

Management of the Local Water Supply in the Municipality Of Ouèssè in Benin

Sewade Grégoire, Biauou Gauthier, Adjakpa Théodore, Guedenon Patient, Houssou Christophe

Abstract— The availability of drinking water for the vital needs of the current and future generations is one of the biggest challenges the humanity is faced with. This study listed the problems connected to the management of the hydraulic infrastructures in the municipality of Ouèssè in the context of decentralization meant to contribute to its local development. The methodology used is based on desk study, direct observations, ground study, and processing and analysis of data. The qualitative and statistical data were collected by means of tools (questionnaires and interview guide) as well as collection techniques within different target groups (Agent, Farmer, intellectuals, resource person etc.). The study concerned three (03) villages and the research enrolled two hundred and sixty one (261) investigated persons. The professionalization of the hydraulic infrastructures in the context of decentralization ended with the community-based management in the municipality of Ouèssè. That approach which is well appreciated in drinking water supply also meets challenges. So the Weaknesses and Threats are identified as the social unrest observed at the level of some opinion leaders and the worrying silence of municipal authorities facing with the indelicacy of certain managers or opinion leaders. These aspects were the object of suggestion for the improvement of the management of Millennium development goals.

Index Terms— Ouèssè, Drinking water, hydraulic infrastructures, management

I. INTRODUCTION

The water sector meeting everyday an increasing concern in terms of research and investments, because drinking water remains another rare commodity, especially in rural areas and in shanty towns. Different programs and projects are funded in this sector worldwide. This is the reason why the International Decade of Drinking water and Purification allowed the construction of 430 water sources a year in Benin, that is all in all 5350 water sources for this period (UNICEF, 1998). Still the balance sheet in terms of this decade revealed enormous problems regarding the management of set up infrastructures. The analysis of the situation reveals that the adopted approach did not unconditionally involve the recipient communities, active actors, in the programs and projects. The recipient communities were thus, neither enough associated, nor enough prepared for the maintenance of infrastructures which were established. This situation could

be explained by a weak appropriation of the infrastructures and their mismanagement resulting in their abandonment in case of breakdown and the use of non-potable water sources. Starting from these observations, in 1992 Benin adopted a national strategy of drinking water supply based on the participative approach.

This strategy aims at involving the recipient populations in the entire process of appropriation of the projects and programs. Still this strategy to make the beneficiary communities participate through the coproduction of the infrastructures (financial, physical and material contribution of the various stakeholders, in particular the beneficiaries) and the management (organized by a management committee) did not meet with all the expectations. The general report is that the community management of the projects is actually converted into an opaque "privative management" controlled by a minority which refrains from reporting to the populations (Olivier de Sardan, El Hadj Dagobi, 2000 31, 37). As a consequence, when the infrastructure breaks down, the financial resources are not often available or are too weak to assure the repair. Not only that this management compromises the sustainable access of communities to drinking water, but it also does not offer possibilities for extending the network. With the advent of Millennium development goals and decentralization in 2003 in Benin, a new strategy was defined and adopted for the water sector. Texts of relevant legislation on decentralization in Benin make local communities the contracting authorities responsible for the supply with drinking water (article 83 of the law 97-029). Therefore, the municipalities with the support of the Technical and financial Partners began to develop strategies to set up a new institutional frame of management of these projects.

It is in such circumstances that the management which - up to that moment - was within the capability of recipient communities, for lack of a local administration at the time of their implementation it will then have to be transferred to the municipalities. For communities, this is a shape of recentralization which seems to be outlined, source of dispossession of power, plots of land, as much as a possible political manipulation of the rustic arenas (GAGNON, 2006). In spite of the dysfunctions often found in the management by the members of the community themselves, the latter still prefers a community management at the expense of a communalization of water. From then on, the control and the management of these generative infrastructures of income became major stakes, both for the beneficiary communities as well as for the local authorities, deprived of resources and with no alternatives. This contradiction of logics between municipal and community spheres has implications on the local development. It is the case in the municipality of Ouèssè (figure 1)

