

A new approach to Regional Planning

In face of the challenge of integrating elements of biodiversity management in different sectors at the subnational and national levels, the INTERACT-Bio Project has decided to invest forces on a new approach to regional planning, and has been guiding Metropolitan Regions, at different stages of growth, through the pathway of sustainable and nature-based development.

The phenomenon of metropolization implies the Brazilian urban agglomerations the challenge of rethinking the way cities are built. The reproduction of constructive solutions of high environmental impact, with massive use of grey infrastructure, culminated in an environmental degradation, in the aggravation of urban conflicts and in the loss of ecosystem services, fundamental to the maintenance of life in society. The relationship between quality of life and built environment is intrinsic, and public health depends directly on the maintenance of natural resources! Ecosystems are responsible for both the supply of food, raw materials, fresh water and medicinal resources, as well as climate regulation, carbon sequestration, moderation of extreme events, and the maintenance of local cultural tradition. At the metropolitan level the challenges are even bigger, as demands for better living conditions run up against jurisdictional governance challenges and therefore, political-administrative boundaries add up to the environmental challenges.

During these two years of implementation of INTERACT-Bio Project, it was possible to closely monitor the challenges and barriers encountered by each Metropolitan Region of the Project - Campinas, Belo Horizonte and Londrina - in the construction of alternatives to predatory policies of urban development, one of them the traditional sectorial approach pursued while implementing public policies at municipal scale. At the same time, it was also possible to discover the potential that resides in the trajectory of each of the regions, and which enabled, despite the challenges of governance, to support the adoption of Nature based Solutions and Green-Blue infrastructures.

Despite the varying degrees of maturation of metropolitan governance in each territory, it is intended that the three Metropolitan Regions tread the following path of nature based development:

1. To elaborate the Integrated Plan for Urban Development (PDUIs), which means, to use the existing territorial planning mechanisms at metropolitan level, in accordance with the regulatory framework of the National Policy for Metropolitan Development - Federal Law 13,089 / 2015 (Metropolis Statute);
2. To carry out an evaluation of the Ecosystem Services of each region, identifying challenges and priorities for the investment of efforts and resources;
3. To develop a regional intervention concept to address the priority challenges, in order to integrate the territory of the different municipalities impacted, and to qualify and enhance the offer of ecosystem services at the metropolitan scale.

Metropolitan Region of Campinas – RMC

1. Status of the Integrated Plan for Urban Development (PDUI):

In elaboration: the Preliminary Version of the document is being debated in public hearings to collect opinions from civil society.

2. Evaluation of the Region's Ecosystem Services:

It was mapped the offer of Ecosystem Services in the RMC, in a participatory way, which contributed for the regional diagnosis of environmental resources and deepened the understanding of the regional concept of intervention.

3. Regional concept of intervention:

Proposal of a Connectivity Area: The concept of Connectivity Area is here understood in a multidimensional perspective to landscape connectivity. It is not limited to the concept of Ecological Corridors, since there are many other instruments and strategies that can better reach out the requirements of connectivity assurance in order to reconnect communities and their territory.

The RMC, at the stage of elaboration of the PDUI, identified connectivity as a priority challenge to be faced, and therefore, the RECONECTA-RMC Program and the INTERACT-Bio Project have been working together to promote the connectivity of the landscape in the region, proposing the creation of a Metropolitan Connectivity Area.

The RECONECTA-RMC Program, developed by the Municipal Secretariat of Environment and Sustainable Development of Campinas, has raised itself in the ambition of developing integrated strategies of environmental management for the city region, including strategies for biodiversity conservation. Since INTERACT-Bio has added up to this initiative, the members of this joint workgroup have decided to focus on the challenge of strengthening connectivity of the remaining vegetal fragments.

The Proposal of a Connectivity Area has been designed to foster nature conservation, maintenance of ecological processes and economic and cultural social prosperity, as well as increasing resilience to climate change. It will connect ecologically relevant areas, maintaining or restoring landscape connectivity and facilitating gene flow. It will also promote alternatives for the adoption of low-impact land use activities, of incentives to the green economy, but also will connect people through nature-based solutions and urban green-blue infrastructures such as linear parks and greenways.

