for the water utility at *Lobau* are required.

5.5.4. Reliable Supply

Due to the fact that in the entire Vienna heartland and outskirts, as well as in the delivery area along the supply lines access to drinking-water is guaranteed by means of a compulsory connection (*Anschlußzwang*) (§ 2 WVG or cp. Marent 2009: 1117) for those households connected to the public network, reliable supply is obtainable in the entire Vienna supply area. In addition, the “*Wiener Wasserwerke*” maintain a total number of twenty eight public wells in the heartland of Vienna, which are usually put into operation in spring.⁹⁸

Alpine drinking-water that eventually runs into the mains network is directly connected to thirty overhead tanks, which have the storage capacity, and to a total of twenty four pump stations, which all together are able to store a total amount of 1.56 million m³. In emergency cases, drinking-water for domestic purposes can be stored in overhead tanks

⁹⁸ cp. Wiener Stadtverwaltung, <http://www.wien.gv.at/wienwasser/versorgung/brunnen.html>, 22.04.2010.

for up to three days⁹⁹. There is subsequently enough water to provide all Viennese with drinking-water during emergency situations for three days.

5.6. Comments

In general, Vienna's water supply system fulfills all necessary requirements in order to guarantee access to water, affordability, as well as safe and reliable supply for all citizens including those with no legal residency status. The affordability of water could not be examined along income by different "income groups". Statistics confirmed that fixed costs for cold water are the cheapest in comparison with other consumption goods (e.g. mineral water!).

The question perhaps is not whether Viennese can afford the raw price of cold water because the price has increased, however stopped at € 1.30 in 2002 but remained eventually at a respective price level until 2010. Moreover, the modality of water treatment in Vienna has to be questioned.

First, people are willing to pay more for mineral water, which perhaps has a lower quality than raw water from the supply lines. This fact implies that raw water is too cheap (since it is still plenty in total amounts) that Viennese take it for granted to reflect upon sustainable water use.

Second, notably about water bills, it is to be said that the operating costs only reveal the final sum of water costs per dwelling house on the basis of the reading of water meters and not per household alone (the final sum is finally calculated along the "*Nutzflächenschlüssel*" for all households). The prevailing operating cost calculation is not appropriate to sustainable treatment of water resources in Vienna, whether on the level of the municipal council responsible for the billing or the customers themselves since the latter is not encouraged to carefully deal with water. Therefore concrete incentives are needed for the municipality, as well as clear signs in the direction to customers of sustainable water use in the future.

⁹⁹ cp. ÖVGW, <http://wasserwerk.at/>, 02.02.2010.

6. Urban Water Supply in Casablanca (Morocco)

Taking into consideration the political willingness for privatization, which above all came from Morocco's "only political player" (Khosrowshahi 1997: 255) himself, the King, and its codification into a law by the Moroccan parliament in December 1989 (cp. *ibid.*: 243), Lydec's future engagement as private operator of Casablanca's water, sewerage and electricity network was far more than an accidental decision.

It was in the 1980s and early 1990s, and spearheaded by King Hassan II, that the new economic platform in Morocco called for reliance on private entrepreneurship and investment among civilians which have been seen as the engines of future growth in Morocco (cp. *ibid.*: 242). The financial instability and the World Bank's "privatization endeavours" to bring Morocco's economy on track, together with Morocco's lasting cultural, political and economic relationship with France, that all finally contributed to Lydec's involvement in the city of Casablanca's role: "[...] le rôle de lieu d'expérimentation et d'ajustement de solutions nouvelles en matière de gestion urbaine, destinées à être étendues aux autres grandes villes de royaume" (FN 5 in Haouès-Jouve 2004: 254).

This chapter primarily focuses on the results that have been brought into the expansion of Casablanca's water services network since Lydec's involvement in August 1997. The problem points therefore at the company's commitments in the contract on the beginning of its engagement.

It seemed to me of much importance to add here that private sector service delivery of services formerly managed by the public sector, for example drinking water supply, was a first-time matter in Casablanca. It is therefore essential not to draw rash conclusions since these would probably facilitate a somewhat distorted picture on water supply in Casablanca. In every respect, according to me, it was of much concern to show all possible reasons that had positively and negatively affected water supply in Casablanca.

6.1. Water in Morocco: For what purpose?

Under the reign of King Hassan II (1961-1999), Morocco pursued ambitious projects for which the King ordered the construction of hydroelectric power stations¹⁰⁰. It was in 1929 when the first dam, namely Sidi Saïd Maâchou, was built. Until 1967 the construction of dams still remained minimal. Hence, it was a strong impetus from the state to mobilize Morocco's surface water resources for irrigation purposes in particular (cp. De Miras et al. 2005: 29). In 1990, the total amount of water resources for farm irrigation was nearly 87 % (cp. Ministère de l'Energie, des Mines, de l'Eau et de l'Environnement, Département de l'Environnement (year unknown): 55).

Total amount of 6,423 m³ of surface resources illustrate the King's political ambitions. Although only eight dams were constructed during the 1970s, constructions reached a total of thirty nine dams during the 1980s. Total water capacity from dams increased from 2.2 billion m³ to 14.5 billion m³ in the period between 1967 and 1997. Regularized volumes increased from 2.1 billion m³ to 9.4 billion m³; the part of resources whose availability is determined for utilization depending on hydrological conditions (cp. De Miras et al. 2005: 27ff.). H. Benaouda (cp. *Irrigation et competition sur la ressource en eau au Maroc*, quoted in: De Miras et al. 2005: 29) estimated that a total of 11 billion m³ of surface water resources were mobilized in 2005.

In comparison with the amount of obtained surface water resources, ground water resources remained minimal. Total ground water resources in Morocco are assessed at 4 m³ of which nearly 70 % (2.65 m³) were obtained in 2005. The reasons are twofold: on the one hand a certain amount of ground water has to be left for the purpose of water supply during droughts¹⁰¹. On the other hand ground water resources are progressively exhausted, especially due to high concentrations of large dams¹⁰² which had been during past decades (cp. De Miras et al. 2005: 30ff.).

¹⁰⁰ The English translation for „barrage hydraulique“ is according to the Pons Online Dictionary „hydroelectric power station“. For further elaborations I will hence use the English translation.

¹⁰¹ Since the early 1980s Morocco has experienced several periods of drought. From 1980 until 1985, later from 1991 until 1995, and finally from 1998 until 2001 (cp. De Miras et al. 2005: 27).

¹⁰² The French translation for big dam „*grand barrage*“ attributes to the definition made by the International Commission of Large Dams (ICOLD). According to ICOLD, large dams are 15 meters (or more) high, matched against the plinth (cp. ICOLD, quoted in: De Miras et al. 2005: 30).

Table 7 below describes the estimated evolution of available water resources in Morocco in the period between 1990 and 2020. The second column demonstrates that the lion's share of all mobilized water resources is used for water supply and industry, and not as someone would assume for irrigation purposes. The estimated yearly average rate between 1990 and 2020 is 3.4 % for water supply and industry against 1.5 % for irrigation. In relative terms, the part of farm irrigation will decrease from 86 % to 78 %, and water amount for irrigation purpose will however increase from 14 % to 22 % in the same period (cp. De Miras et al. 2005: 34). Observations confirm that drawings per person remained all in all constant: 400 litres per person per year in 1990 (of a total population of 25 million) and 2020 (of expected total population of 45 million) (cp. L'Événement 1995, quoted in: ibid.). On the basis of this parameter, the relation between total available water resources (natural and average) and current (including future) population size is unbalanced. Countries with available water resources between 500 m³ and 1,000 m³ per person per year are defined to suffer from water stress (cp. De Miras et al. 2005: 34). On average, Moroccan's dispose even less water than the amount referred to water stress.

In other words, there are alarming signs that the availability of water in Morocco will decrease rapidly in the next two decades (cp. Table 8). Additionally, the extension of the “needs curve” and water resources indicates that maintaining a proper balance between offer and demand seems to become unreachable (cp. Table 9) in future prospects.

The reasons are complex. On the one hand, there is a rising demand for water due to urbanization, the silting up of dams, ratification of natural sites, losses of water during droughts (cp. De Miras et al. 2005: 37), as well as technological deficits due to water loss in the delivery network (cp. ibid.: 36) on the other hand.

Table 7: Evolution of water resources and its purpose

In mm ³	1990 (*)	2020 (*)	Δ 1990-2020	2075 (**)
<i>Ressources</i>				
Surface water	8,520	13,940	63.3%	-
Ground water	2,270	3,240	42.73%	-

Import	160	1,190	643.76%	-
Total	10,950	18,370	67.76%	-

Utilization

Water Supply and Industry	1,420	3,805	167.96%	6,500
Irrigation	8,802	13,585	54.34%	23,500
Sanitation	150	150	-	-
Export (***)	230	1,190	417.39%	-
Total	10,602	18,730	76.66%	30,000

Source: Adapted from (*) Benazzou (1994); (**) *Le Maroc à portée du million d'hectares irrigués*. Monde Arabe Maghreb Machreck. N°137 juil-sept. 1992. pp. 25-42.; (***): Les "exportations" correspondent à des transferts hydriques entre bassins, quoted in: De Miras et al. (2005): 34

Table 8: Prospects of the Availability of Water Resources in Morocco

Year	1955	1990	2025
m³/year/inhabitant	2,763	1,117	590

Source: Adapted from Collomb 1995, quoted in: De Miras et al. 2005: 35

Table 9: Evolution of Supply and Demand of Water in Morocco from 1990 to 2010 (in Million m³)

Year	Needs	Resources	Sale
1990	10,602	10,790	188
1995	11,657	11,791	134
2000	12,816	12,885	68
2005	14,092	14,080	-12
2010	15,494	15,386	-108
2015	17,035	16,813	-222
2020	18,730	18,373	-357

Source: Adapted from De Miras et al. 2005: 35

6.2. The City of Casablanca

6.2.1. Geography and Administration

Situated halfway along the Western Coastline on the Atlantic Ocean, the city of Casablanca is the “*capital économique*” (Harrouni 2004: 269) in Morocco. The major new port, built in 1914, is *the* engine in Casablanca while taking up a strategic role in fishing, coal, oil and phosphate¹⁰³ industries (cp. Hureau 1995: 75; Harrouni 2004: 269f.). Casablanca’s port is the second largest in the Maghreb.

The Region of Greater Casablanca borders on the Region of Rabat-Salé-Zemmour-Zaër in the North, Doukkala-Abda in the South, and Chaouia-Ourdigha in the East. Within Morocco’s administrative system, Casablanca is one of eight prefectures in the country. The Moroccan state has progressively transformed its administrative divisions of sixteen provinces in 1956 into thirty-nine provinces in 1981 (cp. Zartman 1987: 40) in order to bring “*administration closer to those administred*” (Ministry of Planning 1981, quoted in: *ibid.*). Within a large decentralization program in 1997, all provinces were finally transformed into regions of which Greater Casablanca, formed by the cities of Casablanca, Mohammadia, Médiouna and Nouaceur, represents one of those

Greater Casablanca acquired its juridical statue in 1963 due to “*obectifs d’aménagement et de gestion urbaine*” (De Miras et al. 2005: 83). After a sequence of “*redécoupages territoriaux et administratifs (avec integration successive de nouvelles communes)*” (*ibid.*), the city of Casablanca “*aboutira à une superposition du perimetre de la wilaya (créée en 1981) et de celui de Grand Casablanca*” (*ibid.*).

As a matter of fact, the political and juridical system of France nailed itself in the Moroccan administration from the beginning of the 1912 French Protectorate and onwards. Due to strong cultural influence on the country and state structures, the Protectorate decided not to destroy the original institutions. On the contrary, the French

¹⁰³ The lion’s share of Morocco’s phosphate is exploited in Western Sahara, a former Spanish colony (*Río de Oro*) and considered today as a non self-governed territory by the UN, in which Morocco still claims to be its territory because of its rich phosphate deposits, and therefore declared the Western Sahara as no-man’s land under the directive of the UN (cp. Wikipedia The Free Encyclopedia, http://en.wikipedia.org/wiki/Western_sahara, 01.07.2010).

Protectorate administration consolidated and enlarged the “*Makhzen*”¹⁰⁴ administration, but which was supervised by the French military, the administrative network (cp. Zartman 1987: 35), and by “French Know How”. I am going to elaborate in this chapter in what way French supervision has carved itself in Morocco when technical and operational advice was required to expand water supply systems in towns and adjacent settlements.

6.2.2. Demography

Compared to other coastal cities, Casablanca was the fastest growing city between 1960 and 2005 in the region. It is also expected that Casablanca will continue this trend the next ten years (cp. De Miras et al. 2005: 44). For example between 1999 and 2004, the entire population of Greater Casablanca increased to 431,824 people (cp. De Miras et al. 2005: 83)¹⁰⁵, which is an average number of 86,365 people per year.

In the prefecture of Casablanca, with all its “*préfectures d'Arrondissement*”, 2,440,822 million people lived and worked in 2004. It is important to distinguish between the city of Casablanca (the prefecture) which is *the* economic and commercial hub in the Maghreb, and the Region of Greater Casablanca consisting of the prefectures Casablanca and Mohammadia, and the Province of Nouaceur and Médiouna with a total of 3,728,824 people in 2004.¹⁰⁶

Urbanization in Morocco is characterized by three dimensions: First, the tendency of “*littoralisation*” (De Miras et al. 2005: 42) of Morocco's metropolis (e.g. Casablanca, Rabat). Second, the “*urban spreading*” (ibid.) which emphasises that urban growth is happening more rapidly than population growth as a whole, and finally “*la densification et la verticalisation du bâti*” (cp. De Miras et al. 2005: 42f.). The multiplication of spontaneous and irregularly built up accommodation – “*bidonvilles*” or “*habitats insalubre intra-muros*” (cp. Hauw 2004: 11) - on the outskirts of the metropolis expresses

¹⁰⁴ The word “*Makhzen*” is used in common parlance to mean the state and its agents. Occasionally, the word can be heard in a discussion given by a high official who uses the term *Dar el-Makhzen* (Makhzen's house) referring to the royal palace and more generally to the king and his entourage” (Zartman 1987: 34).

¹⁰⁵ cp. Site officiel du Grand Casablanca, <http://www.casablanca.ma/index/html/Region.html>, 18.03.2010.

¹⁰⁶ cp. Site officiel du Grand Casablanca, <http://www.casablanca.ma/index/portal/media-type/html/user/anon/page/accueil.psml?noteid=2320>, and <http://www.casablanca.ma/index/html/Region.html>, 18.03.2010.

one of the negative sides of rapid urbanization. This phenomenon subsequently entails different challenges for the municipality, notable and relevant for this thesis, water supply services within the city and the settlements beyond the “inner zone” (cp. De Miras et al. 2005: 43).

Official evaluations in 2000 revealed that 51,201 households (nearly 300,000 people) lived in “bidonvilles” and 23,089 households in accommodation of the type none statutory, which are a total 11.38 % of the entire city (cp. Observatoire de l’Habitat on part of Ministère de l’Habitat 2001, quoted in: Hauw 2004: 23). Additionally, there is quite a huge number of people living in precarious housing and living conditions in the inner city, the “*medina*”, in “*fabourgs*” and in other antiques neighbourhoods, as well as in the “*new médina Derb Ghallef*” (cp. Hauw 2004: 23).

6.2.3. Poverty

The Moroccan State does not publish any documents to the public which might be convincing in dealing with poverty in urban settlements. Dealing with urban poverty goes in line with an “*intervention en matière*” namely against “*l’habitat insalubre et non réglementaire*”¹⁰⁷ and not particularly along a people-centered approach.

Approaching the eradication of poverty in connection with water supply in Greater Casablanca has notable meant to deal with precarious housing conditions. It was in 1984 when an official agency, called “Agence Nationale de Lutte contre l’Habitat insalubre (ANHIS)” was found to attack that problem (cp. Hauw 2004: 23). The Cities without Slum program (*Villes sans bidonvilles, VSB*)¹⁰⁸ introduced by the Government in July 2004 is an approach aimed at dealing with precarious housing conditions in urban areas. In Morocco, nearly 35 % of constructed houses per year are not regular properties. Any public services within general public service such as water supply, waste disposal, transport (etc.) consequently fall outside the usual parameters (cp. De Miras et al. 2005: 43). Nevertheless, there still exists a demand of basic services such as water supply among these people, which can not be denied, which is why the idea behind the

¹⁰⁷ MHUAE, <http://www.mhuae.gov.ma/NR/exeres/A40F3367-C3BA-4C93-8603-AD020F54296D.htm>, 18.03.2010.

¹⁰⁸ cp. MHUAE, <http://www.mhuae.gov.ma/NR/exeres/A40F3367-C3BA-4C93-8603-AD020F54296D.htm>, 18.03.2010.

introduction of VSB program was “to kill two birds with one stone”.

The following housing definitions should be understood as a list of possible housings classified as “*mal-logés*”, or “*habitat précaire*” according to Hauw (2004: 23), or classifiable as “*d`habitat insalubre*” (ibid.) according to the Government. The term “*d`habitat insalubre*” is used by the Government to express a modern and “sane” city negative (cp. Hauw 2004: 23, 27)¹⁰⁹. Of course, such assessment is insufficient and will never reflect the reality of what conditions people actually live. “*Ces normes apposées sur des logements, des quartiers, [...] ne peut être appréhendée en dehors du contexte socio-culturel d’une manière générale et de la perception qu’en ont les habitants concernés*” (Hauw 2004: 26).