Sewade Grégoire, Analysis laboratory of Performances and Research on The Informal economy (ALREI), ENEAM, UAC, MILD)

Biauou Gauthier, Faculté des sciences agronomiques(FSA)

Adjakpa Théodore, Pierre Pagny ' Climate, Water, Ecosystem and Development ' Laboratory (LACEEDE), Benin

Guedenon Patient, Research Laboratory in Biochemistry and Environmental Toxicology, Department of Cell Biology and Biochemistry, Faculty of Science and Technology,UAC Benin

Houssou Christophe, Pierre Pagny ' Climate, Water, Ecosystem and Development ' Laboratory (LACEEDE), Benin

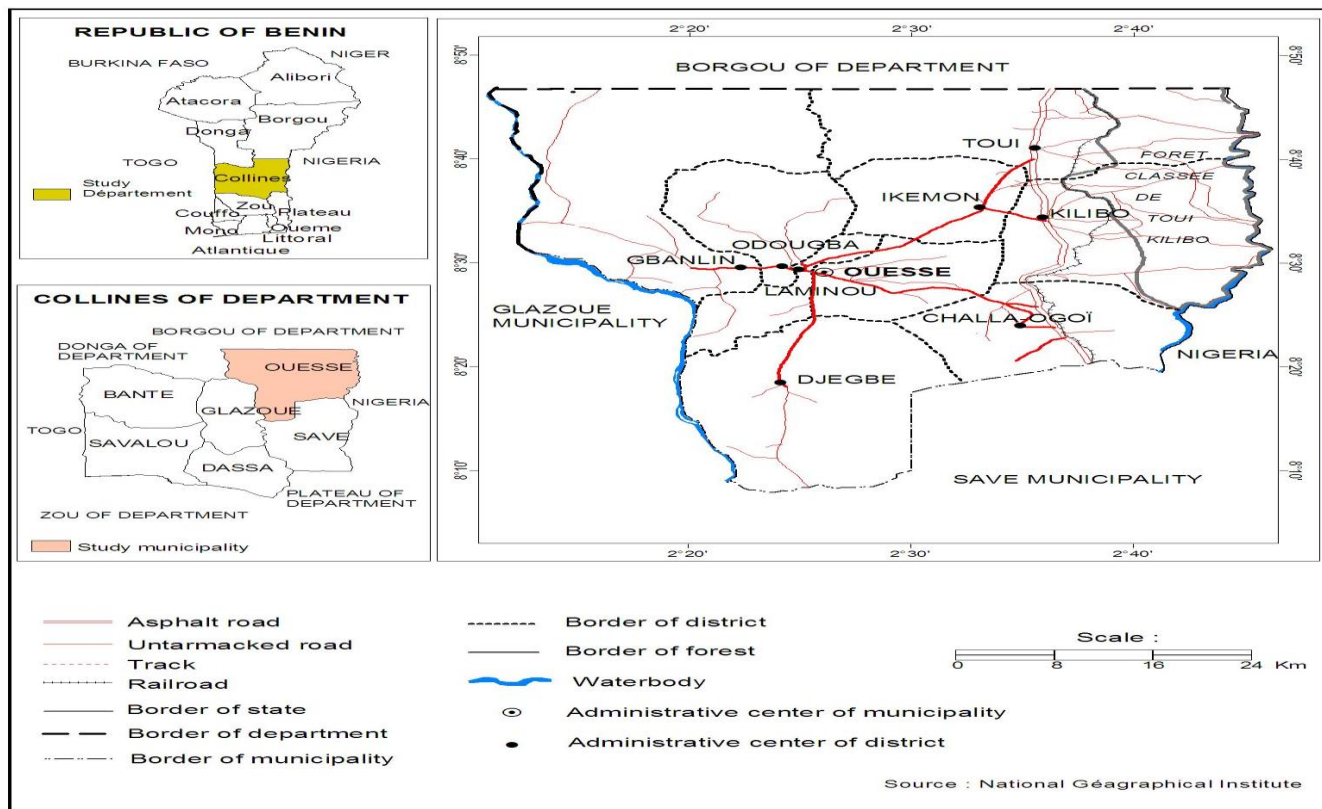


Figure 1: Study area

Located between 8 ° and 8°45 ' of North latitude and 2 ° and 2°10 ' of longitude, the municipality of Ouèssè lies in the Collines department. It extends between Okpara in the East and Ouèmè in the West over a surface of 3200 km² that is 2.56 % of the national surface. It shares its borders in the North with the municipality of Tchaourou, in the South with the municipalities of Savè and Glazoué, in the West with those of Bantè and Bassila and in the East with the Federal republic of Nigeria.

II. MATERIALS AND METHODS

2.1- Materials

Several tools were of use for the collection of data. That is:

1. Questionnaires were sent to the populations, the local authorities and to the actors in charge of the resource water management in order to collect the information relative to the physical, human aspects, the hydraulic infrastructures and the strategies of resolution of the problems connected to their municipality;
2. A guide of interview that allowed us to collect the information relative to the geographical, demographic and organizational aspects. It was sent to the local authorities and to the people in charge of the resource water management in the municipality;
3. A guide for observing, it is the table which allowed us to establish the type, the accessibility and the frequency of attendance of the hydraulic infrastructures on the ground;

4. The digital camera allowed us to take pictures of the various types of hydraulic infrastructures present and water supplies in the whole of the municipality;
5. The Global Positioning System (GPS System) allowed us to geo-locate the hydraulic infrastructures of the municipality.

The collection of the information on the ground required appropriate methods.

