PARTICIPATORY PROCESSES IN WATER GOVERNANCE IN SENEGAL: THE CASE STUDY OF THE ECOPAS PROJECT

Sergio Galletta[1], Hajare Mouhoub[2], Federica Viola[2], Cheikh Abdoul Ahad Mbacké Ba[3], Momar Diongue[4], Riccardo Mangione[5], William Foieni[6] and Federico Perotti[7]

[1]Project manager, Hydroaid, Water for Development Management Institute, Turin; sergio.galletta@hydroaid.it
[2]Master's students at Area and Global Studies for International Cooperation(AGIC), University of Turin; federica.viola754@edu.unito.it; hajare.mouhoub@edu.unito.it
[3] Lecturer in Human Geography/Planning, Cheikh Anta DIOP University, Dakar, Senegal /University of the Witwatersrand, Johannesburg, South Africa; cheikh25.ba@ucad.edu.sn
[4] Assistant professor in Urban Geography, Institut de la Gouvernance territoriale et du Développement local, Cheikh Anta DIOP University, Dakar, Senegal; momar.diongue@ucad.edu.sn
[5] Independent Researcher; r.mangione@live.it
[6] Former Ecopas project coordinator; william.foieni@gmail.com
[7] Development expert, CISV; f.perotti@cisvto.org

Abstract

Giving that participation represents a crucial element in any model of environmental governance today, the article - after describing participatory processes, related to the management of water resources and to the international development cooperation, and introducing water governance in Senegal - deals with the features of the process implemented by the Ecopas project in four municipalities in the Dakar Metropolitan area. The field of application is the governance of environmental resources with a special focus on water resources. The participatory processes accompanied all the activities carried out by Ecopas and in particular they focused on the development of water and sanitation guidelines, the Atlas of issues and challenges of environmental governance, and the territorial pact for environment conservation and promotion, which was signed by the municipalities targeted by the project. The guiding approach was the structured dialogue, which promotes in an organised way the active participation of local communities and Civil Society Organisations (Cso), and their interaction with policy makers.

Essendo la partecipazione ormai un elemento cruciale in qualsiasi modello di governance ambientale, l'articolo - dopo un'introduzione sui processi partecipativi nella gestione delle risorse idriche e nella cooperazione internazionale allo sviluppo, e sulla governance dell'acqua in Senegal - analizza le modalità di realizzazione dei processi partecipativi nel campo della governance delle risorse ambientali e in particolare delle risorse idriche, a partire dal progetto Ecopas in quattro comuni della periferia di Dakar. I processi partecipativi hanno interessato tutte le attività svolte dal progetto Ecopas ed in particolare quelle riguardanti lo sviluppo delle linee guida in materia di acqua e servizi igienico-sanitari, l'atlante dei temi e delle sfide della governance inclusiva delle risorse ambientali, e il patto territoriale per la conservazione e la promozione dell'ambiente firmato dai comuni dell'area di intervento. L'approccio guida utilizzato è quello del dialogo strutturato, che promuove in modo organizzato la partecipazione attiva delle comunità locali e delle Organizzazioni della Società Civile (Osc) e la loro interazione con i decisori politici.

Keywords

Urban water governance, Senegal, participatory processes, international cooperation for development

Introduction

This article aims to present how the participatory processes in the field of the governance of environmental resources were implemented in the Ecopas project carried out in Dakar, Senegal. It is based on the work *Les Processus participatifs de gouvernance environnementale en Afrique: expériences locales pour des perspectives globales*[1], financed by the Italian Ministry of Foreign Affairs and International Cooperation and which is the result of the collaboration of Hydroaid - Water for Development Management Institute, the Ngo Cisv (Comunità Impegno Servizio Volontariato), the University of Turin - Cisao (Interdepartmental Center for Research and Scientific Technical Cooperation with Africa) and the Cheikh Anta Diop University of Dakar - Igt (Institute of Territorial Governance).

This article shows how the method of structured dialogue was applied to initiate and support the participatory process in the Ecopas project. The implementation of this method has proved to be an effective way to improve the capacities of Civil Society Organisations (Cso) and local authorities, and enhance their cooperation in order to face the challenges arising from the water governance in a centralised system such as the Senegalese one.

Participatory processes in the field of water governance and international cooperation

The actual beginning of the application of participatory approaches to environmental governance dates back to the early 1970s, when the failure of the technology transfer approach, ideated in the 1960s, was clear (Grassini, 2019). The 1977 United Nations Water Conference, held in Mar del Plata, Argentina, was the first international water-focused initiative, and it was also the first context in which participation was proposed as a potential solution to water resource management problems (Woodhouse and Muller, 2017). The change of perspective began with the inclusion of communities in the decision-making process around water resources management, evolving in community management during the 1980s and the 1990s (Woodhouse and Muller, 2017; Grassini, 2019). Despite the fact the term community is a basic one in social sciences, its definitions are usually vague and varied, and sometimes they depend on the personal interpretation of the concept. The collective life and participation in common activities, reinforced by shared symbols, push us to define community in

[1] Published in September 2021, it is available at https://www.esteri.it/mae/resource/doc/2021/08/hydroaid_processi_partecipativi_nella_governance_ambientale_in_africa.pdf

general terms as a group of people interacting in a defined geographic area, sharing common values, beliefs or behaviours and a common communication system (Morris, 1963; Brint, 2001).
Being a non-scientific and very general term, community in scientific contexts needs to be accompanied by other specific terms (Morris, 1963): for the purpose of our work, when we write about community we refer to its definition in the broader context of community involved in a participatory water governance approach.

