ELEMENTS FOR THE DIAGNOSIS AND INPUTS FOR A SECTORIAL PUBLIC POLICY: THE CASE OF AQUEDUCT, SEWERAGE AND CLEANING IN MEDELLÍN

ELEMENTOS PARA EL DIAGNÓSTICO E INSUMOS PARA UNA POLÍTICA PÚBLICA SECTORIAL: EL CASO DE ACUEDUCTO, ALCANTARILLADO Y ASEO EN MEDELLÍN

https://doi.org/10.22431/25005227.vol50n2.6

Carlos Mario Correa Cadavid*
Jasmín Andrea Gallego Castaño**
Juan Guillermo Monroy Herrera***
Dora Ines Vivanco Julio****

Abstract

The needs in the Aqueduct, Sewerage and Cleanliness services (hereinafter AAA) in an expanding city require concrete, planned and developed actions not only from the technical and economic perspective, but also require the active participation of the communities and of the actors involved. One of the key elements lies in the adequate formulation of public policies that give priority to the voice of the people in the territories and the entities that lead the analysis, development and provision of AAA services.

Public policies and related instruments have been advancing from a conceptual perspective, and in this framework, a perspective called Policy Mis makes its way, which has been compiled by Rogge and Reichardt (2016) as a methodology for transitions towards sustainability that involve aspects from the environment, sustainability, the circular economy and more recent concepts such as frugal innovation.

This article includes constitutive methodological elements from the technical-participatory diagnosis as an input for the construction of a sectoral public policy in AAA (hereinafter PPSAAA) for the Municipality of Medellín (Colombia), based on concepts that go beyond its linear formulation.

Key words: public policies, public services, participation, basic sanitation.

* Doctoral student in Organizational Studies UAM. Master in Development from the Universidad Pontificia Bolivariana. Dean of the Faculty of Social Sciences of the Colegio Mayor de Antioquia University Institution. E-mail: dec.cienciasociales@colmayor.edu.co

** Master's student in Studies of Science, Technology, Society and Innovation. Professional in Planning and Social Development. Professor University Institution Colegio Mayor de Antioquia. E-mail: jazmin.gallego@colmayor.edu.co

*** Lawyer. Technical director of the Water, Sewerage and Cleaning Sector Plans project. E-mail: juanguimh@gmail.com

**** Doctoral student in Organizational Studies UAM. Master in Management for Development. psychologist. Health Administrator. Professor University Institution Colegio Mayor de Antioquia. E-mail: dora.vivanco@colmayor.edu.co

Resumen

Las necesidades en los servicios de Acueducto, Alcantarillado y Aseo (en adelante AAA) en una ciudad en expansión requieren de acciones concretas, planificadas y desarrolladas no solo desde la perspectiva técnica y económica, sino que también requieren de una participación activa de las comunidades y de los actores involucrados. Uno de los elementos clave radica en la adecuada formulación de políticas públicas que den prioridad a la voz de las personas en los territorios y las entidades que lideran el análisis, desarrollo y prestación de los servicios de AAA.

Las políticas públicas y los instrumentos relacionados han venido avanzando desde la perspectiva conceptual, y en ese marco, una perspectiva denominada Policy misse abre camino la cual ha sido compilada por Rogge yReichardt (2016) como metodología para las transiciones hacia la sostenibilidad que involucran aspectos desde el medio ambiente, la sostenibilidad, la economía circular y conceptos más recientes como la innovación frugal.

El presente artículo comprende elementos metodológicos constitutivos desde el diagnóstico técnico-participativo como insumo para la construcción de una política pública sectorial en AAA (en adelante PP-SAAA) para el Municipio de Medellín(Colombia), basado en conceptos que superan su formulación lineal.

Palabras clave: Políticas públicas, servicios públicos, participación, saneamiento básico.

Introduction

In Colombia, AAA sector plans are updated every four years based on government plans and municipal development plans, fundamentally based on four criteria applicable to the three sectors, namely: Infrastructure, coverage, strengthening and water resources.

For the validity of the plans, there are a number of problems associated with technical aspects of the aqueducts, deterioration of aqueduct and sewage networks due to the fulfillment of their useful life, the generation of garbage and the low levels of separation at the source and the recycling (due to urban growth or rural expansion), aspects that a AAA sector plan must address through the approach of programs, projects and pertinent actions based on available budgets. However, in this period of time the capacity to respond to these problems is limited.

Therefore, having a Public Policy (hereinafter PP), sectoral, with a rights approach, makes it possible to think in the medium and long term about what is inherent to the more strategic, technical and social aspects of the AAA sector, especially from a systemic vision to starting from the connection with highly complex aspects such as the environment, sustainability in the guarantee of the provision of quality services, as well as the use and preservation of natural resources. Thus, the public policy proposal has been thought from the management of the sectoral plans project in Medellín, recognizing the scope of each of these planning processes and the leap

that must be made in terms of transcending coverage indicators to respond to the principle of universality in terms of guarantee of rights.

