UCLG Committee | Social Inclusion Participatory Democracy and Human Rights

Inclusive Cities Observatory

« Integrated Management of the Microbasins and Protected Natural Areas »

Municipality of Armenia, Colombia

Period of implementation: 2003-2009 | Study case written in 2010

Armenia is located on a water system consisting of 18 microbasins that have the status of a protected area. The area is under pressure due to land use conflicts that have led to forest fragmentation and a reduction in habitat and food for wildlife. The Municipality of Armenia "**Microbasins and Protected Urban Areas Integrated Zoning and Management Plan**" was designed in response to this problem. This was a plan for ecological connectivity that aimed to create 27 conservation corridors across the urban area while incorporating the concept of connectivity in the municipality's zoning plans. This was a participatory process involving consultation and institutional coordination. In order to achieve it, various activities were carried out with each type of vegetation: forest enrichment with native species, enrichment of bogland, and reforestation of pastures and edge areas with lines of trees and gardens as buffer zones. The Urban Environmental School was a key element in ensuring the involvement and assimilation of the connectivity process by the community and the participating institutions.

The **Inclusive Cities Observatory** was launched in 2008 by the UCLG Committee on Social Inclusion, Participatory Democracy and Human Rights with the aim of creating a space for analysis and reflection on local social inclusion policies. The initiative was developed with the scientific support of Professor Yves Cabannes (University College of London) and the Centre for Social Studies (CES) from the University of Coimbra. At present, the Observatory contains more than sixty study cases mostly developed between 2008 and 2010. Even though many of these cases refer to policies that have already come to an end, they still have much to offer: from capitalizing on the learning acquired by other local authorities to discovering suggestive and alternative means to address social inclusion challenges from a local perspective.

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Context

City context

The city of Armenia is the capital of the department of Quindío (Colombia), and was founded in 1889. It currently has an area of 121 km^2 and is located on the western flank of the Central Cordillera range of the Andes, 296 km from the capital city of Bogota. It is a city of 280,000 inhabitants, with a rural population of approximately 8,000 people. Four percent of the inhabitants of Armenia (11,000 people) are of indigenous or Afro-Colombian origin. Armenia is part of what is known as the "Colombian Coffee-Growers Axis", where coffee production is one of the main productive sectors in the region and the country.

The city's government consists of a Mayor and a Municipal Council who are elected based on their program, i.e. the proposals made during the election campaign by the winning candidates must be implemented, according to the 1991 Constitution. The Council is responsible for the management of utilities, the water supply and sewerage, energy, communications and management of solid waste. However, some of these services are performed by private companies. The Municipal Council and the departmental Government are jointly responsible for economic development, housing, mobility and transport.

Management and conservation of natural resources, the establishment and management of protected areas, and management and planning of watersheds are responsibilities of the Quindío ARC in collaboration with the municipal council and the departmental government.

Decentralization context

The National Constitution of Colombia (1991) defines the country as "a legal social state" with political power concentrated in the national government, and therefore with a low level of decentralization, for administrative purposes only. The country has a bicameral parliament, consisting of the Senate, which is elected in a national electoral district, and the Chamber of Representatives, elected in territorial electoral districts; there are 32 departments, each containing a number of municipalities, and a Capital District (Bogota).

The Head of State delegates responsibilities to the ministries, including the Ministry of Housing, Environment and Land Management, which was created by Law 99 of 1993. This law also established the National Environmental System, which provided for the creation of departmental offices linked to the Ministry: The Autonomous Regional Corporations (ARCs), whose role is to ensure compliance and monitoring of environmental legislation and work to preserve each department's natural resources. The declaration and management of national Protected Areas is the responsibility of the Ministry, while regional Protected Areas are a remit of the ARCs. The protected areas established at the municipal level are the responsibility of each municipality.

In addition, Law 388 concerning Territorial Zoning requires municipalities to produce Municipal Land Zoning Plans (MZPs) governing land use of their territory, at both urban and rural levels, and with regard to infrastructure, services, roads, commercial development, protected land and other aspects related to the territory. The MZP also defines the land use system (prohibited, permitted and limited uses) according to the environmental zoning of the territory concerned.

