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Study and Analysis on The Planning of The Maintenance of The Architectural Public Work, Built in The City of Azogues, Province of Cañar – Ecuador

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Summary
The useful life of a work is conceived from the exploitation of resources for the generation of materials, design, construction, use and operation, deterioration or demolition and, possibly, the recycling of elements; reason why at present arises the inherent need to plan the maintenance and conservation of works, especially those destined for public uipamiento, granting a longer time of service to the urban-architectural public works, built by public entities in the city of Azogues, thus providing a Greater sustainability, with a correct execution and maintenance plan, rational use of materials at the time of construction and longer service time; which reduce long-term work costs, avoiding deterioration, which is sometimes irreversible and implies a high expense in repairs or, the low of said works.
Keywords: planning, maintenance, public awareness, lifespan, sustainability

1. Introduction

The public works built and planned in the city of Azogues, specifically those of an urban-architectural nature, which provide different services to the population or are intended for social and / or sports recreation, due to the state they present, evidences the lack of a global plan for their conception, where each stage of the useful life is determined. , understood from the planning, design, construction, maintenance and demolition, which is why the correct performance of this type of works by the contracting entities (public) is not guaranteed. Themaintenance stage is not present in the different public projects, which contributes to the visual and technical deterioration throughout its years of operation, in a large number of the works built in the city.
The city of Azogues does not have information on the percentage of works that contemplate a maintenance planning, the works in operation that present deterioration or lack of conservation, are intervened only in the case of requiring a regeneration for eminent damages, with this antecedent s and the criterion that the correct Planning a work helps to make its useful life longer, preventing it from degradingover the years and losingthe quality of service for which they are conceived; The study and the proposal for the implementation of maintenance plans applied for each building at the service of the city are required.
In addition, a work must not be concluded withthe final delivery of the same to the contracting entity, as stipulated by the Public Procurement Law of the Country, but a maintenance and conservation plan must be implemented, to optimize the resources invested and guarantee the good condition and service of the same.

2. Concepts

2.1 Maintenance

The literal meaning of maintenance according to the dictionary is: (ASALE & RAE, n.d.) So based on this reason you can determine the approaches that are the guidelines of this research.

2.1.1 Maintenance of an architectural work

For Arancibia (2007) The most general concept of maintenance can be found in any dictionary that is counted, this is summarized in the set of operations and care necessary so that facilities, buildings, industries, etc., can continue to function properly. The concept of maintenance has been widely developed by many authors due to the need to conserve and maintain not only buildings but everything that may deteriorate within their useful life. (Fernández, 2007; Aziz Amen, 2017; Aziz Amen & Nia, 2018; Amen & Kuzovic, 2018; Amen & Nia, 2021) also in his article quotes the writer Babé (1986) who expresses in his book MAINTENANCE AND RECONSTRUCTION OF BUILDINGS, that maintenance is all the work that must be carried out cyclically for the attention of the equipment and the component elements of the constructions in order to correct their deficiencies, and effectively maintain the services they provide with special emphasis on those parts that for their continued use or because of their location they are more exposed to deterioration. (Maintenance and Reconstruction of Buildings, n.d.)

2.1.2 Classification of maintenance according to type and work

Babé (1986) defines that maintenance can be classified according to three factors: the type of work, the owner of the property and the moment in which it is carried out.

• Depending on the type of work, the following can be considered:

Maintenance of new works: The one that is carried out in cycles foreseen from the moment in which the project is elaborated and that must be applied as soon as the construction is concluded.

Maintenance of existing old works: The one that must begin its application after the repairs or reconstructions required to eliminate the existing damages have been carried out.

• According to the owner of the property:

Private maintenance: The one that must be carried out continuously and by own means by the user of a building.

State maintenance: That which is carried out by State agencies in works of social use such as schools, hospitals, bridges, roads, aqueducts, dams, etc.