Figure 4: Types of housing and their features in “insalubrious neighborhoods”¹¹⁰

TYPES DE QUARTIERS POUVANT COMPORTER DE L'INSALUBRITÉ	FACTEURS INTRINSEQUES D'INSALUBRITÉ	CONDITIONS EXTÉRIEURES D'INSALUBRITÉ
Bidonville	Habitabilité	Milieu physique
Quartier clandestin	Sécurité	Environnement bâti extérieur
Médina	Risque	Type et taille de la famille résidente
Quartiers économiques	Vétusté et durabilité	
Habitat insalubre diffus		
Habitat rural périphérique		

Source: A.Chorfi, L'insalubrité dans l'habitat urbain au Maroc. Définitions et diagnostics, 1995, adapted from Hauw 2004: 26

6.2.4. Defining “insalubrious” housing

Types of housing in “*insalubrious neighborhoods*” in Casablanca are generally divided in two types: First, there are “*bidonvilles*” (slums) “*where inhabitants have built their house or baroque on the plot of a private or public owner. They might be enclosed in urban areas or disseminated in rural areas*” (Olivier et al. 2009: 4). People usually live there in a very confined space, where “*much of their needs are met through a dizzying*

¹⁰⁹ I refer to a quotation of what “insalubre” means: “*Si l’on revient sur l’origine latine du mot insalubre, celui-ci est formé à partir du préfixe privatif in et de l’adjectif salubris qui signifie “sain” et a été lui-même formé sur le nom salus, le “salut, la bonne santé”. D’après son étymologie, ce mot signifie donc “état nuisible à la santé”, malsain*” (Hauw 2004: 23).

¹¹⁰ Term adapted from Olivier et al. 2009: 4

array of non-conventional and often officially unrecognized means such as informal operators, privately operated wells, gifts from neighbours, rainwater harvesting and clandestine connections” (Allen et al. 2006: 334). Other type of housing are so-called “*lotissements clandestin* where inhabitants have bought an apartment built illegally” (ibid.). In addition to housing established by Olivier et al. (2009), Hauw mentioned housings with similar features to be found in the “*medina*” (see definition below), the “*faubourgs*” (see definition below), as well as “*bidonvilles de poche*” (see definition below) (cp. Hauw 2004: 36).

- *Médina*

The “*medina*” lays principally in the heart of a Moroccan town and is characterized by dense commotion of inhabitants, market traders, and donkeys used for the transport of any kind of commodities. In Casablanca, for example, the “*medina*” encroaches an area of 4.5 square kilometers adjacent to the port and the sea in the east, the muslim cementary in the south and a large inhabited area in the north according to the Plan de Weisgerber, Plan de la Ville de Casablanca 1990, quoted in: Hauw 2004: 28f. The term “*medina*” or “*ancient medina*” derives from the Arab word “*Médina khima*” defined as follows: “*Le terme médina dans l`usage qu`en font les Marocains avant et après le Protectorat français, renvoie à un ensemble de territorial urbain large opposé à l`espace rural, ce terme, dans l`usage européen, voit sa reference territoriale se rétrécir pour ne concerner, dans un espace urbain en extension, que le territoire historique des villes marocaines*” (Arrif 1997, quoted in: Hauw 2004: 28).

- *Faubourgs*

“*Hor les murs*” (Hauw 2004: 30) of the “*medina*”, where the city represents itself, with large streets surrounded by tall buildings. That is what perhaps a tourist guide would say in describing the “*faubourgs*”. Nowadays the term “*faubourgs*”, which is the same as the “*medina*”, is also used to illustrate a picture of “illegally built”, insalubrious neighborhoods (cp. Hauw 2004: 30f)

- *Bidonvilles de poche (or micro-bidonvilles)*

Although they are rarely mentioned, another type of insalubrious neighborhoods is so-called “*bidonvilles de poche*”. This housing is a sort of gathering of shacks located in the yard of a building. People principally reach access to the water/electricity network through clandestine connections (cp. Hauw 2004: 41).

6.3. Water Delivery in Morocco

6.3.1. Water Providers: ONEP and the “Régies”

6.3.1.1. L’Office National de l’Eau Potable (ONEP)

Established in 1972, ONEP is a state owned utility under the tutelage of the Ministry of Public Work (*Ministère des Travaux public*). Since its creation, ONEP almost kept a quasi monopoly on the production of water which corresponded to four in five of the total national water volume deriving from natural sources and private forages. Due to ONEP’s public tutelage, the utility profits from free of charge drawing (cp. De Miras et al. 2005: 50ff.; Haouès-Jouve 2004: 234).

“L’ONEP prélève l’eau à partir des infrastructures qu’il pose au niveau des barrages (stations de pompage ou/et adduction) puis les conduits acheminent l’eau jusqu’aux stations de traitement où l’eau est rendue potable avant d’être livrée dans les réseaux de distribution. En tête de ceux-ci, les compteurs de facturation permettant à l’Office de faire payer l’eau aux clients: les distributeurs et ses abonnés” (De Miras et al. 2005: 52).

In addition to the exploitation of water resources, ONEP is also in charge of the delivery of drinking-water to sixteen independent water distributors (Lydec¹¹¹, Redal¹¹², Amendis¹¹³ and thirteen “*régies (intercommunales)*”¹¹⁴). Additionally, it ensures the

¹¹¹ As a “*concessionnaire*”, Lydec supplies the city of Casablanca with drinking-water since 1997.

¹¹² Redal (former Vivendi Environment and since 2002 known as Véolia Environment) supplies the capital city Rabat with drinking-water since 1998.

¹¹³ Another “*concessionnaire*”, namely Amendis (Véolia Environment) supplies the cities of Tanger and

delivery to more than 260 small and middle-size communes located in the southern and south-eastern Sahara zones among others. This took place in accordance with the “régies” and rural communes on site. ONEP furthermore constructs and administers treatment installations, as well as reservoirs and canals (cp. De Miras et al. 2005: 50ff.; Haouès-Jouve 2004: 234).

In more details, ONEP`s principal activities consist of:

- *“Planifier l`approvisionnement en eau potable et executer les travaux des unites de production et d`adduction d`eau potable depuis la ressource (barrages forages) jusqu`aux conduits des distributeurs (régies ou opérateurs privés)”*;
- *“gérer la production d`eau potable et pérenniser les infrastructures existantes”*;
- *“assurer la distribution d`eau potable pour le compte des communes qui en font la demande et généraliser l`accès à l`eau potable notamment dans le monde rural sous-équipé”*;
- *“développer les réseaux d`assainissement”*;
- *“contrôler la qualité des eaux produites et distribuées”*;
- *“participer aux etudes et aux projects ayant un lien avec ses activités”*;
- *“réduire les délais de recouvrement des créances des principaux clients (régies, concessionnaires privés, administrations)”* (De Miras et al. 2005: 52f.)

Tétouan with drinking-water since 1st January 2002.

¹¹⁴ “Régie” is the French translation for *municipal council services* (Stadtwerke, in German).

Table 10: ONEP: some indicators for comparison between 2000 and 2010

	2000	2010
Production of drinking water	668 million m ³ (**)	767 million m ³ (*)
Access to water in urban areas	-	approximately 80% of nationally produced water serves 96% of Morocco's urban population (*)
Access to water in rural areas	-	86% of Morocco's rural population is served (3656 Douars and 180 small rural centers)
Total subscribers	680,303 (**)	1.2 million (*)
Total investments per year	1,691 Million Dirham (DH) (**)	7.4 Billion Dirham (DH) (*)
Stations de traitement	40 (**)	-

Source: Adapted from (*) <http://www.onep.ma/aep-urbaine.htm>, 23.03.2010; (**) ONEP 2000, adapted from De Miras et al. 2005: 53; (***) <http://www.onep.ma/aep-rurale.htm>, 23.03.2010.

6.3.1.2. Régie Autonome de Distribution (RAD)

“*Régie Autonome de Distribution*” (RAD) is, according to its statute, an autonomous body and therefore not part of a municipal authority and administered by the municipality itself (cp. De Miras et al. 2005: 51, 85). Haouès-Jouve (2004: 233) emphasized nevertheless, that Morocco's “*régies*” are narrowly supervised by the State via the Minister of Interior and the supervision of the “*Directeur des Régies et des Services Concédés*” (cp. De Miras et al. 2005: 51, 85).

In other words, the period of *Maroc français* showed that the “*régies*” did not decide on the management within services of general interests in reality. There was no autonomy on the part of the “*régies*”, which in more detail can be viewed in the following chapter, as it turned out in the example of Casablanca since the beginning of the French protectorate.

This example conveys that due to financial bottlenecks the State immensely contributed to the loss of the “*régies*” administrative power and in place of the “*régie*”, Lydec definitely undertook the control over services of general interest as principal shareholder in Casablanca.

Water supply in Casablanca, Rabat-Salé and Tanger/Tétouan is currently carried out by three different private enterprise companies whereas water supply is still accomplished on behalf of the *régies* in thirteen major towns in Morocco. These include cities of medium-size population figures, respectively cities with a population above 500.000 (Fès, Marrakech, Agadir, El-Jadida, Béni-Mellal, Meknès, Oujda, Safi, Larache, Kénitra, Nador, Settat and Nador) (cp. De Miras et al. 2005: 59).

6.3.2. General remarks and la loi 10-95

Launched in the early 1980s the IDWSS Decade was a model of international consensus about improvement of access possibilities to water and sanitation for poor people. At the same time, King Hassan II pointed out the importance of improving the value and protection of Morocco’s water resources. The Government has therefore envisaged facilitating water supply and sanitation services to poor people in the form of social connections (*branchement bleus*) (cp. De Miras et al. 2005: 46; Haouès-Jouve 2004: 256).

The 1995 law - *la loi 10-95* – had formed the legal framework of a restructuring process in Morocco’s national water politics during following decades. It compromised a series of juridical instruments to remedy the ratification of water reserves, the increasing demand of water, as well as price increase, and finally the deterioration of water quality and the environment. In terms of content, the law’s major principles can be summarized as follows:

- Water is property of the State;
- water has an economic value and is subject to national consultations;
- the law will be established under “*une solidarité en matière de gestion de l’eau*” (De Miras et al. 2005: 47) at all levels: national, regional and local

(cp. De Miras et al. 2005: 47)

At first glance, the law initiated a major turn with respect to the valuation of water. To attribute an economic value, the law took into consideration the scarcity of water, while putting a fee on water skimming¹¹⁵. Thus, the major principle behind the law was to look at water from a “*préleveur-payeur*”– perspective. “*Si l’eau est chère, on l’utilise moins (incitation à l’économie d’eau) ou mieux (incitation à une meilleure allocation entre les usagers). En principe, cette redevance devrait également permettre de recouvrer les frais d’exploitation et de renouvellement des barrages, [...], créées par la loi de 1995*” (Tenneson et al. 2003: 157).

The general orientations being addressed by the law with regard to the improvement of water supply had been taken into consideration in the entirety of an interdependent national approach, which I want to list here to give an idea of what it is all about:

- “*La remise en cause des productions agricoles fortement consommatrices d’eau et don’t la rentabilité dépend parfois des subventions et de protections tarifaires*”;
- “*la prise en compte de la limite des ressources en eau et du coût de l’eau dans la politique de développement du tourisme*”;
- “*la considération de l’environnement et la lutte contre la pollution*”;
- “*le développement des réseaux et des procédés d’assainissement, le traitement des déchets solides et liquides, et la création des stations de traitement*”;
- “*la pérennisation des infrastructures et la sauvegarde des ressources*” (De Miras et al. 2005: 47).

6.3.3. About Water Supply

In Morocco, water supply services are principally ran by three different providers, in which the whole sector is currently subject to a huge decentralization process. On the one hand, water supply in rural areas, as well as small and middle-size towns are in charge of the state owned public supplier Office National de l’Eau Potable (ONEP) and so-called “*régies*”. The provision of water for larger towns is going to be more or less headed by private operators on the other hand.

¹¹⁵ These include the indexing of productive market segments connected with low costs known as cream skimming (cp. Buchsteiner et al. 2006: 126).

Referring to the latter, this shift towards private-sector participation responded to different reasons, which are regarded differently from the perspective of its proponents and opponents. Apart from the objective “[...] de rééquilibrer les comptes de l’entreprise, [...] à améliorer ses performances et son efficacité. Elle répond en cela aux attentes de la Banque Mondiale qui considère que la privatization doit être encouragée dans la mesure où non seulement elle améliore le rendement des services, mais également elle apporte des capitaux qui dispensent du recours aux finances de l’Etat” (Coll et al. 2004: 35). A more sceptical perspective to what that shift is directed at is argued as follows: “Au delà de la contrainte financière qui a incontestablement conduit l’Etat à suivre les injonctions à la privatization formulées par des bailleurs internationaux (et donc implicitement à l’ouverture sur les opérateurs extérieurs), la maîtrise technique qui accompagné ces choix les a conduits à faire prévaloir un mode de gestion, une culture entreprise et une culture technique totalement dépendants de l’extérieur” (Coll et al. 2004: 37).

6.4. How to reach the poor, peri-urban settlements with water services?

Recognizing poverty in Morocco has for long time been an obstacle, especially by avoiding the recognition of peri-urban settlements¹¹⁶, as illegal and therefore ineligible for services such as water supply, sanitation, sewerage and electricity services.

In the example of Casablanca and its main water provider, Lydec, I point out some specific measures, which are firmly not be considered to be “pro-poor” approaches as a device to enlarge poor peoples’ possibility in connecting to a service grid (in this case water supply).

In the section about poverty it has already been mentioned that the goal in eradicating poverty (not only by saying but doing!) in peri-urban settlements came in line for the first time with the launching of the Cities without Slums program (*Villes Sans Bidonvilles*, VSB) in July 2004 by recognizing peri-urban settlements as sites to be upgraded. In addition to this, another “pro-poor” approach was the *National Initiative for Human*

¹¹⁶ In this context, “periurban” includes all settlements located at the outskirts of a city and structures in city quarters [...], illegal [...]; and encompasses hamlets presenting characteristics of rural areas but not belonging to rural communes (municipalities)” (FN 2 in Chauvot de Beauchêne 2009: 337).

Development (INDH), launched by the King Mohammed VI (1999-) in May 2005, which is a reform initiative that focused on the expansion of basic services to poor people, particularly those in peri-urban settlements to be considered clandestine residents and therefore ineligible for (public) services (cp. Chauvot de Beauchêne et al. 2009: 337ff.). The INDH/VSB program is regarded by the government to combine upgrading those settlements by the possibility to connect household units to the water supply networks (see possibilities No. 1 and 2 below).

INDH/VSB upgrading possibilities (cp. Chauvot de Beauchêne 2009: 339):

1. Promoting resettlement to housing units in apartment buildings (*relogement*);
2. promoting resettlement in fully or partially serviced plots (*recasement*);
3. or restructuring with on-site upgrading through the expansion and strengthening of basic services

The INDH/VSB program, together with the Output-Based Aid (OBA) model, was to be seen as possible means for success in Morocco because of good water infrastructure assets by regional standards (cp. *ibid.*: 336) and that drinking- water reaches almost all urban dwellers! Nevertheless, access to water supply remained inadequate in peri-urban settlements. For these reasons, OBA pilots have been set up to encourage water utilities to improve access among poor people in those areas (cp. *ibid.*: 337). Started in spring of 2007, Morocco`s Urban Water Supply and Sanitation services – OBA pilots aimed to connect 11,300 households Water Supply and Sanitation facilities in poor peri-urban settlements in the cities of Casablanca, Tangiers and Meknès. The OBA pilots were funded through a 7 million US\$ grant by the Global Partnership for Output-Based Aid (GPOBA), a partnership of donors and international organizations (the World Bank among others)¹¹⁷. While Lydec, for example, worked as the respective service provider, the Moroccan government played an oversight and monitoring role during the pilot phase.

The common objective of the pilots was to test an OBA subsidy mechanism targeted at poor households, and to bridge the gap between “*capacity to pay and a competitive cost*

¹¹⁷ For further information refer to <http://www.gpoba.org/gpoba/node/213>, 27.03.2010.

of connection” (cp. Chauvot de Beauchêne et al. 2009: 340). Poor households (in predominately peri-urban neighborhoods) without network connections for simultaneous water supply and sewerage were identified as such by the INDH program and were offered a subsidized connection fee which otherwise would be charged by the operator (in Casablanca: Lydec). Thus, it is important to note that those OBA pilots build on previous “social connections” (ibid.) along a tariff (the first of four tranches) which is sold at a lower cost price. The first tranche, 0 to 24 m³ per trimester, corresponded to a household with six persons. In total amount, one person therefore has nearly forty litres at his/her disposal per day (cp. De Miras et al. 2005: 63). This is fifteen litres more than the minimum amount requested by the WHO & UNICEF. Social connections offered households the opportunity to pay their connection fees in instalment.

Even though poor households are often unable to pay for connection fees, nor able to pay the bill after completing installations, the OBA pilot only earmarked to subsidize the completion of pipe and connection works (which are pre-financed by the operator) for individual eligible households. The category “eligible” referred to those who agreed to pay the “operator-specific beneficiary contribution” (Chauvot de Beauchêne et al. 2009: 340), respectively those households which had been able to pay the bills for volumetrically charged water. The *output* of the OBA pilot finally says that the operator gets reimbursed after a verification process that certifies that respective households receive (among others) piped water.

“The built-in incentives of this OBA approach are designed to mitigate traditional impediments of service expansion programs in marginal neighborhoods. Impediments include

- (1) inaffordability of connection costs by households,*
- (2) unsustainable program financing for operators,*
- (3) complex technical and administrative obstacles to infrastructure development in poor unzoned areas, and*
- (4) reticence by national and local governments to fund subsidy programs that have no accountability or guarantee of results” (cp. ibid.: 340).*

6.5. Water Delivery in Casablanca

Two years after the beginning of the French Protectorate in 1914, the “*Société Marocaine de Distribution d’Eau, de Gaz et d’Electricité*” (SMD)¹¹⁸ rapidly obtained some concessions for the distribution of water and electricity in several major cities in Morocco. It was nevertheless due to scarce water resources and the refusal on behalf of SMD to undertake huge investments (not only in Casablanca) into the cities water supply grid, that the authorities were pushed to take regulatory measures in order to prevent market imperfection. As a result, necessary investments by the RAD¹¹⁹ in accordance with the SMD as the responsible utility for water supply led to a joint cooperation in Casablanca in 1961. These circumstances showed that public services in Casablanca were returned to state control. This step did not come very far since shortly after independence and the possibility for free elections the new municipal council decided to deliberate itself from the SMD and created instead a “*régie municipale autonome*” in order to take over the distribution of water and electricity within the urban perimeter. The municipal decision was eventually confirmed by a *dahir*¹²⁰. Later on, in 1964, this institutional formula was codified in a specific decree¹²¹, and finally spread to other cities where the SMD was operating at that time. Interestingly, it is to establish, that the SMD did not withdraw from Casablanca in the following years. Instead, the SMD signed a 50 year concession contract allowing the SMD to continue the adduction of the dam Sidi Saïd Mâachou, which was built in 1949 to guarantee drinking-water from the *wadi*¹²² Oum-Er-Rbia to Casablanca. By 1961 the SMD renamed in ELYO and remained under this name in Morocco (the contract was renewed with ELYO in the year 2000). Even though the *quasi* substitution of SMD into RAD in 1961 responded to a strong political will of the newly elected political elite in order to “*maroccandiser*” the administrative apparatus and its economy, some employees of the SMD signed new contracts with and remained as

¹¹⁸ In 1912, the Bank Paribas established the “*Compagnie Générale du Maroc*” which was associated with the “*Société Lyonnaise des Eaux et d’Eclairage*” in 1914 and founded the SMD (cp. Haouès-Jouve 2004: 235).