Its objectives are:

- To establish connections between forest fragments in priority and strategic areas;
- To strengthen the System of Conservation Units;
- To recover Permanent Preservation Areas and forest fragments;
- To protect springs;
- To combat trampling of wild animals;
- To develop research, monitoring of flora and fauna;
- To maintain strategic areas in river basins;
- To stimulate the adoption of sustainable production and consumption practices in agriculture;
- To promote the connection between parts of the cities in a sustainable way, so the mobility of the population gets more pleasant;
- To encourage the use of green infrastructure;
- To reduce the negative impacts of climate change: increase climate resilience and mitigate emissions through recovery of native vegetation;
- To expand the green areas of social function;

- To promote the well-being of the population.

In order to evaluate and emphasize the importance of the benefits of the implementation of the Connectivity Area in the metropolitan region, a workshop on mapping of ecosystem services was conducted. For this end, it was considered the following ecosystem services: support for the natural habitat; local climate regulation; regulation of pollination; regulation of hydrogeological processes; regulation of the sequestration process and carbon stock; food supply; regulation of the water cycle; provision of timber products and cultural leisure and tourism services.

The proposal of the Connectivity Area was then submitted to EMPLASA, the State Company of Urban Planning of São Paulo, as a subsidy for the elaboration of the Integrated Plan for Urban Development (PDUI) of the Metropolitan Region of Campinas, and was incorporated in its preliminary version as a Strategic Area for Metropolitan Action (AEAM) towards Environmental Connectivity.

The preliminary version of the PDUI RMC proposes a metropolitan zoning and establishes, therefore, three different categories of land use:

- Environmental Interest Zone
- Urban Structuration and Qualification Zone
- Rural Development and Control of Urban Expansion Zone

These categories cover the whole territory of the metropolitan region and define guidelines for land use and occupation accordingly to its objectives and restrictions. Above the layer of metropolitan zoning, EMPLASA has proposed the creation of the Strategic Areas for Metropolitan Action (AEAMs), areas were fall upon not only the restrictions and guidelines of its zoning, but also the restrictions and guidelines defined by this specific “AEAM”. It means that, our Connectivity Area Proposal is a “layer” of the Metropolitan Zoning of the Campinas City-region, as defined by the State Company of Urban Planning (EMPLASA).

At the same time, in order to facilitate the implementation of the Connectivity Area at the municipal level, five lines of action were defined and described in the following terms: Objectives and guidelines; Goals; Deadlines; Strategies; Expected deliverables; Funding and Actors involved.

Lines of action to implement the Connectivity Area:

- A. Creation of ecological corridors, agroforestry systems and collection and recovery of fragments;
- B. Creation of linear parks;
- C. Urban tree-planting;
- D. Communication plan, social mobilization, awareness and articulation with owners;
- E. Regulation, supervision and environmental compensation.

Metropolitan Region of Belo Horizonte - RMBH

1. Status of the Integrated Plan for Urban Development (PDUI)

It was already developed, was approved by the Deliberative Council for Development of RMBH and endorsed by the RMBH Metropolitan Assembly. It must now be approved by the Legislative Assembly of the State of Minas Gerais in order to turn into law.

2. Evaluation of the Region's Ecosystem Services:

It was mapped the offer and demand of Ecosystem Services in the RMBH in the RMC, in a participatory way, which contributed for the definition of the criteria for selecting the priority areas for intervention.

3. Regional concept of intervention:

The regional concept adopted in the RMBH consists in the implementation of the Green-Blue Net (an instrument predicted by the PDDI), through agroecological practices and agroforestry systems, connecting the existing Conservation Units (CUs).

The RMBH, whose PDUI is already finalized, plans to converge action towards the implementation of policies according to the following axes:

- Sustainability Axis
- Accessibility Axis
- Security Axis
- Urban Axis
- Territory Axis
- Institutional Axis

For the Sustainability Axis, the following Policies are defined:

- Metropolitan Policy for Integrated Sustainable Productive Development
- Metropolitan Policy for Integrated Development of Mining Territories
- Metropolitan Policy for Integrated Management, Protection and Recovery of Water Resources
- Metropolitan Policy for Integrated Sanitation
- Metropolitan Policy for Integrated Solid Waste
- Metropolitan Policy for Integrated Delimitation and Recovery of Areas of Interest for Environmental Conservation
- Metropolitan Policy for Integrated Environmental Services Compensation and Valuation

In addition, the PDUI proposes the creation of a Green-Blue Net. As transitional spaces between densely urbanized areas, Conservation Units, notably those of permanent protection and agricultural production spaces, the Green-Blue Net can play buffer functions, buffer zones, contributing to mitigation of environmental impacts of different types, especially in densely occupied areas, such as the formation of heat islands, air pollution, noise, visual pollution, impacts on the hydrological cycle, notably on the dynamics of surface runoff and water quality, the waterproofing of soils and the deposition and subsequent transport to water bodies of pollutants of different origins.