Social context

Although Armenia is a city that grew relatively fast (to the extent that it became known as the "miracle city"), events such as the coffee crisis of the 1980s and the 1999 earthquake have

affected the city's socioeconomic conditions. The city has a low income level, at U.S.$3,000 per capita per year, an unemployment rate of 17% and an illiteracy rate of 15% (39,300 inhabitants in a census total of 260,490 - National Administrative Department of Statistics 2009). The population at the lowest socioeconomic levels accounts for 79% of the population and the housing shortage level is 11.28% (National Administrative Department of Statistics 2005).

As a result, the Human Development Index is 0.72 (2002). The economy is primarily based on agriculture, an area which is currently undergoing dramatic changes due to the conversion of coffee and banana plantations into pastureland for cattle. This has led to a decline in the supply of jobs available. However, the city has benefited from the development of tourism in the department over the past 10 years, which has led to increased demand for infrastructure and services. Fifty-three percent of the total population is women, who have a life expectancy of 76 years, while the life expectancy among men is 70 years. The immigrant population is very low.

Policy development

Given the role of ecosystems as cornerstone of life and development, the "**Microbasins and Protected Urban Areas Integrated Zoning and Management Plan**" seeks to balance conservation of biodiversity with the population's enjoyment of the natural environment. To that end, it provides for the creation of urban conservation corridors, the purpose of which is to contribute to the restoration of forest ecosystems and the collective assimilation of natural areas. The corridors have been created in the microbasin areas located in the north of the city. According to the city's MZP, these areas are protected land, as are the microbasin areas of La Aldana, Paujil, La Florida and Hojas Anchas, all of which are part of the Armenia Municipal System of Protected Areas. These urban conservation corridors help to foster knowledge and appreciation of forests among the public while connecting the various forest ecosystems.

Background

The city of Armenia has a complex water system consisting of 122 drains, of which approximately 54 are *quebradas* (brooks) or *cañadas* (small streams running down steep slopes or ravines). The city's growth has taken place on top of these urban streams, and their vegetative cover. In some cases, this has happened as a result of the drains being filled in with moved earth, debris or solid waste (known as *anthropogenic fillings*). The pressure exerted by the municipality's rapid urbanization is currently leading to greater occupancy of the ravines and a consequent loss of vegetation and topsoil. Many of the ravines no longer have springs and have become dumping grounds for solid waste and for the disposal of domestic wastewater, with water pollution exceeding the permitted levels. The riverside forests that grow along the streams have been subjected to a high level of fragmentation and annual deforestation rates of 10.37 hectares (for a loss of coverage of 82.94 hectares between 1996 and 2004; Salazar and Nieto 2005).

In this context, the following initiatives have been undertaken by government and CSOs:

- In the MZP Territorial Zoning Plan (Agreement 001/1999), the municipality of Armenia included what it defined as *strategic ecosystems*, *ecologically fragile areas*, and *forest fragments and remnants* in its protected land. Much of this protected land is located in steep gorges, drains and areas surrounding the gorges; it also includes what is known as *land at risk*, i.e. areas at risk of landslides, floods and earthquakes.[1]

[1] Earthquake and landslide risk is to a large extent associated with buildings that have been constructed on anthropic landfills on the drains and streams.

This protected land has an area of approximately 667.61 hectares, of which 296.65 is forest fragments and 98.32 hectares is in agricultural systems.

- Decree 140 of 2000 created the City Municipal Protected Areas System, which places this protected land within a post-disaster environmental management process (the Coffee-Growers Axis earthquake, Colombia, 25 January 1999).
- As well as this process for recognition and protection of natural areas in the municipality, there is a civil society initiative run by the Semillas de Vida Foundation, a non-governmental, non-profit organization established in 2000 to promote conservation of biodiversity and environmental education in urban and rural areas, and the implementation of policies and instruments for environmental management.

Policy goals

The "**Microbasins and Protected Urban Areas Integrated Zoning and Management Plan**" aims to promote knowledge and social valuation of the municipality's forests, preserve the biodiversity of the urban microbasins and reduce the risks to the human communities living in those areas. To that end, the policy was developed with interagency coordination and by means of a participatory planning process for the production of the Integrated Management Plan. One of the strategies of this plan is to connect the forests of the microbasins in order to reduce the fragmentation of the ecosystems. In order to implement the strategy, a conservation corridor crossing the urban area of the city of Armenia was designed and established, these issues were included in the city's environmental planning and management, and the human communities living in the areas of risk were made aware of and involved in the corridor restoration process.