In the early 2000s, community management became the standard approach for water resource management in sub-Saharan Africa, particularly in rural areas. This approach is based on the strong inclusion of the involved community in the implementation of projects concerning the establishment of water supply systems, as well as on its responsibility for their operation and maintenance, and on its contribution to the systems' costs and the payment of the fees (Harvey and Reed, 2006). During this period, especially in the Second World Water Forum of 2000 held in The Hague, water started to be considered as a scarce resource requiring fundings, and therefore it began to be treated as an economic good. This consideration of water has enabled the application of market paradigms to water governance (Jaglin, 2002; Woodhouse and Muller, 2017). The market-based approach lacks the flexibility to find a fair compromise between the right to access drinking water and the principle of paying for a service; this led to the emergence of an informal water economy in several countries, prompting some communities to use water from unreliable sources, potentially dangerous for their health (Jaglin, 2002). According to the United Nations, to solve all these problems it is necessary to undertake actions at the community level (Un, 2019; Un, 2021), because the increase in funding alone is not enough to cover the costs of managing and developing water services. Indeed, in recent years, the Official Development Assistance (Oda) in the context of water resources has been low: over the period 1995-2008 the sector received less than 4.0% of Oda for sub-Saharan Africa (Salami et al., 2014). Recently, many governments in low-income countries have shifted funds to manage the Covid-19 pandemic, reducing funding for essential services and projects, including those in the Wash (Water, Sanitation and Hygiene) domain (Jmp, 2021).

Communities have been identified as a missing element in development and the failure of many initiatives has been attributed to the inability of actors involved to create and implement projects tailored to local problems (Hickey & Mohan, 2004). The idea behind this change was centred on the necessity to try to co-create effective systems to solve most of the problems related to water management, taking into account the specificities of each community. Governments and international organisations, operating in developing countries, have begun to model an approach that values the opinion and role of citizens, focused on their needs (Hickey & Mohan, 2004). This is an important change of mentality, replacing the passive intervention of international institutions and development

agencies, with the active involvement of beneficiaries participating in development projects. The Oecd adoption of the Principles on Water Governance in 2015 marked the definitive change of perspective in participatory water governance: the Principles underline that water-related crises are crises of governance and therefore water governance systems should be designed according to the challenges they are required to respond (Oecd, 2015) and draws attention to the importance of including stakeholders, especially communities, in all phases of water management processes (Oecd, 2015).

Today participation in the water sector is mainly based on the theory of social learning, according to which human behaviour is influenced by the interaction with others and the efforts to maintain a certain social image (Grassini, 2019). In this context, a participatory approach to water governance can increase and facilitate populations' access to infrastructures, but it can also be effective in the management of bad payers behaviour thanks to the sociological concept of 'face'. In addition, the inclusion of local communities in the management of water resources foresees that the projects' implementation is based on the local needs and traditions, since each community requires a tailored approaches to participation (Botting et al., 2010; Abelson, 2006). The main goal of participatory approaches is therefore to involve local populations in the development of projects intended for them, pushing them to actively participate in their own change: it is the process through which the involved stakeholders «influence and share control over priority setting, policy-making, resource allocations and access to public goods and services» (Tikare et al., 2001: 3). In other words, it aims to give communities a voice in their own development. In particular, the participatory approaches applied to water governance in sub-Saharan Africa have three main objectives: to meet the demand of the population more effectively, to promote a flexible method centred on social learning and, ultimately, to guarantee a long-term commitment of the populations in the management of the systems (Jaglin, 2004).

Although participatory governance offers the possibility of a transformative change, much remains to be studied about how these changes work, for whom, and with what social and ethical outcomes (Gaventa, 2004). Because of this, participatory approaches have been criticised from different points of view. Above all, participatory governance is community-based, and it demonstrated to be more effective with small groups of people; however, particularly in the context of water resources management, its purpose is to solve a problem that is widespread, especially in sub-Saharan Africa, and so participatory approaches are generally applied to larger contexts than small communities (Woodhouse and Muller, 2017). In addition, many people are engaged in other jobs, or they live far from the water supply system, and, consequently, they do not have the time or possibility to be involved in water resources management. Thus, the presence of a supply system does not necessarily encourage the community to fully engage in its conservation. Even the poverty rate of the community influences the success of participatory governance, as the provisioning systems must be controlled and maintained

over time also from an economic perspective (Harvey and Reed, 2007). In other cases, participatory governance has been used as a pretext to shift responsibility onto communities for mismanagement of resources, while decentralisation associated with community participation should improve their accountability, as it is a practice that empowers local governments and guarantee the efficiency of the offered services (Woodhouse and Muller, 2017; Harvey and Reed, 2007; Pozzobon, 2019; Gaventa, 2004; Jaglin, 2002; Foster, 2010).There is still an insufficient understanding of how power actually works within the framework of participation, and therefore on how affected communities can be empowered, because the largest part of development projects operators involved in social change see participation as a technical methodology rather than an accountability policy. Such a "tyrannical" approach to power could bring to a depolarization of the real problem, reducing it to the tendency of placing the blame for the malfunctioning of a project on the shoulders of the community (Hickey and Mohan, 2004).