• According to the moment in which it is carried out:

Preventive maintenance: The one that must be foreseen by the professional when carrying out the project of a work.

Corrective maintenance: The one that is planned to be executed in the constructions to avoid deterioration as much as possible.

Andrés Olivera Ranero, on the other hand, presents a classification according to the objectives, complexity and costs of maintenance, dividing them into the following categories (Olivera, 1983)

• Simple or habitual maintenance: Periodic activities can be considered such as daily cleaning until the replacement or repair of simple building components (lamps, tiles, etc.)

• Medium maintenance: It consists of the repair of non-fundamental parts of the building to prolong its useful life and avoid more serious deterioration.

• Complex maintenance: It consists of the complex repair or replacement of fundamental elements of the building. It must be carried out by specialized personnel.

Xavier Casanovas (1996), presents a classification of the types of maintenance based on the periodicity of its application:

• Planned maintenance: Consisting of periodic actions in a building with a preventive vision.

• Unplanned maintenance: Consisting of actions in a building with a purely corrective objective.

In addition to these maintenance systems mentioned, we can find many more classifications in attention to different factors classified by different characteristics, they exist: according to the area in which it is intervened, its periodicity, level of complexity, etc., resulting regardless of the type of maintenance that is applied in a building, of primary importance the planning of maintenance in buildings, for the multiple advantages it entails: Reduction of deterioration and therefore the extension of the useful life of a building; Decrease in energy cost, having a building with a correct construction and conservation reduces consumption, in addition to providing security to users by the presence of failures that can present tempt a work in poor condition.

2.1.3 Maintenance according to the focus of this research

When it comes to the maintenance of an urban-architectural work it can be established that two types can occur, maintenance that is programmed in a preventive manner, projecting to the various physical and functional problems that can be present in the useful life a built work, and, the maintenance that would be of a corrective nature, carried out specifically for the correction of deteriorations that occurin a building, due to its use, environmental factors, age, etc ., trying to extend the utility.

Preventive maintenance has the possibility of being scheduled in time and, therefore, evaluated economically. It is intended, as its name suggests, to prevention, aiming at the control "a priori" of deficiencies and problems that may arise in the building due to its natural use. Corrective maintenance includes those operations necessary to deal with unexpected situations, i.e. unforeseen and unforeseeable. Physical and/or functional repairs and replacements are typical operations of this type of maintenance. (Loria, 2005)

At present it should be pointed out that all public works projects, due to their character of collective use, have a preventive maintenance plan, that is to say that the maintenance plan of an architectural work to be executed is presented together with the design and construction studies, So based on these criteria it would be established that the presentico maintenance of architectural works has become a primary issue, as expressed by Casas and Barona (2019) In developed countries it is mandatory that prior to the delivery of the building and commissioning, the user receives the corresponding manual. To itself, some country institutions with clear awareness about the need to improve use and maintenance. Although this is a very healthy practice, and should be imitated by all the public and private sectors related to the production of building works, unfortunately the vast majority of these do not have manuals and, what is worse, are not subject to maintenance. (Humberto & Barona, 2019a).

2.2 Public works

The concept of public works is used to designate all those constructions, buildings or infrastructures that are carried out by the public administration, which is the same as saying that they are promoted by the state, and that have as their fundamental mission to benefit the community in some area: housing, public space, transport, among others. (Definción de Obra pública, n.d.)

Under this concept, the country has a law that allows the execution of this type of works, whose construction provides a benefit to citizens, with a technical and legal criterion that supports these processes.

According to the ORGANIC LAW OF THE NATIONAL SYSTEM OF PUBLIC PROCUREMENT, of Ecuador, in Art. 1.- Purpose and scope. (Amended by num 3.1 of the Third Repealing Provision of the Code s / n, R.O. 899S, 09XII2016). This Law establishes the Public Procurement System and determines the principles and rules to regulate procurement procedures for the acquisition or lease of goods, execution of works and provision of services, including consultancy. (LEY_ORGÁNICA_DEL_SISTEMA_NACIONAL_DE_CONTRATACIÓN__8, n.d.)