In this order of ideas, this article is derived from the Sectoral Plans project signed between the Undersecretary of Public Services and the University of Antioquia, which results in the methodological proposal for the design of a public policy on aqueduct, sewerage and sanitation for the city. from Medellin. Thus, a theoretical review is addressed that bases the construction of public policies, important aspects in the matter such as the conception of sustainability and the SDG agenda, green growth and circular economy; Also, an identification of realities is made with the participation of different actors, and as a result a methodological route is proposed for the design of a PPSAAA with a rights approach.

Theoretical framework

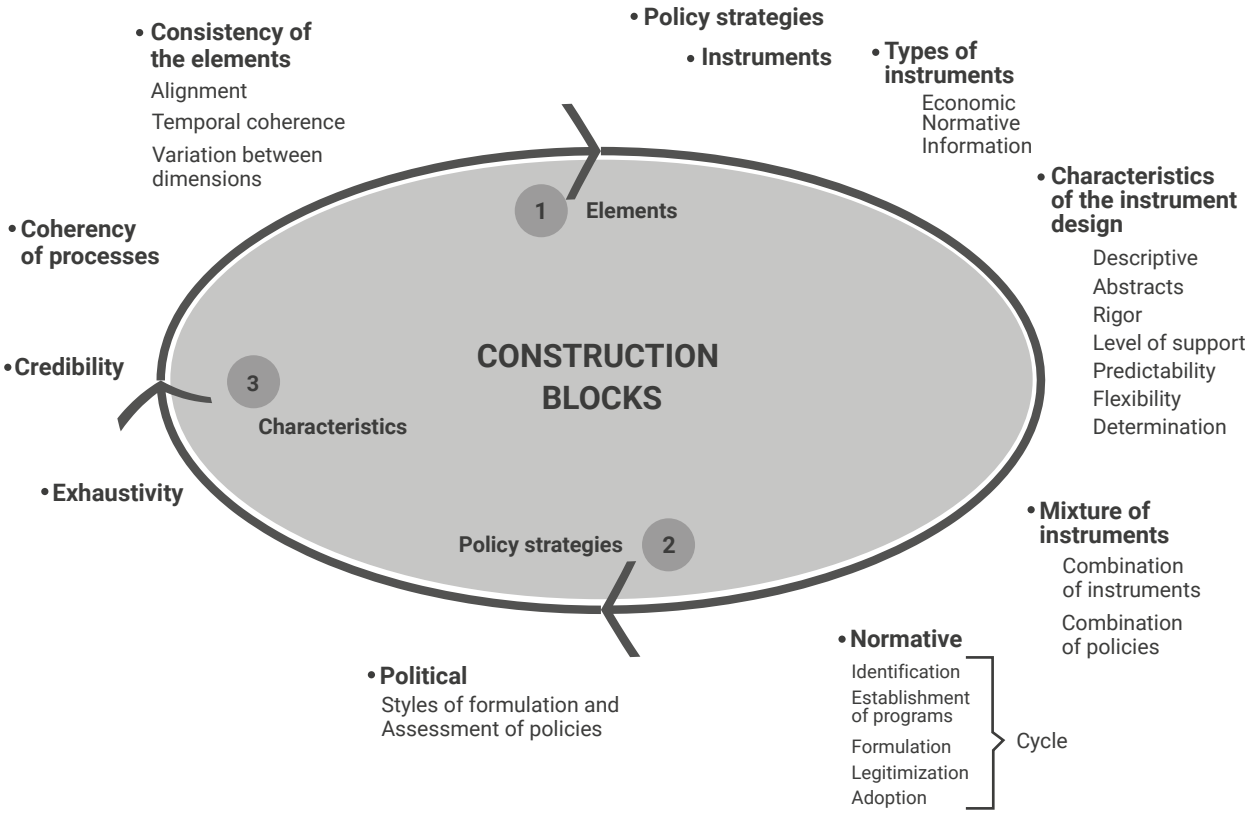
The construction of PP implies a few characteristics, variables and context elements, which makes the levels of complexity high, not only due to the progress in these instruments, but also due to the difficulty that is addressed in various social and economic sectors. in a territory or a country.

For Roth, public policies are "a set made up of one or several objectives considered necessary or desirable and by means and actions that are treated, at least partially, by an institution or government organization in order to guide the behavior of individual actors. or collectives to modify a situation perceived as unsatisfactory or problematic" (2002, p. 27). From this perspective, public policies have been oriented in different sectors, articulating efforts with different actors in order to respond to the realities of the territories.

The new generation of public policies, which have interference in matters such as development, sustainability, the environment, overcoming poverty, among others, require greater analysis in relation to traditional schemes, all due to the complexity and systematicity that they encompass. each of those problems. The building blocks are configured as a way to promote the complex understanding of social problems to compose an exercise around them, which through public policies make it possible to generate adequate and combined instruments for social improvement.

