Goethe-Universität Frankfurt am Main
Fachbereich 11 Geowissenschaften / Geographie

WaterPricing in Cape Verde

Orte der Globalisierung
Winter Term 2012/13

Prof. Dr. Detlef Kanwischer

Irena Irmler, 5022193, irena.irmler@stud.uni-frankfurt.de
Li Liu, 5030952, sumi@ stud.uni-frankfurt.de

Master Geographien der Globalisierung

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Acronyms

AfDB	African Development Bank
ARD	Allgemeine Deutsche Rundfunkanstalt
ARE	Agência de RegulaçãoEconómica
DBT	Decreasing Block Tariff
EU	European Union
IBNET	International Benchmarking Network for Water and Sanitation
IBT	Increasing Block Tariff
IMF	International Monetary Fund
IWA	International Water Association
JMP	Joint Monitoring Programme
OECD	Organisation for Economic Cooperation and Development
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNHCR	United Nations High Commissioner for Human Rights
WHO	World Health Organisation
WSP	Water and Sanitation Programme of the World Bank

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1. Introduction

Water and sanitation are a human right! Water is a public good, not a commodity! With this slogan a proposed European Citizens' Initiative calls for regulations on EU level that deal with water and sanitation as a human right, i.e. the "provision of water and sanitation as essential public services for all"(ECI, 2005).[1] The initiative formed in reaction to an EU directive[2] on public procurement which no longer prohibits the privatisation of water infrastructure. Communities may independently decide whether water provision is left to the free market or not (Riedel, 2013).

Generally this change of legislature is perceived as a compulsory privatization of water infrastructure. People are wondering if the quality of water will deteriorate in the course of the establishment of market mechanisms. Many are scared that water, a very sensitive resource, might turn into an object for speculation. Already implemented in a Portuguese town, the new policy has led to a 400 percent cost increase within a few years (ARD, 2013).

But let's take one step back: A water market? Better water infrastructure for those who can afford it? What about people that are simply too poor? In 2010 about 14% (884 million) of the global population did not have access to an improved water source and had to use unprotected wells or springs, canals, lakes or rivers for their water needs (WHO/UNICEF JMP, 2010). Each year, over 3.4 million people die from water-related causes. 99 percent of these deaths occur in developing countries (WHO, 2008). These figures show that already nowadays, with water infrastructure in the hands of the governments, the water and sanitation situation is not satisfactory. Is this due to a lack of financial means? How is the water infrastructure funded in developing countries? Sal, one of Cape Verde's arid islands will serve us as an example to examine the pricing of water.

Chapter 2 will give a general overview of water markets, water prices and the idea of water as a public good. Chapter 3 will then focus on water issues and pricing strategies specifically in developing countries. After the actual situation in Cape Verde and Sal is presented in chapter 4, this paper will introduce our research interest and methodology: A qualitative exploration of water- and pricing-related issues on Sal from the perspective of the tourism branch which contributes a significant percentage of the Cape Verdean GDP.

2. The Water Market and Water Price

In history, generally before 19th century, most people did not pay for water. Due to water scarcity and the deterioration of the water quality, as well as the higher demand of sanitation and health, people are now paying for the drinking water provided by water utilities. This makes water a good with economic value which is traded in the water market. In 1992 the Dublin Water Principles claimed "water as an economic good" for the first time in a UN setting (Rogers et al., 2002). If water is an economic good, the water market should follow the general market principles. The market regulation, i.e. the interaction between demand side and supply side in the market decides the price of water and thus adjusts the allocation of the resources. However, in the real case, the water market is never a free market with perfect competition and the formation of water price is much more complicated. This chapter gives a brief analysis of the water market and water price. Firstly, the economic good feature of water will be examined by looking into the

[1] More under http://www.right2water.eu/
[2] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0896:FIN:EN:PDF

Figure 1: The Water Supply System

Source: Own research

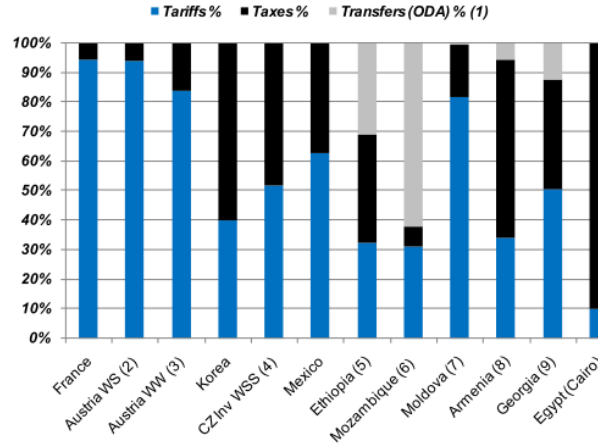
system of water supply and the cost of water services. Subsequently, the public good feature and its impact on water price will be discussed. At last, the water tariff structures will be introduced.