In the context of metropolitan planning and, in particular, macro-zoning, one of the most relevant structuring roles of the green and blue net arises from three main factors: (i) its implantation in the territory, (ii) its local and regional character and (iii) the multiplicity of its functions and, consequently, the equal multiplicity of actors that should be mobilized for its design, implementation, management and maintenance.

Guided by this scenario, the work group formed by the INTERACT-Bio Project chose to work with the following strategic lines of action:

- A. Articulation for the strengthening of the Participative System of Guarantees (PSG) for agroecological food production;
- B. Restoration or environmental recreation of Conservation Units and Degraded Green Areas, focusing on agroforestry systems and other actions;
- C. Creation of an open data platform for the congregation of actions, technologies and projects that promote Biodiversity in the Metropolitan Region.

Besides has defined the following priority corridors for intervention:

- Corridor BH-Contagem-Betim
- Corridor Curral Saw

The objective is to promote the strengthening of forest fragments, especially in the so-called "connection" areas and to highlight areas such as the Confisco Forest and the Belo Horizonte Zoo. In addition to the connection of these areas, the construction of a green belt was conceived, whose main gains would be the change of relation between the urban and the natural areas, as well as the construction of knowledge regarding the challenge of promoting green connections in highly urbanised areas with the recognition of the provision of ecosystem services for this micro-region. At the same time, the complex of Conservation Units present along the Saw, in its varied levels of protection and consolidation, allows the study of a huge universe of existing actions. The net covers an area with different types of land use and promotes the interaction between urban parks and communities of variable income classes, fire hazards, areas already recovered and to be recovered, active and decommissioning mining areas, and several other environmental resources.

In a second moment, the priority areas for intervention in each of the presented Corridors were defined. After a participatory process of definition of criteria, punctuation, qualitative discussion and consideration of possibilities, the following areas were elected:

- **Corridor BH-Contagem-Betim**
Confisco Forest
- **Corridor Curral Saw**
CEVAE Taquaril

Metropolitan Region of Londrina - RML

1. Status of the Integrated Plan for Urban Development (PDUI):

The State Secretariat of Urban Development of Paraná is elaborating the Term of Reference for hiring of a consultancy to develop the PDUI of the RML.

2. Evaluation of the Region's Ecosystem Services:

It was suggested by ICLEI the inclusion of the Evaluation and Propositional Diagnosis of Ecosystem Services in the ToR of the PDUI RML, as a diagnostic necessary for the detailing of the Public Functions of Common Interest (PFCI) of Metropolitan Environment Management and Sanitation.¹

3. Regional concept of intervention:

The focus in RML is to address extreme events related to water, with a special focus on occupations in valley bottoms, supply sources, ecological corridors and areas threatened by natural disasters.

RML, at the stage of elaboration of the PDUI, identified during the working meetings within INTERACT-Bio Project, the extreme events related to water as a priority challenge to be faced, given the water potential of RML and the successive environmental disasters related to floods in valley bottoms.

In the revision of the Term of Reference of the State Secretariat of Urban Development of Paraná, it was suggested the inclusion of the Ecosystem Services as a strategic variable to be considered during the metropolitan environmental planning, considering its potential to integrate the municipal territories and face the extreme events related to water.

The ToR highlights three Public Functions of Common Interest (PFCI):

1. Metropolitan territorial planning, focusing especially on the control of land use;
2. Metropolitan mobility, focusing especially on the public transport system;
3. Metropolitan environmental management and sanitation, focusing in particular on the integration of water, sewer and drainage infrastructure;
 - a. The protection of springs for water supply;
 - b. Creation and maintenance of Conservation Units;
 - c. Integrated licensing and environmental monitoring process; and
 - d. Collection, treatment and final disposal of solid waste.

Thus, the Evaluation and Propositional Diagnosis of Ecosystem Services was indicated as an essential result of the "Priority Sector Diagnosis" regarding the PFCI of Metropolitan environmental management and sanitation.

¹ Public Functions of Common Interest (PFCI): Brazilian definition for the policies shared by the set of municipalities that integrate a Metropolitan Region. It includes the attributions, actions, programs and projects whose effectiveness is only achieved when the municipalities work together for a common interest. E.g: Environment Management and Sanitation.