Participatory approaches must be certainly studied deeper because of their complexity and their involvement at the social, political, and institutional level: beyond the many criticisms of participation, the inclusion of populations in the implementation of projects aimed at solving problems on the territory has been found to be effective and useful, by sowing a feeling of collaboration, ownership, and responsibility within the communities.

Water governance in Senegal

Senegal is a West African country, with a population of 16,705,608 in 2020 (RS/MEF/ANSD, 2020). More than half of the population (54,8%) resides in rural areas, with significant regional disparities. The Dakar Region sees a concentration of 23% of the population in an area that is 3% of the national territory (550 km^2).

The country has significant potential in both surface water and renewable groundwater resources. The freshwater resources used account for less than 10% of the available reserves. In 2020 service coverage was about 95% in urban and 75% in rural areas (overall: 85%) (Jmp, 2020).

As regards national water policies of Senegal, the International Drinking Water and Sanitation Decade of the 1980s determined a turning point. During that period, several institutional and legislative reforms were introduced to improve the governance of water resources and the quality of service. The current institutional setup is the result of a long process from the colonial period to the present day, where it is characterised by the privatisation of the urban water supply management system in 1996.

Significant results were achieved during the 2005-2015 decade, marked by the implementation of the *Programme d'Eau Potable et d'Assainissement du Millénaire* (Pepam, Millennium Drinking Water and Sanitation Programme) in terms of defining policies and strategies, mobilising financial support and building hydraulic infrastructures. However, these efforts have not yet made it possible to meet the needs for drinking water supply and service continuity.

The *Lettre de Politique Sectorielle de Développement* (Lpsd, Sectoral Development Policy Letter) is the most recent reference document of the Republic of Senegal stating its vision for the water and sanitation sectors for the decade 2016-2025. It is in line with the Dublin-Rio Principles, at the heart of the concept of Integrated Water Resources Management (Iwrm), and with the African Charter on Values and Principles of Public Service and Administration. Also, this policy framework takes into account the Un Agenda 2030 of Sustainable Development Goals (Sdgs), the guidelines of the West African Economic and Monetary Union and the *Emerging Senegal Plan* (Esp), providing the reference framework for the country's economic and social development (RS/MHA, 2016b).

In accordance with the main legislative sources regulating the sector, the central State is responsible for water supply and sanitation services. The legal status of water resources is provided by the *Code du Domaine de l'Etat* (State Property Code) of 1976, whereas the *Code de l'Eau* (Water Code) of 1981 sets out the conditions for the use, preservation, and protection of water. The latter is currently undergoing a review process aimed at promoting Iwrm and improving civil society participation in the sector. Besides, the organisation of the public service of drinking water and collective sanitation in urban and rural areas was established by the *Loi sur le Service Public de l'Eau Potable et de l'Assainissement* (Spepa, Law on the Public Drinking Water and Sanitation Service) of 2008. Finally, the regulatory framework is complemented by the *Code de l'Assainissement* (Sanitation Code) of 2009, which provides the specific tool necessary for sector management and allows the introduction of the *polluter pays* principle into the legislative framework. The Code has made it possible to systematise provisions scattered among the various laws previously regulating sanitation: Water Code, Hygiene Code, Environmental Code, Town Planning Code, Building Code (RS/MHA, 2016a).

Within this system, it is relevant to highlight the reunification of the Departments of Water and Sanitation within the same Ministry that occurred in 2012, which was a major initiative by the Government. It contributed to clarify how to manage public water services, collective sanitation, and how to strengthen Iwrm (RS/MHA, 2017). This initiative was also intended to support the definition and implementation of budgetary and financial reforms. The Ministry of Water and Sanitation is responsible for sector policy implementation. On behalf of the State, it performs the following functions: drafting the legislative and regulatory framework; defining the sub-sector performance

targets; seeking and mobilising funding; defining a pricing system that can guarantee financial viability and the allocation of water resources.

In Senegal, the water sector has two main components: rural and urban water supply. This distinction results in different management methods and institutional arrangements (RS/MHA, 2016b). In urban and peri-urban areas, which are the scope of this article, the new sector policies promote greater involvement of the private sector, with public service delegation contracts or management contracts for drinking water and sanitation services. It may be noteworthy to report that, until the late 1980s, the provision of drinking water in urban areas was based on the model of the national public enterprise (Jaglin, 2012). The State, as a custodian of the general interest, was the operator of public services. The reforms of the 1990s marked the transition towards delegation, and the State retained the role of encouraging and regulating the interventions of diversified actors (foreign operators, public-private partnerships, Ngos…).

Therefore, from the exclusive presence of Sonees (Société Nationale d'Exploitation des Eaux du Sénégal), the number of actors involved in urban water and sanitation provision has increased to three, each of them with specific responsibilities. Namely, there are Sones (Société Nationale des Eaux du Sénégal), a state-owned company (*société de patrimoine*), Sen'Eau, a company under Senegalese law with a majority Senegalese shareholding (55%), and Onas (Office National de l'Assainissement du Sénégal), another state-owned enterprise in charge of managing the sanitation sector. The latter has the status of a Public Utility Company (Epic: Etablissement Public à caractère Industriel et Commercial) (Pezon, 2018).

As for the relationships between the public authorities and the two above-mentioned companies in charge of urban water supply, they are inscribed in the scheme defined by a *concession* contract, a *leasing* contract (*affermage*), and a *performance* contract. *Figure 1* below represents the main contractual relations between the actors involved in urban water supply.