2.1. Water Products and Services

In the water market, there are mainly two types of water products and services, namely water supply and sewage disposal. Water supply refers to the improved water provided by water utilities. The quality of the water is improved to meet certain standard. Therefore it is priced differently according to different purposes of use: human use such as drinking and washing or industrial use. The water supplied for human use is generally called drinking water, although in some countries or regions, the water supplied for drinking or cooking is separate from the water for washing and charged different prices. The following graphic shows the function system of water supply (see Figure 1).

Water resources exist in nature, however, usually could not be directly used by household or organizations because the water resources and human population is geographically unevenly distributed. There is in most cases a long distance between households and water sources. Moreover, due to health considerations, most surface water could not be drunk directly without depuration and disinfection. Therefore water utilities are needed to improve the water quality to meet required standards and then delivered to consumers. Many different ways of water delivery, e.g. pipes, vendors, water trucks or water carriers, could be identified in different regions worldwide, among which water pipes is the most common one (WHO/UNICEF, 2012).Water supply service, namely water quality improvement and delivery, has costs, which makes water not free, but has a price.

Figure 2: Shares of Tariffs, Taxes and Transfers (Official Development Assistance) in Financing Water Supply and Sanitation



Source: Winpenny, 2003

2.2. The Costs of Water Supply

Water supply involves costs and the recovery of these costs is important for the provision of adequate services and the sustainability of water supply systems. User fees through tariffs constitute an important source of cost recovery, thus the pricing of water services is a key issue in the provision of drinking water (Folifac and Gaskin, 2011; Rogers et al., 2001). Figure 2 visualises that other sources of government revenue are taxes, i.e. government subsidies, and transfers, i.e. official development assistance which does not play a role in OECD countries (Winpenny, 2003).

2.2.1.Full Cost of Water Supply

The full cost of drinking water supply includes four types of costs (Folifac and Gaskin, 2011).

- **Investment costs or capital expenditure** includes all capital costs related to the purchase of land, the design and construction of the utility and infrastructures such as storage tanks, vehicles, pumping stations, distribution mains and pipes.
- **Operation and maintenance costs** are the recurrent costs incurred in the daily operations of the utility. These costs, together with the investment costs, are the largest and most tangible share of the full cost.
- **Administrative costs** typically include all charges and expenses incurred by a water supply utility through the servicing of capital such as interest on loans and the preparation of tenders and contracts, as well as expenses on litigations and compensations.
- **Environmental costs** refer to the negative externality caused in the water supply process, especially by over-abstraction and contamination of water sources.

2.2.2. Cost Recovery and Water Pricing

Since water supply has costs, water utilities must be able to pay for these expenses, at least operation and maintenance costs, in order to ensure the adequate functioning of the utility and to keep the production and distribution of drinking water. This requires the recovery of costs. Cost recovery in water supply and sanitation services means that the total revenue to the service provider equals (or exceeds) the cost of supply (WPS, 2011).

The most straightforward way of cost recovery is to charge from water consumers, directly by pricing. Pricing water is of critical importance because it ensures the sustainability of the water supply system, facilitates resource allocation optimization and environment protection.

In 2000, the EU Water Framework Directive included a requirement for water pricing that reflects the full costs of supply including environmental and resource costs (Renzetti, 2003). The World Water Commission also strongly endorsed the need for full-cost pricing of water services in the same year. These requirements were made because the "problem faced by the water sector is that prices and tariffs are almost universally below the full-cost of supply. This means that almost everywhere there are large inefficiencies in the water sector and that water prices need to be raised." The low water price is deemed as a cause of low efficiency in water sector and raising water price could help to improve the functioning of water supply system and promote optimization and equality of water allocation (Rogers et al., 2002).

Why are the water prices lower than the full cost of supply? An obvious reason is that it is hard to account the full cost because some parts of the full cost such as environmental costs are intangible. So water price normally reflects only operation and maintenance costs. Another more underlying reason is that, the water pricing system involves not only the economic factors, but also the complexities of social and political reasons. Water is both an economic good and a public good.

2.3. Water as a Public Good

It is an obvious fact that everybody needs safe drinking water and there is no substitute for water. As a result, water has been seen as a public good and a human right. The UN claimed that "The

water supply for each person must be sufficient and continuous to cover personal and domestic uses, which comprise water for drinking, washing clothes, food preparation and personal and household hygiene."(UN, Fact Sheet No. 35) The ideal situation is that any person in the planet, despite her/his social, economic, cultural situations, should have access to enough clean water, i.e. the equality to water use. This requires that the water should be also affordable for the poor. This goal is contrary to the pursuit of maximal profit of the market mechanism, and therefore the government should take the responsibility. Most governments play the role of either provider or regulator, or both. In this sense, there is no water market, rather, water is considered to be natural monopolies by the state.