The sample was determined by rational selection. This sampling was made by taking into account the districts which have more hydraulic infrastructures and are endowed with at least two thousand (2000) households. For that purpose, the establishments of Ouesè center, of Toui and of Laminou were chosen. As for villages, the selection criteria were based on the village which had a large population. Thus, Ouessè, Toui and Laminou centers were targeted. The management committees of water sources (MCWS) and the households were held being supported by the local elected representatives according to the following criteria:

- Committees having served at least three years of management (Presidents, secretaries, treasurers)
- The committees of the nfrastructures in breakdowns
- The agents
- The big households

In all, two hundred and thirty seven (237) households enrolled in the investigation represent 10 % of the number of considered households. Moreover, three (03) intellectuals and three (03) resource people were investigated. In respect of the local politico--administrative authorities, nine (09) people were investigated. In the city hall, interviews were carried out with the Chief of Technical Department (TD), the Head Department of the Local Development and of the Planning

department (DLDP), of the Head Office of Information, the Communication, the Archives and of the Documentation (SICAD) and the Organizer of Territorial Development (ODT) on one hand and the structure provider of the Water sector of the municipality (SIS GRADEC – NGO then the Water Service of Dassa and Collines on the other hand.

The size of the sample was determined by the formula:

$T = m \times f$ with T =size of the sample, m =number of households, f = rate of poll fixed at 10 %.

Table 1 shows the total staff of the households investigated per village.

Table 1: Households investigated per village and visited departments.

Districts	Villages	Total number of households	Number of investigated households
Ouessè	Ouessè centre	729	73
Toui	Toui centre	887	88
Laminou	Laminou	761	76
Different persons interviewed at the district level			
Head of districts		3	3
Members of district council		3	3
Head of village		3	3
Elders		-	3
Resource persons		-	3
Departments visited for investigations			
Head of the Technical Department of the City Hall			1
Head of the Local Development and Planning of the City Hall			1
Head of the Information, Communication, Archives and Documentation Department of the City Hall			1
Structure provider of the Water sector of the municipality			3
Water service of Dassa			3
Total			261

Source: Ground work, October 2013

In order to complete this study, several methods were used. That is:

The direct observation: which consists in looking for and identifying the real information on the ground connected to the theme. This was conducted through the visit of certain infrastructures followed by taking pictures.