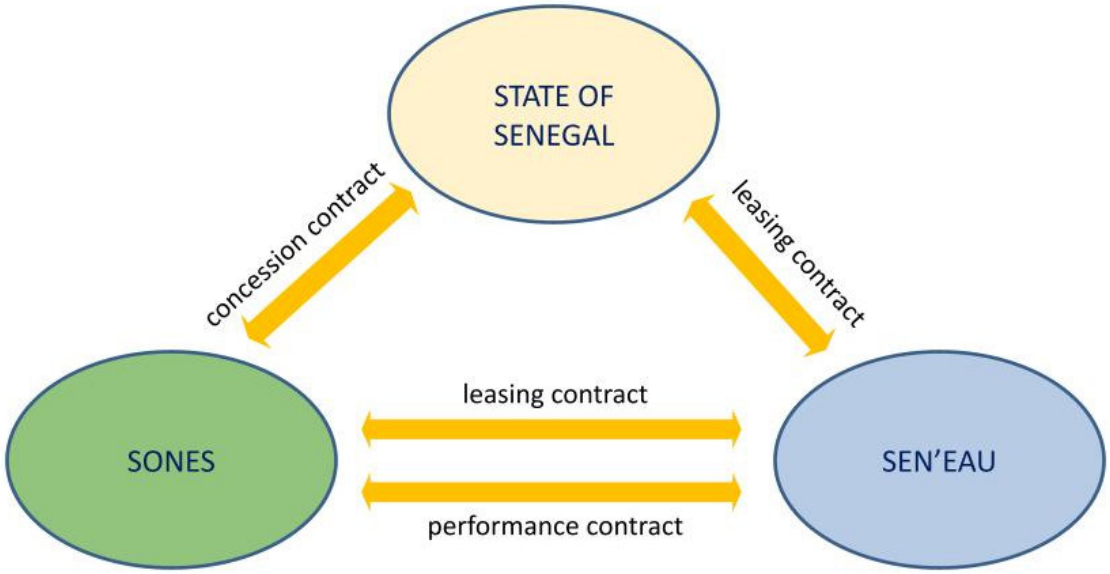

Figure 1. Contractual relations for urban water supply

Sones holds a concession by the State, dated 1996 and running until 2026, with the main obligation to manage supply assets and mobilise investments. The *leasing* contract binds the State of Senegal (leasing authority), Sen'Eau (leaser, *fermier* in French), and Sones (contracting authority for the installations). According to this agreement, Sen'Eau is the delegated private company responsible for operating the public water service (*service provider*). Moreover, a *performance* contract between Sones and Sen'Eau entrusts the former with regulatory functions, such as operations and service quality control, and both companies come under the supervision of the Directorate for Urban Water Supply. It should be noted that from January 2020 Sen'Eau has replaced the previous service provider, Sde (Sénégalaise des Eaux), which performed this function since 1996 (Guéyé, 2012).

Case study: the participatory processes in environmental governance in the Ecopas project

Project's general description

The notion of governance is increasingly used nowadays: applied to environmental issues, governance raises both the question of the mastery of time by the actors and that of the territory in which decisions are made. We can therefore consider that it involves a renewal of the organisation of time and space, political decisions, territories and the actors who inhabit them.

In this regard, a consortium of Senegalese and Italian[2] Ngos, thanks to the financial support of the European Union, implemented the *Projet d'Harmonisation des dynamiques périurbaines pour une Écologie Participative dans les communes de Sam Notaire, Ndiarème Limamoulaye, Wakhinane Nimzatt et Yeumbeul Nord – Ecopas* from April 2018 to April 2021. The four aforementioned municipalities in the departments of Guédiawaye and Pikine are considered the first suburbs of the Dakar Metropolitan area.

Ecopas partners promoted the participation and empowerment of Civil Society Organisations (Cso) through three main pillars: 1) participation and roles of civil society 2) integral ecology principles 3) territorial governance processes. From these three strategic elements, the project proposed a model of cooperation around environmental issues, which was based on the integration of three following main axes: 1) improvement of environmental governance 2) reforestation of 10 hectares on the northern coast of Dakar 3) support and promotion of 130 green micro-enterprises.

Structured dialogue was the approach used: applied with different modalities according to the typology of the actions, it characterised all the strands of the initiative. Developed by the EU, this method aims to improve the effectiveness of public policies by promoting dialogue with citizens and civil society in the design, implementation, monitoring and evaluation of these policies, providing spaces for public exchange between all actors in society.

Structured dialogue is based on the concept of participatory process and on the philosophy of better organising existing spaces for debate and participation rather than creating new ones. It is foremost a method, which has been "institutionalised" at European level mainly in the youth field, but is transferable to any level and for any topic (meetings, conferences, consultations and events). These events promote the active participation of local communities and the Cso in democratic life and their interaction with policy makers.

The Cso panorama in the urban context of Senegal is lively and complex. It represents a crucial aspect of the Senegalese society because of its role as a bridge between the local population and politics. Many Cso are not really structured and active, despite being formally recognized. According to Ecopas experience, Cso leaders often found associations and activate them as soon as an opportunity arises to achieve personal interests or get into politics. Considering all these aspects, in the framework of the project defining the local community in scientific terms - as previously seen - is not an easy issue. For

[2] The Non-Governmental Organisation (Ngo) Cisv (Comunità Impegno Servizio Volontariato) in partnership with Hydroaid - Water for Development Management Institute, Ipsia (Italian Ngo working in the suburbs of Dakar for economic and social justice), Fongs (Federation of Ngos in Senegal) and Sunugal (Socio-cultural association for the co-development of Senegalese immigrants in Italy).

this reason, Ecopas considered as final beneficiaries the local population of the 4 municipalities, while the target, intended as the direct recipients of the project activities, was made up of the leaders of the Cso involved.