The building blocks, according to Roggea and Reichardtc (2016), provide a methodology for combinations of policies and instruments that enable passability or transition to a thought of sustainability, care for the environment and the natural resources that exist. From his article *Policy Mixes for Sustainability Transitions: An Expanded Concept and Framework for Analysis,* a diagram illustrating the public policy construction cycle is presented:

Figure 1: Construction cycle of public policies.



Source: Own elaboration (2020), based on Roggea and Reichardtc (2016).

In relation to the elements, it is necessary to initially configure the policy strategies that will serve for the design, validation, approval and subsequent evaluation, incorporating the types of instruments that the PP require, from the economic, regulatory and informational perspective. Another essential aspect lies in the characteristics of the instruments applied and, to a certain extent, the capacity for abstraction and/or description of the phenomena studied and the solutions proposed in the execution.

The interrelation with other policies, such as those issued to organize the territory, and the various instruments available in planning, such as the Territorial Ordering Plans (hereinafter POT), the sectoral plans of economic sectors, the municipal development plans or the at the local level, they must be properly combined in such a way that they pay tribute to the solutions as tools and considerable aspects to public policies. With regard to the formulation cycles of public policies, it is essential to observe not only the normative aspects, but also the political ones and the relationship between actors that influence the PP, or that will be validators from their role.

However, as indicated by the *Organization for Economic Cooperation and Development (OECD),* it is necessary that the PP and the combination of instruments for progress and transition in environmental aspects, sustainability and care for the environment articulate the vision of technicians and managers of the public sector, as well as construct discourses and realities that are consistent, coherent, and real, according to the realities of the people and the territory.

At the municipal level, in the city of Medellín, the Administrative Department of Planning (hereinafter DAP) collects a proposal for "Population public policies for life and equity" (Alcaldía de Medellín, 2014 a), defining that a public policy is :

> A set of State decisions regarding issues and problems of society that become of general or public interest. Likewise, it states that the PP is a process of collective construction of the State and civil society that starts from an initial unfavorable or potential situation and culminates with an action or series of actions that seek to improve the living conditions of a specific group of the population. population. (p.16) As part of the elements to identify a public policy, the DAP proposes that it is important since:

1. Develops the superior guidelines defined in a Law or Development Plan or other regulations.
2. It contains a set of concrete measures.
3. It contains decisions and/or allocation of resources that must be applied.
4. They are part of a general framework of action.
5. It has a public since it addresses a specific population of subjects, groups or organizations with common conditions that are affected by public policy.
6. Define goals or objectives to achieve.
7. It does not necessarily have to be taken to an administrative action by the City Council (Agreement).
8. They can be taken to COMPSE and COMPES.

In this line, some concepts that allow transitions and trends in this regard in today's world are presented below, which contribute to more real and harmonious processes for urban and rural territories, in environmental aspects, use of resources, among others:

Green growth

Colombia, thanks to its geographical location, has biodiverse and natural ecosystems; According to the country 's Environmental Information System , it is among the 14 most biodiverse nations in the world and by territorial unit, in several lines, it is the most biodiverse territory on the planet. In the specific case of the city of Medellín, it has 77 endemic species of flora and at least 445 species of birds (Alcaldía de Medellín, 2014), but these are not unlimited. Fostering green growth for the sustainable development of the country promises a cohesion between the protection of natural resources and economic growth.

Consequently, Colombia signed in 2012 the declaration on Green Growth -CV- of the OECD, an approach that tends to reduce vulnerabilities to climate change and sustainable economic development (DNP, 2016 b). It

is a concept that recognizes the need to promote economic growth and development, while ensuring the natural resource base and the environmental services provided by ecosystems. This is an orientation that gathers elements of international public policies and offers a new approach against a misconception that admits efficiency and economic growth as a priority that conflicts with environmental sustainability.

According to the DNP (2020), green growth recognizes that the existence of multiple environmental risks that affect the quality of life of the population, and therefore their well-being, are due to a set of factors such as:

> 1) The unsustainable exploitation of natural resources; 2) lack of access to food, water, energy and basic physical infrastructure; 3) air and water pollution in a context of rapid urbanization and population growth; 4) the large proportion of people in rural areas who depend economically on natural resources; 5) a high vulnerability to the impacts of climate change, including the increase in natural disasters, such as drought, storms and coastal flooding (p.44).

These factors together show the need to reorient the policies and development models that have directly affected the natural environment, exerting high levels of pressure on it; It is for this reason that these types of policies must promote various strategies to deal with factors such as environmental risks, loss of biodiversity, water scarcity, premature deaths, food insecurity and lack of healthy environments, which perfectly borders on the issue of provision of Home Public Services (SPD) such as aqueduct, sewage and toilet.

In this way, *Green Growth* seeks to foster economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being depends. To achieve this, it must catalyze investment and innovation that underpin sustained growth and open up new economic opportunities" (OECD, 2011). This approach seeks to bring together the economic and environmental pillars of sustainable development in a single planning process, so that the development model is capable of producing both economic and environmental sustainable growth (National Planning Department, 2017).