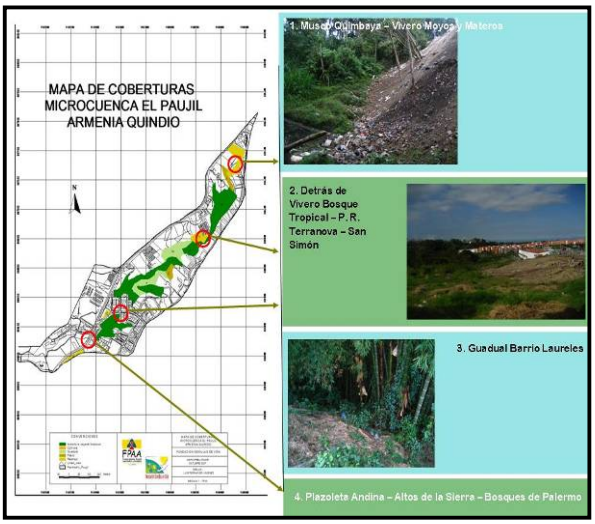
Chronological development and implementation

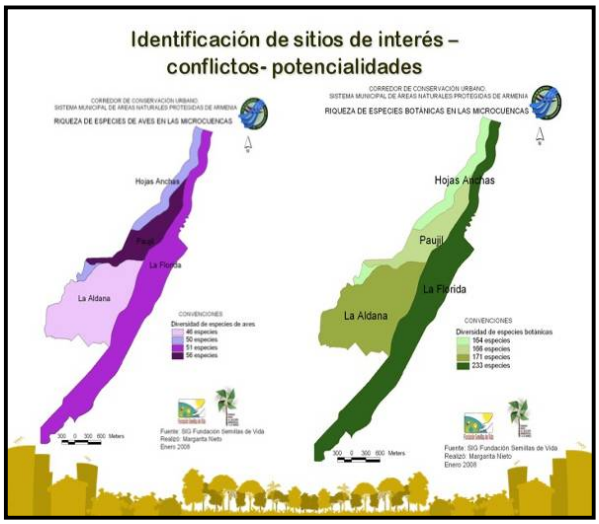
The Semillas de Vida Foundation established the **first phase** of the project in 2002, being implemented from 2003 to 2005. It was implemented with financial support from the Environmental and Children's Action Fund[2], in agreement and consultation with the municipal administration, and the participation of public and private institutions. The aim was to group and classify the urban drains into 18 microbasins for profiling and management. A pilot case of management and conservation of streams in the Pinares microbasin, to the south of the city, was also carried out during this phase. This included environmental characterization, improvement and recovery work in some natural areas, and a process of participation, consultation and environmental education with the inhabitants of the microbasin. Based on this experience, the *Municipality of Armenia's Integrated Urban Microbasins Management Plan* was formulated. The central pillar of the *Plan* was the strategy for connectivity between the forests by means of urban-rural conservation corridors (three potential corridors were identified). This plan was the result of a process of consultation and social participation, and was included in the Action Plan of the Quindío ARC and the Armenia MZP.

The **second phase** of the project was called: *Reducing the Fragmentation of Forest Ecosystems in the Protected Areas System in the City of Armenia - Quindío by Urban Conservation Corridors,* and was also funded by the Environmental and Children's Action Fund. During this phase, one of the three possible conservation corridors previously identified was selected. These were located in the north side of the city and comprised the microbasins of La Florida, Paujil, Aldana and Hojas

[2] This is a national fund created in Colombia to manage the budget of the debt-for-nature swap system, which aims to support projects for environmental protection and children.

Anchas. This selection took place after a preliminary assessment with delegates from the Regional Corporation of Quindío and the Municipal Planning Area of the City of Armenia.





