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Abstract

The Fucha river through the city of Bogotá in the department of Cundinamarca, which originates in the El Delirio forest reserve in the Cruz Verde moor and empties into the Bogotá river. In its first t wo k ilometers the channel does not It is contaminated, the rest has a regular and poor state of conservation, since for decades it has been used as a sewer receiving waste and sewage. The challenge of the intervention for the recovery of the Fucha river was to give it a reinterpretation of the interaction between people and the environment as a public space, integrating diverse informal recyclers into formal solid waste management systems presenting a series of challenges and opportunities when carried out successfully, bearing in mind that their work can improve performance of the system and environmental sustainability while maintaining and even progressing in the development of living conditions p For the people around him and the informal recyclers, it also helps to implement job opportunities for the recyclers, there are different methods to implement different activities which link the different elements of society.

Keywords: *Environmental pollution; Environmental conservation, Hydrographic basin; Waste*

Resumen

El río Fucha atraviesa la ciudad de Bogotá en el departamento de Cundinamarca, el cual nace en la reserva forestal El Delirio en el páramo de Cruz Verde y desemboca en el río Bogotá. En sus dos primeros kilómetros el cauce no está contaminado, el resto presenta un regular y mal estado de conservación, pues desde hace décadas se lo utiliza como alcantarilla receptora de desperdicios y aguas residuales. El reto de la intervención para la recuperación del río Fucha, fue darle una reinterpretación de la interacción entre las personas y el medio ambiente como espacio público, integrando a los diversos recicladores informales a los sistemas de gestión formal de residuos sólidos presentando una serie de desafíos y oportunidades cuando se lleva a cabo con éxito, teniendo en cuenta que su trabajo puede mejorar el rendimiento del sistema y la sostenibilidad ambiental mientras se mantiene, e incluso progresando en el desarrollo de las condiciones de vida para las personas que lo rodean y los recicladores informales, también ayuda a implementar oportunidades de trabajo a los recicladores, son distintos métodos para poder implementar diferentes actividades los cuales vinculan los diferentes elementos de la sociedad.

Palabras Clave: *Contaminación ambiental; Conservación ambiental; Cuenca hidrográfica; Desechos.*

Introduction

The current problems regarding pollution and climate change have made the environment to be on everyone's lips and has increased the concern of citizens about the possible consequences of a harmful treatment to the environment around us, it is important that it is explained and get it to reach the entire population, so awareness campaigns and environmental awareness are created. Education is fundamental to achieve the proposed objectives and for this reason a discipline of environmental education arises, since its objective is to impart environmental awareness, ecological knowledge, attitudes and values towards the environment in order to make a commitment to actions and responsibilities aimed at an adequate use of resources and thus be able to achieve adequate and sustainable development.

The rehabilitation of the river, the activation of its border from the activities, such is the case of establishing roots of knowledge that impact not only to a group of people but that by means of the same ones it generates conscience and it is distributed throughout the time, clearly, to arrive at this high level of conscience, it is necessary an equipment that has the necessary spaces for the activation and reinforcement of an ecological culture with thoughts of the welfare of the environment and the water resource that is the critical point, making inevitable a public equipment that responding to the needs that are currently reflected, is required, to forge culture and education.

Method

The research project was conducted through a qualitative methodological approach, in which the relationships between human behavior and the management of its resources were evidenced in the research process. Its data were collected through talks and observation, which was carried out at the native house foundation; where an analysis was made which evidences the degradation of the ecosystem and how people influence its deterioration, through the solid waste produced by industries and homes, analyzed from the section of the locality of San Cristobal.

Results

Environmentally, the San Cristóbal-Cerros territory has a great strength, due to the confluence of the orographic (hills) and hydrographic (Fucha) systems, which constitute an important environmental heritage for the community. It is necessary to emphasize that it is worth approaching the community to work on the recovery of these ecosystems in order to strengthen their management and improve the natural conditions of the present biome, which provides ecosystemic services to the city.