¹¹⁹ The RAD’s “almost idea” stemmed back to the early 1930s when a specific public organism, namely the “*Régie d’Exploitation Industrielle du Protectorat*” (R.E.I.P.), was given the task on behalf of the national plan to ensure the production and transport of drinking-water in proximity to urban centers such as the city of Casablanca (cp. Haouès-Jouve 2004: 235).

¹²⁰ “*A dahir is a Moroccan King’s decree*” (Wikipedia The Free Encyclopedia http://en.wikipedia.org/wiki/Moroccan_Dahir, 07.07.2010).

¹²¹ The decree no. 2-64-394 of the Joumada I 1384 (29 September 1964) relates to “*régies intercommunales*” to acquire financial autonomy among others (cp. Haouès-Jouve 2004: 236).

¹²² A wadi (oued, in French) is the traditional Arabic term referring to a valley (or dry riverbed) (cp. Wikipedia The Free Encyclopedia, <http://en.wikipedia.org/wiki/Wadi>, 07.07.2010).

“human capital”, mainly in public service activities, within the RAD (cp. Haouès-Jouve 2004: 235f.). Officially, it was from now on that Lyonnaise people started to lead the RAD and started to perpetuate “*savoir-faire technique*” (ibid.: 236) within the institution.

“[...]En effet, ce sont des experts de la Lyonnaise qui encadraient la formation dans ce centre, dans le cadre de la coopération technique. Ce dernier a donc été un instrument très efficace pour diffuser et ancrer durablement au Maroc les méthodes de travail de la Lyonnaise et sa conception des métiers de l’eau” (FN 5 in Haouès-Jouve 2004: 236).

It was ultimately in 1987 when a team of Lyonnaise des Eaux was sent to Casablanca to assist the RAD on technical matters in order to acquire the necessary competence in the field of water supply (in this case technical assistance¹²³) (cp. Haouès-Jouve 2004: 241). In the follow, the technical support staff of Lydec obtained a key role in the definition of the financial prospect; notably in pricing mechanisms (cp. Haouès-Jouve 2004: 236). Prior to the 1990s, the RAD did not have severe financial problems. From the early 1990s that the RAD saw itself confronted with financial instability in both sectors, electricity and water supply (cp. Ibid.: 237).

“Dans la domaine de la distribution électrique, les principales difficultés que rencontre la Régie proviennent du laminage de sa marge de distributeur fixée par l’Etat. En effet, ce dernier réglemente le tarif national auquel les distributeurs – Régies Autonomes et Office National d’Electricité (O.N.E.) – doivent facturer l’énergie électrique aux usagers; mais il intervient aussi en amont en fixant les prix auxquels l’O.N.E. doit la fournir à chacune des seize Régies distributrices. Ce système de double contrôle des tarifs, en amont et en aval de la distribution, revient de fait à attribuer à chaque Régie une marge de bénéfice spécifique, et permet donc à l’Etat de répartir les moyens du secteur de manière volontairement inégale entre les seize zones concernées” (Haouès-Jouve 2004: 237).

That system of double tariff controlling was pursued to ensure financial equation as a means to balance the regional disparities in the matter of infrastructure equipment. It is due to the profit margin bestowed upon the RAD in Casablanca that the Government decided to restore stability due to economic conditions and because of Casablanca’s most

¹²³ In the framework of a project for the improvement of water supply infrastructure, the city of Casablanca should benefit from the loan 2826-MOR with an amount of 45 million US\$ by the World Bank. The contract was signed between the RAD and Lyonnaise des Eaux in April 1987 for a five year period (temporary reprieve) including the option of renewal (cp. FN 6 in Haouès-Jouve 2004: 236; RAD 1994, quoted in: Haouès-Jouve 2004: 240).

developed electricity grid compared with other Moroccan towns. Nevertheless, the fact of high financial debts which surpassed little bit more than one billion Dirhams in 1992 forced the state to undertake necessary steps (cp. Haouès-Jouve 2004: 237f.).

On the other hand, the financial problems within the water sector were more structural since they were more or less bound to the evolution of tariff structure in water supply services.

“[...] on observe depuis une quinzaine d’années un glissement sensible de la consommation vers les tranches basses subventionnées; ceci entraîne un déséquilibre croissant entre une minorité de gros consommateurs qui a tendance à se réduire et une majorité de plus en plus forte de petits consommateurs. Ce phénomène qui, en raison l’imbrications de leurs systèmes tarifaires, touche à la fois le secteur de l’eau et celui de l’assainissement, a bien sûr des répercussions négatives sur les comptes financiers de la Régie. Il constitue même une menace pour le système de péréquation sociale instauré dans ces secteurs” (cp. Haouès-Jouve 2004: 238).

Nevertheless, the above-mentioned slide towards subsidized tariff rates and the rising imbalance between consumer groups resulted in heavy indebtedness of the RAD compared with ONEP. In the beginning of 1994, the number of unpaid bills on the part of RAD owing to ONEP was an amount of 300 million of Dirham (cp. *ibid.*). The situation was not getting better due to unpaid bills for water and electricity on the part of public customers, such as hospitals and communes, in which case the RAD was not forcing them to settle their bills because the RAD was hoping that public customers in particular could somehow help it out of the situation (cp. *ibid.*).

“Le forte endettement du Département Assainissement se traduit par un accroissement des charges financiers qui grève le compte d’exploitation de l’activité. En 1995, celles-ci accaparent environ 67 % des recettes d’exploitation. [...] Si l’amortissement du prêt de la Banque mondiale débute en 1990, deux hausses importantes du services de la dette vont détériorer la situation: la première intervient en 1993 et traduit le cumul des intérêts précédents avec ceux des prêts contractés auprès de la B.N.P. et du Trésor français, la seconde correspond en 1995 à l’expiration du délai de grâce de 5 ans accordé par la Banque mondiale et au début du remboursement du prêt en question” (Haouès-Jouve 2004: 241).

It was finally on the 1st August 1997 when Casablanca-based Lydec, private company under Moroccan law and branch of the worldwide energy, water and wastewater group, SUEZ, was charged by the Urban Community of Casablanca with managing the Casablanca electricity, as well as the water and sewerage network (cp. Haouès-Jouve 2004: 248; Lydec (year unknown)).

6.5.1. LYDEC: Recognizing the poor?

The thirty year contract was signed in Rabat between Lydec, represented by the former President Director General, Jérôme Monod, and the President of the Council of the *Communauté Urbaine de Casablanca* (CUC), represented by Abdelmoughit Slimani on the 28 April 1997 (cp. De Miras et al. 2005: 88).

Compared with other sectors, envisaged investments for water supply were the lowest from a total 30 billion Dirhams available for investments. The largest part of investment was dedicated to infrastructure, in which the extension of the water supply network within Casablanca communal area was of primary concern (cp. De Miras et al. 2005: 91).

Table 11: Investments of the sector previewed by Lydec

Sector	Previewed investments (in millions DH)
Sewerage	16,070,000
Electricity	8,920,000
Water	5,010,000
Total	30,000,000

Source: Adapted from De Miras et al. 2005: 91

6.5.2. Contract Details

Even though the contract between the RAD and Lydec was the first of its kind (concession) and therefore has to be considered as “field of experimentation” for future contracts in the supply of basic services in Morocco, a more relevant fact revealed the

unequal allocation of competence during the contract negotiations and with regards to the negotiated results. It is said that the national commission lacked enormous experience during negotiations (cp. Haouès-Jouve 2004: 252)¹²⁴, which finally resulted in the leading position on the part of the delegate (Lydec) within the regulation of the organization of the contract. I will therefore point out below some contract references manifesting that aspect.

Chapter 2/Art 16 implied the following aspects: *“Définition et consistance du contrôle: Outre le contrôle exercé par l’Etat ou par d’autres Autorités en vertu de la réglementation en vigueur, l’Autorité Délégante [“régie”, note by the author] dispose, à l’égard du Déléгатaire [Lydec, note by the author], d’un pouvoir de contrôle technique, financier et de gestion inherent aux engagements respectifs découlant du present contrat. A cet effet, l’Autorité Délégante dispose, d’une manière permanente, de tous les pouvoirs de contrôle pour s’assurer sur place de la bonne marche des services délégués et de la bonne execution du present contrat. Elle peut demander communication ou connaissance de tout document détenu par le Déléгатaire, ayant trait aux operations relatives à l’execution du present contrat. Elle peut faire procéder à des results à des audits externs ou se faire assister par des experts ou agents de son choix qu’elle fait connaître au Déléгатaire”* (De Miras et al. 2005: 89f.).

According to Chapter 2/Article 16 and with regard to the allocation of competence, it may be assumed that the state is in the dominant position of having *“tous les pouvoirs de contrôle”*, e.g. financial, technological and management control over the process. In fact, Art 17 revealed another view whereby it wised up to the fact that by the placement of a *“Comité de Suivi”* obliged with the observation in the execution of financial, technological and management processes (cp. Haouès-Jouve 2004: 252), the core competencies and its composition of representatives are orientated to the detriment of the CUC. With regard to the latter aspect, the composition of the commission compromises six representatives from Lydec, three locally elected representatives from the CUC, and three representatives from the Ministry of Interior (cp. *ibid.*), which clearly demonstrated a marginalization of municipal power on the part of the CUC. *“[...] en plus de leur faible nombre (la CUC dispose du quart des sieges alors qu’elle est officiellement l’autorité déléгante), les élus locaux siégeant à ce comité ont été désignés par les autorités de tutelle et cette designation n’a jamais fait l’objet d’un vote du conseil de la CUC”* (*ibid.*:

¹²⁴ *“C’est ce qui explique, selon certains observateurs, la légèreté du dispositif de suivi et de contrôle de la delegation imagine au départ”* (Haouès-Jouve 2004: 252).

252f.). “[...]. En effet, il [le comité de suivi, note by the author] se réunissait, le plus souvent à la demande du délégataire [Lydec, note by the author] pour émettre des recommandations et des orientations sur certains aspects du contrat, en particulier [...] et toute question inhérente à la tarification [Article 31, added by the author]. Normalment, ces avis, qui touchent des aspects stratégiques du contrat, devaient être soumis au conseil de la CUC pour y être débattus. En réalité, cette procédure n’a jamais été mise en application, et en pratique, l’assemblée délibérante de l’autorité délégante n’a jamais été saisie de la moindre question relative de la *delegation*” (ibid.: 253).

6.5.3. And what about the “bidonvilles”?

“Alors qu’il a été signé en 1997, le contrat de concession de Casablanca ne fait aucune référence au problème des bidonvilles” (cp. Lydec, Annual Meeting Manille, 23-25 septembre 2000, quoted in: De Miras et al. 2005: 128).

Instead, the operator only has to fulfil minimum objectives regarding access options to water for poor households (cp. ibid.: 92, 128). That includes:

- 45,000 social connections (*branchements sociaux*; note by the author) in any five years (of contract period)
- All urbanized settlements provided with water from wells (*bornes-fontaines*; note by the author) have to be connected to the supply grid

With regard to water supply from wells, Lydec stated more precisely in September 2000 that “le contrat prévoit la suppression progressive des bornes-fontaines alors que parallèlement, l’on enregistre une forte demande, notamment dans les zones périphériques” (ibid.: 130).

6.6. Definition of Service Delivery Area

The operational area of Lydec covers the whole territory of the CUC and the city of

Mohammedia (for illustration I refer to the map in (VIV) Annex). That area includes 27 urban municipalities of which some rural municipalities outside the *CUC* are provided by the RAD even though these municipalities were considered in the contract as part of the delivery area (cp. De Miras et al. 2005: 88f. in FN 16).

Figure 5: Geographic dimensions and service delivery parameters of Lydec

Parameter	Value
Total Population of Greater Casablanca Service Area	3,728,824 ¹²⁵
(other sources indicate	3,500,000 ¹²⁶
	to 4,000,000) ¹²⁷
Total Number of People (Households) served by Lydec	1,000,000
	(15,000) ¹²⁸
Total Area of Greater Casablanca (km ²)	386.14 ¹²⁹
Number of estimated <i>bidonvilles</i>	400 ¹³⁰
Number of Households living in “illegal” settlements	160,000 ¹³¹
<u>Number of Households living in “legal” settlements</u>	<u>20,000¹³²</u>

6.7. ANALYSIS: CASABLANCA

6.7.1. ACCESS to Water

The percentage of the population in Casablanca with access to water was 52 % in 1980. The low percentage of connection rates refers to insufficient statistic gathering relating to water access (especially public standpoints outside the dwelling houses/yard). Beyond that, it can not be said whether the initial connection rate to the water network was even

¹²⁵ For the year 2004: cp. Site officiel du Grand Casablanca, <http://www.casablanca.ma/index/portal/media-type/html/user/anon/page/accueil.psml?noteid=2320>; <http://www.casablanca.ma/index/html/Region.html>, 18.03.2010.

¹²⁶ For the year 2004: cp. Harrouni 2004: 279

¹²⁷ For the year 2007: cp. IPEMED 2007: 37

¹²⁸ For the year 2006: cp. Giraud et al. 2006: 17

¹²⁹ cp. Site officiel du Grand Casablanca, <http://www.casablanca.ma/index/html/Region.html>, 18.03.2010.

¹³⁰ cp. Haouès-Jouve 2004: 258

¹³¹ cp. IPEMED 2007: 38

¹³² cp. IPEMED 2007: 38

higher than statistics indicated. In addition to this, water drawn from wells was free of charge. This led to enormous water waste (cp. De Miras et al. 2005: 115f.). In order to balance the amounted loss of unpaid water bills in the treasury and to prevent the constant loss of freshwater, the World Bank released a loan for Morocco in order to raise the connection rate including, *“permet aux régies de préfinancer les raccordements domiciliaires des ménages pauvres en leur accordant des facilités de paiement”* (ibid.: 116).

The program, called *“opérations de branchements bleus”* (OBS), spearheaded by the World Bank in the early 1980s, was regarded as an entry ticket for poor households to water services (Haouès-Jouve 2004: 257). The criteria defined by the *“régie”* and the World Bank excluded those dwellings in *“bidonvilles”* (cp. De Miras et al. 2005: 116).

Dwellings in the framework of *“Projet d'Eau Potable (PEP)”*

- 1st PEP: *“La zone doit être à caractère social”* (Haouès-Jouve 2004: 258) and to be installed in *“zones économiques”* (De Miras et al. 2005: 117).
- 2nd PEP: *“Les constructions doivent être en dur et destinées exclusivement à l'habitat”* (Haouès-Jouve 2004: 258). The monthly income of respective households should range to certain maximum of 1,000 DH¹³³ *“invoquant la faible portée du projet Durant les premières années d'exécution”* (De Miras et al. 2005: 117). In 1983, the RAD increased the threshold to 2,000 DH¹³⁴ per month.
- 3rd PEP: *“La zone doit se trouver à proximité d'infrastructures d'eau et d'assainissement existantes”* (Haouès-Jouve 2004: 258). In other words, dwellings should consist of *“constructions économiques, traditionnelles ou collectives”* (De Miras et al. 2005: 116). The income threshold was fixed at 2.000 DH but increased at 3.000 DH¹³⁵ in 1984 (cp. ibid.: 117).

¹³³ According to calculations the exchange rate as of 11th May 2010 for 1.000 Dirhams is 117.3 US\$, <http://www.economist.com/markets/currency/fullconverter.cfm>, 11.05.2010.

¹³⁴ According to calculations the exchange rate as of 11th May 2010 for 2.000 Dirhams is 234.6 US\$, <http://www.economist.com/markets/currency/fullconverter.cfm>, 11.05.2010.

¹³⁵ According to calculations the exchange rate as of 11th May 2010 for 3.000 Dirhams is 351.9 US\$, <http://www.economist.com/markets/currency/fullconverter.cfm>, 11.05.2010.

Seven years later, in 1987, a total 14,656 OBS connections had been effected in the first and second establishment, and a total 7,084 connections was installed on the third level. Of the total 58,000 connections envisaged by the end of 1997, only 21,857 were installed. This is a rate percentage of 37.68 %, but none of those were installed in “*bidonvilles*”. The RAD/WB respectively provided more or less “*branchements non sociaux*” (De Miras et al. 2005: 119). The final connection rate to households with “*branchements non-sociaux*” increased in Casablanca from 52 % in 1980 to 75 % in the year 1989 (cp. De Miras et al. 2005: 118f.).