2.3.1. Public Water Utilities

The public good nature of water could be understood by the fact that, from 19th century until now, drinking water has been supplied by public utilities in most countries. Although water supply providers can be public, private, mixed or cooperative, most urban water supply services around the world are provided by public entities in both developing and developed countries (Jooste, 2008). They are owned by the state or local authorities, or also by collectives or cooperatives. In rural areas, where about half the world population lives, water services are often not provided by utilities, but by community-based organizations which usually cover one or sometimes several villages.

2.3.2. Policy and Regulation

Except for the public utilities which provide water services, there are other institutions which are important for water supply, namely responsible for water policy and regulation. Water supply policies and regulation are usually defined by one or several ministries, in consultation with the legislative branch. Policy and regulatory functions include the setting of tariff rules and the approval of tariff increases; setting, monitoring and enforcing norms for quality of service and environmental protection; benchmarking the performance of service providers; and reforms in the structure of institutions responsible for service provision (IWA, 2013). Water policy-makers and regulators, who are responsible for the setting of tariff rules and the approval of tariff increases, tend to prefer low water price to sustain the stability of a society and in some case their own political status.

2.4. Water Tariffs

The result of seeing water as a public good is a very low water price. On the one hand, the public utilities run without an aim for profit but are based on the ethos of providing a common good considered to be of public interest. On the other hand, cost recovery is critical to sustainable water service. Thus a well-designed water tariff is critical. Water tariffs serve to

- raise revenues to cover all or part of costs;
- ensure access across socioeconomic groups;
- send price signals to users about the relationship between water use and water scarcity;
- ensure fairness in water service delivery (Banerjee et al., 2010).

Due to different geographical, social and economic context, there are diverse water pricing system and thus different water tariffs across countries and regions. The dominant water tariffs are volumetric tariffs, in which water is metered. Volumetric tariffs include three major types of structures.

- With **single volumetric tariffs,** a single rate per cubic meter is applied regardless of volume consumed. This type of tariff is the most common form of water tariffs used in OECD countries (OECD, 2009).
- **Increasing block tariff** (**IBTs**) are widely used in the developing world. The volumetric charge changes in steps with increasing volumes consumed (ibid.).
- With **decreasing block tariffs (DBTs)**, the rate per unit of water is high for the initial (lower) block of consumption and decreases as the volume of consumption increases(Ricato, 2013).

2.5. Water Pricing in Arid Countries

Water pricing is only a relevant issue if the provision of water results in expenses – that have to be carried by someone. This is of particular relevance in countries where water cannot at all be considered an ubiquity, that is: in arid countries. In dry regions the extraction or production as well as the distribution of water has significant costs and requires distinct managerial and innovative approaches (United Nations, 2008). Israel for instance has implemented an increasing block tariff which differs from region to region while irrigation water is made available for a special price (ibid.). The Israeli government has also started to implement water saving and effluent reclamation projects (ibid.). The capacities of the sea water and brackish water desalination plants are in the process of being enhanced (ibid.).

The situation is different in the Arab countries on the Persian Gulf whose economies have gone through substantial transformation processes over the last 30 years. Governments have been able to generate enormous income from oil revenues (World Bank, 2005). This allowed them to improve the infrastructure (ibid.). Like all government services, water is practically provided for free (ibid.). There are however hardly and substantial efforts to increase efficiency in any of the GCC countries (ibid.). Water desalination plants present a great opportunity: Sea water is practically infinite. A functioning and reliable electricity net is necessary, and energy costs are very high (ibid: vii). The technology of self-sufficient, e.g. solar-driven, desalination plants is by now technically mature and feasible from an economic point of view (Ghermandi & Messalem, 2009).

3. Water Pricing in Arid Developing Countries

> *Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation.*
>
> Millenium Development Goal 7, Target c (UN 2010)

Over 3.4 million people die each year from water related causes. More than 90 percent of these people are citizens of developing countries (WHO, 2008). As already pointed out above the provision of water is a task that should be fulfilled by the state (see Chapter 2.3). Which implications do these two statements have?

This chapter will first give a short overview on specific problems developing countries face with regard to the provision of public goods, water services in particular. After a number of possible causes are pointed out, the third part will deal with the specific approaches developing countries take to tackle these challenges.