This law covers a wide range of types of contracting and execution of works, so the type of work must be defined to which this research is oriented, directly to civil works, aimed at the provision of services through the construction of buildings or equipment, thus defining the types of public works that exist.

2. 2.1 Types of public works

We can find several classifications of public works: There are several expressions of public works with which we can count citizens; Regardless of the community in which we live, among the most common are: transport (includes the work of implementation and repair of roads, roads and highways; in river matters, creation of ports and canals; in air transport, the realization and improvements in airports; and everything inherent to rail transport), hydraulic (generation of dams, scrubbers and distribution networks), urban (creation and improvements in streets, lighting, parks and squares) and public buildings (those intended for education, health care, among others). (Definción de Obra pública, n.d.)

Being those of Urban Architectural character that we will focus the study, to determine the maintenance, destined to its conservation, prevention and proper use.

2.3. Useful life of a construction site.

The useful life of a construction work is chained with maintenance, because by applying a maintenance plan to buildings of any kind, it is contributing to them being able to meet the useful life time for which they were planned. The useful life of the building is the forecast of the period of time during which it is likely to be used in the required quality conditions, provided that the instructions for use and maintenance have been observed and the necessary rehabilitation works have been carried out. (Fernandez, 2007)

Therefore, determining the useful life of a building helps us to establish the types of maintenance estimated for the correct functioning of the built works, with a preventive and planned plan so that, during the period of service, the functional and aesthetic capacities with which it was designed are preserved, preventing damage or conditions caused by different factors.

Theimpulsar the elaboration of public projects that contemplate a maintenance plan and tovalue the additional costs that are generatedwith the absence of these in the urban-architectural public works, is important for the current planning, also incorporating an issue of sustainability, for the saving of resources and prolongation of the useful life of the Constructions.

3. Materials and methods

At present the degradation of a building is determined by the quality, conservation and correct functioning of a work, this depends on several factors such as the construction system used, materials used, construction systems executed, uses, environmental conditions and age, so it has become a necessity to plan maintenance plans. The quality of the building is preserved through maintenance work, the control in the construction seeks to guarantee this same quality, which does not conclude with the final delivery, but is projected to the service stage. This quality satisfies the needs and expectations of its users, as long as the necessary measures are taken, where the building is kept in the best conditions for a longer time. (Quintero et al., 2013)

In addition, the techniques for the maintenance of the different construction works have evolved due to the incursion of new materials and innovative construction systems, thanks to the various technological advances given in construction, so it has become necessary to have maintenance plans for the architectural public works executed and those planned for the city of Azogues, that allows the lack of failures due to deterioration of constructive elements or materials as well as the poor execution of construction systems, reducing costs in the stage of use of the works thanks to the omission of damages that generate an adequate conservation plan, improving the performance levels of the public works projected and executed. All these should also be based on the regulations

with what is available in the country as the NEC – Ecuadorian standard of construction where it is specified in its chapter NEC-SE-GC, Articles 5 and 6 corresponding to the agreement of the Ministry of Urban Development and Housing: Article 5.- The competent authorities have the obligation to enforce this Standard in all stages of the construction process, and especially, order the performance of tests and tests that determine the excellent physical and mechanical properties of the materials used and verify that they comply with the corresponding specifications and regulations. Article 6.- Planning and Coordination.- The Autonomous-Decentralized Municipal Governments, have the obligation to issue the local construction regulations, by ordinance, observing the provisions of the standards established as part of the Ecuadorian Construction Standard, (Valencia, n.d.)

In addition, in Books for the maintenance of buildings, strategies have been proposed for the management of the maintenance of works such as: Within the planning of these strategies, maintenance is assumed as an opportunity to improve and not as a cost that will affect the financial balance. The following maintenance strategies are considered: recognition, survey, planning, programming and control of execution, technical file or history (Humberto & Barona, 2019b).