The accelerated method of participative research (AMPR): it allows us to have a better knowledge of the conditions and the problems of the populations.

The method of Focus Group: which consists in collecting the point of view of the population on a given problem and in creating a relaxed atmosphere where every participant expresses freely his opinion on a raised issue. In all six (06) meetings were organized among which two (02) per chosen village.

The choice of these methods lies in the fact that they have the advantage of tackling the real issues the actors and the beneficiaries and the contributions of the municipality. So is it question of identifying together with these various actors the adequate solutions with the aim of the resolution of the issues.

2.2 - Data processing and analysis

After tabulation of the collected data they were processed using Word, Excel and Arc View software.

III. RESULTS

3-1-Drinking water infrastructures in the municipality

Like the municipality of Collines, Ouessè is at a great disadvantage due to its hydrogeology of particular type, which increases the difficulty of access to the drinking water (SDAC-Ouessè). One hundred and twenty-five drillings were counted with manual pumps among which 49 are broken. Three (03) Rustic Water conveyances for community exploitation with 50 fountain- borne (FB) were added these drillings and in limited capacity installed in Kilibo, Toui and in the Vossa-Tosso-Gbanlin city. In spite of all the efforts of management by the AUE at the level of Drinking Water conveyance in Gbanlin and Kilibo, difficulties connected to the maintenance and debt collection of consumption continued. Table 2 presents the distribution of the hydraulic infrastructures of the Municipality of Ouessè and the rate of coverage.

Table 2: Distribution of hydraulic infrastructures in Ouessè Municipality

Arrondissement	Taux de dessert	Nb FPM en panne	DPM	MW	RWC	L F
Challa-ogoi	37.80%	8	15	4	0	0
Djegbe	25.30%	4	8	0	0	0
Gbanlin	70.10%	4	19	0	1	15
Kemon	41.80%	5	13	5	0	0
Kilibo	99.00%	6	7	0	1	27
Laminou	22.40%	6	18	2	0	0
Odougba	34.80%	5	21	0	0	0
Ouesse	36.00%	5	14	1	0	0
Toui	30.90%	6	10	2	1	8
Total :	44.20%	49	125	14	3	50

Source: BDIDGH/DDMEH-08-200

Caption: DPM: drilling equipped with pump with human motricity; MW: modern Well;; LF: limited Fountain; RWC: rural Water conveyance.

In the achievement of Millennium development goals, in November 2013 it was counted 253 manual pump drillings among which 182 were operative and 71 out of order. Three (03) Rustic Water conveyances of community exploitation existing in 2009 were added to that of Idadjo raising the number to four (04) delegated under management contract to farmers with 70 fountain- bornes (FB) and in limited capacity. The coverage rate of 44.2 % in 2009 rose to 55.05 % at the end of November 2013.

3-2 Management of hydraulic works of the municipality

Since the organization of the municipal elections in the Republic of Benin in 2002, the municipalities became clients of the hydraulic infrastructures for the supply of drinking water and distribution on its territory regarding the area strategy, according to the regulations and the current national standards. The municipality is in charge of setting hydraulic infrastructures, supply and distribution of drinking water. The municipality exercises its powers in accordance with area strategies. This strategy was revised again in March 2005 while taking into account once more the current context of decentralization, Millennium Development Goals for (MDG). One of the new orientations of the sector is the delegated and professionalized management of the hydraulic infrastructures. Thus in order to guarantee the sustainability of the construction work, the municipality enforces compliance with directives at the local level to maintain the viability and the sustainability of construction work. It ensures audit command, enforces compliance with directives for setting prices and the revision of level of fees, as well as for control of the projected plans. Thus water conveyances are managed by leasing to professionals by the City hall under contract. Nowadays, according to the option of management chosen by the municipality, the AEV is managed by farmers under management contract. The cost of m^3 of water is sold with 450f or 15F CFA per basin of 35 liters. The amount of the fee for the renewal and extensions fund is fixed to sixty five (65) F CFA by m^3 on all of m^3 produced. That of charge contributed to the municipality budget is fixed to twenty (20) F CFA by m^3 on the whole of m^3 produced and paid in the collection receipt. It is noticed that at AEV level the water is sold for Twenty (20) F CFA per basin of 36 liters in order to facilitate access. With respect to the drillings endowed with a pump with human motricity (PHM) the management is made under contract through the delegates proposed by the village chiefs via the district leaders of the municipality. At the level of the simple construction work, the basin of 36 liters is sold to 10 FCFA. The management fees are fixed infrastructure by infrastructure and individually according to the supply and the geographical position of the infrastructure. The municipality also signed service contracts of the PHM construction works with the repair agents established in economic interest groups (EIG). This was done after the study and the strengthening of their capacity. In the municipality the water of the modern wells is not sold as in the case of other works. Figure 2 shows the drinking water supply.