In the framework of a second project regarding the increase of the water supply rate in peri-urban areas in Casablanca, the “*régie*” (under the directive of the World Bank) brought in the program of “*opérations de branchments sociaux (OBS)*” in the year 1996. The idea of the OBS directly resumed to the “*opérations de branchments bleus*” (OBB), in which the connections on the part of the OBS “*ne fait l’objet d’aucun subventionnement ni d’aucune péréquation mais revient seulement à un crédit gratuit proposé par l’opérateur privé [Lydec; note by the author] aux ménages cibles*” (De Miras et al. 2005: 74). Compared with the entry ticket on part of the OBB, which more or less excluded those households without improved access to water services (cat. 4; chapter 7.5.1.), a part objective by the OBS was to address more than only achieving a high rate of “*branchements non sociaux*”. In summary, idea spurred by OBS aimed at:

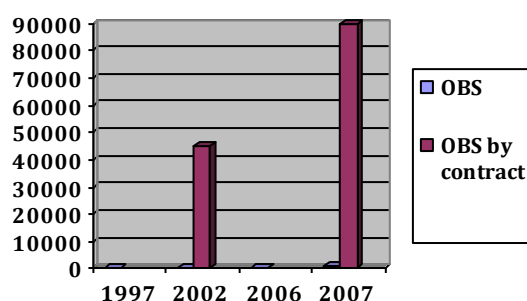
- “*Permettre d’accroître le taux de raccordement aux réseaux*”;
- “*assainir les finances des régies et enfin*”;
- “*supprimer le principe de la gratuité de l’eau [note; emphasized by the author]*”

(cp. De Miras et al. 2005: 113)

According to the contract between the CUC and Lydec, the latter was obliged to construct a number of 45,000 “*branchements sociaux*” every five years. That objective nevertheless did not seem “*avoir été fondé sur une estimation préalable des besoins réels*” (De Miras et al. 2005: 121), but “*aurait été basée sur des expériences antérieures de branchements sociaux, menées par la RAD. Comme on estimait qu’à priori une gestion privée obtiendrait de meilleurs resultants que l’administration publique, l’objectif a purement et simplement été double [stressed by the author]*” (ibid.).

With regard to the results within OBS, Mehdi Lahlou¹³⁶ stated that approximately 1,250 OBS have been fixed in the period between 1997 and 2007 (cp. Lahlou 2008). This is only 1.4 % of total OBS connections (90,000) accomplished by 2007. The total number of OBS connections for the years 2006 and 2007 were established under the guidance of Lydec within the INMAE¹³⁷. In the framework of “*relogement*”- and “*recasement*” projects Lydec, in accordance with the CUC have considered 65,000 households in poor, peri-urban settlements (cp. Chavout de Beauchêne et al. 2009: 339). However, Lydec indicated in the Annual Report 2008 that the realization had not yet occurred in 2008 (cp. Lydec 2008: 27). Statistics about OBS connections for the years 2008 and 2009 were not available in 2010.

Table 12 : OBS connection backlog in Casablanca between 1997 and 2007



Source: Adapted from Lydec 2002: 8 (for the year 2002); Lydec 2006: 27 (for the year 2006) and Lahlou (2008)

The access rate to basic services in Casablanca, according to living standards¹³⁸, reached 78.66 % in 2001¹³⁹. More than half of the vulnerable households (54 %) had access to own house connection (in-house or shared in-yard connection). Much less than half,

¹³⁶ Mehdi Lahlou is Professor and currently President of the Association pour le Contrat Mondial de L'Eau (ACME).

¹³⁷ Declination of the national initiative INDH

¹³⁸ “The poverty line for urban households in 2001 is 3.615 Dirhams per capita and per year [...]. The vulnerability line stands at 1.5 times the poverty line” (cp. ENCDM, quoted in: Olivier et al. 2009: 4). The survey was been done with 1,580 households (cp. ibid.: 5).

¹³⁹ The paper conducted by Olivier et al. 2009 still is the only reliable source about the access rate to water in Casablanca which included peri-urban settlements, so-called “*insalubrious neighborhoods*” (Olivier et al. 2009: 4).

around 14.87 % of the vulnerable households in Casablanca relied on public taps (shared). Nearly 34 % of the households in Casablanca connected to the water grid shared their water with others through a meter outside the yard. Around half (48.68 %) are vulnerable households (cp. ENCDM, quoted in: Olivier et al. 2009: 5).

In summary, the problem relies on the fact that data on Casablanca did not clearly reveal to what features data referred, and beyond that, the distinction of data is furthermore not always known and hence problematic. In addition to this, the access rate to in-house/in-yard connections together with the rate for shared connection does not amount to 100 % coverage (112.77 %). Nonetheless, the subdivision between in-house/in-yard and shared water connection is feasible from statistical prospect (cp. ENCDM 2001, quoted in: Olivier et al. 2009: 4f.).

6.7.2. Affordability

Until today the 10/1995 law's major principle "*préleveur-payer*" (Tenneson et al. 2003: 157), or respectively "*l'eau paye l'eau*" is perfectly implemented "*aus sens où aucune ressource publique nationale, aucune aide publique international au développement ou aucune subvention¹⁴⁰ ne viennent compléter ce dispositif financier*" (De Miras et al. 2005: 93). In other words, the primary goal was to cover all the cost incurred without exception. During negotiations between CUC and Lydec, the latter was truly engaged in maintaining the "*régie's*" tariff system applied to the city of Casablanca. That system distinguished four principal categories of water recipients (cp. Haouès-Jouve 2004: 251; De Miras et al. 2005: 63f.):

- domestic tariff;
- preferential tariffs which included wells (*bornes fontaines*) and public baths (*hammanms*);
- administrative (e.g. hotels) and
- industrial tariff

Regarding water recipients for domestic purposes the functioning principle is based on

¹⁴⁰ Except a free credit for targeted households within OBS plan on the part of Lydec.

the system of rising block-tariffs in accordance with increased consumption whereas the first tranche, or social tranche is subsidized by the third and fourth tranches (cp. Haouès-Jouve 2004: 251). The tariff system for domestic purposes is therefore divided into the following (cp. De Miras et al. 2005: 63, 95):

- 1st *tranche*: 0 to 24 m³ (trimester): water is sold at a fixed price however lower (social) tariff. Consumption corresponds with a six person household where maximum consumption is 40 litres daily per person. Apart from the first tranche, the remaining tranches are determined by consumption in cubic meter prices.
- 2nd *tranche*: 24 to 60 m³ (trimester): tariff is fixed at cost price value. Maximum consumption is approximately 110 litres daily per person.
- 3rd *tranche*: 60 to 120 m³ (trimester): price is higher than at cost price value. That tranche therefore contributes to subsidize the first tranche (social tariff).
- 4th *tranche*: 120+ m³ (trimester): That tranche corresponds with a household where consumption is over 220 litres per person per day. It is said that consumption on that level is criminal (applied to Moroccan water situation).

During the first year of the contract, Lydec applied a sensitive tariff system which did not differ much from the “*régie`s*” tariff system. Nonetheless, the tariffs had been increased to around 12 Dirhams monthly by 2003 for those households where consumption was lower than the tariff applied to social tranche. In 2004, the number of consumers among the social tariff represented nearly 50 % of total consumers in 2004. In 1999, Lydec implemented a fourth tranche in order to prevent the wasteful handling of water resources. Nevertheless, the price difference between the third and fourth tranche did not have a dissuasive effect on the behavior of users whereas wasting remained continuous (cp. Haouès-Jouve 2004: 251).

Unfortunately reliable statistics on tariff evolution for domestic purposes only existed for the years 2000, 2002 and 2003 (cp. Haouès-Jouve 2004; De Miras et al. 2005). Apart from the data from Haouès-Jouve 2004 and De Miras et al. 2005, there was no data

available that could at least imply a tendency towards price evolution for domestic water nor did the *Lydec's Rapport Annuel 2004/2006/2008* reveal any reliable data on tariff changes.

Table 13: Domestic tariff evolution in Casablanca from 2000 to 2003

In Dirhams (DH)	Monthly Quantity	2000	2002	2003
1 st tranche	1 to 8 m ³	2.65	2.64	3.12
2 nd tranche	9 to 20 m ³	9.16	9.16	10.37
3 rd tranche	21 to 40 m ³	12.64	12.64	14.12
4 th tranche	41 m ³ +	12.7	12.69	14.18
Fix fee	-	2.97	-	6.49

Source: Adapted from Lydec (year unknown), quoted in: De Miras et al. 2005: 64 (for the year 2000); Lydec (year unknown), quoted in: De Miras et al. 64 (for the year 2002); Lydec (year unknown), quoted in: Haouès-Jouve 2004: 252 (for the year 2003)

6.8. Comments

The case of the French company Lydec, in charge of the management of water, sewerage and electricity services in Casablanca since 1997, is an illustrative case of the problems which arise from the private management of basic services (cp. Gonzalez 2009). Apart from the insufficient status of data in general¹⁴¹, the company broke several contractual

¹⁴¹ My query to the municipality of Casablanca about the success of the INDH initiative has also failed after several inquiries. To me that was not astonishing as De Miras et al. (2005) have mentioned in their paper, that private companies were not willing at all to hand out information for research purposes about project results. Brook et al. (2001) confirmed that fact in their paper, too. Additionally, while having a look at Lydec's official homepage, the site is not regularly updated (<http://www.lydec.ma>). The visitor is left with very little information. I therefore took it for granted to contact the municipality for any information directly. Due to the situation in 2007, from my perspective, it seemed that probably not much progress had been done regarding OBS connections. However, my considerations only rest on speculation which is why my assumption is not to be used for any scientific contemplation. Apart from the insufficient status for data about access rates after 2001, data could not be collected sufficiently for the criteria affordability and safe supply.

obligations with the municipality of Casablanca.

First and perhaps most devastating are the only 1,250 OBS connections ($\approx 2.7\%$) carried out in “*insalubrious neighborhoods*” in the period between 1997 and 2007. The contractual agreement confirmed a total number of 45.000 connections in every five years. Even though the INDH initiative may be regarded as an important step in attacking the alarming problems in peri-urban settlements on the part of the Government by the support on behalf of Lydec, the initial phase nevertheless remained far behind its results.

Additionally, it seemed that water supply did not stake out *the* primary objective to be addressed, whether by the Government or Lydec. It is true that during the first years of Lydec’s involvement in Casablanca the company primarily focused on the expansion of the electricity grid and later in 2006/2007 started with the improvements of the water network. In summary, the company’s results in water coverage can not be stated as being positive with regard to water services to poor, peri-urban neighborhoods. Lydec did not nearly enough fulfil its promises. This aspect was highlighted by Gonzalez (2009). He mentioned in his paper that connection fees, respectively those “entry tickets”, amounted to an unreachable total sum of 800 US\$ to 1,060 US\$. Additionally, price balancing between higher consumption tranches and the lowest level, as well as between sectors was not effective enough to provide poor, peri-urban households with important subsidies (cp. Tenneson 2003: 166). An effective balancing would mean that poor, peri-urban households should be excused from paying for connection fees. Lydec initially committed itself to invest 3,815 billion Dirhams¹⁴². Instead, the company only spent 54 % (2,074 billion Dirhams¹⁴³) of the amount agreed upon in the beginning (cp. Gonzalez 2009).

Output-Based Aid (OBA) might be a potential concept, at least in the beginning, in connecting peri-urban settlements to the water network. A private company on the one hand could be put in place to ensure the provision of water, unless the contractual agreement considers all the essential steps to meet basic services to all persons regardless of their residence status. Since still a great share of households get their water from

¹⁴² According to calculations the exchange rate as of 12th May 2010 for 3,815 billion Dirhams is 414.014 billion US\$, <http://www.economist.com/markets/currency/fullconverter.cfm>, 12.05.2010.

¹⁴³ According to calculations the exchange rate as of 12th May 2010 for 2,074 billion Dirhams is 239,754 billion US\$, <http://www.economist.com/markets/currency/fullconverter.cfm>, 12.05.2010.

shared water points (34 %) Lydec officially recorded in autumn 2000 to eliminate wells progressively (wells belonging to those water points which are usually shared by many people) because water is seriously wasted at wells.

As a consequence Lydec also started to construct public taps with water meters, where in-house or in-yard connections are too expensive to reach a certain number of potential households able to pay for water. Nevertheless, instead of undertaking progressive measures in the construction of water connections in peri-urban settlements fees for water from metered wells (7.8 Dirhams¹⁴⁴ in 2003) surpassed the tariff for domestic purposes (3.12 Dirhams¹⁴⁵ at first tranche in 2003) (cp. Haouès-Jouve 2004: 252). It is assumed that the initial plan in erecting 45,000 OBS connections was mainly the plan by King Mohammed VI. While the INDH initiative depended in particular on the financial contributions (World Bank), the Moroccan government eventually did not have the funds to translate the initiative into practice. Aside from financial shortage on the part of Lydec, the company finally spent only a minimum on in water coverage compared to other sectors.

In contrast to the well-known argument on the part of the proponents for privatization that poor people of peri-urban settlements are willing to pay for qualitative good and reliable water the Casablanca case study reflects that poor people were more impeded than receiving improved water. This showed the eradication of public water standpoints on the one hand and tariff increasing at first (social tranche) on the other hand. Defining water as an economic good is at least an effective way of protecting and maintaining scarce resources, unless every person does have access to a certain minimum of water to satisfy basic needs (drinking and personal hygiene) whether this amount is provided by the public sector or private operators. Although Lydec broke its promises relating to the benefits for poor people in peri-urban settlements, the case study has reminded me to ask whether private operators are the right utilities for the management and provision of water supply in major towns with high rate of “*insalubrious neighborhoods*”. Nonetheless, this example, has reflected a sign of clear commitment (and not only for privatization) evolving on the part of the Government of Morocco to consider poor, peri-urban areas.

¹⁴⁴ According to calculations the exchange rate as of 12th May 2010 for 7.8 Dirhams is 0.90 US\$ <http://www.economist.com/markets/currency/fullconverter.cfm>, 12.05.2010.

¹⁴⁵ According to calculations the exchange rate as of 12th May 2010 for 3.12 Dirhams is 0.36 US\$ <http://www.economist.com/markets/currency/fullconverter.cfm>, 12.05.2010.

7. Urban Water Supply in Durban (South Africa)

One common moral argument from the perspective of privatization proponents relates to the point of whether someone has the right to a service like water, he or she also has the responsibility to pay for the service (cp. Mc Donald et al. 2002: 24). Since proponents of privatization draw their arguments from the consideration that water is a finite and vulnerable resource (cp. 2.3. *The Dublin Principles*), the most efficient way to maintain the right to an environment that is not harmful to the health and well-being of all people (cp. Bill of Rights environment clause (s24), quoted in: Mc Donald et al. 2002: 24), is to make a cost-benefit analysis of available water resources. Sustainable management of water resources is based on the idea to govern water resources sector-wide¹⁴⁶. At the same time this approach makes governing water more controversial while looking at the end user's benefit whether these are industries or individuals. Agriculture and industry are by far the biggest contributors of national GNP in most developing countries, however, at the same time, they are also the biggest consumers (and polluters) of available fresh water resources world wide. Around 70 % of global fresh water resources are obtained for agriculture (cp. Wick 2009). Domestic water does contribute little to national GNP in economic terms, unless improved infrastructure projects would attract financial capital for further investments. The renunciation of water resources management along equity standards within general public service would have enormous consequences on people's health and the entire environment. The resulting logic to grasp water in an exclusively economic scope for what someone has to pay for, differs widely from the concept of embracing water as a human right how it is perceived from Gleick (1998b)/Petrella (2000)/Sjölander Holland (2005)/Lahlou (2008).

The inherent concept providing water at a lifeline volume in South Africa is centered on the idea of meeting basic needs for *poor* households earning less than 800 Rand¹⁴⁷ per person per month.¹⁴⁸ We have already recognized that the understanding of water as a common good (cp. chapter 2.8.2. in this thesis) is one way to place a service in a broader developmental approach. Although the White Paper on Water Policy (RSA 1997: 4,

¹⁴⁶ cp. IWRM, http://www.archive.cap-net.org/iwrm_tutorial/mainmenu.htm, 30.04.2010.

¹⁴⁷ According to calculations the exchange rate as of 30th April 2010 for 800 ZAR is US\$ 109; <http://www.economist.com/markets/currency/fullconverter.cfm>, 30.04.2010.

¹⁴⁸ http://www.dwaf.gov.za/dir_ws/fbw/subscr/Datadefs.asp, 30.04.2010.

quoted in: Mc Donald et al. 2002: 21) makes it clear to pursue a full-cost recovery approach in water provision, infrastructure development and catchment management activities adopted in most South African municipalities (cp. *ibid.*), the Government of South Africa further launched the Free Basic Water (FBW) policy in 1998 which entailing the free provision of a certain amount of water (and electricity) to all households. South Africa's launched FBW policy depicts a special case of water supply at least in view of its adoption of urban service delivery.

Based on Durban's municipal water supply system this chapter interlinks two ideologically opposed concepts about the form, in which water can be provided for domestic use. Due to the fact that the apartheid state did not pursue full cost recovery, and because heavy subsidies to the delivery of essential municipal services revealed very fragmented official data on water provision in the city of Durban, I collected all information from data from the post-1994 apartheid area. In this respect, Hooper's (2003) analysis on Durban's municipal water supply system was of essential benefit for the completion to this thesis, as well as data collections from Mc Donald et al. (2002), Kim Hodgson (Umgeni Water), up-to-date information from Michael Silberbauer (DWAF) and general data from the official homepage of the Department of Water Affairs and Forestry (DWAF). Although data collection for „access“ and elaborations on „affordability“ remained unresponded after several queries, the chapter provides interesting insights into Durban's municipal water supply system. We will see if this example may be consulted for future considerations about urban water supply systems; this, with special regards to those people who are unable to afford enough water to satisfy basic needs.

The following questions presented in this chapter want to be addressed: (1.) did the FBW policy provide all households access to eThekweni Municipal Area (EMA)¹⁴⁹ in the year 2009?; (2.) did relevant “cost recovery onsets” reach households in peri-urban settlements with poor water infrastructure? (following Hooper 2003: 75)

¹⁴⁹ This includes the city of Durban and its districts as well as rural lands adjacent to the municipality.

7.1. The city of Durban¹⁵⁰

7.1.1. Geography

Durban is nestled in the KwaZulu-Natal province on South Africa's Eastern Coast Line. The city's major port is the gateway to any commercial business trade outside the country. After Johannesburg, Durban is the second-largest industrial hub and one of the fastest growing urban centres in South Africa (cp. Brocklehurst 2001, quoted in: Hooper 2003: 30). Around 61 % of South Africa's population lived in urban areas in the year of 2008¹⁵¹ and 3.4 million people were living and working in the entire Durban municipal area in April 2009.¹⁵² Most Durban residents live in „*freestanding low-cost housing units*“ (Roberts and Diederichs 2002, quoted in: Hooper 2003: 30) and at least one million people live in “*informal peri-urban settlements*” (ibid.).