Circular Economy (CE)

According to Bauwens , Hekkert and Kirchherr (2020), the concept of CE comes from the concepts of environmental and ecological economics, industrial ecology and the literature on corporate management and sustainability and in one way or another "is today promoted by policy makers , academics and companies as a concept to enable sustainable development" (Geissdoerfer , Savaget , Bocken , Hultink , et al., 2017, p. 760).

EC is defined as:

> An economic system that is based on business models that replace the concept of 'end of life' by reducing, alternatively reusing, recycling and recovering materials in the production / distribution and consumption processes, thus operating at the micro level (products, companies , consumers), meso level (eco -industrial parks) and macro level (city, region, nation and beyond), with the aim of achieving sustainable development, which

> implies creating environmental quality, economic and social prosperity. equity, for the benefit of current and future generations. (Kirchherr, Piscicelli, Bour, Kostense, Muller, Huibrechtse&Hekkert, 2018, pp. 224-225).

Now, according to the DNP, cited in the document CONPES 3874 *National Policy for the Comprehensive Management of Solid Waste,* the circular economy is a "model that seeks to maintain the value of products, materials and resources in the economy for as long as possible, and that the generation of waste is reduced" (20 16 a, p. 62).

Colombia recognizes the importance of the circular economy as a key strategy for reducing environmental impact and increasing productivity, which is why the National Development Plan (PND) *2018-2022: Pact for Colombia, Pact for Equity,* establishes a roadmap whose premise is *"produce by conserving and conserve by producing",* which gives way to a key circular economy strategy for increasing the country's productivity and reducing environmental impact, considering that in relation to the member countries of According to the OECD, the nation presents productivity indices below the average in terms of water and land use, with water productivity of 18.9 USD/m^3 compared to the average of the OECD countries, which is located at 114.4 USD/m^3.

Natural resources are not unlimited. It is necessary to consider new growth models that are articulated with natural cycles and respond simultaneously to the competitiveness of companies and the creation of value in society.

In this context, both companies and society must move forward with the orientation of a SPD public policy that includes elements not only of the circular economy strategy proposed by the DNP, but also takes into account the particularities of the territory and the installed capacities. in the city and surrounding municipalities. They are expected to lead to growth, one that allows to obtain the greatest benefit from the available resources (water, raw materials, land, energy), use the resources in the most efficient way possible, maximize their added value, reduce the generation of waste or losses by converting them into new raw materials, increasing their useful life once transformed, and avoiding the deterioration of ecosystems. The foregoing must be the product of a deep reflection on how to design a good, how to manufacture it, how to measure and manage its impacts and how to multiply its related services under new business models.

That is why in October 2019, according to the Ministry of Environment and Sustainable Development (2019), a sectoral agreement was signed between this ministry and the National Association of Public Services and Communications Companies (Andesco) *"in favor of efficient environmental management of the SPD and of communications, that promote the quality of natural resources, the quality of life and the improvement of the sustainability indicators of the territories"; Said agreement, in terms of AAA, proposes the disappearance of waste dumps thanks to Residuals (WWTP) for energy generation and composting, the prevention of water losses in the aqueduct networks, among others*.

The effects caused by the urbanization process regarding the provision of public water and sanitation services

For the Inter-American Development Bank (2020) "the accelerated growth of urban areas in recent decades, accompanied by a significant territorial expansion" (p. 16) has evidenced the existing difficulties regarding the fulfillment of the development objectives proposed by international organizations and adopted by Latin American cities which have witnessed different migratory processes associated with socio-economic phenomena that have ended up atomizing their urban development, complicating key indicators of urban development such as qualitative and quantitative housing deficits, as well as coverage in SPD territory and the ability of access by citizens.

Medellín has not been immune to this phenomenon and strategies such as stratification and the adoption of Social Interest Housing (VIS) and Priority Social Interest Housing (VIP) models require rethinking and rationalizing the model of occupation and densification of the territory, even considering if the current models of territorial planning promote territorial segregation and hinder harmonious planning at the urban level that allows effective consideration of a model of universal access for SPD AAA, especially if one takes into account that from article 11 of Law 1537 2012 begins to elucidate how the coverage of public services, and universal access also goes through a necessary harmonization with strategies to solve the housing deficit and the efforts to reduce this deficit from the strategy of VIS projects.

It is clear then how the process of urban densification complicates the possible progress that can be made in the goals related to the universalization of public services with criteria of quality, continuity and efficiency; however, it is not in the housing solution strategies where the greatest challenges are found around the universalization of the SPD since since Law 1537, article 50 establishes the obligation within the framework of this type of project, the availability of SPD of aqueduct, sewage and cleaning, existing a parity in the increase of the level of provision of the 3 services in relation to the lands of urban expansion and densification contemplated in this type of exercises. Articles 57 and 58 speak of the obligation and feasibility of budgetary and technical provision for the assurance of this type of services.