The costs of maintenance and use during the useful life of the building are more important than those of construction or installation and even, much more difficult to foresee because to a large extent, the maintenance that will be done will generally not be preventive but corrective. That is, being carried out when defects occur and affecting (what is even more serious) not only the installation itself but also the component parts of the building that contains it. The lack of maintenance of the spaces will cause that, in the short term, the building ceases to fulfill its functions while an installation without permanent conservation or immediate repair can make it not only uninhabitable in hours but also cause much more onerous damage than the cost of the part of the installation deteriorated in itself (Fernández, 2007). Reason why in recent years not only has the cost of planning and execution of the works been estimated, but also the maintenance criteria have been incorporated, allocating extended budgets to the maintenance of the buildings, planning and management theories that must be implemented in the city and the country.

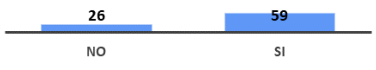
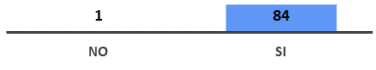
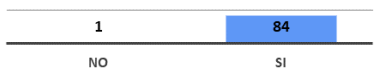
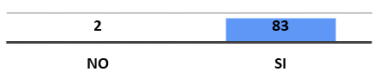
Therefore, through the use of data collection technique (survey conducted), applied to technical professionals (table 1) of the city, and data collection through an analysis of several urban-architectural works built in the City of Azogues (table 2), through a photographic archive and data on the status of works executed in the city, The lack of maintenance plans has been established.

A correct planning must have integral quality at the time of design, execution and use of the works, especially those of a public nature, being the design, the budget, the award, the construction, the maintenance, the demolition, and / or l A possible reuse of resources, necessary faces to be able to plan a project, in addition to covering the total life cycle of the construction.

Whenrealizar a survey of the urban-architectural public infrastructure executed in the city of Azogues, to establish the quality of conservation of the same and in turn take into account the maintenance problems they present, the recommendation can be raised to grant maintenance plans to the work that is projected and executed, as a necessity in the planning of works, by the contracting entities.

Table 1

SURVEY AIMED AT THE STUDY AND ANALYSIS ON THE PLANNING OF THE MAINTENANCE OF THE URBAN-ARCHITECTURAL PUBLIC WORK, BUILT IN THE CITY OF AZOGUES, PROVINCE OF CAÑAR – ECUADOR

1. PROFESSION...?	
2. DO YOU KNOW WHAT A PREVENTIVE MAINTENANCE PLAN AIMED AT PUBLIC WORKS IS...?	
3. DO YOU CONSIDER THAT THE MAINTENANCE OF A PUBLIC WORK IS AN IMPORTANT STAGE THAT SHOULD BE CONSIDERED IN THE PLANNING OF THIS...?	
4. DO YOU THINK IT IS NECESSARY THAT URBAN-ARCHITECTURAL PUBLIC WORKS, UNDERSTOOD AS PARKS, SQUARES, COURTS, RECREATIONAL SPACES, STAIRWAYS, VIEWPOINTS, COMMERCIAL AREAS, ETC. SHOULD BE CONCEIVED WITH A MAINTENANCE PLAN FROM THE PROJECT STAGE...?	
5. IN YOUR OPINION, THE EXECUTION OF A MAINTENANCE PLAN IN THE PLANNING STAGE OF URBAN-ARCHITECTURAL PUBLIC WORKS, WOULD GRANT A LONGER SERVICE TIME, AVOIDING EARLY DETERIORATION AND REDUCING CONSTRUCTION COSTS IN THE LONG TERM...?	
6. THE PUBLIC WORKS EXECUTED IN OUR COUNTRY, DO NOT CONTEMPLATE MAINTENANCE PLANS, DO YOU THINK IT IS NECESSARY TO IMPLEMENT THESE, IN THE PLANNING OF THE DIFFERENT EQUIPMENT ...?	