The transition from Apartheid rule to the post-1994 period brought changes in the size and composition of the country's largest metropolitan areas. The city of Durban was affected by these changes. In 1996, the size of the city increased from a municipal area of 300 square km to an area of 1,366 square km known as the Durban Municipal Area (DMA) today (cp. Hooper 2003: 31). The DMA already encompassed an area of 2,297 square km in the year 2000 (cp. Roberts and Diederichs 2002, quoted in: Hooper 2003: 31). Hooper mentioned, that the immense enlargement of the metropolitan area, the inclusion of peri-urban, rural and tribal lands within the city's boundaries, redefined the “*identity*” (cp. Hooper 2003: 31) of the city, since so-called townships¹⁵³ and rural lands were from that on included in the list of responsibilities of the local government. As a result, the city of Durban is now referred to as the eThekweni Municipal Area (EMA) composing of land that is 60 % peri-urban and/or rural areas (Roberts and Diederichs 2002, quoted in: Hooper 2003: 31). Even though the enlargement of the city redefined the city's cultural borders, in the following I do not focus on that aspect. As it can be assumed, especially in the field of infrastructure services (in this case water supply), the

150 Idea and elaborations taken from Hooper 2003: 30ff.

151cp. CIA, <https://www.cia.gov/library/publications/the-world-factbook/geos/sf.html>, 02.03.2010.

152cp. DWAF,

http://www.dwa.gov.za/dir_ws/wsnis/default.asp?nStn=wsnisindex&cid=3&Prov=KZ&WSACode=ETH&curEntityID=ETH&curlevelid=2, 04.03.2010.

¹⁵³ Under this term, the township of Soweto is perhaps the best known township worldwide. Soweto is situated in the South East of Johannesburg.

municipality was forced to extend its operational area. This next section will address how far this was considered by the eThekweni Municipality.

7.1.2. Political system before and after Apartheid rule¹⁵⁴

It is important to note that prior to 1994 the local governmental systems in South Africa were explicitly based on a racial structure. The city center, which included white suburbs as well as commercial and industrial areas was controlled by white local governments. Subordinate bodies were established to administer areas populated mainly by Indians/Asians and so-called „colored areas“ (Hindson and Ngqulunga 2000, quoted in: Hooper 2003: 32). Other nationally appointed boards instead administered the Black townships (cp. ibid.). *“The existence of privately held Indian and colored land and the involvement of local tribal authorities in land management”* (ibid.) which further complicated Durban’s administrative system. These changes resulted in a very fragmented and uncoordinated governmental system in Durban, as well as in disparities on the level of delivery services (cp. ibid.)¹⁵⁵.

The fall of the Apartheid system also had enormous ramifications on the political environment in Durban. In 1990 the ban on the African National Congress (ANC) was lifted and in 1994 democratic elections were held for the first time in South Africa. A sign of democratic achievement found expression in the repeal of the 1950 Group Areas Act. Under apartheid rule, this Act helped the regime to control where people of racial distinction could live and work (cp. Hooper 2003: 32). Under the Group Areas Act primarily Black people were forced to live in segregated townships of narrow space and poor facilities mainly at the edge of the metropolitan area.

7.1.3. Demography and Poverty¹⁵⁶

Aside from political changes in the 1990s, the city of Durban was also confronted with an intense demographic change. Because of rural to urban migration (Kayaga and Franceys

¹⁵⁴ Idea and elaborations taken from Hooper 2003: 32

¹⁵⁵ Collectively 52 authorities controlled different urban district areas (cp. Hindson and Ngqulunga 2000, quoted in: Hooper 2003: 32).

¹⁵⁶ Idea and elaborations taken from Hooper 2003: 32f.

2001, quoted in: Hooper 2003: 32), Durban experienced a period of rapid urbanization and population growth since the 1990s. Hooper (2003: 32) mentioned several reasons for working migration, which can be summarized by political violence, severe drought and unemployment. Under these circumstances people have sought for a better life in large cities, but finally saw their “*chance*” (cp. Angenendt 2009: 37) shrink while ending up in the bustle of the cities largest townships.

According to the Durban Metropolitan Profile of November 1999, 41 % of the economically active population of the DMA was unemployed and 43 % of households earned less than 1,450 Rand¹⁵⁷ per month (Durban Metro Unicity 1999, quoted in: Hooper 2003: 32f.). It is correct that incomes in Durban enormously reflected the disparities of the apartheid area. Among the composition of racial groups within South Africa`s population, the „Whites“¹⁵⁸ (13%) continued to have the highest income, whereas „Blacks“¹⁵⁹ (61 %) had incomes which were less than those of „Indians“¹⁶⁰ (24 %) and „Coloreds“¹⁶¹ (2.9 %) (Hindson and Ngqulunga 2000, quoted in: Hooper 2003: 33). Taking 417,17 Rand¹⁶² per month as the benchmark of poverty/poverty line, according to data from the Report on Poverty, Inequality, and Human Development (cp. 2000, quoted in: Hooper 2003: 33) it is estimated that 67 % of “Blacks” lived in poverty, compared to 2 % “Whites”, 21 % “Coloreds” and 21 % “Indians”.

7.2. Water Delivery in South Africa¹⁶³

In post-1994 apartheid, DWAF statistics from that year showed that 17.3 million of the Black population (43.3 %) did not have access to adequate water supplies (DWAF 1994b: 3f.). To address that enormous feature of inequality in the post-Apartheid era new Constitution and Bill of Rights was drafted. It aimed to guarantee every citizen

157 According to calculations the exchange rate as of 30th April 2010 for 1,450 ZAR is US\$ 197;
<http://www.economist.com/markets/currency/fullconverter.cfm>, 30.04.2010.

158 “„Whites“ denotes those of indigenous European background” (Hooper 2003: 77).

159 “„Blacks“ denotes those of indigenous African background “ (ibid.).

160 “„Indians“ denotes those of indigenous Asian background, which referred to people descended from laborers from India, the East Indies and China (cp. ibid.).

161 „Coloreds“ denotes those of mixed race (cp. ibid.).

162 According to calculations the exchange rate as of 30th April 2010 for 417,17 ZAR is US\$ 56.60;
<http://www.economist.com/markets/currency/fullconverter.cfm>, 30.04.2010.

163 Idea and elaborations taken from Hooper 2003: 33ff.

- “the right to (24a.) an environment that is not harmful to their health or well-being”; and
- “the right to have access to (27 (1) a.) sufficient food and water”

(The Constitution 1996: 11ff.).

Apart from the realization of these newly created rights from the Constitution in 1996, another claim of shortly drafted laws, e.g. the Water Services Act (1997), the National Water Act (1998), and the National Environmental Act (1998) have initiated a re-orientation in the delivery of water services towards the fulfillment of the obligations laid out in the new constitution (Stein and Niklaas 2002, quoted in: Hooper 2003: 33f.; DWAF 1994a: 9).

The ANC’s original Reconstruction and Development Program (RDP), the first in a row of future development programs aimed primarily at improving the quality of life for the majority of South Africans (DWAF 1994b: 1). The RDP was intended to fulfill the promises formulated in the Constitution (cp. Hooper 2003: 34). With regards to the lack of basic service delivery and infrastructure, the RDP stipulated a minimum of 50 to 60 litres per day as a medium term service delivery goal (cp. McDonald 2002: 29). Compared to the WHO/UNICEF recommended daily minimum of 20 litres per person per day, it seemed that the ANC was willing to make real its promises.

„The RDP identifies the provision of infrastructure for services such as water supply and sanitation as one of the key elements of its strategy for developing the South African economy along its new path“ (DWAF 1994b: 6).

The Department of Water Affairs and Forestry (DWAF) was established in 1994 to spearhead the efforts of the RDP. It was said that the improvement of water service delivery and sanitation services would subsequently build a strong nation. In the same year, the objectives of the DWAF with regard to water services, were outlined in a seminal White Paper (cp. Hooper 2003: 34). The paper proclaimed clearly *„to end the inequality in access to basic water supply and sanitation services“* (DWAF 1994, quoted in: Hooper 2003: 34). With regard to the fulfillment of adequate water service provision, the government adopted a financial approach that outlines a cost recovery policy.

„The basic policy of the Government is that services should be self-financing at a local and regional level. The only exception is that, where poor communities are not able to afford basic services, Government may subsidize the cost of construction of basic minimum services but not the operating, maintenance, or replacement costs“ (DWAf 1994, quoted in: Hooper 2003: 34).

The 1994 White Paper indicates that service providers should ensure all households receive a minimum level of 25 liters per person per day (cp. Hooper 2003: 34) within reach of a minimum distance of 200 m from dwelling, and should be available on a daily, regular, reasonable (not less than 10 liters a minute) basis (cp. DWAf 1994b: 14f.). The goal is captured and reiterated in the slogan of the 1997 DWAf's White Paper, in which the government has committed themselves to promote the following: *„Some, For All, For ever“*.

- (Some): Access to a limited resource
- (For All): On an equitable basis
- (For ever): Sustainability, now and in the future (cp. DWAf 1997: 8)

The DWAf was given urban service providers the responsibility to facilitate water through appropriate finance mechanisms and pricing. The White Paper states that for areas with limited potential for economic upheaval the national government will financially assist infrastructure extension (Kayaga and Franceys 2001, quoted in: Hooper 2003: 34f.).

According to the Water Services Act of 1997, there are legal objectives for the management of water services (Act 108 of 1997). First, that every citizen has the right to have access to at least a basic, minimum quantity of potable water and benefit from the use of water resources. Second, water resources should be managed in a sustainable manner, and lastly, water should be used in an economically efficient way to promote the overall economic development of the country (Republic of South Africa 1997, quoted in: Calfucoy et al. 2009: 5). *“These objectives reflect the belief of South Africans that water is a scarce resource that is necessary for survival (and therefore a human right), as well as an economic commodity”* (Calfucoy et al. 2009: 5).

With regards to pricing mechanisms the Water Services Act claims that the Minister has to differentiate between “*users, different types and qualities of service, and by geographical area*” (DWAF 1997, quoted in: Hooper 2003: 35). The responsible Minister is further called for “*prescribing the norms and standards for tariffs, to consider, among other functions, social equity, as well as the recovery of costs reasonably associated with providing the water services*” (Kayama and Franceys 2001, quoted in: Hooper 2003: 35).

The outbreak of a severe cholera epidemic in the province of KwaZulu-Natal between August 2000 and 2001 resulted in 168 persons dying, and 80,000 people were identified with cholera (cp. Vircoulon 2003: 141). This finally pushed the government to launch the Free Basic Water (FBW) policy in 1998, which was implemented by the city of Durban in the same year. The FBW policy may be regarded as a cornerstone in the national agenda enhancing equity standards. The policy called for at least 6 kilolitres be provided per household per month by the municipality. This reflects a total 200 liters per household a day. With this policy, the national government mainly intended to address households with poor water infrastructure facilities.

„The primary intended recipients of free basic water are poor households. Although there is a broader policy commitment to the extension of free basic services to all households the primary target of the policy is poor households for whom free basic services represent a significant poverty alleviation measure“ (Department of Water Affairs and Forestry 2002b: 7, quoted in: Calfucoy et al. 2009: 7).

It is to be summarized that after the fall of the apartheid era, there were two major principles; those of recovering full costs (cost recovery), and the meeting of basic needs for households with poor water infrastructure. The ANC`s RDP program in 1994, the 1994 and 1997 White Papers and last but not least the 1998 Free Basic Water (FBW) policy laid out the government commitments to achieving relevant success in water supply. In the next section, and particularly in the analysis, this paper shows whether those commitments also revealed the situation in Durban`s poorer, peri-urban settlements.

7.3. Water Delivery in Durban¹⁶⁴

„As a glimmer of light in the dark tunnel of public sector service provision in the developing world“ (Hooper 2003: 35), the Durban Metro Water Services (DMWS) is understood to be one of the pioneers - if not the pioneer - of the FBW policy (cp. Loftus 2005). The reasons why Durban should have achieved something few other cities worldwide have not managed yet, is the simultaneous existence of cost recovery policy and equity standards in order to meet basic water infrastructure for poor households (cp. Hooper 2003: 36).

Water supply in Durban is operated by eThekweni Water Services (EWS). The municipality buys most of its drinking-water resources from its bulk water supplier, Umgeni Water. EWS is the department of the eThekweni Municipality responsible for water supply, sanitation services and waste disposal. EWS replaced his former operator Durban Metro Water Services (DMWS) in December 2000 following the amalgamation of former tribal land into the Durban Metropolitan Area (cp. Hooper 2003: 36; Loftus 2005).

“For instance, Durban was the first urban jurisdiction in South Africa, and perhaps the world, to constructively a human right to water” (Hooper 2003: 36)¹⁶⁵. In 1998 the municipality of Durban launched a policy of providing all households with 6 kilolitres of free water. By means of a lifeline volume of water to all households, the human right to water was instituted within the municipality’s water conception (cp. Hooper 2003: 36).

Besides the provision of a lifeline volume, Durban has instituted a number of other *“pro-poor services”* (Hooper 2003: 36) in the field of water supply within the EWS service delivery area. These include a number of different innovations also allowing poor household’s affordable water supply.

¹⁶⁴ Idea and elaborations taken from Hooper 2003: 35ff.

¹⁶⁵ For more information see South African Constitution (1996).

- a conventional full-pressure water delivery;
- a semi-pressure system that operates with roof tanks (see Figure 7);
- a low-pressure system that operates with ground tanks (see Figure 7);

(cp. Brocklehurst 2001, quoted in: Hooper 2003: 36):

“Both the semi- and low pressure system can be installed at lower costs than conventional full-pressure system since they use small-diameter, low-pressure pipes” (Hooper 2003: 36). Low cost water supply installations *“responds effectively to consumer demand and could therefore maximize the number of potential customers in the agency’s service area”* (Hooper 2003: 37).

In addition to these praised low cost technologies, the EWS introduced a system of water bailiffs to operate at water standposts (they are usually placed nearby the entrance to peri-urban settlements to provide a large number of residents with one focal point close to their homes) where residents without connection to the conventional systems can get water. In some areas, automated standposts focus on pre-paid card users to get access to systems (cp. Hooper 2003: 37).

7.4. Definition of the EWS Service Area¹⁶⁶

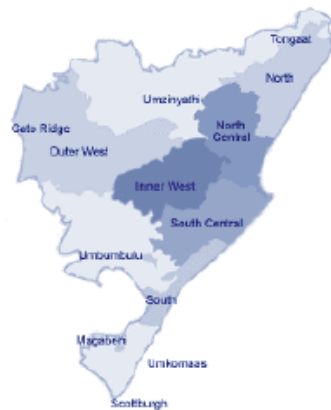
The service area of EWS covers seven operational areas: Metro, Central, Inner West, Outer West, North, South, and Umkomaas (see Figure 6). This area is known as eThekweni Municipal Area (EMA) representing a total area of 2,297 square km where a total population of nearly three and a half million people live and work (cp. Hooper 2003: 37)¹⁶⁷.

¹⁶⁶ Idea and elaborations taken from Hooper 2003: 37f.

¹⁶⁷ cp. DWAF,

http://www.dwa.gov.za/dir_ws/wsnis/default.asp?nStn=wsnisindex&cid=3&Prov=KZ&WSACode=ETH&curEntityID=ETH&curlevelid=2, 30.04.2005.

Figure 6: eThekweni Municipal Area (EMA)



Source: eThekweni Municipality 2002, adapted from Hooper 2003: 38

The dimensions of the service delivery area for the EMA can be seen in Table 14 (page 130).

Table 14: Geographic dimension and service delivery parameters in the EMA as of April 2009¹⁶⁸

Parameter	Value
Total Population of EWS Service Area	3,468,070 (-)
Total Number of Households in EWS Service Area	826,113 (-)
Total Area (km ²)	2,297 (*)
Percentage of Population in Formal Areas (%)	75 (+)
Percentage of Population in Informal Areas (%)	25 (+)

Source: Adapted from (*) Roberts and Diederichs 2002, quoted in: Hooper 2003: 38; (+) Hooper 2003: 38; (-) Statistics South Africa 2007

¹⁶⁸ Idea taken from Hooper 2003: 38

7.5. ANALYSIS: DURBAN

7.5.1. Service Levels regarding Access to Water in Durban

Durban has implemented a wide range of programs that made water services more available to poor people. Under the term „service levels“¹⁶⁹ the Department of Water Affairs and Forestry (DWAF) lists a number of access levels to water infrastructure in the EMA on its homepage.

1. **Above RDP:** Households have access to `in-house` or `in-yard` water supply connections (**cat. 1**);
2. **At RDP:** The infrastructure necessary to supply 25 litres of potable water per person per day supplied within 200 metres of a household and with a minimum flow of 10 litres per minute (in the case of communal water points) or 6 000 litres of potable water supplied per formal connection per month (in the case of yard or house connections) (**cat. 2**);
3. **Below RDP:** Households have access to infrastructure but at a below RDP standard, e.g. Standpipe > 200m (**cat. 3**)¹⁷⁰;
4. **No Infrastructure:** Household have no access to any infrastructure i.e. those people that still drink unsafe water from a dam, spring, river or receive water from vending (e.g. trucking) projects (**cat. 4**).

The Water Services National Information System (WS NIS) of the DWAF differentiates poor households having a total income less than 800 Rand¹⁷¹ per person per month, from those households with access to water infrastructure at level 1, 2 and 3. Poor households are therefore classified as those with no infrastructure (cat. 4).

169 cp. DWAF, http://www.dwaf.gov.za/dir_ws/fbw/subscr/Datadefs.asp, 05.03.2010.

¹⁷⁰ Since there are households at this level with access to water supply outside the radius of 200 m from home, but not typically characterized as unsafe water access, for simplification, category 2 and 3 represents all households with access to piped water outside the dwelling.

¹⁷¹ According to calculations the exchange rate as of 30th April 2010 for 800 ZAR is US\$ 109; <http://www.economist.com/markets/currency/fullconverter.cfm>, 30.04.2010.