When it comes to carrying out processes of access or provision of infrastructure for the provision of SPD AAA "several obstacles must be overcome so that these areas can be properly attended, which implies a very complex job that encompasses legal, technical, commercial and economic-financial" (Inter-American Development Bank, 2020, p. 17). Consequently, the disposal of water that is not suitable or safe for human consumption and the provision of SPD AAA without any of the criteria contemplated for a correct provision (continuity, quality and coverage) generates adverse phenomena to the health and quality of life of the communities. It is said that "...they also suffer the consequences of not having an adequate sanitation service" (p. 17); Usually, having

aqueduct services without a sanitation infrastructure tends to negatively affect the quality of the supply streams and basins, as well as a series of phenomena associated with the discharge of black and gray water and what this implies in terms of the environment and public health.

Medellin, SPD AAA, Growth and Development

With the enactment of the World Agenda for Sustainable Development (2030) adopted by the United Nations Organization (hereinafter UN) in 2015, this organization recognizes that without the eradication of poverty it will not be possible to achieve sustainable development goals in the coming years. decades. The agenda proposes 17 objectives, now recognized as SDG 2030, which, when articulated with 169 goals, propose a roadmap for the eradication of poverty by 2030; Among the proposed objectives, objective 6 is of vital importance for the city of Medellin since access to SPD (aqueduct and sewage) is closely related to the human and economic development of a city. Although it must be recognized that access to water and sewage services alone without coordination with actions that fight poverty will not solve the problem of inequality, having quality public services does have a direct impact on the self-perception of poverty. way to achieve the SDGs adopted by the country.

In Medellin, the index of development of public services analyzed by the quality of life survey that includes the multidimensional index of quality of life has been increasing steadily at the same time as the poverty reduction indexes according to data collected from the multidimensional index of quality of life, and although for 2017 it is possible to show an upturn in the multidimensional poverty index associated with political, economic and social factors in Latin America, it is clear how having quality and efficient drinking water, sewage and sanitation services is a strategy to achieve not only SDG 6 (Clean water and sanitation) but also the overcoming of poverty in its different forms in the city of Medellín.

Results: Methodological Proposal for the PP of AAA in Medellín

The focus of the PP: Definition of the problem

The purpose of Medellín is to guarantee universal coverage of drinking water and basic sanitation in the city, with coverage above 97%. However, there are territorial dynamics that limit achieving this purpose, (such as conurbation and population settlement in high-risk areas and periphery) that due to their physical-spatial constitution outside the territorial planning plans lack one or more public services: the insufficient and/or deteriorated infrastructure for the provision

of services, the limitations of coverage, the continuity and quality of small providers in areas of the city where the population lives in conditions of extreme poverty, the geographical conditions in rural areas, of violence that influence the collection of payments for services, among other particularities that limit guaranteeing this right to the entire population.

It is important to advance in the analysis of the problem beyond coverage networks, recognizing others that have an impact on the optimal provision of the service, such as issues of densification and conditions of access to public services, such as the fact that Medellín is one of the cities with the highest intra-urban displacement in Colombia. Additionally, being one of the main centers of development in the country, it is also one of the main recipients of the migrant population and of displaced persons who are victims of forced displacement due to the armed conflict that the country has experienced for half a century. A large part of this impoverished population currently lives in various outlying areas, settlements in risk areas and/or conurbation in the city, which leads to a sustained increase in irregular settlements on its outskirts, a significant increase in qualitative and quantitative deficit of housing with phenomena of urban densification, which threatens the viability of providers to maintain in the medium and long term the indicators of quality and continuity within the margins of success that the city has always considered.

Given the above scenario, these problems generate pressure on the residential public utility system, affecting providers (small and large) in their financial viability and in their ability to provide the service with criteria of quality, continuity and efficiency, a situation that affects the universe of current and potential users since it complicates the ability to connect to a system that must provide the service continuously and that, due to the aforementioned phenomena, is not possible in peripheral areas of Medellín. Additionally, it also affects users who are in areas of real coverage strengthened, since the system must try to improve and for that it is necessary to carry out the updating and strengthening of key processes for the provision of the service.

In addition to the foregoing, the effects are reflected in the administration, since there is no coordination of the strategies developed by the different entities jointly responsible for the provision of AAA services and the different actors that intervene in the physical development of the city. progress in the city goals in the face of the 2030 agenda of the Sustainable Development Goals (SDG) and the national agenda on water security for the entire population and new generations, *to guarantee the availability of water and its sustainable management and sanitation for all, also in relation to the objective of making cities more inclusive, safe, resilient and sustainable,* and which deserves, in an integral way in other objectives associated with the reduction of poverty, zero hunger and reduction of inequalities. In this perspective, being a systemic problem, it deserves analysis and systemic responses.

Where are we going?