7. IS THE USEFUL LIFE OF A BUILDING CLOSELY LINKED TO PREVENTIVE MAINTENANCE, PLANNED BY THE PROFESSIONAL SINCE CARRYING OUT THE PROJECT OF A WORK; OR DOES IT DEPEND ON THE INTERVENTIONS FOR THE DETERIORATION THAT OCCUR ...?	5 NO	80 SI
8. MAINTENANCE SHOULD BE PLANNED AND EXECUTED ONLY IN CONSTRUCTIONS THAT PRESENT DAMAGES DUE TO USE, TIME OR ENVIRONMENTAL FACTORS.	66 NO	19 SI
9. URBAN - ARCHITECTURAL PUBLIC WORKS PROJECTS MUST BE BORN WITH A BUDGET THAT IMPLIES THEIR MAINTENANCE.	6 NO	79 SI
10. YOU BELIEVE THAT THE URBAN-ARCHITECTURAL PUBLIC WORKS IN THE CITY OF AZOGUES, HAVE MAINTENANCE PLANS PERIODICALLY, OR IT IS DONE WHEN REQUIRED BY THE STATE OF THE SAME.	75 NO	10 SI
11. IN HIS OPINION, THE PUBLIC WORKS BUILT IN THE CITY OF AZOGUES, PRESENT A GOOD CONDITION, DESPITE THE TIME OF THEIR CONSTRUCTION.	62 NO	23 SI

Note: this table shows the results obtainedin the survey carried out, Source Author

The survey was conducted in digital format, with a population size of 174 professionals who are affiliated with the College of Architects of Cañar, with an admitted margin of error of 10% and a confidence level of 90%.

The survey presents data that must be considered today for the planning of public works and works in general, since considering question number 2, of this, it is evident that there is ignorance on the subject of maintenance plans, which triggers important information to establish these, as a requirement when planning a work, and thus be able to make it an established fundamental criterion.

In the results of questions 10 and 11 of this survey, the lack of maintenance that exists in the urban-architectural work built in the city of Azogues is present, which, despite being no older than 10 years, are in uncomfortable states for users, and aesthetically present obvious deterioration.

Also in table 2, which presents the works analyzed in the city, specifically in the urban area, where it can be seen, that despite having little time of construction, some works are already with failures in their constructive elements, since being designed and planned does not provide a plan that allows to maintain the good condition of these after their delivery to the citizenship, Details such as the poor condition of the wooden elements that in 3 to 4 months should be re-treated so that they are preserved, it is clearly shown that with their little use they begin to deteriorate, or if they have not been given a correct treatment initially, these elements begin their deterioration due to factors such as weathering or use.

As far as maintenance is based on the durability of its elements and components and it is also important the typology of each construction, the quality and durability of the materials used, the quality of execution of the work, proper maintenance, immediate repairs of deterioration, the proper use of the property always accordingto the project and the correct care of the entire building and its exteriors. Because to the extent that all these factors are met, we will be prolonging the useful life of the building.

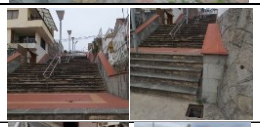
Responsibility for maintenance: The responsibility for the maintenance of a building, corresponds in the first place to the user, whether owner or tenant, with a good use of the different interior and exterior components of your home, with cleaning, usual conservation work and fundamentally, reporting all defects or anomalies observed in the building to the person responsible for its maintenance. It is important to say that some activities They must be advised or executed by technicians and professionals of different levels according to the complexity and danger of the work. It is considered that activities such as painting, cleaning interior and 6 outdoor areas, maintenance of cisterns and water tanks, for example, can consider not only an average participation of the user but even be executed by him. In the new constructions it will be convenient to capture in a descriptive memory or a manual not only the specific instructions for use and maintenance of the building itself but the adequate personnel to carry out the various activities. It is also important to include the description and composition of each element of the construction to allow the technician at the time to face the work of valuation, inspection and maintenance programming for subsequent intervention (Fernández, 2007).