Illegal invasions, canalization and bad practices in the use of the river, such as the dumping of toxic waste into the water, have also caused floods that affect the river and its closest inhabitants, which is why the partial plan for the Fucha River seeks to find the original riverbed and the re-naturalization of the river bank to restore the natural landscape and recover the natural environment.

diversity of fauna and avoid future flooding in the sector. Thus, Duplat (2015) considers, through guidelines, the development of the various projects in terms of the recovery of the water that moves along the Fucha River.

From the whole process it can be inferred that the environmental management from the actors involved has been insufficient and can be articulated to other planning and development instruments, to ensure better conditions for the population to participate in the construction of their territory and generate ownership over it (Duplat, 2015) (Duplat, 2015).

In this case, the project focuses on the possibility of mixing different socio-cultural dynamics produced by the occupation of a territory, developing the different activities while environmentally conscious people surrounding these ecosystems.

By means of the Fucha River, various proposals are implemented, in which they help people to learn in a dynamic way, or in talks, the problems that are caused by pollution, implementing an environmental awareness, as well as Tovar (2011) shows us implementing awareness in his readers, when he addresses issues related to social responsibility, in large cities that depend intrinsically on each other, so that citizens are consistent with the impact on their environment.

The relationship that exists between the deterioration of the Fucha River and the social responsibility strategies, both of the business and residential dynamics with an impact on this body of water; which should be a matter of individual and collective concern because it is an issue that, if not addressed, affects the existence of all living and non-living elements that make possible the healthy life of the human species (Tovar**, 2011).

Through social responsibility, environmental and economic improvement can be achieved since its purpose, as Tovar says, is to progress hand in hand, taking into account that by improving each part and avoiding further contamination of the basin, this can be used for economic improvement for informal workers who depend on recycling and other types of work related to this area of work (Barrera, 2020).

Through informal recyclers who constantly tour the natural spaces, noting the invasion and environmental impact caused by street dwellers with shacks, disposal of solid waste, debris, etc., as well as shows lion and vega in 2019 The community expresses its concern about the necessary control that must be made of street dwellers and the need to provide a dignified and restorative way out for the life projects of these people.

The presence of street dwellers and solid and liquid waste, but these problems are related to insecurity and bad odor, but not to the negative impacts of river pollution, for example, the poor quality of the local air, and with it respiratory diseases, contamination of other water tributaries and ecosystems (León Gómez & Vega Carrillo, 2019). Based on the social and recovery activities carried out not only by the

The government but also informal recyclers by implementing significant environmental, social and economic aspects.

Through urban integration and environmental recovery of a body of water is fundamental for the city, since through the appropriation that has generated the river as a public space and center of urban activities in its areas of influence as evidenced by Peña Maru- landa & Tinjacá Castro (2016) "the revitalization of the water body Fucha channel, based on a principle of sustainability as the main feature of public space and landscape recovery in the rounds under study". P. 27, through its problematic by means of the vi- viendas of informal character that are so close to the river, generating a strong impact on the body of water, being this enough for the affectation of fauna and flora, especially the danger that is generated for these people in their health by means of contamination.

Many of the people who live so close to the river are those who dedicate their daily lives to informal recycling, as shown by Ballesteros, Urrego, Botero and Arango in 2005, informal recyclers have a culture of helping to clean and recover each of the different ecosystems, inviting people to help and raise awareness of the deterioration of the environment.

It should be noted that the profession of checherero (who sells the material that is recycled) predominates in the population that has a job other than recycling; however, this work cannot be totally separated from recycling as such, since many recyclers sell the reusable material found during the recovery of waste (Ballesteros1, Urrego1, Botero1, & Arango2, 2005).

Thus, recyclers play a fundamental role in the transformation of usable solid waste, since they enable the collection, selection and adequate classification of various materials. However, as Ballesteros, Urrego, Botero and Arango said in 2005, those who dedicate themselves to this work must struggle against social, cultural and technical conditions that hinder their performance and impact their wellbeing. Recoverers have knowledge about prevention and practices that promote health and wellbeing, but the latter are not applied because they diminish their performance, they do not consider them necessary, it is not up to them to implement them or they lack economic resources (Ballesteros1, Urrego1, Botero1, & Arango, 2005).