7.5.2. ACCESS to Water

Data from Moller (1999) indicates that there are clear differences in poverty levels across the races which showed, according to him, the standard at which people have access to water services (cp. *ibid.*, quoted in: Hooper 2003: 78). The racial composition of Durban's population reflected that 67 % of the Black population were living in poverty, earning less than 410 Rand¹⁷² per month, and had the most limited access to piped water (54 %). 34 % of Blacks received their water from public taps. Data showed that 20 % of Indians, 20 % of Coloreds and only 2 % of Whites earned less than 410 Rand per month in 1999. All in all, data indicated that 98 % of all racial groups except Blacks did have access to piped water (cp. Moller 1999, quoted in: Hooper 2003: 78). Although there is clear evidence that policies during apartheid and still at the launch of the 1998 FBW policy had an effect on the distribution of public services, and hence, race alone can not serve as an efficient indicator of service quality levels in the EMA (cp. Hooper 2003: 81). Considering the high percentage of Black people living in poor, peri-urban settlements where substantially poorer standards of service exist, it did not reflect sufficiently whether the Black population in particular receives poorer service standards because of their race compared to others (cp. *ibid.*).

Hooper noted also that after the collapse of Apartheid, Durban remained a segregated city along various races and income groups on the one hand, and a divided city along formal and informal regions of the metropolitan area on the other hand (cp. Hooper 2003: 76). In relation to Hooper (2003), Mc Donald et al. (2002) adds, that black townships and „bantustans“ (or „homeland“)¹⁷³ received considerable subsidies for services, even although these were much smaller in relative and absolute terms than those of white areas during Apartheid in the 1980s and early 1990s. This can be attributed to payment boycotts by township residents. Anyway, the Apartheid state did not cut off these areas from service delivery, instead the state continued to deliver water services to peri-urban settlements for fear it would lead to political fallout. The result was a de facto

¹⁷² According to calculations the exchange rate as of 30th April 2010 for 410 ZAR is US\$ 55.60;
<http://www.economist.com/markets/currency/fullconverter.cfm>, 30.04.2010.

¹⁷³ „Under the Apartheid system of 'separate development' nine Bantu groups were assigned their own homelands or bantustan. Movement outside of these homelands was strictly regulated. In the late 1980s several of the bantustans were given 'independence'. When Apartheid finally fell in the 1990s, the bantustans were reincorporated into South Africa“; African History,
<http://africanhistory.about.com/od/glossarybb/g/defbantustan.htm>, 30.04.2010.

subsidization of services (cp. McDonald et al. 2002: 20).

The Community Survey published in the year 2007 revealed relevant statistics (although its results are based on estimations and should therefore be noted as cautionary notes)¹⁷⁴, conducted in a survey in the year 2001, which produced results purported that the Black population, as measured by households in comparison with any other racial group, (“Coloureds”, “Indians/Asians” and “Whites”) principally had water access opportunities that were neither in-house/in-yard connections (= category 1: 67.47 %) nor opportunities related to category 2 and 3 (= total 28.13 %). As a result a percentage of 3.4 % (= total 19.034 households) of Black households draw their water from unsafe (river and spring), artificially accessed (dam) sources (= category 4/ no infrastructure) or from water vendors. It is considered that Durban’s Black population represents the main share (approximately 70 %) of Durban’s total population (cp. Table 15).

Table 15: Community Survey 2007 by the EWS, access to water and population for differing groups of households

Piped water inside the dwelling (household)

Black	Coloured	Indian/Asian	White
249.824	20.616	150.150	96.252

Piped water inside the yard (*Hof*, in German)

Black	Coloured	Indian/Asians	White
132.876	505	2.465	1.327

Piped water from access point outside the yard

Black	Coloured	Indian/Asian	White
157.207	346	1.455	376

Borehole

Black	Coloured	Asian/Indian	White
4.315	0	0	0

¹⁷⁴ cp. Statistics South Africa, http://www.statsonline.gov.za/news_archive/12March2008_1.asp, 30.04.2010.

Spring

Black	Coloured	Indian/Asian	White
1.299	0	0	0

Dam/pool

Black	Coloured	Indian/Asian	White
267	0	0	0

River/stream

Black	Coloured	Indian/Asian	White
3.711	0	232	265

Water vendor

Black	Coloured	Indian/Asian	White
3.606	81	117	0

Rain water tank

Black	Coloured	Indian/Asian	White
1.231	0	0	0

Source: Adapted from Statistics South Africa 2007

7.5.2.1. The Free Basic Water (FBW) policy

The first program is known as the Free Basic Water (FBW) policy. Under this scheme, *all* households, no matter at what service level, belong in the EMA, receive 6 kilolitres of free water per month. That lifeline volume is based on a daily pro rata distribution of 200 litres to each household. The EWS further established certain assumptions regarding the daily water needs of a poor, peri-urban household. The most influential assumption is that the average household size consists of eight people (cp. Niklaas and Stein 2001, quoted in: Hooper 2003: 83). The 200 liters daily volume per household corresponds with the WHO/UNICEF recommended minimum allotment of 25 liters per person per day (McDonald et al. 2002: 29).

Although the government worked out an outstanding policy to attack poverty on the level of basic infrastructure services, the promise of 6 kilolitres of water also offers little financial delay. The problem is that many low-income households use considerably more than 6 kilolitres because of the relatively high average number of occupants per household and because of leaky Apartheid-era infrastructures.

Alex Loftus has indicated that households in informal areas regularly accommodate ten to twelve individuals (cp. Loftus 2003, quoted in: Hooper 2003: 80). Another concern is that many households in Durban are not means tested in order to clarify if they qualify for basic water services. The result is that some middle- and upper income households benefit more from the provision of free lifeline services than poor households (cp. Mc Donald et al. 2002: 29). As Mc Donald et al. (2002) noted, means-tests should not be used to *“determine which households should have access to free water services – a potentially degrading and divisive procedure separating the very poor from the even poorer – but does highlight the inherently inequitable feature of basing free services on a per-household basis”* (ibid.: 29). For example, *„a young couple with two incomes and no dependants living in a home in the suburbs receives the same amount of free water as a single, unemployed mother with seven dependants living in a run-down council house or shack in the townships“* (ibid.).

Other concerns in poor, peri-urban settlements are related to violence and rape accruing on the way to obtain water at communal standpipes. Communal standpipes can be both inconvenient and unsafe, particularly after sunset. Finally there is the problem of disconnections. Despite the free basic water policy there are reports of continuing cutoffs of water since households, most of which are low-income households, are late in paying bills (cp. ibid.: 29f.). Although the implementation of the FBW policy in Durban occurred very early (1998) compared in other major South African cities across the country (2001) delays are still widespread (cp. McDonald et al. 2002: 29):

As of 6th March 2010, a total number of 1,108,772 poor people (= 296,414 households) had been served with free basic water. That corresponds with the total percentage of 99.25 % of poor people having less than 800 Rand per person per month¹⁷⁵. The table 16

175 cp. DWAF,

http://www.dwa.gov.za/dir_ws/wsnis/default.asp?nStn=pg_Reports&SAID=253&SASID=542&curPers

below shows in detail the number of households served with free basic water at different standards of level to water infrastructure. Data proved that households at all levels except those with no infrastructure, are served with a lifeline volume.

The reasons why some households still have not been connected to standpipes, and beyond that, are not served with a free lifeline volume may be traced to different assumptions. One is perhaps that these households do not have working infrastructure nearby, since, it is supposed, that they live in peri-urban settlements at the very edge of the EMS service area, where neither standpipes nor standpoints have yet been constructed.

Table 16: Total Households including Total Poor Households served with 6 kl lifeline

Total Households Served						
Service Level	Above RDP	at RDP	Below RDP	No Infrastructure	Total	
Total	744,602	133,601	34,026	7,957	920,186	
Served	744,602	133,600	34,026	0	912,227	
%	100.00%	100.00%	100.00%	0.00%	99.14%	

Total Poor Households Served						
Service Level	Above RDP	at RDP	Below RDP	No Infrastructure	Total	
Total	244,603	42,167	9,645	2,228	298,642	
Served	244,603	42,166	9,645	0	296,414	
%	100.00%	100.00%	100.00%	0.00%	99.25%	

Source: Adapted from the Water Service Authority, eThekweni Metropolitan Municipality¹⁷⁶

pectiveID=2&cid=4&Prov=KZ&curlevelid=1&TreeNodeID=5&p_intLevel=-1&linkAct=Folder4.x&vd=1&curSystemID=20, 06.03.2010.
¹⁷⁶ DWAF,
http://www.dwaf.gov.za/dir_ws/fbw/subscr/WSAView.asp?Perspective=Households&ServiceType=1&WSACode=ETH, 06.03.2010.

7.5.2.2. Full-, semi-, and low-pressure systems¹⁷⁷

The *full-pressure system* consists of underground water pipes which are metered connections to households. This kind of system provides the highest standard of water delivery in the EMA. A concern still is that the full-pressure system fails to reach poor households in peri-urban settlements, where standpipes have not yet been sufficiently set up (cp. Mc Donald et al. 2003, quoted in: Hooper 2003: 83). Even though some poor, low-income households have already gained access to the full-pressure system, the EWS has intended to raise the numbers of poor, low-income households to the full-pressure system. The EWS has therefore implemented “*technological innovations that aimed to prevent the accumulation of large personal debts to the utility*” (ibid.). Two of these innovations are the “*flow limiter*” and the “*flow restrictor*” (ibid.). Behind these tools was the idea by EWS to disconnect households while still allowing them to receive a lifeline volume. The service is disconnected from receiving in-house water service when debt ceiling is reached (cp. Hooper 2003: 83). In reality, disconnected households receive their daily water ratio through dropping cycles, which aims that flow-limiters prevent households from unhindered water flow. Once the 200 litres allotment has entered the household, the water is shut off (cp. Bailey 2002, quoted in: Hooper 2003: 84). Nevertheless, the flow restrictor allows the full allotment of 6 kl to enter the household monthly, but at a reduced flow rate (cp. ibid), which principally was seen as pro-poor approach by the EWS. The only difference is that water allotment is distributed at a reduced flow rate during the day that nonetheless hampers people from using larger water quantities, usually required for cooking, washing, etc.

The *semi-pressure and low-pressure system* compromises water supply to household tanks in poor, peri-urban settlements and began to operate in 1993 (cp. Bailey 2002, quoted in: Hooper 2003: 84). Shortly after implementation both systems have been redefined, since, “*studies showed that it cost more to bill households receiving water via these systems than was returned in tariff revenue*” (Bailey 2002, quoted in: Hooper 2003: 84). Three years later, tariff modifications effectuated that households received a lifeline volume constantly. “*This policy was so successful that the 6 kL free lifeline was eventually extended to all EWS customers*” (Brocklehurst 2001, quoted in: Hooper 2003: 84). It can be said that the semi-pressure system was the “*forerunner*” (ibid.) of the FBW

¹⁷⁷ Idea and elaborations taken from Hooper 2003: 83ff.

in South Africa.

Figure 7: Photographs of semi-pressure and low-pressure systems



A semi-pressure roof tank, on right, supplies the water needs of a household.



Low-pressure ground tanks supply the water needs of two adjacent households.

Source: Photo Credit: Bailey 2002, adapted from Hooper 2003: 86

The difference to conventional full-pressure system is that both systems rely on small diameter, low-pressure pipes, inexpensive installation equipments, constructed from manual labor at much lower costs (cp. Brocklehurst 2001, quoted in: Hooper 2003: 85).

7.5.2.3. LIST of distinguishing features for semi- and low-pressure systems

Low-pressure system	Semi-pressure system
• Reticulated network • Small diameter (< 50m) plastic piping, laid at shallow depths along roads and connected by the EWS	• Conventional water mains laid in the road reserve and connected by the EWS
• 20 households are connected at metered manifold. Households dig the trench from the manifold to the household. • Households pay for a pipe from the manifold to a 200 litre tank • 200 litres allotment per household per day	• Water tank installations at roof level allow continuous supply at limited pressure to metered households throughout the day • 200 litres allotment per household per day

Source: Adapted from Hooper 2003: 85

In general, unaccounted water volumes could have been reduced in the EWS supply network by above-mentioned technological innovations. Reductions have been achieved by reduced pressure and by the introduction of improved water demand management (cp. Naidoo 1999, quoted in: Hooper 2003: 86). *“The overall water consumption through these delivery systems is estimated to be less than through conventional systems to communities of similar profile”* (ibid.).

7.5.2.4. Water Standpoints and Yard Taps

Other types of water infrastructures in Durban consist of standpoints and yard taps which are mainly spread throughout peri-urban areas. Prior to EWS adoption of Durban’s water supply network, taps of this kind were used in rural areas and controlled by bailiffs. Especially since the implementation of the FBW policy in 1998 the network has operated charge-free. On the other hand some yard-taps have been established on pre-paid systems in which the first 6 kilolitres are free (cp. Hooper 2003: 86).

The EWS and its predecessor, Durban Metro Water Services (DMWS), have made progress in connecting poor households in peri-urban settlements to the main supply network after Apartheid (cp. Hooper 2003: 108). An increase in water coverage in peri-urban settlements stems back particularly to the introduction of the FBW policy throughout the country and the introduction of cheaper technological water installations. Due to political reasons, high subsidization of water supply in poor settlements before Apartheid omitted collecting coverage data including data for water fees. Another reason for insufficient data collection referred to the fragmentation of local Apartheid governments (cp. McDonald 2002: 20).

7.5.3. Affordability

“Charges and fees, together with tariffs are an important determinant of whether water and sanitation services are affordable” (Hooper 2003: 88). According to him, the most important charges and fees in the water sector are *“connection charges, for hookups to the network, and the fixed charges that components of the overall fee structure”* (ibid.).

These charges often represent a fixed hurdle, especially for poor households before they can get access to the water network (cp. *ibid.*).

Due to unavailable data for connection- and fixed charges, it was not possible to establish whether poor households at particular “standard levels” have access to affordable water services. Neither changes in pricing for semi-pressure system and full-pressure system between 1994 and 2009 could give enough evidence that poor households have benefited from rising block tariffs through full cost recovery in the EMA. Hence, I tried to differentiate cost recovery with the example of South Africa while focusing on equity standards and its instruments to ensure water access for poor households.

7.5.3.1. Cost Recovery in South Africa¹⁷⁸

Cost Recovery for basic municipal services became a policy of national and local government in post-Apartheid in the mid-1990s. Albeit political conceptions based on racial discrimination the Apartheid state saw “*its role as one of providing and subsidizing the delivery of essential municipal services*” (Mc Donald et al. 2002: 20). In the push for cost-recovery on basic municipal services it has been most clearly articulated under the post-1994 African National Congress (ANC). The lack of interest under Apartheid to charge for water, electricity, sewerage and waste disposal changed from a “*de facto subsidization*” (*ibid.*: 20) into “*cost-reflexive pricing*” (*ibid.*: 21). Although this ideological transformation has not been accepted by some bureaucrats yet, the desire for “*fuller cost recovery*” (*ibid.*: 21) was adopted by the ANC. In the White Paper on Water and Sanitation (RSA 1994: 19, quoted in: Mc Donald et al. 2002: 21) it is stated, that “*government may subsidize the cost of construction of basic minimum services but not the operating, maintenance or replacement costs*”. Other policy documents made it more clear while noting that: “*to promote the efficient use of water, the policy will be to charge users for the full financial costs of providing access to water, including infrastructure development and catchment activities*” (RSA 1997: 4, quoted in: *ibid.*: 21). It is important to mention, as McDonald et al. (2002: 21) said, that in all of these policy documents, “*attention is paid to equity in the form of indigency clauses, progressive block tariffs and, most recently “free services” for an initial block of*

¹⁷⁸ Idea and elaborations taken from Mc Donald et al. 2002: 20ff.

consumption”.

To distinguish from orthodox cost-recovery models based on simplistic downward-sloping marginal cost curves (cp. *ibid.*: 22) South Africa`s cost-recovery policy stated in the 1997 White Paper clearly pursues equity standards in the form of free water services.

However, in the case of the dissolution of the “access gap”, equity standards and progressive block tariffs in the form of a lifeline policy have not been consistent with full cost recovery of water bills. This is to see that 99.25% of Durban`s population has been reached through charge-free water provision. Data does not show which households at different standard level, whether high income or low income have eventually been served. Normally *“it is common practice that cost recovery for water and sanitation together is achieved through cross subsidies from water to wastewater departments”* (Hooper 2003: 107). It can be assumed that effective cost recovery for basic water services is not achieved across the entire service area, otherwise all households at each standard level would have benefited from cross-subsidization from high income towards low income households.

Considering the fact that cost recovery has seized communal water stands (cp. “access to water below RDP”) through (metered) pre-paid installations¹⁷⁹, which is also the case in Durban, it expresses concerns of why those 2,228 households without access to water infrastructure (cp. category 4) have not yet been connected to the water network. On the one hand, it can be assumed that progressive tariffs have not been effective enough at the maximum consumption level, or connection charges for hookups to the network as well as fixed charges have remained an unaffordable expense for many poor households in Durban on the other hand.¹⁸⁰

¹⁷⁹ In some areas communal taps are also replaced with yard taps or in-house connections (cp. McDonald et al. 2002: 22)

¹⁸⁰ Mc Phail 1993 mentioned that household expenses for water and sanitation services should not exceed 5 % of daily income (cp. *ibid.*, quoted in: Hooper 2003: 88).

7.5.4. Clean Supply

7.5.4.1. Umgeni Water¹⁸¹

According to its homepage, “*Umgeni Water is the largest bulk water supplier in the province of KwaZulu-Natal, and one of the largest catchment-based water utility in South Africa, supplying some 340,000,000 kilolitres of clean, safe drinking water to almost 4.8 million people annually*”¹⁸² in Durban, Pietermaritzburg and surrounding areas.

Established in 1974, Umgeni Water is in charge of raw water treatment and water distribution to six municipalities (e.g. eThekweni Municipality) within its operational area (21,155 square kilometers). Umgeni Water was established under the Water Services Act No. 108 of 1997. It is a state-owned business enterprise¹⁸³, which is why all treated raw water is to be examined once again by the State’s Directorate Water Quality Management, before sending samples to the Executive Authority, the Minister of Water Affairs and Forestry.