3.1. Developing-Country Specific Water Issues

Among others, water issues in developing countries include the following:

- **Poor water quality**. The causes of water pollution are mostly anthropogenic: Human waste, fertilizers, industrial chemicals contaminate water bodies (Pereira et al., 2002). Many developing countries have not passed or do not enforce laws on the prevention of water pollution. Wastewater treatment plants are not yet common in developing countries (Pimentel et al. 2004). Poor water quality has enormous consequences for the population's health (ibid.).
- **Low coverage**. Infrastructure coverage is particularly low in rural areas, but also urban coverage is "under pressure" (Briceno-Garmendia et al., 2004). Not all households have access to piped water or a well close by. In some cases water vendors provide this area with water, but it's not uncommon that especially women have to walk long distances to get water (Kjellen & McGranahan, 2006).
- **Low reliability.** Even if a household or a company is connected to the pipe system, unannounced water outages negatively impact on the water situation. Businesses may even be forced to lay down work as water is essential for their operations (Immerzeel et al., 2011).
- **Low efficiency of water usage.** Irrigation systems as well as pipes for industrial and domestic use of water are mostly not working properly (cp. Immerzeel et al., 2011). Due to e.g. leakages, the efficiency of water use is relatively low.
- **Dysfunctionality of sewage systems**. Dysfunctional or non-existent sewage systems pose a serious threat to public hygiene and health (Pereira et al., 2002).

The cause of most water issues is the sheer scarcity of clean water. Nature-produced causes of water scarcity include permanent aridity and temporal droughts while desertification and water shortages are man-made (Pereira et al. 2002).

3.2. Possible Causes

A basic but central challenge lies in the already insufficient and still decreasing availability of resources, the supply, and the increasing water demand.

As mentioned above, low precipitation, limited availability of clean water resources or difficulties to extract the available clean water resources are static causes for water scarcity in arid countries (World Water Council, 2009). The comparably high population will lead to an increased water demand (Immerzeel et al., 2011). Many developing countries are also experiencing economic growth, and this also brings about a strong increase in income generated in water-intensive industries[3] (Immerzeel et al., 2011), e.g. car manufacturing (UNCTAD, 2011). Both indicators imply that the water demand will rise even further. Industrial users and other water demanders such as farmers or domestic users start to compete for water (Keskin, 2008).

On the supply side, many developing countries already have problems in providing enough water as non-renewable water resources have been gradually depleted. Climate change is generally expected to further aggravate the already difficult situation. The IPCC (Christensen, 2007) forecasts a decrease in precipitation, higher temperatures leading to an increased evaporation of surface and irrigation water and more frequent extreme events such as floods and droughts. If water were

[3]Apparel, Automobile, High-technology/Electronics industries are industries e.g. are generally considered water-intensive industries (Harling 2009: 2).

a "normal" commodity traded on a traditional market, market mechanisms would lead to a price increase.

According to the World Bank's (2013b) definition a developing country is a country with a GDP per capita of less than $12,475. Therefore developing countries have a comparably low budget generated by e.g. tax income. Governments have to operate economically when it comes to the provision of public goods. They also have to ensure an institutional and commercial system capable of actually recovering costs (Stalker & Komives, 2001).With regard to the specific conditions in developing countries, their water systems must, on the other hand, provide services that are safe, desirable, and affordable to consumers.

In addition to the supply-demand challenge outlined above, budget restraints are opposed to the social obligation to provide clean and affordable water. Solving this second conflict of interest requires strong technical, institutional and managerial capacities within the administrative apparatuses. Many developing countries though still have room for improvement concerning their governance capabilities "as reflected by a higher level of perceived corruption" (Prasad et al., 2003). The institutions of developing countries are "almost by definition" (Grindle, 2002) weak and vulnerable, their employees "poorly trained and motivated" (ibid.). The poor quality of the water infrastructures in developing countries can be counted as a consequence of corruption issues as Mauro (2004) remarks: "Funds […] for public infrastructure projects end up in the pockets of corrupt individuals". The weak governance is not only expressed in the lack of legislature to regulate the extraction and distribution of water, but also in the enforcement of these laws (Molle, 2001). There is however a flood on development cooperation projects on the improvement of the water situation.[4]

Empirical studies in general give evidence for economic costs and corruption (Mauro, 2004); this capital outflow leads to the conclusion that substantial investment is needed (OECD, 2009): In theory, all these problems could be solved by a higher water price. Due to the actual poverty of parts of developing countries' population, a proportional price increase is not feasible though.

3.3. Water Pricing

Pricing a commodity like water in countries with a relatively poor population is an even more sensitive issue. It might be the case that due to their low income, people are not able to afford water (Pereira et al., 2002). Key to the improvement of the situation is a smart blend of the three T's: Tariffs, taxes and transfers (Winpenny, 2003). Typically developing countries tend to rely more on taxes and transfers as they intend to relieve the poorest (see Figure 2 on p. 5) (OECD, 2009). The target of this paper is an introduction of the functioning of tariff itself.

Tariffs generally give an incentive to be efficient with water. The amount of money to be paid for the total of the water withdrawal should be in correspondence to the household's income, which is not always easy to identify (IBNET, 2013). The process of establishing the tariffs should be transparent, ideally under participation of civil society groups (World Bank, 2005). Disproportionately low tariffs are not sustainable as they render impossible cost recovery in the long term (OECD, 2009). Local conditions need to be taken account of, especially in the case of poor water consumers. Tariffs should be designed to make sure that vulnerable groups have sufficient access to clean water (OECD, 2009).