In the Ecopas project, structured dialogue was implemented to achieve the first axis of the project, which aims at a territorial environmental policy designed in a participatory way.

The institutional actors and the Cso have undertaken a common path in order to exchange and provide recommendations on environmental issues of the territory, such as food demand and supply, land use, green economy, water resources and vegetation cover (first axis).

This same path also allowed them to plan the areas to be reforested, to sign pacts for monitoring and to commit future extension of the reforested areas with the aim of contributing to the territory protection and adaptation to the consequences of climate change (second axis).

In addition, the maintenance and development of green areas for market gardening was encouraged. This is very useful for the local food production in the framework of a healthy economy and for the conservation of an environment in balance with the needs of the population (third axis).

To achieve its results, and in particular to contribute to the improvement of environmental governance in the intervention area, Ecopas produced several tools and publications. In this respect, and considering the focus on water governance in this article, they will be presented in the following paragraphs: the water resources mapping, the water and sanitation guidelines, the Atlas and the Territorial Pact.

Preliminary actions for knowledge and analysis of the theme: Training and Mapping on Water and Sanitation

The structured dialogue on water resources management was supported by two preliminary phases: a) training on water governance and b) participatory mapping on the state of water resources.
Training on the governance of environmental and water services took place over 6 months (between January and July 2019) through an e-Learning course implemented by Hydroaid and on-site group work on a weekly basis. This activity enabled the Cso representatives, the intervening municipalities and the technical services to better understand the water issues in their municipalities.

In parallel, a study was launched to identify existing water resources and their use. The objective was twofold: on the one hand, the information collected was finalised in the elaboration of a water map, which was integrated in the *Atlas of the issues and challenges of inclusive governance of environmental*

resources in Dakar (Pettenati et al., 2021); on the other hand, this information collected allowed the deepening of the local context and the start of the process of elaboration of the *Water and Sanitation Guidelines*.

A total of 256 households were interviewed about the water issue in their respective municipalities. The survey used the participatory mapping approach, which allowed the emergence of endogenous knowledge and problems not covered by traditional field surveys.

The level of access to water is considered largely acceptable in the Dakar region according to official data, but it hides some disparities among the targeted municipalities.

The difficulty of supporting the Sen'Eau bi-monthly bills and the frequent water cuts have led the poor to resort not only to official connections but also to private water pumping devices. These are mainly *diambar* pumps, low cost hand pumps easy to be installed in shallow wells.

The current water price provides for a social tariff based on the volume consumed - equal to 60% of the full tariff and applied to all private customers up to 20 m^3 for 60 days of consumption - but which ends up penalising the social segment that should protect, i.e. the poorest. This is due to the average high number of members who make up poor households and the practical difficulties of installing sub-meters, which would allow the total volume of consumption of a building to be divided among its units; these conditions lead poor families to pay a higher unit price for water than rich families. The demographic pressure and the lack of equipment mean that the disposal of wastewater and rainwater is increasingly a real problem.

Among all the groundwater parameters analysed in this study, nitrate remains the substance with the most worrying proportions. The Who recommendation of 50 mg/l was set according to the risks faced by the most vulnerable populations, whereas we recorded up to 596 mg/l: this level, mainly linked to the water from septic tanks in the suburbs, is very dangerous for the health of the inhabitants who use the water even for domestic use.

In conclusion, the most urgent problems that emerged were related to the low rate of connection to the sewerage system, the vulnerability of groundwater due to increasing urbanisation and a very limited collective sewerage system, and the high price of drinking water.

Decision-making tools: the Water and Sanitation Guidelines and the Territorial Pact

Considering the situation in the four municipalities concerning water supply and, above all, sanitation, the issue of water and sanitation governance becomes relevant.

In the framework of Act III of decentralisation, water and sanitation sector, is not a transferred competence. In urban areas, this sector, as already seen, is managed by the central level via the Ministry of Water and Sanitation, Sones, Sen'Eau and Onas.

This institutional framework, although very productive from a global point of view, does not allow to fully operationalise the principles of participation at local level. Moreover, on several occasions, the population of targeted municipalities has expressed dissatisfaction about the quality of the service (low pressure, water cuts, high cost of water, lack of access to the network, presence of stagnant water, etc.).

Therefore problems persist due to the lack of a structured, effective and powerful framework to influence decision-making.

The structured dialogue was composed by four main phases: i) Preparation and framing (at the level of the project team); ii) Development of structured dialogue tools (individual interview guides and Pra[3] tools); iii) Implementation of the dialogue (4 focus groups and 4 municipal workshops); iv) Participatory validation of the guidelines (Discussion and pre-validation workshop; Development and finalisation; Final restitution and validation).