The main cultural and social conditions in which the recycling activity takes place are related to the characteristics of the recyclers, especially economic factors, education and integration or acceptance in society, as well as general characteristics in the basin, where this activity has been most developed, are described. In addition, as Sturzenegger shows us in 2010, based on this problem, a global panorama of the challenges that are presented to allow recycling to be a dignified job for those who work in it is shown.

The vast majority of waste pickers work in precarious sanitary conditions, exposed to a high level of job instability, without any type of occupational safety.

The lack of a social protection system and, in very few cases, integrated into the formal system of municipal solid waste management (MSWM). (Sturzenegger, 2010).

The recognition of the contribution of waste pickers to the local economy, safety, public health and environmental sustainability, unfortunately, is rarely recognized for these people, most of whom are low-income. They obtain it in final disposal sites, such as open dumps or controlled landfills; on public roads, collecting the material found in the streets" (p. 08) these recyclers are in charge of separating and contributing to leave the streets and ecosystems to the liking of the people.

The amount of pollutants introduced into the air directly and indirectly affects almost all ecosystems. The contamination of ecosystems can generate serious consequences for living organisms due to the inhalation of pollutants, adverse climatic conditions, as in the concurrent zones where its affectation does not only consist of the waste that is dumped in the ecosystems but also the contamination caused by other aspects such a s vehicles and companies. As shown by the organization Nu Infrastructure, CE-PAL in 1999, the affectation that all urban systems have, due to the variety of contamination in the ecosystems near urban areas, through the territorial strategy that starts from the understanding of the relationships and processes that involve the various stakeholders.

There is not a single aspect of human life and its environment that is not influenced or affected by population expansion and its concentration in urban areas. Urbanized areas are, however, affected in turn by the activities that take place in their surroundings, especially by the actions carried out in the upper parts of the watersheds where the populations are located and by the rains that fall directly in urban areas. (Infrastructure, 1999).

In this way, the responsibility of the various actors is evident, willing to collect as much waste as possible, as well as that of the surrounding area, leaving the site free of waste to facilitate the integration and focusing of resources towards the execution of strategic actions that transform the deteriorated areas and produce positive and far-reaching impacts on the population and the city.

It is said that the main consequences that the environment is facing is due to industrial processes, the waste from manufacturing processes, such as the gases emitted by them, increasingly affect the quality of air and water, among many other aspects. These two factors are further enhanced by the global consequences of each and every one of man's actions on the environment. As evidenced by Vidal (2010) "The consolidation of environmentalism in broad layers of the population, especially in post-industrial societies, is one of the most surprising and interesting processes of social change of the last four decades", and thus to reverse the urban crisis requires the participation of all social sectors involved, in an active and responsible manner.

The revaluation of public space should be from now on, one of the most important aspects to develop a comprehensive planning to restore functionality to the urban space, in order to contribute to the improvement of the quality of life of people, from the creation of new public places and the recovery of abandoned spaces. As Gonzalez (2018) shows us, by means of different methods to be able to implement the diverse activities which link the different elements of society.

The execution of cleaning activities in the water bodies of the city of Bogotá is a fundamental and necessary task to preserve the hydraulic capacity and avoid contamination of the most important water sources of the district, in addition to reducing the risk of flooding during the rainy season (IDIGER, 2017). These processes generate usable and non-usable waste of various kinds: sediments, plant material, CDW and non-usable material (which due to their characteristics lose any option of being introduced into a new cycle). (Gonzá- lez Ramírez, 2018).

Thus, companies should implement, especially factories, all those educational processes related to the dissemination and appropriation of knowledge that improve the relationships that exist between individuals and ecosystems. Suarez (2015) by means of a comprehensive planning instrument and multisectoral scope allows guiding the transformation of ecosystems and their urban environment from the recognition of their reality and potentials.