[4] Probably every national or international development cooperation agency is running a high number of water-related projects all over the world, e.g. see World Bank: US AID; GIZ and many more.

The performance of public water utilities in developing countries is often not satisfying. In combination with the absence of a legal system in that sense this gives rise to the formation of informal water markets (Easter et al., 1999). Informal markets may in fact be a viable solution to allocate water resources because they work fairly independently. They cease to be a feasible method when there are not enough sellers and groundwater is no longer sufficiently recharged. In these cases that come true in many developing countries, fairness considerations as well as the obligation to prevent civil unrest make a government intervention necessary.

To ensure the revenue stream to the utilities and consequently operations and maintenance, some countries use fixed charge components within their tariffs (IBNET, 2013). Poor consumers perceive this as a financial hurdle (ibid.). Another figure that characterizes developing countries is a relatively high degree of inequality, measured by the Gini coefficient (Hillebrand, 2009). In the framework of a water tariff this suggests cross-subsidizing solution, i.e. an increased block tariff: The first block of a few cubic meters (according to the average need and regional climatic conditions) that are necessary to cover basic needs like drinking, cooking and washing are sold for a relatively cheap price (or even for free (Republic of South Africa, 2001) that does not equal the cost of provision. It is assumed that consumers withdrawing more than the first block are economically robust enough to pay a relatively high price (Komives & Stalker Prokopy, 2000). This may refer to rich households as well as to businesses. Special water prices for business and industrial use (compared to domestic use) are also a critical indicator for a tariff (IBNET 2013: 19). An increased block tariff ultimately results in rich households, businesses and industrial consumers cross-subsidizing poor consumers (ibid.).

Tariff makers have to be aware of two vicious circles: A high tariff meant to cover expenses is applied but only paid by a few users. Revenue collection is not sufficient to come up for repairs. As a consequence, even less consumers are not willing to pay for the low-quality services. In another case the water tariff is low due to subsidies. Komives and Stalker Prokopy (2000) argue that there is empirical evidence suggesting that a low price leads to a lack of respect for the resources and the service which results in inefficient water use and accidental or deliberate damaging of the facilities (ibid).

Achieving a sustainable water situation can be enhanced by an appropriate water tariff. This tariff however has to be enforced, too (IBNET, 2013). With respect to the limited managerial governance capacities mentioned above this enforcement, maybe in the form of collecting bills, poses a great challenge to water utilities (Komives & Stalker Prokopy, 2000).

4. Water Pricing in Cape Verde and Sal

Cape Verde is one of the 52 small island developing states (SIDS) identified by the UN (UN, 2013) For SIDS, the water issue involves many of the problems facing by developing countries in general. However water supply is rather more challenging due to their geographical, demographic and economic features. In the archipelago country Cape Verde, fresh water resources are extremely scarce. Despite the arid condition, Cape Verde is experiencing fast economic growth and a population increase. Water is critical to development of human being as well as economy. To meet the water demand of a population of around half million is a crucial issue. This chapter analyzes the water sector in Cape Verde with an emphasis on water pricing.

4.1. Water Scarcity in Cape Verde

Cape Verde is located in the Sahel belt, which results in the low rainfall precipitation and periodic and devastating droughts. Indeed, over the past 40 years rainfall has decreased sharply, to about half its former level. (Briceño-Garmendia & Benitez, 2010) Although in some areas (e.g. mountain area), the precipitation and groundwater resources are relatively sufficient, generally, Cape Verde is identified as an arid country. The country has the lowest underground water resources in sub-Saharan Africa after Djibouti (ibid.).

Sal is one of the three islands - the other two are Boa vista and Maio - which are fairly flat, sandy and drier compared to the other islands. There is a lack of surface water resources such as rivers or lakes, and available ground water resources in Sal. This geographical context of Cape Verde has resulted in natural water scarcity.

This scarcity is reinforced by the socioeconomic conditions. Cape Verde has experienced robust economic growth in recent two decades and achieved middle-income country status. The strong economic performance reflects a major economic transformation in the economy towards a service-based economy led by the tourism sector (World Bank, 2009).

With barely 10 percent of its surface as arable land and limited mineral resources, Cape Verde's arid conditions and mountainous terrain place the country at a disadvantage for agricultural production. It is a net importer of food and fuel (World Bank Country Brief, 2011). As a result, the Cape Verdean economy has been transforming into service-oriented, with commerce, transport, tourism and public services accounting for more than 74 per cent of GDP in 2006 (AfDB/OECD, 2008). Cape Verde has a total population of about 500,600 (World Bank Database, 2011). The annual population growth rate in the last decade is very high (see Figure 3).