Figure 2: drinking water supply at the level of a simple work in Lakoko.

3-3 Method of Management of the simple construction works
According to the municipal Order N ° 4I / 005 / C-O / SG-SAG of December 30th, 2008 referring to the adoption of the management means of the simple hydraulic infrastructures (MHI), following articles were enumerated:

Article 1: the management of the simple hydraulic works will be entrusted to one private contractor who will be recruited after a call notice for tenders.

Article 2: the committee management members of the current water sources can also tender.

Article 3: in the distant localities, the management of the infrastructure will be entrusted to physical persons to be chosen in the aforementioned localities after introducing competition.

Article 4: the idea to attribute the management of the simple construction works (FPMH) to the farmers of the conveyances of rustic water (AEV) was rejected.

3-4 Method of management of the complex construction works

The options of lease of the complex construction works nationally retained by HEAD OFFICE, GENERAL MANAGEMENT of Water via MMEA are:

1. Contract tenant: delegation by the municipality to a tenant
2. Tripartite Contract: tripartite Contract municipality-association of consumers and -tenant
3. Contract production - distribution: delegation by the municipality of the production to a tenant and the distribution to an association of consumers.
4. Contract association: delegation by the municipality in an association of consumers.

The Municipality of Ouèssè opted for the delegation of the AEV to a tenant, the first option seems better welcomed in the effective management of infrastructures.

3-5 From community management to professional management

The passing from community management to delegated management of the hydraulic infrastructures of Ouèssè municipality of according to the territorial strategy of the Drinking Water supply was a concern for the municipality. There is poor community management where out of 500 simple construction works diagnosed in Collines department, 76.99 % of the CGPE generally are failing among which 78.94 % in the municipality of Ouèssè in particular. (Impact Plus, 2006)

The municipality of Ouèssè playing a role of contracting authority has to exercise its powers in compliance with the territorial strategy. Thus the community management which was made by the management committees of Water sources (CGPE) is neglected to the detriment of the professional management. According to the methods of management adopted by the municipality, the construction works are entrusted to natural persons chosen in localities after introducing competition. This phase precedes different sessions of raising awareness organized by the municipality in association with the Water Service of Dassa and the Structure of Social intermediation of the municipality. These sessions call on to the population in this particular case the management committees of water sources (MCWS) for their appropriation of the new approach of management regarding the hydraulic infrastructures. Initially the professional

management was rejected by the community as a result of conflicts of interests raised among administrators who considered themselves owners of the infrastructures through their contributions in the initial investment. Concerning the complex construction works managed by the AUE, with the poor management obviously uncovered by the population, the delegated management was facilitated. The active participation of the population had its effect on both AEV the municipality owned among which those of Tosso-Vossa Gbanlin and Kilibo which were managed by the AUE. At present two new AEV settled in Toui and Idadjo increase the coverage rate of water. The four AEV of the Municipality of Ouessè by calls for tender are all given to farmers under management contract. Picture 2 illustrates the state of some simple construction works managed by the CGPE.