The "El Paujil" microbasin offers an example of identification of areas of interest for the establishment of the conservation corridor. ***Source :*** *SIG, Semillas de Vida Foundation.*

The proposal to establish this corridor was implemented between September 2007 and December 2008. During this period, 27 ha. of the corridor connecting the Paujil, La Aldana, La Florida and Hojas Anchas microbasins was designed and established. The following activities were carried out: forest enrichment with native vegetation species, enrichment of bogland, and reforestation of pastures and edge areas with lines of trees and gardens as buffer zones. These activities were carried out based on the type of vegetation in the affected areas. This entire process was formalized with the signing of 30 deeds of commitment with the owners or those responsible for the affected areas, and the creation of 3 institutional partnerships. These deeds consisted of a document describing the planting work done on the site, the terms of the agreement signed and the signatory's commitment to at least one subsequent item of maintenance work.

In order to control and monitor the planting activities, the survival rate of the plants sown was assessed, showing a 77% effectiveness rate in activities undertaken. A range of indicators of performance and achievement were designed to evaluate the project, some of which became part of the environmental indicators system of the Municipal Protected Areas System. The environmental characterization information generated was used to create a database enabling assessment of the municipality's environmental progress. We subsequently documented the methodology and application experience of the Urban Environmental School, and three publications explaining the project were produced: *A Field Guide to the Birds of the Urban Conservation Corridor* (Nieto & Muñoz 2008), *Gardens for Conservation (*Nieto & Vega 2008) and *the Urban Conservation Corridor Design and Establishment Document (*Nieto & Nieto 2008).

Stakeholders, beneficiaries and participatory methodologies

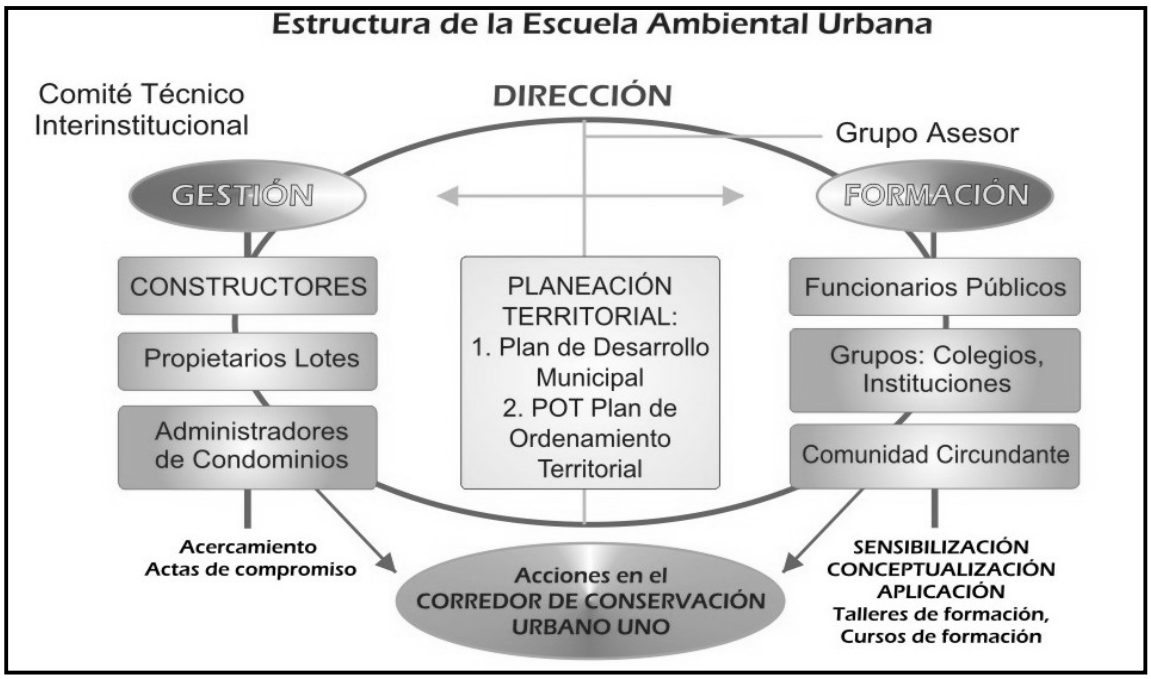
At a government level, the main **stakeholders** were the University of Quindío, the SENA Quindío, the Departmental Institute of Special Education, the Quindío Regional Corporation-CRQ, the INEM-Armenia School and the Civil Defense Department. From the NGOs side, the main stakeholder involved were the Semillas de Vida Foundation and the was the Luis Felipe Vélez Foundation, which joined the second phase of the project along the Urban Environmental School. Regarding the private sector, the project included the participation of Armenia residents, several construction companies (CAMU, Comowerman) and the Servigenerales Group.