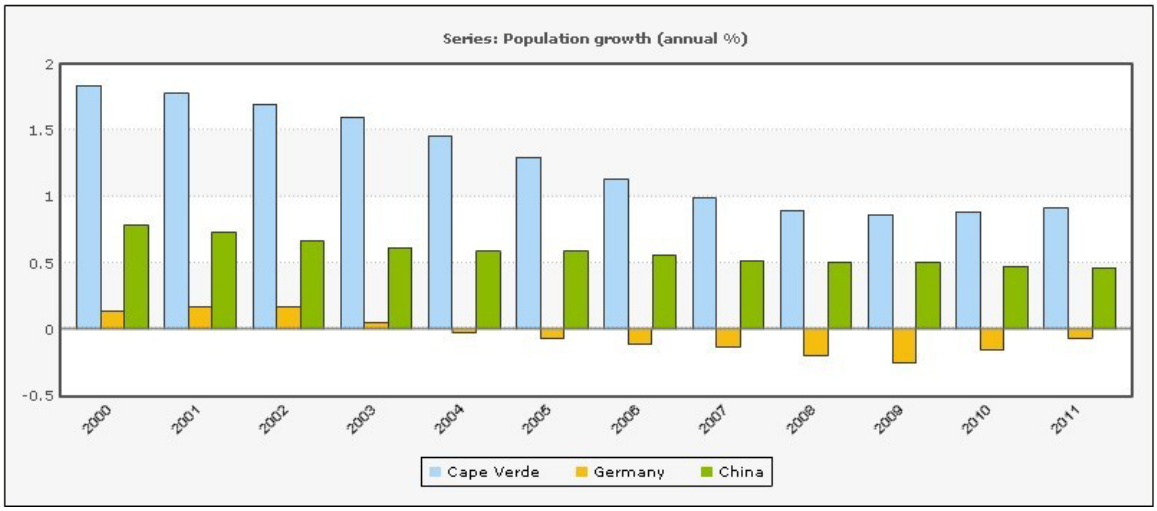


Figure 3: Population growth rate in Cape Verde from 2000 to 2011

Source: World Bank, 2013a

The economic growth and a growing population result in a growing demand of water. Fulfilling the demand in this arid country is a big challenge, especially with 27 percent of the population living below the poverty line (World Bank Country Brief, 2011).

4.2. Water Supply in Cape Verde

The scarcity of water resources that characterizes Cape Verde and the lack of capital for infrastructure investment, together with the low income of some consumers, have significant consequences for the water sector development. This affects both service provision and drinking water quality (Marques et al. 2011).

4.2.1. Economic Regulatory Agency

There are mainly three bodies responsible for the water sector in Cape Verde: the Economic Regulatory Agency (Agência de Regulação Económica - ARE), the National Institute of Water Resources Management and the National Council for Water. The most important body is ARE, which is an independent multi-sector agency, covering the water, wastewater, transport, electricity and fuel markets. ARE's main mission is

- to guarantee and promote economic efficiency and financial sustainability and stability among the utilities;
- to ensure the fulfillment of public service obligations and to protect customer rights and interests;
- responsible for tariff and price setting for the water utilities, and ensures compliance with tariff standards imposed in the concession contracts and licenses.
- to define rules for cost accounting and proceeds with the revision, adoption, and implementation of the tariff system (Marques et al. 2011).

4.2.2. ELECTRA

The water sector in Cape Verde comprises fifteen operators, of which twelve are responsible for drinking water supply and three for the wastewater. The largest operator in the country, ELECTRA, the national power utility, supplies electricity in the whole country and is also responsible for the drinking water supply for four islands (Praia, Sao Vicente, Sal and Boavista), covering about 200,000 inhabitants (40% of the Cape Verdean population). The other islands and cities are supplied by municipal companies (100% public ownership) (ibid.).

4.2.3. Water Sector Performance

The assessment of water service quality includes mainly three criteria, namely coverage, water quality and continuity of supply. The level of drinking water supply coverage has been growing but it is still far from satisfying. (WHO/UNICEF, 2012) Access to piped water is limited, with low geographic coverage and significant discontinuities in service. The total piped water coverage in 2010 is estimated to be only 51%. 12% of the total population lack access to improved water source (ibid.).

Besides, the water supplied does not always meet the minimum quality standards for human consumption. During periods of high demand, there are often unexpected interruptions of water supply (Marques et al., 2011).

This situation indicates the weak performance of water utilities and inefficient regulation. Electra's financial performance has deteriorated rapidly, the reasons are multiple. One reason is that Cape Verde has been depending to some extent on foreign assistance, e.g. the UN Millennium Project, for supporting the water sector. However, this support is in regression, which causes the

lack of investments. The main reason is due to the failure in cost recovery, for which delayed and partial tariff adjustments and customer arrears are argued to be responsible (World Bank, 2009). In order to understand and improve the water supply system, it is reasonable to investigate the water pricing system in Cape Verde, because water tariff is the most important means to recover cost and ensure the sustainable development of the water sector.