Non-compliance with commitments and lack of political culture on the part of citizens: the concept of governance is based on the interactions of the different actors associated with water resources, whether in their use or management, these form a network, so responsibilities and commitments must be clearly defined, which constitute the formal or informal rules for the actions of the different actors (Duarte Suárez, 2015).

This makes it possible to identify elements of the territory and key actions that drive a set of collective processes and contribute to building a high quality urban environment with the restoration and self-sufficiency of water basins. Social responsibility facilitates integration and focuses resources on the execution of strategic actions to transform deteriorated areas and produce positive and far-reaching impacts on the city, authors such as Barra- gán et al (2019) or Simanca et al (2019) refer to the benefits of the subject within the development of a community.

Gómez (2019) implements the Local Environmental Plan, which consists of supporting the Environmental Management of the Localities, with which it seeks to know and explain the current state of the different environmental components of the different spaces and propose lines of action, which allow taking advantage of the environmental offer in a sustainable manner and avoid or minimize the negative impacts caused by the social, economic and productive processes on the natural base of the territory.

Environmental education maintains a close relationship with nature and biodiversity conservation in addition to increasing efforts to prevent biodiversity loss, environmental education demonstrates sensitivity and commitment to conservation actions.

The recovery of ecosystems and their urban environment is recognized on a national scale, due to the management scheme that has involved and strengthened civic, social and community organizations. The recovery of ecosystems and their urban environment is recognized on a national scale, due to the management scheme that has involved and strengthened civic, social and community organizations.

Santos (2009) states that recycling is characterized by a high level of intermediation during the recovery of materials until they are used as raw materials in the production of finished products. The productive sector is responding through combined prevention and control strategies, in addition to extending environmental management throughout its value chain. However, ensuring urban environmental quality requires a broader approach than sectoral management, ecosystem protection and competitiveness (Santos, 2009).

With respect to environmental benefits, the productive sector, through recycling, can contribute to increase the useful life of the city's landfill and reduce the demand for virgin materials, helping to preserve non-renewable resources and reduce the use of energy by reincorporating recycled raw materials into the production cycle.

The different channels that exist for these types of products provide ample opportunity to improve their efficiency, particularly in the plastics sector, where there is a wide range of industrial and final consumption activities as shown by the organization Green and Sustainable Business in 2020 "Economic activities in which goods or services are offered, generating positive environmental impacts and also incorporating good environmental, social and economic practices with a life cycle approach, contributing to the conservation of the environment as natural capital" these businesses support a wide range in their development opportunities.

That is why starting a green business is a smart thing to do these days, obtaining economic benefits while respecting the planet. Generating and transforming a business model that revolves around the environment, its care and protection is a wise business decision, for people and for the planet.

Discussion

Through the development of research I think that this research helps those people who are engaged every day to collect and separate the various materials which help in one way or another to the environment, since these people involved are those who are at risk of contracting various diseases.

Thus, I think that these people can be helped by providing them with better opportunities, or by encouraging them to collaborate with the planet by creating companies under green development, implementing more culture and more environmental awareness in the country.

Conclusions

In conclusion, it is known that there are a variety of people who collect, separate and trade materials such as cardboard, paper, glass, plastic or metal, and make this activity their main source of income. Generically they are known as "informal recyclers", seeing how the integrated action manages to develop a social work, reincorporating the basin based on the culture and socio-economic condition, as well as the protection of biodiversity strengthened by institutional support instilling a culture of waste recovery of the whole community in context.

The environmental, social and economic issues involved in recycling present a wide range of business opportunities for the proper use of waste, favoring the recycling population because they are qualified and can be used for the collection, transformation and distribution of new products or materials that come out of this process, through a business plan, generating a formalized and organizationally structured productive process, with the participation of several companies that help to link these informal recyclers to the productive process, thus avoiding so much contamination by companies and people in the different ecosystems of the city.

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