These phases are intertwined following the nature of this dialogue exercise. All the activities carried out enabled Cso, local elected officials and members of the administration of the municipalities where Ecopas intervened to interact directly with the Directorate of Water Resources Planning Management, the Directorate of Floods and Onas about the issues of water and sanitation governance. Through several meetings, they exchanged their opinions to reach a strong consensus on strategies to improve water and sanitation governance, starting from positions that were sometimes divergent at the beginning. Unfortunately, Sones and Sen'Eau were absent during the whole process.

The main outputs of this process were a) the diagnostic of the water and sanitation sector, key element for understanding the specific water resources context b) the Water and Sanitation Guidelines, a first basis for local authorities, technical services and Cso to plan in the water and sanitation sector. For more details, please refer to the document *Process and definition of water and sanitation guidelines in four municipalities in the Dakar suburbs*.

The tools produced and the process initiated by Ecopas played a central role in the proposal of the Territorial Pact, a document for action on the environmental policy of the departments of Guédiawaye and Pikine.

[3]Participatory Rural Appraisal

The stakeholders involved (cities, municipalities, technical services and representatives of civil society associations) signed a mutual commitment agreement at the final workshop of the project (April 29, 2021). As a monitoring body for compliance with the pact, the parties agreed to set up a departmental environmental committee, which meets twice a month, to plan and assess environmental policies and commitments in the area. The signature of this Pact represents a good tool for the sustainability of activities and for a common vision: however it is recent and still fragile. The actual sustainability of the actions will be evaluated over time following the use that the different stakeholders will make of the products and methods proposed by Ecopas Project.

Considerations on the participatory methods adopted

As described, the Ecopas project has offered to the local stakeholders the citizen involvement in environmental governance, as suggested by the Eu and Senegalese policies, as a tool for dialogue and cooperation.

One year after the end of Ecopas, we note that the Cso have been continuing the work of monitoring reforestation, while the Water and Forestry Services, technical project partners and representative of the Senegalese Ministry of the Environment, have committed themselves with the City of Guédiawaye to take over the work carried out (in line with the Esp).

Nevertheless, a large part of the filaos strip (52 hectares) was downgraded by state decree on June 2, 2021, to make way for public utility constructions. More than 50 market gardeners who were accompanied throughout the project had to leave their production areas overnight, receiving compensation from the State. It must also be said that this decree was already in place before the start of Ecopas, but it was made operational just after the end.

This last element should not question the positive elements of the initiative.

An important element of sustainability will be the place of the Cso in public monitoring and decision-making spaces: this is evident when the target associations have asked their municipalities to give more space to the environment in their future[4] actions. The municipalities are ideal actors to continue the process of exchange with Cso because, on the one hand, they can take care of the expenses related to the organisation of the meetings and, on the other hand, they can also act as real enablers of the discussions and decisions taken.

[4] In January 2022, communal elections were held in Senegal.

Access to the benefits of Ecopas seems affordable for the target groups in the long term; indeed, tools to facilitate territorial governance (maps, atlas, guidelines, etc.) are available on the web and from stakeholders; reforestation monitoring committees have the duty to ensure the maintenance of current and future plantations, and possibilities were opened to seek means to do so (from municipalities, cooperation, private sector, green micro-enterprises, etc.).

In this respect, the Departmental Council of Guédiawaye has used the Ecopas maps to revise the departmental urban plan, the municipalities have integrated the results of the mapping as well as the water and sanitation guidelines into their Communal Development Plans, while the environmental Cso are discussing with the other Cso of the municipalities of the department of Guédiawaye to expand the Environmental Committee set up by the Project at departmental level.

A central role will also be played by the Water and Forestry Services of Guédiawaye and Pikine who will continue to reforest the Ecopas intervention plots, as seen in these post-project months.

The green micro-enterprises now have more strength as companies but also as part of a network, the Réseau des micro-entreprises vertes de la Banlieue (Remeb, Suburban Green Microenterprises Network), and have the tools to continue to grow and develop, as well as to be a reference and an example for the rest of the population.

The implementation of the structured dialogue methodology made it easier for stakeholders to enter into the dynamics proposed by the project, to take ownership of it and to continue the process after its end. According to the final evaluation and the post-project interviews, this is one of the reasons for the success of the project, as all stakeholders felt that they were involved in the process, both in discussions related to the identified environmental issues and in the implementation of Ecopas actions - always discussed during the proposed dialogue meetings.

The participation of stakeholders in the processes of discussion, decision-making and action has been crucial for the development of the Ecopas project and is fundamental to continue the proposed actions, hoping that a real environmental citizens' movement can emerge also in Senegal, following the example of other important civil society actions appreciated in other parts of the world.

Conclusions

A brief review of the evolution of participatory processes shows that the implementation of participation in development projects have often been the cause of rigid approaches laid down by donors and focused exclusively on the results rather than on the actual needs of local communities.

However, participation can be a solution for Africa, helping communities to develop their own system for water services, but, for the moment, it is not the final solution to water management issues and obstacles.

On the other hand, local communities still face enormous challenges in accessing water services, both in terms of its affordability and financial resources available. As the case of Senegal showed, some shortcomings can also be identified at the government level: despite the different reforms undertaken in the water sector, which show a positive dynamism in public action, all the competencies remain assigned to the central State. This choice results in a severe limitation of participation at the local level, and determines an overwhelming role of the private sector.

Despite some difficulties in involving all the stakeholders of water governance, the Ecopas project achieved the goal of improving the capacity of Cso and local authorities to face the environmental challenges of a rapidly evolving context such as the metropolitan area of Dakar. Encouraging signals of project sustainability are emerging: Ecopas maps as well as the water and sanitation guidelines were integrated into the urban planning tools.