7.5.4.2. Water Catchment Area for the EMA

Umgeni Water takes the largest water quantities from the uMngeni River. uMngeni River is 255 km in length from the source to its mouth. The catchment size of uMngeni River counts of 4,416 square kilometers in total (cp. uMngeni River 2002: 9). There are currently five dams within uMngeni Catchment Area. Water Works mainly at Durban Heights and Wiggins at the upper uMngeni River supply the city of Durban with drinking-water.¹⁸⁴ A total of 14 rivers run through the city of Durban, however, many of these rivers suffer from eutrophication and are contaminated with bacteria originating from untreated sewage arising from poorly serviced peri-urban settlements or broken and blocked sewerage pipes.¹⁸⁵ According to the uMngeni River Report (2002: 11), water

¹⁸¹ cp. Umgeni Water Amanzi, <http://www.umgeniwater.co.za/profile/cp.asp>, 12.03.2010.

¹⁸² Umgeni Water Amanzi, <http://www.umgeni.co.za/>, 09.03.2009.

¹⁸³ The Executive Authority is the Minister of Water Affairs and Forestry while Umgeni Water Amanzi is a non-executive Board where members are appointed by the Minister himself/herself.

¹⁸⁴ Information goes back to an email from Kim Hodgson (Umgeni Water Amanzi, Pietermaritzburg) on 18th March 2010.

¹⁸⁵ cp. Sustainable Cities, <http://sustainablecities.net/plusnetwork/plus-cities/durban-s-africa>, 11.05.2010.

demand had outstripped the river's ability to supply freshwater resources. Current additional water has therefore transferred from the Mui River to Midmar Dam and additional dams were constructed on rivers flowing into Durban¹⁸⁶.

Table 17: Water levels at uMngeni Catchment Area

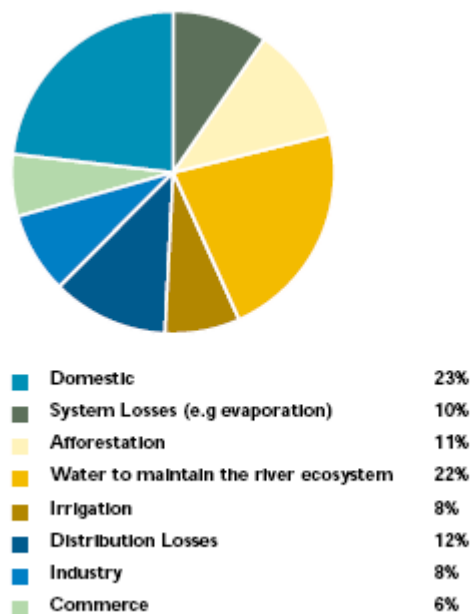
Dam	Capacity Million m³	Percentage (%)	Outflow (m³/s)	Rainfall (mm)
Albert Falls Dam	290,1	100.20	3,640	1.2
Inanda Dam	251,6	100.55	2,150	0.0
Mearns Dam	5,11	105.20	1,130	0.0
Midmar Dam	235,4	98.94	0,976	3.0
Henley Dam	1,52	101.00	No indication	2.2
Nagle Dam	24,6	92.45	0,000	2.4

Source: Adapted from Umgeni Water¹⁸⁷

¹⁸⁶ cp. Sustainable Cities, <http://sustainablecities.net/plusnetwork/plus-cities/durban-s-africa>, 11.05.2010.

¹⁸⁷ http://www.umgeniwater.co.za/media_centre/drd.asp, 15.03.2010.

Figure 8: Water Use in uMngeni Catchment Area in % of total available water resources



Source: Adapted from uMngeni River 2002: 11

7.5.4.3. Legislative level

The Department of Water Affairs and Forestry (DWAF) is the custodian of the country's water resources (uMngeni River 2002: 3). According to the Constitution, Act No. 108 of 1996, the management of water resources falls therefore into exclusive national competency. As such the National Water Act, 1998 (Act No. 36 of 1998) mandates the Minister of Water Affairs and Forestry to ensure that water is protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner for the benefit of all persons.¹⁸⁸

Within DWAF, the Directorate Water Quality Management has worked as the Drinking Water Quality (DWQ) Regulation Program since the early 2005s. During that time it has been found that less than 50% of Water Services Authorities (WSA's) had drinking water

¹⁸⁸ cp. DWAF, http://www.dwa.gov.za/Dir_WQM/;
http://www.dwa.gov.za/Dir_WQM/wqm.asp, 12.03.2010.

quality monitoring programs in place. Finally in 2009, 100% of the municipal authorities had monitoring programs in place, even though the efficiency of these monitoring programs can still be improved.¹⁸⁹

Water Service Authorities, like the EWS and their Water Services Provider (Umgeni Water) are legally bound by law to submit samples of drinking-water quality only to DWAF's Water Quality Management. Data on water quality are further reported to Ministers and the Cabinet. Nonetheless, it is important to note that the Constitution mandates the Directorate Water Quality Management to inform the public of water quality samples which only contain "synthesized information" and never raw data.¹⁹⁰ This information indicates drinking-water quality sample points for the last three months¹⁹¹, which are open to public view under "My Water"/"Blue Drop System"¹⁹² on the DWAF's official homepage. Only municipalities like eThekweni Municipality are consequently allowed to release raw data of water quality for scientific or any other purposes.¹⁹³ Unfortunately, my query to Neil Mcleod, head of Water and Sanitation Unit at eThekweni Metropolitan was not available for data release. It is due to severe fire damages at the municipality's scientific laboratory that it was not possible to retrieve data from the system.¹⁹⁴

7.5.4.4. Blue Drop System¹⁹⁵

Within the bounds of possibility, I could only outline water quality samples¹⁹⁶ in

¹⁸⁹ cp. DWAF, http://www.dwaf.gov.za/dir_ws/DWQR/default.asp?PageID=1&PageHeading=WHAT%20IS%20?, 12.03.2010.

¹⁹⁰ In this case, eThekweni Water and Sanitation Scientific Services usually takes numerous samples from rivers at different points in eThekweni Metropolitan Area (EMA) on a monthly basis and test them along different parameters. eThekweni Water and Sanitation Scientific Services uses the Unicity River Quality Index to assess the quality of river water in Durban's metropolitan area, which ranges from ideal, acceptable, poor, critical to "non current data" conditions for river water quality (cp. eThekweni Municipality/Durban, http://www.durban.gov.za/durban/services/water_and_sanitation/water-quality/copy_of_quality-of-rivers, 15.03.2010).

¹⁹¹ cp. DWAF, http://www.dwaf.gov.za/dir_ws/dwqr/default.asp?PageID=7&PageHeading=My%20Water, 15.03.2010.

¹⁹² DWAF, www.dwaf.gov.za/bluedrop, 12.03.2010.

¹⁹³ This information goes back to an Email from Mariette Swart of DWAF's Water Quality Management on 22nd February 2010.

¹⁹⁴ This information goes back to an Email from Neil Mcleod, Head of Water and Sanitation Unit at eThekweni Metropolitan on 9 March 2010.

¹⁹⁵ cp. DWAF, http://www.dwaf.gov.za/dir_ws/DWQR/, 15.03.2010.

eThekwini Water Systems about microbiological and chemical compliance (health and non health) standards¹⁹⁷ in the period between November 2007 and January 2010 which did not indicate river quality for domestic purposes at all. Due to the fact that still people in peri-urban settlement are still forced to obtain water from unsafe river arms, access to safe water services at cat. 1., 2. and 3. still remains a big challenge to undergo.

7.5.4.5. Challenges

In 2002, more than 12 % of the uMngeni and uMlazi catchments were urbanized. High concentration of urban settlements and high population have created particular challenges for river`s water quality and people`s health. The challenges associated with urbanization are summarized in the following:

- Increased pressure on water supply due to high demand for water from rivers for domestic and industrial purposes and the construction of water infrastructure, for example large dams and water supply systems, call for intensive monitoring of river`s water quality.
- Increased volume and solid waste disposal within areas of a high concentration of people, industry and rural surroundings. For example, density of informal settlements in accordance with insufficient water and sanitation infrastructure seriously affects river systems due to faecal contamination.
- Paving of large areas which changes catchment hydrology and the quality of water, for example, rivers and streams. (cp. uMngeni River 2002: 31)

7.5.5. Reliable Supply

There are two essential factors why reliable water supply still is not completely shifted to the EMA. At first glance, one factor relates to the fact that approximately 2,228

¹⁹⁶ DWAF`s Water Quality Management took their samples from a minimum 10,000 samples between the period of November 2002 and January 2010. The number of sites that submitted results is put in relation to the total population with access to water in a service area.

¹⁹⁷ cp. DWAF, http://www.dwaf.gov.za/dir_ws/DWQR/, 15.03.2010.

households have not yet benefited from the FBW policy as of March 2011.

Hence, this means that there are still Durban residents, mostly Black people, who have access to water services at category 4 and beyond that are not subsidized to reach higher standard level. Another factor regarding the reliability of water supply is in line with cost recovery. Cost recovery may also be seen as a way of dealing with the non-payment of services. Foremost proponents of privatization believe that non-payment is a serious threat to the viability of the South African economy. Economists have argued that service payment shortfalls would ultimately make municipalities financially unsustainable. Furthermore it has been said that even financially unsustainable local authorities would not be problematic for municipalities, but instead, could undermine the country's economic strategies. Without solid financial base municipalities would be unable to attract tourists and foreign investors being essential for the economic upturn (cp. McDonald et al. 2002: 7). An alternative explanation has outlined, that non-payment is chiefly related to the inability to pay for water bills accompanied with water disconnections. Service cutoffs have become a major mechanism of payment enforcement in 1994 post-apartheid era (cp. McDonald et al. 2002: 169). In a nationwide surge in service cutoffs conducted by the South African Human Sciences Research Council, McDonald (2002, quoted in: Hooper 2003: 109) estimated that nearly 10 million people had been disconnected from South African water networks since 1994. In the face of rising rates of disconnections, the EWS has therefore adopted flow-limiting technologies that mean poor households also receive free-charge allotments (cp. Hooper 2003: 109). From the EWS point of view the adoption of innovative technologies guaranteed that disconnections are not only financially cautious, but also declared as humane, since it still guarantees a certain allotment of water per day while staying disconnected from the water network (cp. *ibid.*). A story may tell the difference by underscoring the fact that perhaps for many poor households "non-payment" is not only related to the inability to pay for water fees:

"David Shezi found himself in a prison cell a while ago. He had stolen water for eight children in KwaZulu-Natal, as he could not bear the humiliation of seeing his children having to beg for water. A water seller reported him. Shezi earned 100 rand¹⁹⁸ a month selling fruit and vegetables.

¹⁹⁸ According to calculations the exchange rate as of 11th May 2010 for 100 ZAR is 13.37 US\$.

He managed to save 500 rand¹⁹⁹ to install water, but later could not afford to pay the bill, since he also had to pay for food and school fees. His water was cut off, but he made an illegal connection to the supply pipes, which was later discovered” (Sjölander Holland 2005: 65).

The story outlines that untold numbers of households had imposed own forms of cutoff, either by making illegal connections, which is according to EWS a “violation” and as follows has to be reported to the municipality²⁰⁰; or by consuming less quantities than households really need to avoid payment defaults (cp. McDonald et al. 2002: 171). McDonald et al. (2002: 171) stated, that pre-paid meters did have the same effect since low-income households only purchase as much water as they can afford regardless of the amount they need to satisfy basic needs for all family members.

In summary, cut offs are not related to complete disconnection of water service, since by the adoption of flow-limiting technologies there is still a respective 200 litres free allotment of water for households with payment inability. Nevertheless, it is important to point out that non-payment does not ultimately root in the *quasi* “payment inability”, for which reason water may be cut off from the service network by the municipality. I believe that non-payment is reflected in a wider context, especially in the informal sector, where mainly poor people work, payments are not handed out regularly. It is a customary problem within poor households that the water bill could not paid because other bills were still outstanding.

7.6. Comments

Although the Government of South Africa, and the city of Durban in particular, took an enormous step towards equity standards in basic water supply by adopting a lifeline water policy, there are still a few obstacles which have not been addressed by cost recovery.

7.6.1. Financial backlog and cross-subsidization

An 85% decrease in real terms between 1991 and 1997 and a further decrease of up to

¹⁹⁹ According to calculations the exchange rate as of 11th May 2010 for 500 ZAR is 66.85 US\$.

²⁰⁰ cp. eThekweni Municipality/Durban,
http://www.durban.gov.za/durban/services/water_and_sanitation/water_violation_tip_off, 15.03.2010.

55% between 1997 and 2002 (Finance and Fiscal Commission 1997; Unicity Commission 2000, quoted in: McDonald et al. 2002: 23) had to be assessed through significant decreases intergovernmentally from national to local government. The amount of funding was too low to make up for the backlog for the development of basic services for targeted low-income groups. In relation to this, in the 1994 White Paper was noted that, in the case the government not recovering operating and maintenance costs it can lead to a reduction in development finance (RSA 1994: 23, quoted in: Mc Donald et al. 2002: 24). As a consequence the government intended to put caps on rate increases that local government is able to levy wealthy property owners (cp. *ibid.*). In reality, the point is yet that these caps meant that local governments have not been able to increase revenues significantly through progressive taxation. With approximately 90 % of all local government revenues being locally generated in 2000, approximately 25 % derive from property rates (cp. *ibid.*). Progressive taxation consequently implies a certain limit which is not only applicable to wealthy persons. Backlogs in basic services financing are also negatively determined by the factor of competition for investments. South Africa's larger cities vie for increasing flows of private capital. Municipal governments are under pressure to reduce tariff rates to make foreign investments more interesting for private companies. As a result municipal governments were forced to minimize, if not eliminate cross-subsidization measures in commercial, industrial and high-income areas completely (cp. *ibid.*). It is therefore *"little wonder, then, that local authorities have begun to push for fuller cost-recovery as a way to finance and expand service delivery"* (Mc Donald et al. 2002: 23).

It can be stated that the financial loss for the development in basic services is not only rooted in the consequences brought by the adoption of cost recovery. The time before Apartheid, local governments did not collect any fees for water supply at townships. Besides high subsidization, and limited financial control in municipal and governmental budget under Apartheid, hidden subsidies for upper-income households and industry did hamper financial recovering, especially with purposes such as basic service supply for poor households (cp. Mc Donald et al. 2002: 27; Vircoulon 2003: 136).

7.6.2. Household size

Another challenge is centered on the issue of household size. *"The free basic water policy*

is premised on household sizes of eight people and a supply of 25 L of water free per individual” (Niklaas and Stein 2001, quoted in: Hooper 2003: 112). Considerable evidence has indicated that poor (Black) households in peri-urban settlements tend to have household with up to ten or thirteen individuals (Loftus 2003, quoted in: *ibid.*). *“Still, many households do not include temporary or unrelated guests in their calculations of occupancy members”* (Loftus 2003, quoted in: *ibid.*) which is why disconnection of households could result in people, especially women and children being forced (again) to fetch water at wells far from home, which is often connected with keeping children from school and an increased risk in health problems (cp. UNDP 2006).

7.6.3. Flow-limiting innovations

Opponents of flow-limiting innovations (cp. Mc Donald et al. 2002) have argued that such innovations are actually imperfect low-tech solutions to the right to water (payment inability/equity). Many individuals claimed that such technologies have failed to deliver the daily lifeline volume of water (cp. Hooper 2003: 111f.). For example, the flow restrictor limits the flow to the point where only 2 kilolitres of water monthly may enter the house (Naidoo 2003, quoted in: Hooper 2003: 112). Poor people further complained that they often felt threatened to approach EWS for the removal of flow limiters, the installation and repair of flow restrictors. Additionally, they claimed long periods of time with either no water or much reduced water flow to their homes (Loftus 2003, quoted in: *ibid.*).

“As a result, instead of providing a financial safeguard for households, the flow limiter and flow restrictor all too often serve to further compromise the already marginal access to water enjoyed by the poorest of the poor” (Hooper 2003: 112).

With regards to the socio-economic and political context in South Africa, the Free Basic Water (FBW) policy still remains a difficult issue to continue when national governments have tried to attract foreign investments while speeding up lifeline volumes for poor households at the same time. Most people agreed that such measures have always looked more simply in theory than in reality. In relation to this, Vircoulon has correctly noticed that: *“En définitive, l’efficacité et la pérennité de ce choix de politique publique reposent sur la pertinence de son financement qui doit être pensé avec le plus grand soin et ne doit*

pas contribuer à aggraver les difficultés (déjà importantes) des collectivités locales. Là est sans doute le talon d'Achille de cette politique!” (Vircoulon 2003: 149).

V Conclusion

My starting point was the question of whether economic interests and equity can be combined so that end-users in poor, peri-urban settlements and therefore “*quasi legal/irregular*” residents are provided with sufficient access to water services by the local water provider in Casablanca, Durban and Vienna in the examined period between the early 1990s until 2009?

Since water supply is run by different providers, whether private or public, in each of these cities, the question is precisely, if of whether with the combination of cost recovery and equity principles people have eventually benefited from water services? Another question which has been addressed through this paper is whether basic services such as water have to be exclusively provided by the state, as Aristotle noted in his work *Politeia*?

The fact is that the principle of cost recovery always intends to recover the full (or *fuller*) cost incurred by a service provider (cp. Mc Donald et al. 2002; Hooper 2003), and private-sector providers therefore intend to make a surplus by charging end-users the (full) short-run marginal cost of production including a portion of long-term operating and maintenance costs (cp. Mc Donald et al. 2002). In the end, the surplus should simply result in a allow profit.

Differently from “*orthodox pricing models*” (cp. *ibid*), a state`s monopoly keeps marginal costs low whereby marginal revenue is always less than the price (cp. Kessides 2004). It is evident that regulatory measures inserted by the state (cp. chapter three) exactly intend to limit competition despite the fact that state balance has to deduct profits from certain services. Although there is no enactment confirming national obligations of providing basic services (in this case water supply) to the public, the case study about Austria/Vienna made it clear that there is a certain “moral” duty which ensures that access to water is only protected from any external influences in the case where the state is guarantor for a minimum of institutional frame (following Aristotle in chapter 2.4.). A common argument on the part of the proponents of private-sector participation is that the state has not been able, at least in countries of the “Global South” in providing people

with essential services, and instead the private-sector has to intervene and beyond that to enhance private capital inflows to guarantee long-term investments in states with economic deficits.

