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The impact of actual water pricing in Algeria on the environmental dimension of sustainable development

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Abstract

The development of water sector in Algeria became more uneven as it has benefitted the drinking water sector than sanitation and urban areas than rural ones. But the questions, whether these effects have benefited equitably all segments of the population? and is management of water services and sanitation in Algeria sustainable? remain open. Algeria, like other countries that signed the Millennium Declaration, is committed to achieving eight goals before 2015. One of these objectives is to ensure environmental sustainability. Environmental concerns were not really in the menu of policy development undertaken by Algeria since the 60s. But today our country is experiencing a major ecological crisis that threatens environmental sustainability and public health. Therefore, water services and sanitation in Algeria, must meet these challenges. In this article we will discuss only the environmental objective of water development by taking the town of Souk-Ahras as an example.

Keywords: Sustainable development, environment, water services and sanitation, Souk-Ahras, Algeria.

1. Introduction

Universal access to water is one of the main challenges to sustainable development (SD) in the 21st Century. Therefore more effort is required to achieve the millennium development objectives (MDO) in water and sanitation sectors in order to provide sustainable services for all.

The world environmental commission (1987) defined the concept of sustainable development as one which provides to the present without compromising the ability of future generations to provide for themselves.

Algeria adopted a new environmental strategy by investing heavily in its new National

Action Plan for the Environment and Sustainable Development (NAPE-SD, 2002) and adopting the new water lows of 2003 and 2005 (www.joradp.dz).

Despite the huge investments, the results are below the expectations due to institutional constraints and the burden of past policies and programs (Cherrared, 2007), which are heavily entrenched in every day practice of both decision makers and professionals as well.

The development of the water sector was carried out unequally as it focused on drinking water and left sanitation behind and more on urban centers and less on rural areas, although some serious effort is being invested lately to bridge the gap. The main question is whether or not the management of the water sector is sustainable. Indeed, to be sustainable, management must consider the three pillars of sustainability (Figure 1): (i) cost recovery as an economic objective, (ii) polluter-payer as an environmental objective, and affordability of water as a social objective.

This study only considers the environmental objective.

Water management in Algeria faces several challenges including:

- Budget deficit of all public structures involved with water management
- Institutional and legal mechanisms are unable to produce expected results
- Continued pollution of the environment directly or indirectly
- Poor or absence of water infrastructure maintenance
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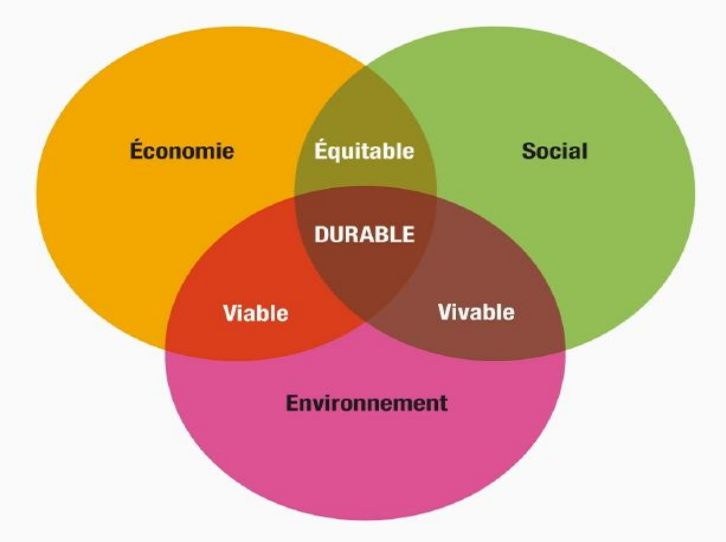

Figure 1: Classic scheme of sustainable development (http://www.adequations.org)

The goal of our study is to shed light on the aspect of environmental sustainability and to propose some solutions by taking the case of the town of Souk-Ahras as an example.