The **beneficiaries** of this policy were all inhabitants of Armenia. During the first phase of the project, a pilot scheme was carried out in the Pinares microbasin (located within the city). In the second phase, work was done in the city's northern microbasins: Hojas Anchas, Aldana, La Florida and Paujil, comprising various neighbourhoods, residential units, commercial and educational institutions. The execution of the project has created links to more institutions and communities than anticipated. The process also involved the University of Quindío, the National Learning Service (SENA) and the Police Command's Environmental Police unit.

The policy was implemented by means of a process involving outreach, awareness-raising, reinforcement of skills and the creation of spaces for the implementation of environmental management projects targeted at the population of Armenia. These processes are embodied in the so-called Urban Environmental School (EAU): A key factor in the policy's sustainability strategy, as it considers environmental education in terms of an axis that enables awareness, skills and assimilation by the public to be articulated and generated.

The EAU is structured in two areas, management and training, both of which involve all actors within the project, at community and institutional levels. This involves representatives of various social and professional sectors as well: researchers, primary, secondary and university education teachers; national, regional and municipal public employees; NGOs and consultants, communication specialists, entrepreneurs, artists, parents, pupils and students. The EAU provides the framework for the policy's socialization and a space for consultation where new actors in the process can meet and become involved. A community-based Advisory Council and an institutional Inter-Agency Technical Committee were created to that end.

The organization chart and operating method of the EAU School are shown below along an English translation



Structure of the Urban Environmental School (EAU)		
Inter-Agency Technical Committee	**MANAGEMENT**	Advisory Group

MANAGEMENT		TRAINING
CONSTRUCTORS	TERRITORIAL PLANNING (1) Municipal Development Plan (2) MZP Territorial Zoning Plan	Public employees
Lot owners		Groups: schools, institutions
Condominium administrators		Local community
Outreach Deeds of commitment	Actions in the URBAN CONSERVATION AREA (UCA)	AWARENESS-RAISING CONCEPTUALIZATION APPLICATION Training workshops Training courses

Strategies	**Methods**	**Strategic actors**	**Results obtained**
Outreach. Incorporation of new actors in the process	Interviews, meetings, identification and spatialization of the residents of each area to be recovered or restored. Personal contact to motivate the actors with regard to the corridor. Relationship matrix.	**Advisory Council:** Representatives of residential condominiums and complexes, owners of lots and institutions.	Identification of strategic partners for the adaptation, development and sustainability of the Urban Conservation Corridor. Grouping by interest groups. Recognition of the type of relationship with each actor.
Awareness-raising and outreach	Awareness-raising and presentation workshops about the Project, which showed the activities carried out in situ, followed by the production of vinyl drawings relating to what those attending know about their environment.	**Advisory Council:** Aimed at children and adults from condominiums and housing units.	Identification of relationships between the inhabitants and their environment by means of comments and drawings.
	Partnerships and/or deeds of commitment. The actors were presented with clearly defined areas	**Advisory Council:** Representatives of residential condominiums and	Conservation agreements with strategic partners. Participation of the

Strategies	Methods	Strategic actors	Results obtained
Awareness-raising, outreach and consultation	in order to plan activities for the establishment of the corridor in technical terms.	complexes, owners of lots and institutions	actors in restoration activities to be performed in the corridor areas in their area of influence.
Support for educational institutions in activities related to the project's objectives	Support and/or advice.	**Advisory Council:** Educational institutions. Support with the SENA for adaptations in the Carlomagno Colegio gardens.	Strengthening of institutional relations.
Operation of the Inter-Agency Technical Committee	Meetings, exhibitions, tours of the Barbas - Bremen biological corridors forming part of the Barbas - Bremen Regional Natural Park (GEF Andes IAvH project-Filandia Town Council).	**Inter-Agency Technical Committee**	Suggestions and comments on the project. Recognition of the concept of a biological corridor; establishing the terms of negotiation of the project.