Acknowledgements

The authors acknowledge all the local stakeholders involved in the Ecopas project and in particular the Cso and the local authorities of Sam Notaire, Ndiarème Limamoulaye, Wakhinane Nimzatt and Yeumbeul Nord.

References

Abelson J. (2006), "Assessing the Impacts of Public Participation: Concepts, Evidence and Policy Implications", Canadian Policy Research Network, Centre for Health Economics and Policy Analysis, McMaster University, Ottawa.

Agence Nationale de la Statistique et de la Démographie [Ansd] (2013), General Census of Population and Housing, Agriculture and Livestock (RGPHAE).

Aguiar L. (2009), "Impact of recent climate variability on the Niayes ecosystems of Senegal between 1950 and 2004", D. thesis in Environmental Sciences, Université du Québec, Montreal.

Ba C.A.A.M, Foieni W., Galletta S., Mouhoub H., Ndiongue M., Sarr N.F.M., Viola F. (2021), "Les Processus participatifs de gouvernance environnementale en Afrique: expériences locales pour des perspectives globales", research financed and published by the Analysis, Programming Statistical and Historic Documentation Unit of Italian Ministry of Foreign Affairs and International Cooperation.

https://www.esteri.it/mae/resource/doc/2021/08/hydroaid_processi_partecipativi_nella_governance_ambientale_in_africa.pdf

Botting M. J., Porbeni E. O., Joffres M. R., Johnston B. C., Black R. E., Mills E. J. (2010), "Water and sanitation for health: The impact of foreign aid", Globalisation and Health, vol. 6, issue 12, pp. 1-8.

Brint, S, 2001. "Gemeinschaft Revisited: a critique and reconstruction of the community concept", Sociological Theory, vol.19, issue 1, pp. 1-23.

Burini F. (2012), "Mapping and participation for environmental cooperation: the field and the restitution of traditional knowledge in sub-Saharan Africa", Annales de géographie, pp. 487-512.

Calori A., Tagliente G., Bouchat C., Nene D. T. (2020), Atlas of Environmental Resources in the Suburbs of Dakar, financed and published by the European Union in the context of the project ESTà - Economia e Sostenibilità.

Diallo F. B. (2015), "Dynamique socio-spatiale du maraîchage dans une zone humide urbaine : l'exemple de la Niaye de Pikine, Sénégal" (Master's thesis), Institut des Sciences de l'Environnement, Université Cheikh Anta Diop de Dakar.

ECOPAS Project Output (2021), *ECOPAS* Project Systematisation Document, ARCO LAB and CISV (for info: hydroaid@hydroaid.it).

El-Gack N. (2007), "Participatory Approaches to Development: An Analysis of the Experiences of Development Project in Sudan" (Master's thesis), Massey University: Palmerston North, New Zealand.

Foster V., Briceño-Garmendia C. (2010), Infrastructures Africaines, une transformation impérative : vue d'ensemble, Banque internationale pour la reconstruction et le développement/Banque Mondiale : Washington, DC.

Gaventa J. (2004), "Towards participatory governance: assessing the transformative possibilities" in Hikey S., Mohan G. (2004), "Participation/From Tyranny to Transformation? Exploring New Approaches to Participation in Development", Zedbooks: New York, pp. 25-41.

Grassini L. (2019), "Participatory water governance between theories and practises: learning from a community-based initiative in India", International Journal of Water Resources Development, vol. 35, issue 3, pp. 404-429.

Guéyé A. (2012), Précarité et services d'eau potable et d'assainissement: les quartiers pauvres de Dakar (Sénégal) à l'épreuve des projets communautaires (Doctoral dissertation), University of Nantes and Cheikh Anta DIOP University of Dakar.

Harvey P.A., Reed R.A. (2007), "Community-managed water supplies in Africa: sustainable or dispensable?", Community Development Journal, vol. 42, issue 3, pp. 365–378.

Hickey S., Mohan G. (2004), "Towards participation as transformation: critical themes and challenges" in Hikey S., Mohan G. (2004), "Participation/From Tyranny to Transformation? Exploring New Approaches to Participation in Development", Zedbooks: New York, pp. 3-24.

Jaglin S. (2002), "The right to water versus cost recovery: Participation, urban water supply and the poor in sub-Saharan Africa", Environment & Urbanisation, vol. 14, issue 1, pp. 232–245.

Jaglin S. (2012), Services en réseaux et villes africaines: l'universalité par d'autres voies ?, L'Espace géographique, 41(1) , pp. 51-67.

Joint Monitoring Programme (Jmp) (2021), Progress on household drinking water, sanitation and hygiene 2000-2020: Five years into the SDGs, World Health Organization (Who) and the United Nations Children's Fund (Unicef), Genève: Swuisse.

Morris, F., 1963. "Toward an operational definition of community", Rural Sociology, vol. 28, issue 2, pp. 117-128.

Oecd (2015), "Principes de l'OCDE sur la gouvernance de l'eau", Réunion du Conseil de l'OCDE au niveau des Ministres, 4 juin 2015.

Output ECOPAS Project (2020), Water Supply and Use Map, Hydroaid (for info: hydroaid@hydroaid.it).

Output ECOPAS Project (2021), Process and definition of water and sanitation guidelines in four municipalities in the Dakar suburbs, Hydroaid (for info: hydroaid@hydroaid.it).