Table1: JMP – Estimated Trends of Drinking Water Coverage

Cape Verde	**Drinking water coverage estimates**					
	Urban (%)		Rural (%)		Total (%)	
	1995	2010	1995	2010	1995	2010
Piped onto premises	36	58	0	40	18	51
Other improved source	46	32	79	45	62	37
Other unimproved	18	10	19	15	19	12
Surface Water	0	0	2	0	1	0
	100	100	100	100	100	100

Source: WHO/UNICEF JMP, 2012

4.3. Water Pricing

Cape Verde has by far the most expensive water tariffs in Africa—and among the most expensive in the world—at over $3/m^3$ (World Bank, 2009). These high prices reflect the water scarcity and high cost of desalination.

4.3.1. High Cost Due to Desalination

The scarcity of water resources has forced the country to rely on desalination for about 85 percent of water production. In 2009, ELECTRA produced about 4.5 million m^3 of drinking water, of which 93% is desalinized water (ibid.). The cost of the energy-intensive desalination process is particularly high due to its dependence on power generation. The current system used by Electra, as the national power utility, relies almost entirely on multiple, inefficiently small, expensive and polluting diesel-run generators on each island (ibid.). Cape Verde is a net fuel importer due to its lack of natural oil resources. Besides, the relatively small scale of its market contributes to the high price of this oil (ibid).

4.3.2. Water Tariffs

The ARE set the following maximum prices of water on April 12, 2011. (see Table 1) This maximum tariff is also applied by ELECTRA.

Table 2: Water Tariff in Cape Verde

	$6m^3$orless	more than $6m^3$ up to $10m^3$	morethan $10m^3$	$20m^3$orless	morethan $20m^3$
DomesticUse	253.72	359.98	470.30		
Business Use	434.13				501.87
Industrial Use	416.96				
TourismSector	531.89				
Non Profits	277.92				
Water Trucks	280.12 suppliedto Non Profits				
Water Trucks	449.97 suppliedto Other users				

Source: ARE, 2011
All prices are in local currency of escudos per cubic meter per month and before value added taxes.

This tariff adopts an increasing-block tariff structure to water for domestic use. The purpose is to encourage water saving by households. Water for other purposes of use is generally priced through a single volumetric tariff structure. Water for business and industrial use is comparatively more expensive; while tourism sector have to pay the highest price for water, i.e. about 5 Euro per m^3.