Souk-Ahras is located in the northeast of Algeria near its border with Tunisia. It is a medium size town with a population of 150 000. The water services at Souk-Ahras are unsatisfactory for several reasons including:

- Poor structural condition of water distribution and wastewater collection systems (Figure 2a and b)
- Pricing scheme incapable to cover the cost of operation and maintenance needs

Figure 2a: Water leak on distribution

Figure 2b: Poor state of wastewater collection

2. Analysis of drinking water and wastewater services in Algeria

Water sector is managed by public companies. The Algerian Water (Algerienne des Eaux, ADE) is responsible for drinking water provision, while the National Office of Sanitation (Office National de l'Assainissement, ONA) manages wastewater. The water services are financed by two main means:

- The State grants for new investments and infrastructure development.
- User fees paid directly to ADE, which, in turn, distributes it back to the different public companies involved in the water sector including ONA to cover operation and maintenance costs.

The average water price in Souk-Ahras as applied by ADE is about 0.18 €/m3 (ADE, 2010). In their detailed study, Boukhari et al (2008) estimated the real cost of water related services at 1.25 €/m³. The latter includes investment, operation, and maintenance of all water related infrastructure, i.e., from mobilization of the resource to discharge to the receiving environment of treated wastewater. Therefore, water related services costs are well higher than user paid fees. The costs are calculated using an approximate conversion factor of 100 DA to 1 €.

ADE and ONA manage most cities in Algeria except four large centers, Algiers, Constantine, Oran, and Annaba. These are managed through private sector participation via management contracts. (Table 1) shows the distribution of water management type by population.

Tableau 1. Management type distribution by municipality and population (Report D.G ADE, 2009)

Type of management	Number of municipality	%	Population 10^6	%	Number of customer
ADE	502	32.5	18.3	53	2 600 000
Private-public partnership	131	8.5	6.4	19	939 243
Municipal*	908	59	9.7	28	
*planned to be managed by ADE in the near future					

The water pricing scheme in Algeria varies with the type (category) of user and the consumption volume as summarized in (Table 2).

Tableau 2. Summary of water pricing scheme (www.joradp.dz - N° 05-13)

Category	Block	Tarif €/m^3
Domestic	up to 8 to more th m³/month	from 0.06 to 0.4
Administrations and tertiary services	m^3/month	0.35
Industry and tourism	m^3/month	0.41

3. Sustainability of water services

As presented in the introduction, sustainable development is measured through its three dimensions: economic, social, and environmental. The environmental dimension stipulates that cost must be used as a tool to control

consumption, reduce pressure on resources, reduce pollution, and avoid add-on costs due to environmental damages.

To evaluate the sustainability of water services using the case of Souk-Ahras, we used two methods. The first is direct and was done through a survey of a representative population. The second is indirect and was done through economic estimation of costs.

3.1. Water services costs

The average water price at Souk-Ahras for the 2009 fiscal year was 0.063 €/m3for drinking water related services and 0.025 €/m3 for wastewater related services (Boukhari et al., 2010) with total average price of 0.18€/m3. Boukhari et al (2008) estimated the cost of water services at 1.25€/m3. The average water price in European countries varies between 0.83 and 5.6€/m3 with an average of 3€/m3. For simplicity, we will assume in the following that the cost of water services are in the range of 1.25 to 3€/m3. (Figure 3) presents a comparison between cost distribution for average Europe and Souk-Ahras cases.

Two important conclusions can be deduced from this figure. First, the price of water services in Souk-Ahras is well below the cost.

Souk-Ahras runs its water services at loss.