Figure 3: Simple construction works out of order and abandoned by the Management Committee of Water sources. Shooting: SEWADE, November, 2013

Figure 3 shows two simple construction works presently out of order and abandoned due to the lack of means for repair in the Gbanlin and Ouessè villages.

3-6 Professional management

Today, in the achievement of the professionalization in the management of the municipality water infrastructures, the decrease of the inhibitive actions of the population start being noticed further to the understanding of some advantages borne in the sector of the Drinking Water supply. Thus contractors are proposed by the population through common consent with the Village chiefs via the District Leaders. The proposed contractors have sessions of exchange on the clauses of the management contract of the FPM. The foci are among others responsibilities of the contracting actors, the municipality and the delegation. The annual fees to be paid

for the collection receipt of the municipality are fixed on the basis of analyzing the state of the infrastructures and the various maintaining responsibilities of a FPM construction work regarding setting the sale price of water. The maintenance of FPM construction works is displayed over four sectors among which the preventive maintenance, the major repairs and the rehabilitation which are within the competence of the municipality and the small repairs are for the contractors.

The main challenges stressed by the contractors are connected to the management are among others:

The increase of the fees which do not reflect the current reality of the receipts of water management

2. The lack of sale of water at the level of certain farms
3. The low size s of the population owed to the abandonment of the agricultural areas by the farmers due to the impoverishment of farming land
4. The presence of the other sources of supply as streams, wells and the AEV
5. Providing care and support for water sellers
6. Responsibilities of the agents for the small repairs

Figure 4 presents two types of work regarding water supply



Figure 4: water supply by the community in a big agglomeration

Shooting: SEWADE, November 2013

Figure 4 shows the simple construction work of a big agglomeration abandoned for a big well. An alternative source of water serves the community to the detriment of the hydraulic infrastructures.

3-7 Difficulties connected to the delegated management of the hydraulic infrastructures

The problems of the professional management of the hydraulic construction works in the municipality of Ouèssè are more connected to the management of the social unrest observed at the level of some opinion leaders who sometimes reject the proposed contractors and the working delegation. Besides, the noncompliance with the clauses of the management contract, the refusal by certain administrators to handle the maintenance expenses (small repairs), the worrying silence of municipal authorities facing the indelicacy of certain administrators or opinion leaders. The clauses of the contract to be respected are among others the payment of fees and maintenance of the infrastructures. The approach is to put all the infrastructures under management contract. In spite of the low receipts generated by certain infrastructures due to their geographical situations compared with the population, their contracts are signed. Thus the fees of the simple infrastructure vary from thirty thousand (30 000) to hundred and ten thousand (110 000) CFA francs and depend their maintenance fees covered by the municipality. The bearing of the costs connected to the maintenance represents a problem for the administrators. The major repairs which are within the competence of the municipality are at present pre-financed by the contractors. The expenses of the pre-financings made by the agents are deducted fees and the rest paid in the collection receipts. If the administrators paid fees before certain possible breakdowns, the repair is fund on the next fees to be paid.

These inconveniences are observed due to the lack of consideration within the municipal budget of the repairs of the hydraulic infrastructures, especially the FPM. Fees paid by the contractors in the collection receipt are used for other purposes because of the single municipal cash register. The municipal revenue supplied on technical and financial support by the Partner of Collines Water Department at present is exhausted. The administrators for certain breakdowns are obliged to make travels towards private points of sale outside the municipality for the purchases of spare parts. It is important to notice that in this case the municipality recommended the repairing specialists of the infrastructures for the diagnosis. This diagnosis will allow us to know the real need in spare parts in the case of the simple construction works within the municipality, the purchasing cost and being able to budget the expenditures into the municipal budget. The delegated management of the complex construction works goes well but that of the simple construction works meets with some imperfections the municipality is committed to solve for the achievement of their objectives.