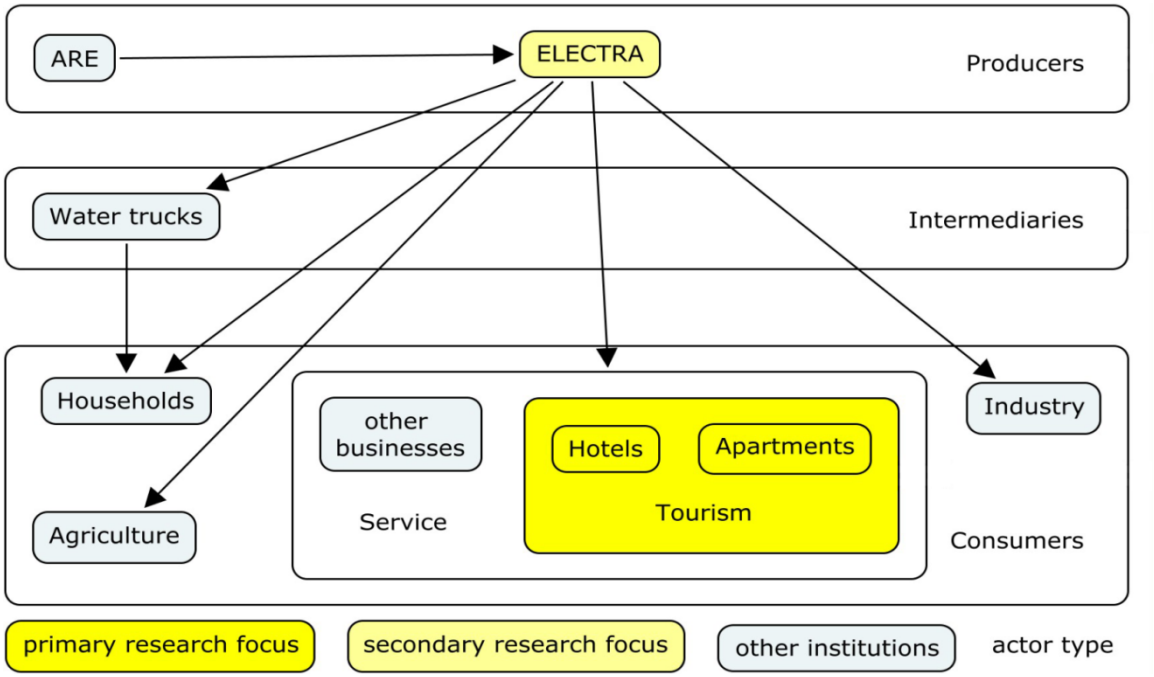
5. Our Research

After examining the water market and water pricing policies in general we have gradually narrowed down our research activity toward our region of interest: Sal – arid, developing, and part of Cape Verde. The sources available do not give sufficient information about the water situation, prices and pricing processes on Sal. During our field trip on Sal we would like to find out what the reality with regard to water provision looks like.

5.1. Research Interest and Limitations

In the framework of our research so far we have been able to draw an actor map (see Figure 4). With regard to time constraints we will focus on one of the biggest demand groups: organizations of the tourism industry.

Figure4: ActorMap



Source: Own research

The tourism sector is by far the leading growth sector. Cape Verde is improving its position as a tourist destination. Its tourist industry is expanding rapidly – by 12.7 percent between 2000 and 2003 and by 15.6 percent between 2004 and 2007, according to the Millennium Institute – and this growth is expected to continue. Cape Verde officials expect to reach the benchmark of 1million tourists annually by 2015 (AfDB/OECD, 2008). We assume that these numbers are even more promising on Sal.[5] This would result in an additional water demand increase besides the growing local need for water.

[5]Sal as one of the international surfing hotspots, see http://www.wannasurf.com/spot/Africa/Cape_Verde attracts a significant number of kite and wind surfers.

Which problems do hotel representatives and landlords of holiday homes face on Sal with regard to the provision and distribution of water? How do they deal with it? Are the tariffs that are published online still valid, if not, what do different types of consumers pay? Ideally we can also give hints on opportunities to improve the water situation. We are not interested in a systematic elaboration on water on Sal.

Our secondary goal is to find out more about the water situation in Cape Verde and on Sal from the supply side. We are planning to conduct one or more interviews with representatives of the national ARE and of the ELECTRA branches on Sal.

5.2. Methodology: Expert Interview

We intend to increase our general overview of the Sal water situation and want to collect insider information. With regard to time and money constraints, a qualitative research method is the only viable option.

Our interview will be of explorative character (Kanwischer 2002: 94) as we intend to gain more knowledge on the topic, esp. with regard to blind spots, i. e. information that is not available online or in formal studies or other documents (such as opinions on the performance of the pricing regime, or estimations on what could be done[6]. Our targeted experts are water managers at hotels as well as landlords of apartments on Sal (which are rented out to tourist for a certain period of time. Water expenses are part of the weekly rent). Ideally we get in touch with hotel employees on the third or fourth managerial level. They are well informed concerning operational issues and may see behind the curtain of water-related strategic decisions on the management level.

We expect that our target persons' insider information include knowledge on the structure of the water situation on Sal in general and within the borders of their organization, as well as procedural knowledge. A provisional catalogue of interview questions is attached to this paper (see Annex 1). To improve the interview structure and outline (Leitfaden) we will conduct a pretest interview with the water manager of our first hotel on Praia.

5.3. Schedule

Ideally we get the chance to interview a representative of a public authority, ARE or ELECTRA on Santiago. Of the four days on Sal we want to spend 3 conducting interviews with hotel water managers or holiday home landlords in Santa Maria. The last day is dedicated to evaluation of interviews, conclusions and the design and presentation of the poster.

[6]We might even collect „off the record information", in case an interviewee does not want to be identifiable.

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Annex: InterviewQuestions

Background

1. How many beds are there in your hotel?
2. Who is your target customer group?
3. What are your sales or profits?
4. In which part of Sal is your hotel located?

Corporate Knowledge: Your hotel

5. How is water provided at your hotel (pipes, own desalination plant)? Why?
6. How much do you pay for that?
   Has the water price changed over the last few years, and how?
7. Efficiency
- What is the understanding of efficiency at your hotel?
- Do you use water efficiently?
- Do you ask your guests to use water efficiently?
- Do other hotels do that?
8. Given that Sal is a poor country and water for poor families has to be financed via cross subsidisation: If the monthly water price increased by 10 %,would that be manageable for you?

Context Knowledge: Water on Sal in General

9. Describe the Water situation on Sal with regard to
   - Water quality
   - coverage
   - availability
   - affordability
   - efficiency, sustainability
   - other
10. Assess the water situation on Sal.
    What kind of problems are there in the water provision system?
11. Of what kind of solutions to these problems can you think?
12. (In case the interviewee didn't mention this as an answer to 3.)
    Is a price increase an appropriate means to increase the efficiency of water usage?