The city also requires a joint strategy between the different actors that are part of the provision of SPD (small providers, large providers, cooperatives of environmental recovery), and those entities in charge to some extent of the effectiveness of the provision of the service (Undersecretary of Public Services, Secretary of the Environment, Secretary of Health). Both the private sector, the academy and other actors must be involved who, from their roles, contribute with their mission to the growth and urban and physical-spatial development of the city.

It is impossible to separate the effectiveness of any strategy proposed in terms of SPD from phenomena such as urban densification and indicators of qualitative and quantitative housing deficit that directly affect the city's ability to meet the goals proposed for 2030 in terms of coverage and SDGs.

Recognizing the high coverage rates of the large SPD providers in Medellin, the strengths of the installed capacities of the institutional framework and the existing planning tools, it is estimated that the construction of the PPSAAA would deserve to harmonize these planning instruments in relation to the vision of the city and development agendas at the national and international levels, articulate the instances based on these existing institutional capacities in favor of the common objective of guaranteeing the universal right to drinking water and basic sanitation in order to recognize the problems of the city that transcend the infrastructure network as the impacts on public health and its comprehensive approach, which leads to think of a methodology that enables spaces for dialogue for permanent action from the planning, implementation, monitoring and evaluation of measures that guarantee coverage universal and quality in the provision of services AAA services as a system that impacts health and well-being and therefore the quality of life of the inhabitants of the city of Medellin.

So how do we propose to achieve it?

It is clear that, as a process, the proposed route must integrate the vision of actors in an intersectoral and interinstitutional manner in order to have a systemic view of the problem, its causes and alternative solutions.

The process of building Sector Plans has already yielded results in terms of information that become important starting elements, and one of them is the recognition of the population structure as an objective of the PP to be designed:

The city of Medellín, capital of the department of Antioquia, Colombia, has a population of 2,372,230 inhabitants according to figures from the last national population and housing census carried out by DANE in 2018.

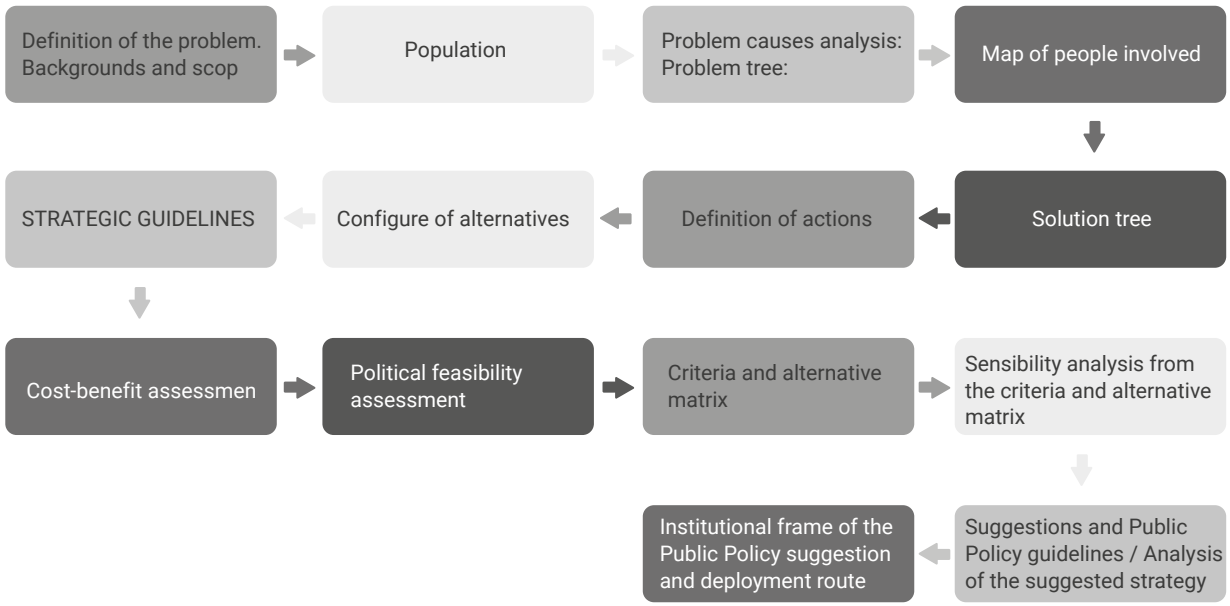
The default adjustment given the official underreporting accounts for a total population of 2,427,129 people. At the urban level, 98.3% of this population is concentrated and at the rural level 1.7%, that is, around 44,730 people in the five districts of the municipality (Palmitas, San Cristóbal, Alta Vis-

ta, San Antonio de Prado and St. Helen). In terms of age, 65.7% of the population is between 15 and 59 years old, 17.1% are under 14 years old, and 15.4% are older adults. Ethnically, the population is diverse. 97.4% recognize themselves as mestizo people, 2.5% Afro-descendants, 0.1% indigenous and in percentage terms, there is no official record of the Rom population. Of the total population, 53% are women (1,257,057), 47% are men (1,115,273). No official records of the total LGTBI population were found: Lesbian, gay, bisexual and transgender in the municipality.