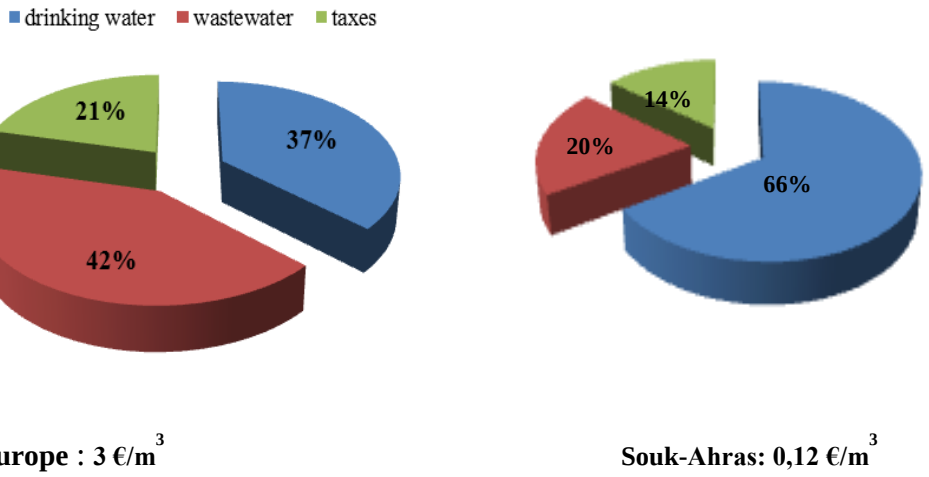

Figure 3: Comparison between water price and water price distribution in Souk-Ahras and Europe (average),

Second, even if we neglect the total cost of services, the distribution of the cost between the different water actors is incomprehensive. It is well known that wastewater, including treatment, related services are costlier than drinking water services. Yet ADE parts are three times the ONA ones.

According to recent studies and projects (for dams: Taksebt, Chéliff, SidiAbdelli, Mexa, and water desalination plants: Hamma, Oran) the cost of producing one cubic meter of water varies from 0.35 to 0.8 €. SOGREAH (2000) estimated water distribution cost at 0.20 € and wastewater services at 0.30 €. Using an annual actualization rate of 6%, the actual total water cost would be 1.8€/m3.

As a result, public companies are facing a financial dilemma; they cannot recover the cost. Both ONA and ADE have limited control of their management practices. They are not able to attract or keep well trained professionals. Although ONA and ADE have a lot of similar tools and approaches, cooperation between themselves is almost nonexistent, resulting in a lot of redundancy and higher costs.

3.2 Survey results and analysis

The survey considered a population of 2 300 domestic customer, i.e., 10.1% percent of the customer base. This survey is in addition to the information gathered at head offices of ADE and ONA. The main results of the survey are presented in (Table 3).

Table 3. Main survey results.

Designation	**Survey result**
Quality of services	76% think the service is average
Water price	87% don't know the water price
	69% are ready to pay more for better services
Quality of water	53% think that the water quality is average
	58% drink tap water only
	30% drink bottled water only

The water price is so low that the average consumer doesn't know the price. Indeed the price of a bottled water of 1.5 l is equal to the price of 2 500 l from ADE. Indeed, 30 % of the population drinks mostly bottled water only. Water services in urban centers are much better than in slum and rural areas. In the latter water is not always available, the concerned population buys water from non-authorized private suppliers for prices ranging from 2 to 10€/m^3, i.e. more expensive than in Europe.

3.3 Environmental damages

As a result of inaptitude of public water companies to cover their costs several environmentally negative results are observed:

- Inadequate water services produces low water quality with high water born diseases risk. Fight against water born diseases are estimated to cost Algeria about 15 €million per year (MATE, 2000).
- Because water is not available all the time, households store water in costly reservoirs in which water quality is difficult to control. Indeed, water is usually stored for more than one week under direct exposure to sunlight, dust, etc.
- Not only bottled water cost more, it also produces solid waste, which harm the environment and add-on more cost to collect and to dispose-of it.
- Pollution of the receiving environment is becoming a serious problem. Measurements (CATE, 1998) of pollution indicators in several port-cities indicate high pollution in terms of BOD, Phosphorus, Total N, and COD that are well above their regulatory limits.

Conclusion

- Water cost is well above water price and water pricing scheme has several incoherencies. Consequently, public companies, such as ONA and ADE, are not able to meet their obligations.
- The poor, in slum and rural area, are paying much more for their water.
- The public at large is ready to pay more for better services
- The water services are not sustainable, especially on the environmental dimension.

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