Maintenance should be understood as a plan in which from the moment a public project begins, the optimal methods to execute them are also integrated, with an adequate construction, always taking into account that every building needs periodic maintenance, even more if it is elements that require materials that are susceptible to deterioration if initially they are not given periodic treatment, As is the case of wooden elements, metal elements and finishes that must be taken care of the surrounding vegetation, as is the case of the treatment of floors with materials, such as the placement of pavers.

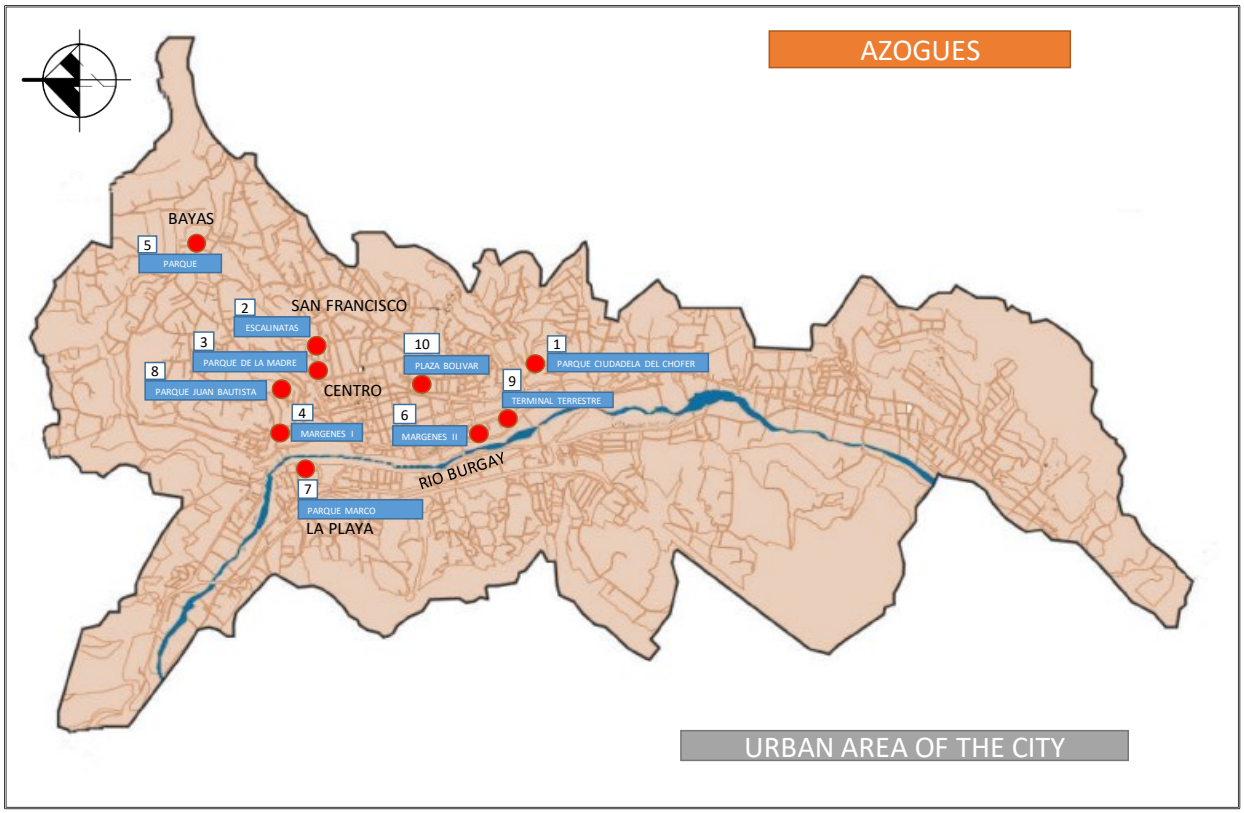
In the city of Azogues, public entities do not generate an established budget for the planned maintenance of the works, that is present in the institutional policies, because maintenance is not considered an additional item, it is