Now, in terms of home public services city, Medellin has been steadily improving its coverage in recent years, as well as quality and continuity indicators, positioning its public services index, the ideal scenario of coverage versus quality and continuity. In relation to the guarantee of the right to water and basic sanitation, object of analysis of the public policy to be designed, the characterization of the population of Medellín shows a coverage of aqueduct services in 97.3% with programs such as Minimum Vital de Agua Potable (MVAP) for people who, due to conditions of multidimensional poverty, cannot access the service and are united by water as part of a neighborhood regularization strategy and 95% connection to SPD for sewerage and sanitation (collecting garbage) by 94.7% (Medellín how are we doing, 2018) . Medellín is considered a successful case of efficient SPD management by recognizing that the problems are not related to water supply (since it has an accumulated precipitation level of 1685 mm per year according to data from the Institute of Hydrology, Meteorology and Environmental Studies – IDEAM), but it does face the impact of imbalances in population dynamics in relation to the protection and management of streams and largely due to urban development and the water footprints of different tributary systems. To this extent, it is essential to document these realities as part of the background of the problem based on population dynamics and to carry out the analysis of causes based on the collective elaboration of problem trees, solution trees with the actors involved.

Once these solutions are defined, the definition and analysis of concrete actions for the configuration of alternatives is proposed, which from a systemic vision and their interrelation make it possible to define the strategic lines that would be analyzed from the perspective of cost-benefit for the city, since Based on these results, to proceed to carry out the political feasibility analysis, establish the criteria matrix of alternatives and the sensitivity analysis. In this sense, the recommendations and guidelines of the PPSAAA for Medellín would be the result of a collective construction and deserve the pertinent recommendations regarding the adequacy of the institutional framework for its integrated deployment to the different actors based on the realities of the people, the territories and the communities. service provider organizations. The graph below is intended to account for the route proposed for this purpose.

Figure 2: Route for the formulation of the Public Policy for Potable Water and Basic Sanitation in Medellín



Source: Own elaboration, (2020).

Conclusions

The process of identifying problems by the sectoral plans team in the city of Medellin, which has made progress in the diagnosis of urban and rural areas, presents as preliminary findings that the central problem in the city is "the inefficient use of drinking water, beyond the possible intervention by the CRA in market decisions to impose restrictions and reduce the waste of drinking water consumption in Colombia" (DNP, 2017, p. 25). Added to this are effects on territorial dynamics such as conurbation, population settlements in high-risk and peripheral areas that, due to their physical-spatial constitution, lack one or more public services, have insufficient and/or deteriorated infrastructure, coverage limitations , continuity and quality in areas of the city inhabited by a population that lives in conditions of extreme poverty in rural areas and in contexts of violence that limit the guarantee of this right to the entire population.

The diagnostic phase of sectoral plans represents, in terms of diagnostics in the city, important inputs for the updating of said plans and the design of a city PP with a rights approach that transcends the perspective of efficiency and high coverage rates to achieve universality. in the provision of AAA services, which would represent a milestone in planning processes, challenges in the ar-

ticulation of the actors and opportunities for systemic approaches that respond to the realities of the city of Medellín. That is why a comprehensive methodology is proposed that results in the articulation of actors, strategies, and instruments in congruence with the political and regulatory aspects to which the PP must respond.

For complex issues such as those involving environmental aspects, the use and consumption of natural resources, or the generation of waste and its treatment, it is necessary to use mixed tools, methods and instruments that not only consider the traditional conceptualizations of PP, but it is also necessary to insert concepts that, incorporated into the formulation or update, allow understanding and incorporating the complexities and new tools in this regard.

Referencias

Alcaldía de Medellín. (2014 a). Políticas Públicas Poblacionales para la Vida y la Equidad. Disponible en https://www.medellin.gov.co/irj/go/km/docs/pccdesign/SubportaldelCiudadano_2/PlandeDesarrollo_0_17/Publicaciones/Shared%20Content/Documentos/2015/LIBRO%20-%20POLITICAS%20POBLACIONALES%20digital%20media.pdf

Alcaldía de Medellín. (2014 b). Propuesta para la gestión integral de la biodiversidad y los servicios ecosistémicos de Medellín. https://www.medellin.gov.co/MapGIS/BIO/Eventos/16/Libro%20BIODIVERSIDAD%2006-10-14%20(1).pdf

Banco Interamericano de Desarrollo. (2020). División de vivienda y desarrollo urbano BID Washington DC: https://www.iadb.org/es/desarrollo-urbano-y-vivienda/vivienda-y-desarrollo-urbano