3-8 Improvement perspective of the delegated management

With regard to the various reports and observations, the following suggestions are proposed by taking into account axes of investigation on the ground:

1. The regular holding of the Municipal Water Committee meetings for more reflections of development in the sector of drinking water and of the increase rate of coverage within the municipality.
2. Strengthen the monitoring system of infrastructures by the elaboration of the annual reports concerning the complex works by the farmers and the regular management control.
3. The application of the 1st article of the municipal Order N ° 4I / 005 / CO / SG-SAG from December 30th, 2008 which stipulates that the management of the simple hydraulic works

will be entrusted to a private operator who will be recruited after a notice call for tenders.

4. Strengthen the dialogue between municipalities, administrators, community and water department to clarify on one hand the new roles allotted to every actor, and on the other hand raise awareness of the consumers of drinking water on the duties and rights in the current context, to avoid the unrest and the denial by the community of the contractors proposed by the local elected representatives in the delegated management of the simple construction works;
5. Continue in the initiative of repairing all the hydraulic infrastructures that are out of order and abandoned by the municipality in order to win the trust of the skeptical persons in the delegated management.
6. Supply the municipal budget with revenue, avoid its exhaustion so as to allow the timely repair on one hand and slow down the trips of the repairers towards other point of sale far from the municipality.
7. Raise more awareness about hygiene and purification through an effective and steady communication.
8. Continue in the same initiative of systematic closure of the non-delegated infrastructure in order to stimulate in the community the management of water infrastructure through delegated approach.

IV. DISCUSSION

The study carried out in the Municipality of Ouèssè showed that the method of delegated management of hydraulic infrastructures reveals no character of sustainability. The same report was made by Boko (2009) who proved that the effective responsibility of the community populations is one of the major conditions to increase the chances of success of a development which cannot either administered, or imposed because we do not develop, but we develop ourselves. According to him, among the main problems which slow down the basic development is the water issue. According to Adomou (2008) , it would be sensible to establish hydraulic infrastructure at every water point in the different municipalities and then to signe with the managers clear contract documents stipulating their rights and obligations and take messures to limit incremental costs before envisaging the professionalized management which will consist in recruiting qualified administrators. Anyway, the professionalization of the department water supply must be understood as a process and not a panacea imposed once and for all in the haste.

According to Odoulami (1999), the weak coverage of the distribution networks and the abolition of fountain borns make the majority of the populations to consume water of doubtful quality.

Also, she reported that the demographic growth and the proliferation of the activities in big cities compromise more and more the good quality of water. Besides, Allomasso (2010) explained the impact of the activities on the resource in water and described the potential sources of conflicts and the developed communitarian strategies for their resolution. He finished by giving responsibilities the GIRE for its active contribution to satisfy the multiple objectives set. Kpoyin (2006) reported the institutional deficiencies in the water resources management and suggested the implementation at

the level of the city hall of a special technical department for drinking water, the strengthening of skills among the elected representatives and the agents of city hall and the valuation of the available human resources.

V. CONCLUSION

The community management of the collective infrastructures represents a major challenge within the local authorities where actors' action in the divergent interests creates and activates situations of conflicts. Facing these situations, the municipal authorities supported by Technical and financial Partners opt for communalization of these infrastructures in compliance with legal texts on the decentralization in Benin. But two logics are in confrontation on the ground. On one hand, the municipal authorities opt for the total exclusion from communities taking into account the management of the construction works in order to delegate the management of the aforementioned services to private sector. On the other hand, the community which is co-owner and recipient of the infrastructures, who claims the whole property right on the infrastructures opposes the communalization but remains open to the joint management. It is clear that the community management showed its limits. Furthermore, it does not guarantee the sustainable access of communities to drinking water but also it does not allow us to release the profit margins in order to assure the extension of the services towards other communities. Instead, in the era of the decentralization which advocates the participative management, the method of management which guarantees the durability has to be made on no account by excluding co-owners communities and recipient of the construction works. The various actors will thus have to hold a whit of power and responsibility. Only the convergence of new dynamics of local governance can ensure a sustainable management in order to induce prosperity and local development.

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