Opponents of privatization argued on the other hand that the handing down of basic service provision to the private-sector spur certain operators on to make a profit from life-spending services which no less should be free of charge wherever possible. It is important to note, because the term is often misunderstood, that privatization does not mean that the public sector transfers all its “duties” (in accordance to general public service) to the private-sector (cp. chapter 4.1.1.). It is therefore questioned whether new “techniques” such as Private-Sector Participation (PSP)/ Private-Public Partnerships (PPP) can overcome the disbelief about privatization of infrastructure services?

The case study in Casablanca, where the consortium Lydec leads the management of the water network has shown that at least the intention to combine social targets with pure economic principles (cost recovery) did not occur until present. The case study reflected that respective *Opérations Branchements Bleus* (OBS) have not targeted poor, peri-urban settlements even though the company LYDEC promised to make a minimum effort in connecting poor households to the water network (45,000 OBS at every five years). This example underscored the importance of a certain minimum of institutional framework being needed to ensure social targets that include the “weakest of a society”. Governments have options to mitigate the impact on poor households through regulatory arrangements on infrastructure services which can contain too much control on the part of the private supplier in managing the water network (cp. PPPs in chapter 4.1.4.) but may not defray connection costs by subsidies for expansion of the network to poor areas if a city’s infrastructure network is in bleak state and poor, peri-urban settlements (“*insalubrious settlements*”) do not fall under municipal jurisdiction (cp. Harris 2003), which is why no municipal authority attaches a certain importance to include them into the jurisdiction.

Including those particular steps undertaken within INDH/VSB upgrading program to relocate a part of the population of peri-urban settlements to completed dwelling houses or specially selected plots (*relogement* and *recasement*) did not effectively solve the problem (cp. chapter 6.4.). Principally, connection fees to the network were unaffordable

for most people whereas many people (“eligible households”) struggled to be resettled by outside forces since the main share were afraid that they could not pay for electricity and water (cp. Hauw 2004). Whilst Olivier et al. 2009 argued that the above-mentioned program has targeted urban exclusion of people particularly from “*insalubrious settlements*” (cp. *ibid.*). All the worries on behalf of these residents mainly relate to the tariff reform in 2006. This reform aimed at reductions of water consumption subsidies by eliminating the first block (social block) that accordingly led to significant price increases for households consuming above this threshold (cp. Olivier et al. 2009). Even though data collection to the changes on tariffs was reduced during the period between 1999 and 2003, in order that neither tariff charges nor connection charges could prove the above-depicted worries of the people in peri-urban settlements, it is still to say that connection costs remain a big hurdle for households of such settlements.

However, Durban and its Free Basic Water (FBW) policy confirmed (with this example) that the majority of the poor population in peri-urban settlements have benefited from free allowances at basic consumption level through innovative low cost technologies to the water network whereby 2,228 households still draw drinking water from unsafe sources (category 4/ no infrastructure). This has been confirmed through statistics within Community Survey 2007. Even though seventeen years have past since the fall of the Apartheid, statistics may reveal to some extent the features of former segregation politics which are still feasible in the picture of those disadvantaged people with lower access rates to safe drinking water sources. In this case the Black population made their presence felt with the lowest access rate to in-house/in-yard water connections (67.47 %). At the same time, mainly Black people obtained the highest percentage (3.41 %) with access to unsafe water sources (category 4/ no infrastructure).

A cross comparison between the cities of Casablanca and Durban illustrated further that the access rate of the Black population to outside (shared) piped water (28.13 %) in Durban corresponded with the percentage of the total population in Casablanca (34.11 %) with access to outside (shared) piped water. This comparison was a match for a third of Durban’s Black population as well as pretty much the same percentage of the population in Casablanca that drew water from shared and hence unsafe drinking water sources.

Still, according to the Durban example, it is possible to highlight the positive impacts of future management of services of general interest through guidance of the public sector by means of combining economic and social concepts in order to guarantee safe drinking water to end-users in peri-urban settlements. However, the hypothesis posed at the beginning of this paper, can only be proven fragmented due to insufficient data collections.

Nevertheless, according to the Casablanca example, it can be shown that the takeover of the management and supply of the city's water supply system needs clear regulation in the division of competencies which have to be ascertained in advance so that the entirety of the urban population will benefit (as far as it has been reinforced by the King in particular, thereby all relevant steps can be implemented so far). Otherwise the management of the supply system conducted by private enterprise companies is at risk of being reduced to pure profitable purposes. There is a range of such examples which revealed that private enterprise companies had purchased dues of underground sources in order to exploit them for the production of mineral water (e.g. Aïn Soltane in Morocco)²⁰¹.

„I think it's absolutely appalling, I really do. That's one of the big problems of privatizing a resource, because you've got absolutely no control of what happens after that – it could be sold on, and sold on and sold on” (Sarah Solly, quoted in: Strang 2004: 133).

It must be mentioned in the end that, the right to water, unless this may be a moral plea, has to be recognized unexceptionally as a human right on a national level so that access to drinking water for disadvantaged people do not remain a question of payment but rather a question related to sustainable and social water economy that includes the needs of human beings for future prospects.

²⁰¹ http://www.acme-eau.org/ACMEMaroc/Comment-la-SNEP-detourne-l-eau-du-Sebou_a109.html, 17.05.2010.

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Department of Water Affairs and Forestry (DWAF), <http://www.dwa.gov.za/>

eThekweni Municipality/Durban, <http://www.durban.gov.za/>

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Wikipedia The Free Encyclopedia, http://en.wikipedia.org/wiki/Main_Page

World Bank (WB), <http://www.worldbank.org/>

VII CURRICULUM VITAE

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March 2007 until July 2007	University of Vienna, Austria; Tutor in AG <i>Entwicklungszusammenarbeit</i> , International Development
Sept 1999 until July 2004	Schweffeltgymnasium in Bad Säckingen, Germany

INTERNSHIPS:

March 2008 until June 2008	Austrian Commission for UNESCO; Vienna, Austria
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English: fluent in written and spoken

Frensch: fluent in written and spoken

Spanish: good knowledge in written and spoken

Swahilli: basic knowledge in written and spoken

VIII ABSTRACTS

Abstract (in English)

The United Nations (UN) published in the Human Development Report (HDR) the number of people who lacked access to safe drinking-water worldwide in 2006. This was a total population of 1.1 billion. Based on this fact the author searched for local prerequisites and relevant measures which can guarantee people unhindered access to safe drinking-water. Even though the author has considered the problematic scale of this topic, his elaborations are limited to the urban sprawl of countries of the “Global South” and the “Global North” (Casablanca, Durban and Vienna). The thesis recumbent procedure from there is based on the realization of urban supply systems regarding infrastructure, statutory as well as climate conditions in order to examine access to water, affordability, safe and reliable supply at relevant geographic locations. Despite residency status, whether “regular” or “irregular”, the focus is always centered on end-users.

Notably, in the cities of Casablanca and Durban a majority of people still have limited access to the local water network due to “irregular” residency status. With particular reference to end-users, water is regarded *per definitionem* as a basic need. However, without acknowledging the fact that access to water is a basic need too, the human right to water, respectively access, can not be assured without enactments on national and international levels. Since the author considers water’s underlying social and economic value, the thesis examines, from the perspective of the proponents and opponents, the mechanisms of private-sector participation in the second part in this thesis. The argument is taken further in third part while comparing the results in water supply in above-mentioned cities.

With particular regards to sustainable water treatment, the Austrian case shows nevertheless some weak points, although access rate to water services is almost guaranteed at one hundred percent, including for those people without legal residence status.

In contrast, the case studies for Casablanca and Durban generally reflect that access to

water is not guaranteed to all end-users although they have implemented technological innovations as well as social tariffs to make the provision of water available to poor people in peri-urban settlements more accessible and affordable. The case of Durban has nevertheless shown that seventeen years after the fall of the Apartheid rule the majority of the Black population still lack access to improved water services (in-house/in-yard connections and external, shared water points < 200 m from home) compared to other races. Moreover the comparison indicates the difference in access opportunities to people in Casablanca and Durban. Statistics confirmed that the total Black population with outside (shared) piped water (cat. 2 and 3) in Durban is nearly equal to the number of persons in Casablanca with access to shared water connections.

Abstract (auf Deutsch)

Die Vereinten Nationen (VN) veröffentlichten im Human Development Report (HDR) von 2006 die Anzahl jener Menschen weltweit ohne Zugang zu sauberem Trinkwasser. Dies waren insgesamt 1,1 Milliarden. Jene Tatsache nahm sich der Autor der vorliegenden Arbeit zum Anlass, nach den örtlichen Voraussetzungen und Maßnahmen zu suchen, die gegebenenfalls allen Menschen ungehinderten Zugang zu sauberem Trinkwasser gewährleisten könnten. Obwohl der Autor die Tragweite des Problems in die Thematik miteinbezieht, begrenzen sich dessen Ausführungen auf den städtischen Großraum in Ländern des „Globalen Südens“ und des „Globalen Nordens“ (Casablanca, Durban und Wien).

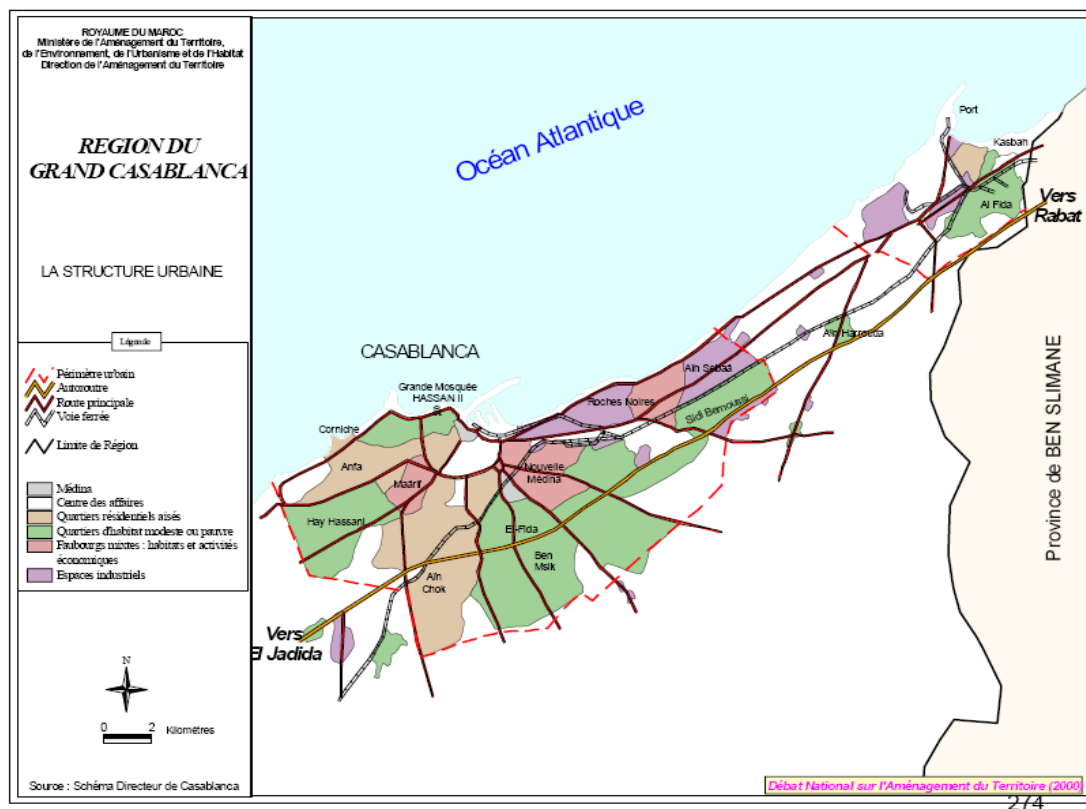
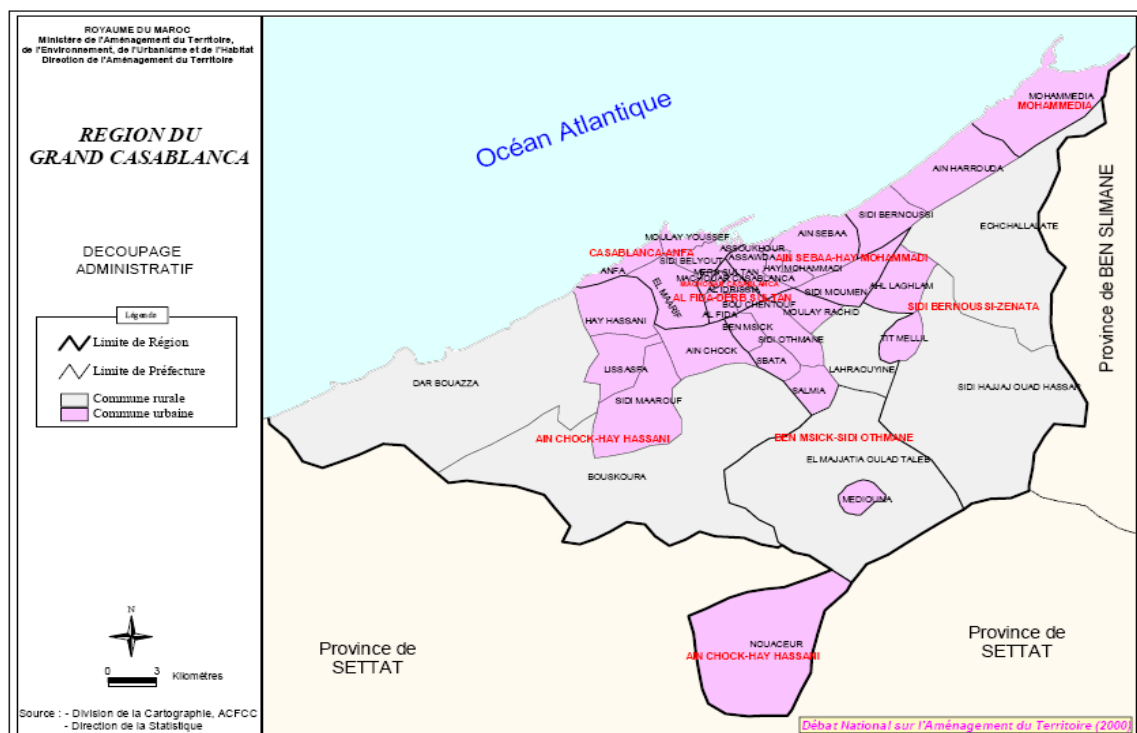
Die der Diplomarbeit zugrunde liegende Vorgehensweise basiert daher auf der Untersuchung der praktischen Umsetzbarkeit städtischer Trinkwassersysteme hinsichtlich Infrastruktur, und dem Vorhandensein gesetzlicher als auch klimatischer Rahmenbedingungen, um in einem letzten Versuch die örtlichen Trinkwassersysteme auf den Zugang zu Trinkwasser, dessen finanzielle Leistbarkeit und dem sicheren und verlässlichen Angebot von Trinkwasser hin, zu untersuchen. Dabei richtet sich der Fokus immer auf EndverbraucherInnen, ungeachtet des örtlichen Wohnstatus.

Insbesondere in den Städten Casablanca und Durban besitzt ein Großteil der Menschen aufgrund ihres irregulären Wohnstatus nur eingeschränkten Zugang zur städtischen

Trinkwasserversorgung. Unter Berücksichtigung der EndverbraucherInnen wird somit Wasser *per definitionem* als Grundbedürfnis angesehen, wobei der Zugang zu Wasser nur dann gewährleistet wird, sollte darüber hinaus der Zugang zu Wasser als ein Menschenrecht durch nationale und internationale Gesetzesbeschlüsse abgesichert werden. Da der Autor neben dem sozialen Wert auch den ökonomischen Wert von Wasser berücksichtigt, geht dem Vergleich ein Diskurs voraus, der die zugrunde liegenden Mechanismen der privatwirtschaftlichen Versorgung von Trinkwassersystemen durch das Objektiv seiner BefürworterInnen und GegnerInnen beleuchtet. Die in der Gegenüberstellung diskutierten Argumente werden im Vergleich wieder aufgegriffen um letztlich die untersuchten Städtebeispiele nach den Ergebnissen zu beurteilen. Dafür wurde ein Untersuchungszeitraum zwischen 1990 und 2009 hinzugezogen.

Insbesondere am Beispiel Wien verdeutlicht sich, dass die Trinkwasserversorgung in Hinblick auf Nachhaltigkeit Schwachstellen besitzt, wobei die Zugangsrate, einschließlich jener Menschen ohne permanenten Wohnsitz zu einhundert Prozent gewährleistet wird. Im Gegensatz dazu, zeigt sich im Besonderen an den Städtebeispielen Casablanca und Durban eine defizitäre Zugangsrate jener EndverbraucherInnen in armen, peri-urbanen Wohnsiedlungen; wobei hinzuzufügen ist, dass in beiden Fällen - jedoch unterschiedlichen Ausmaßes - durch technologische Innovationen und Sozialtarifen der Zugang zu Wasser für den EndverbraucherIn verbessert wurde. Auch siebzehn Jahre nach dem offiziellen Ende der Apartheid Ära in Südafrika verdeutlicht das Städtebeispiel Durban eine gewisse Beständigkeit in der niederen Zugangsrate der schwarzen Bevölkerung auf der Ebene von internen (Gebäude/Hof) Wasseranschlüssen zum Verteilernetz. Darüber hinaus zeigt der Vergleich zwischen den Städten Casablanca und Durban auf, dass die Gesamtzahl der schwarzen Bevölkerung mit Zugang zu Wasserquellen außerhalb von Gebäude/Hof (im Radius von 200 m) in etwa mit der Gesamtbevölkerung Casablanças mit geteilten Wasseranschlüssen entspricht.

VIV Annex



Source: Adapted from Harrouni 2004: 274 (Figure 9: Service Delivery Area of the CUC)