Bauwens, T., Hekkert, M., Kirchherr, J. (2020). Circular futures: What Will They Look Like?. Ecological Economics, 2020, vol. 175, issue C. https://econpapers.repec.org/article/eeeecolec/v_3a175_3ay_3a2020_3ai_3ac_3as092180091931972x.htm

Centro de Estudios Regionales Cafeteros y Empresariales. (2017). Productividad de la tierra y rendimiento del sector agropecuario medido a través de los indicadores de crecimiento verde en el marco de la misión de crecimiento verde en Colombia. https://www.dnp.gov.co/Crecimiento-Verde/Documents/ejes-tematicos/Suelo/

Informe%201%20Productividad%20tierra%20Ajustado%20VF.pdf

DNP (2016 a). CONPES 3874, Política Nacional para la Gestión Integral de Residuos Sólidos. Bogotá, D.C. https://colaboracion.dnp.gov.co/CDT/Conpes/Econ%C3%B3micos/3874.pdf

DNP. (2016 b). Documento Final Crecimiento verde para Colombia. https://www.dnp.gov.co/Crecimiento-Verde/Documents/diagnostico/Documento%20Final%20Crecimiento%20verde%20para%20Colombia.pdf

DNP. (2017). Estudio Paralelo. Proyecto Piloto: Análisis de impacto normativo: Ahorro en el uso de agua potable. Disponible en https://www.cra.gov.co/documents/Consumo-Suntuario.pdf

DNP. (2020). Crecimiento verde para Colombia: elementos conceptuales y experiencias internacionales. https://www.dnp.gov.co/Crecimiento-Verde/Documents/diagnostico/Documento%20Final%20Crecimiento%20verde%20para%20Colombia.pdf

Geissdoerfer, M., Savaget, P., Bocken, n., Hultink, E. (2017). The Circular Economy – A new sustainability paradigm?.Journal of Cleaner Production.Volume 143, 1 February 2017, Pages 757-768. https://www.sciencedirect.com/science/article/abs/pii/S0959652616321023#!

Instituto de Hidrología, Meteorología y Estudios Ambientales –IDEAM. (s.f.). Índice de precipitación mensual por año. http://www.ideam.gov.co/web/tiempo-y-clima/anomalia-de-la-precipitacion-mensual-por-ano

Kirchherr, J., Piscicelli, L., Bour, R., Kostense, E., Muller, J., Huibrechtse, A., Hekkert, M (2018). Barriers to the Circular Economy: Evidence From the European Union (EU). Ecological EconomicsVolume 150, August 2018, Pages 264-272. https://www.sciencedirect.com/science/article/abs/pii/S0921800917317573#!

Medellín cómo vamos. (2018). Informe de calidad de vida 2018 vivienda y servicios públicos. https://www.medellincomovamos.org/informe-de-calidad-de-vida-de-medellin-2018

Ministerio de ambiente. (2019). Minambiente firmó acuerdo con las empresas de servicios públicos y comunicaciones para que implementen la Economía Circular. https://www.minambiente.gov.co/index.php/noticias/4518-minambiente-firmo-acuerdo-con-las-empresas-de-servicios-publicos-y-comunicaciones-para-que-implementen-la-economia-circular

Ministerio de Medio Ambiente. Metas de la estrategia nacional de economía circular - ENEC (2020).https://www.dnp.gov.co/Crecimiento-Verde/Documents/Comite%20Sostenibilidad/Presentaciones/Sesi%C3%B3n%202/1_Metas_Estrategia_Nacional_Economia_circular.pdf

Organización para la Cooperación y el Desarrollo Económicos –OCDE-. (2011) *Towards Green Growth*, OECD Green Growth Studies: OECD Publishing, París. https://www.oecd-ilibrary.org/environment/towards-green-growth_9789264111318-en

Organización para la Cooperación y el Desarrollo Económicos y Comisión Económica para América Latina y el Caribe. Evaluaciones del desempeño ambiental: Colombia (2014) ed. Santiago de Chile: OECD/ECLAC.

https://www.oecd.org/environment/country-reviews/Colombia%20Highlights%20spanish%20web.pdf

Organización de las Naciones Unidas; Hábitat (2016). Conferencia de las Naciones Unidas sobre Vivienda y desarrollo urbano sostenible.

Organización de las Naciones Unidas. (2015). Objetivos para el desarrollo. https://www.un.org/sustainabledevelopment/es/sustainable-development-goals/

Organización de las Naciones Unidas. (2015). Objetivos 6: Agua limpia y saneamiento. https://www.undp.org/content/undp/es/home/sustainable-development-goals/goal-6-clean-water-and-sanitation.html

Rogge, K., Reichardt, k. (2016). Combinaciones de políticas para las transiciones de sostenibilidad: un concepto ampliado y un marco para el análisis. Investigación Política 45 (2016) 1620–1635.

Roth, A (2016). Políticas públicas: formulación, implementación y evaluación. Ediciones Aurora. https://repositorio.uasb.edu.ec/bitstream/10644/6929/1/13-Rese%C3%B1as.pdf