limited to the design and construction of equipment, and it is expected that these need a failure in their state to provide them with treatment, which accelerates the deterioration of the elements of these constructions, without having the possibility that their period of service to citizens is longer, providing a criterion of sustainability, with the longer duration of the projects and consequently the reduction of expenditure of resources in the construction of new works.

Table 2. Location and Analysis of the state of several urban architectural works built in the city of Azogues

TABLE OF THE STATE OF THE URBAN-ARCHITECTURAL PUBLIC WORKS BUILT IN THE CITY OF AZOGUES										
# WORK	TIPO DE OBRA		BUILDING DATE	CONTRACTING ENTITY	CONSTRUCTION COST	LOCATION	AGE	STATE OF CONSERVATION	CURRENT STATUS	DESCRIPTION
	Regeneration	Construction								
1	REGENERATION PARQUE DE LA CIUDADELA DEL CHOFER		1/2/2013	Gobierno Autónomo descentralizado de Azogues	64000 USD	García Moreno and Luis Pasteur, Azogues	10 years	disrepair		It presents deterioration in floors and walls due to the presence of vegetation.
2	REGENERATION ESCALINATAS SECTOR PARQUE DE LA MADRE		10/4/2014	Gobierno Autónomo descentralizado de Azogues	70000 USD	Vía Oriente and Av. Coronel Fransisco Carrasco, sector San Francisco	10 years	regular		Presents deterioration of the covering material of the stairs (stone) mold is found throughout the work.
3	REGENERATION PARQUE DE LA MADRE		15/4/2013	Gobierno Autónomo descentralizado de Azogues	57000 USD	Vía Oriente and 3 de noviembre, sector San Francisco	10 years	regular		The floor covering finishes are deteriorating due to the presence of vegetation and poor condition of the construction elements
4	REGENERATION MARGENES DE RIO BURGAY PRIMERA ETAPA		16/4/2013	Gobierno Autónomo descentralizado de Azogues	550000 USD	Av. Miguel Vintimilla and Heriverto Rojas C., sector La Playa	10 years	regular		The metal structure of the bridge presents corrosion due to exposure to the elements and deterioration of the furniture
5	RECONSTRUCCIÓ N PARQUE BAYAS		24/2/2014	Gobierno Autónomo descentralizado de Azogues	124993 USD	Corazón de María, sector Bayas	9 años	regular		The cobble floors are raised by the vegetation, there is no maintenance to the painting and there is deterioration of plaster and furniture.
6	REGENERACION DE LAS MARGENES DE RIO BURGAY SEGUNDA ETAPA		20/11/2016	Gobierno Autónomo descentralizado de Azogues	580000 USD	Av. Hermano Miguel, sector Parque del Migrante	7 años	regular		The cobblestone floors are raised by vegetation, the court has vegetation in the joints of the concrete blocks, deteriorated wooden furniture, paint in poor condition.
7		CONSTRUCCION CANCHA SINTÉTICA EN PARQUE MARCO ROMERO H.	28/9/2020	Gobierno Autónomo descentralizado de Azogues	36000 USD	Av. Miguel Vintimilla, Parque Marco Romero Heredia, sector La Playa	3 years	disrepair		The synthetic turf installed on the field is deteriorated due to wear and tear, and the nets are rusty and deteriorated.
8	REHABILITATION PARQUE JUAN BAUTISTA VAZQUEZ		10/1/2021	Gobierno Autónomo descentralizado de Azogues	129,583,76 USD	Juan Bautista and Vía Oriente, sector Centro	2 years	good		The floor covering stone is moldy.
9	INTERVENTION TERMINAL TERRESTRE DE AZOGUES		10/5/2022	Gobierno Autónomo descentralizado de Azogues	144000 USD	Av. Che Guevara, sector Terminal Terrestre Azogues	10 meses	regular		Wooden benches in poor condition, split wooden elements.
10	REHABILITATION PARQUE SIMON BOLIVAR		12/6/2022	Gobierno Autónomo descentralizado de Azogues	213000 USD	Emilio Abad and Aurelio Jaramillo, sector Centro	8 months	good		Faded wooden benches, split wooden elements.