Polyconsulting Ing (1999), Audit urbain organisationnel et financier de la Ville de Guédiawaye. https://issuu.com/adm581/docs/audit_urbain_gwmars99

Pettenati G, Diop N.M.T., Badiane S. D., Calori A., Descroix L., Diakhaté S., Diouf E., Foieni W., Maggi M., Leye M., Diene A.M., Perotti F., Cissé B., Sarr L.H., Sagna N. (2021), Atlas des enjeux et des défis de la gouvernance environnementale à Dakar, financed and published by the European Union in the context of ECOPAS project.
https://cisvto.org/wp-content/uploads/2021/01/ATLAS_Ecopas_LIBRO_LR_compressed.pdf

Pezon C. (2018), Analyse rétrospective du secteur urbain de l'eau potable au Sénégal: un partenariat public-privé à l'épreuve du temps, Notes techniques n°41, AFD.

Pozzobon C. (2019), "Water supply management in rural areas: investigating the water governance system of Iringa region, Tanzania" (Master's thesis), Department of Economics and Statistics "Cognetti de Martiis", University of Turin.

Republic of Senegal (1976), Code du Domaine de l'Etat (loi n° 76-66).

Republic of Senegal (1981), Code de l'Eau (loi n° 81-13).

Republic of Senegal (2008), Loi sur le Service Public de l'Eau Potable et de l'Assainissement collectif des eaux usées domestiques (loi n° 2008-59).

Republic of Senegal (2009), Code de l'Assainissement (loi n° 2009-24).

Republic of Senegal/Ministry of Economy, Planning and Cooperation/National Agency of Statistics and Demography (2020), La population du Sénégal en 2020, RS/MEFP/ANSD/Direction des statistiques démographiques et sociales, Dakar.

Republic of Senegal/Ministry of Water and Sanitation (2016a), Revue sectorielle conjointe 2016 - Rapport de présentation, RS/MHA, Dakar.

Republic of Senegal/Ministry of Water and Sanitation (2016b), Lettre de politique sectorielle de développement. Dakar, RS/MHA, Dakar.

Republic of Senegal/Ministry of Water and Sanitation (2017), Aperçu de la situation au Sénégal : eau, assainissement et hygiène (Fiche pays), RS/MHA, Dakar.

Salami A., Stampini M., Kamara A.B., Sullivan C.A., Namara R. (2014), "Development aid and access to water and sanitation in Sub-Saharan Africa", Water International, vol. 39, issue 3, pp. 294-314.

Sene M. (2009), "Conséquence de l'exode rural sur la morphologie urbaine de la ville de Pikine. Cas de la commune d'arrondissement de Yeumbeul Sud (Master's thesis), Faculté des lettres et sciences humaines,Université Cheikh Anta Diop de Dakar.

Tikare A., Youssef D., Donnelly-Roark P., Shah P. (2001), Organising Participatory Process in the PRSP, https://intussen.info (last access February 2022).

Un (2019), "Ne laissez personne pour compte". Rapport Mondial des Nations Unies sur la mise en valeur des ressources en eau. UNESCO : Paris.

Un (2021), Conférences : Environnement et développement durable. https://www.un.org/fr/conferences/environment/index (last consultation June 2021).

Woodhouse P., Muller M. (2017), "Water Governance, An Historical Perspective on Current Debates", World Development, vol. 92, pp. 225–241.

Zezza A. and Tasciotti L. (2010), "Urban agriculture, poverty, and food security: Empirical evidence from a sample of developing countries", Food policy, vol. 35, issue 4, pp. 265-273.

List of acronyms

Cisv	Comunità Impegno Servizio Volontariato
Cso	Civil Society Organisations
Dgpre	Direction de la Gestion et de la Planification des Ressources en Eau (Directorate of Water Resources Planning Management)
Esp	Emerging Senegal Plan
Epic	Etablissement Public à caractère Industriel et Commercial (Public Utility Company)
Eu	European Union
Fongs	Fédération des Organisations Non Gouvernementales du Sénégal (Federation of the Non-Governmental Organizations in Senegal)
Jmp	Joint Monitoring Programme for Water Supply, Sanitation and Hygiene
Lpsd	Lettre de Politique Sectorielle de Développement (Sectoral Development Policy Letter)
Ngo	Non-Governmental Organisation
Oda	Official Development Assistance
Oecd	Organisation for Economic Co-operation and Development
Onas	Office National de l'Assainissement du Sénégal (National Sanitation Office in Senegal)
Pepam	Programme d'Eau Potable et d'Assainissement du Millénaire (Millennium Drinking

	Water and Sanitation Programme)
Pra	Participatory Rural Appraisal
Remeb	Réseau des micro-entreprises vertes de la Banlieue (Suburban Green Micro-enterprises Network)
Sde	Sénégalaise des Eaux (former urban water utility)
Sdgs	Sustainable Development Goals
Sen'Eau	Eau du Sénégal (current Senegalese urban water utility)
Sonees	Société Nationale d'Exploitation des Eaux du Sénégal
Sones	Société Nationale des Eaux du Sénégal (National Water Company of Senegal)
Spepa	Loi sur le Service Public de l'Eau Potable et de l'Assainissement (Law on the Public Drinking Water and Sanitation Service)
Un	United Nations
Wash	Water Sanitation and Hygiene
Who	World Health Organisation