The environmental education process aims to increase the capacity of local people to develop a sound and sustainable environmental culture, and to help find answers to environmental problems.

The academic program, which combines theory with practice, consists of three stages:

- *Stage 1*: Awareness-raising - Recognition.
- *Stage 2:* Conceptualization.
- *Stage 3:* Environmental Management.

Training is given in at least three sessions for each of the working groups listed in Table 1. Various methods are used, such as workshops, training courses, field trips to the project's work areas and to the Barbas - Bremen Biological Corridors in Filandia - Quindío, lectures, leisure activities and the design and use of educational games (see Nieto-Restrepo *et al.* 2008).

After the process is carried out in educational institutions, it is anticipated that students will create a multiplier effect in their schools and lead the way in caring for the conservation areas maintained by the institution. With the gardening courses (which included the ongoing support and commitment of employees of the residential units, among others) the aim was to make the skills available with a view to the goal of structurally connecting the corridor.

Institutionalization and financing

The institutionalization process of the policy took place throughout the Environmental Management Plan (Agreement 001 of 1999), which declared the urban streams and microbasins to be protected land and strategic areas. This was all subsequently included in the Municipal Protected Areas System (2000). While the corridor was being established, the new Armenia Environmental Management Plan (2009-2023) was also formulated. This includes the issue of ecosystem connectivity and ensures the long-term commitment of the municipal authority.

As for financing, this is the available information:

Phase I 2003-2005

Environmental and Children's Action Fund (Phase I 2003-2005) U.S.$98,380

Matching contribution by the Foundation: U.S.$52,235

Total: U.S.$150,615

Phase II 2007-2009

Environmental and Children's Action Fund (Phase II 2007-2009) U.S.$78,270

Matching contribution by the Foundation: U.S.$30,500

Total: U.S.$108,770

Outcomes and reflections

Key results and achievements

The design and establishment of the corridor was a participatory process with institutional coordination that has succeeded in implementing an environmental conservation project coordinated with the real situation in the city of Armenia. The corridor is also the beginning of the city's structural connectivity strategy. The results of the initiatives implemented for the rehabilitation of pastures and the transformation of the edges into garden lines can only be quantified and valued in the long term.

The involvement of other institutions and the public education and empowerment projects are the mechanisms giving the project resonance and continuity. Building relationships of trust between actors is an important result in terms of consolidating social networks. It will only be possible to assess the social impact of the project in a few years' time, when public behavior has changed and the ecosystems have been recovered.

Given that the corridor is composed of various nodes, patches and/or fragments, and that each of the actors and/or owners involved has different opinions and interests, it was necessary to carry out consultations on an individual basis. The actions to be taken were also designed on a

case-by-case basis. The EAU was a key element in achieving assimilation of the structural connectivity process by these key agents.

The projects for the structural connectivity of the landscape, especially in urban areas, have no set formula or methodology. This led to some activities having to be reconsidered and more risks taken. However, defining the objectives and outcomes of the project properly was important in its organization and execution. The evaluation and monitoring of the work is the responsibility of the community rather than any of the organizations involved.



This policy could be considered successful to the extent that it goes beyond designing wild habitats. The corridor design aimed to address the needs of the community involved, as well as meet the need to restore ecosystems, maintain their structure and extend their work. The main challenges and constraints were the need to consult each actor individually about the work involved to establish the corridor, and the project's vulnerability in terms of the municipal government's permanence and commitment.

Replicability

In the urban context and at a municipal level, the project and the planning and management process proposed by the Semillas de Vida Foundation for the Armenia Municipal Protected Areas System is useful as an example of management of natural areas in cities. It has firm foundations and specific examples for defining the main ecological structure in an urban context and provides management tools for its inclusion as a factor in territorial planning.

The methodology used by the EAU is also a replicable process.

Further information

This case study was written by Margarita Nieto, a team member of the Semillas de Vida Foundation, in collaboration with other members of the Foundation including Olga Alicia Nieto, Olga Lucía Giraldo, Luis Fernando Jiménez, Niny Johana Muñoz and Jorge Hernán Lopez. The case study was prepared under the supervision of Dr. Stefania Barca at the Centre for Social Studies at the University of Coimbra (Portugal) and completed in December 2010.

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