LOCATION OF THE WORKS ANALYZED IN THE CITY OF AZOGUES



Note: this table presents the status of the works executed in the city of Azogues- Ecuador and its location, Source author

4. Results

Based on everything studied and referred to in this research, it has been obtained through an analysis of several urban architectural works built in the City of Azogues (table 2), that the techniques for maintenance have not advanced based on the incursion of new materials and innovative construction systems that are currently presented by the various technological advances presented for construction, so it becomes necessary to have maintenance plans for the urban architectural public works executed and those planned for the city, which allowthe lack of failures due to deterioration of construction elements or materials; as well as by the poor execution of the construction systems, which will reduce costs in the use stage, thanks to the omission of damages that is what generates an adequate conservation plan, improving the performance levels of the public works executed and those projected.

The management of public entities destined to the execution of urban architectural works at the service of citizens, must have a planning philosophy that covers integral criteria of the life of a work, in order not only to reach the stage of execution and use of the buildings, but to have the maintenance and conservation systems of the same, also achieving an adequate completion of the works to fulfill their usefulness.

According to the analysis that has been carried out to different works executed in a period of 10 years ago in Azogues, it can be determined that the maintenance given to the works understood as parks, squares, courts, recreational spaces,and stairways; executed in the city of Azogues, it is not appropriate, thus evidencing the absence of maintenance plans that allow the correct conservation of thesame.

In addition, the professionals surveyed show that the subject of planning the maintenance of a work, is not general knowledge, there is ignorance about it, as it is not considered for the planning of works, especially in those of a public nature, since there is the perception that such plans are not necessary and that the maintenance of a building should be carried out only when the work presents deterioration or fault.

Allowing to expose in this study the lack of a culture of conservation in a correct, planned and budgeted way for the different works that have been executed in the city, and those that are inthe stage of project.

5. Discussions

Mediante the collection of data through the surveys carried out and the analysis of different works of a public nature in the city, executed by entities such as the Municipality and Provincial Government, has allowed us to

analyze the importance that should be given to a stage that, by the results obtained, is not being implemented for the planning of public works in general, where maintenance planning architectural public works.
Execution and data collection through a photographic archive of the state of works executed in the city of Azogues and user surveys, to determine the state and constructive quality they present.
Through the information collected, generate viable alternatives of maintenance plans for works intended for public use in the city.
If the management of maintenance plans in the works is not taken into account, theresults obtained in this investigation will surely continue, the deterioration of the built equipment and the creation of new works that despite a short age of use and construction present failures in the materials, early deterioration and consequently a poor state and service for citizens.

6. Conclusions

At present there is a great need to implement a maintenance plan at the time a work is planned, since, having this scheduled stage, it allows the correct conservation of the projected, during its service life. At the same time, it must begin with the presentation of alternatives for the strategic generation of use and conservation of public works built in the city of Azogues, which help their correct conservation.
It must be executed from the public sector, the planning, design, construction, use, maintenance and demolition of the urban architectural works of communal use, in order to optimize the service of the same, since as evidenced in this study, the criterion of planned maintenance is lacking, leaving as a response a considerable deterioration of the works in service, for the absence of adequate maintenance and conservation measures, executing these only in the case of requiring deterioration of the buildings.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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