MESOAMERICAN BIOLOGICAL CORRIDOR
A platform for sustainable development
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A platform for sustainable development

TECHNICAL SERIES 02
Project for the Consolidation of the Mesoamerican Biological Corridor
2002
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The Mesoamerican Biological Corridor (MBC) is a cooperation initiative between the seven Central-American countries and the southern states of Mexico, to harmonize and execute in a coordinated way the activities aimed to the conservation of biological diversity and to promote sustainable human development in their territories. The MBC initiative is inspired on the conviction, that biodiversity conservation on the long term cannot be achieved if poverty reduction and the strengthening of the economical viability of the countries of the region is not worked as a whole.

The MBC regional initiative is a deepening of the efforts made in Mesoamerica in the last 20 years, to find advantageous solutions that promote the environmental sustainability and at the same time better the levels and quality of living of the inhabitants who use, manage and conserve the biodiversity. One of the MBC goals also, is to contribute to the prevention and reduction of risks that affects human settlements, the infrastructure and crops. These are made worse by deforestation and unsuitable use of the land.

Therefore, the MBC regional initiative proposes various objectives for short, medium and long-term periods:

- Betterment of the living quality of the inhabitants, changing the Corridor into the driving force towards sustainable development and into an instrument to reduce the vulnerability of the region against natural disasters.
- Fomenting the collaboration between the countries of the region to achieve environmental sustainability.
- Protection of one of the richest bio-diversity of the whole world.
- Contribution to the global environmental agenda, issuing a new complete model to face issues such as deforestation, protection of the forest, basins or watersheds and climate change.
- Establishment of a new way to understand the protection of environmental issues, with the integration of conservation, increasing the economic competitiveness.

It is necessary to foment an environmentally friendly term production so that the MBC initiative can be sustainable in the long term and contribute to the betterment of the living quality of the people whilst at the same time protecting the biological diversity of the region. New technologies, new markets, well prepared and informed human resources are the base for an increasing and competitive economy which increases income without destroying the natural resources, contributing to poverty reduction and decrease in rural vulnerability.

The main mission of the Project for the Consolidation of the MBC (CCAD/PNUD-GEF/PNUMA-RLA97/G31), initiated in the year 2000, is to give support to the Mesoamerican countries and the Central-American Environmental and Development Commission (CCAD) to better the institutional capacities and to obtain knowledge and skills to advance with the consolidation of the MBC. As part of these activities and products of the project, a series of technical publications and work documents were initiated, which are intended to contribute to better the knowledge and comprehension of the complicated processes of territorial environmental and socio-economic management that is necessary to accompany and strengthen the building of the MBC in a participative and sustainable way.

With this series of publications, we intend to increase the reserve of technical, scientifically high quality information available in the region on these issues, to support the capacity building activities, reflection and debate as well as to contribute to the spread of potentials and challenges that the Mesoamericans face to construct a sustainable and fair future, where the maintenance and sustainable use of the biological diversity is maintained and at the same time generate an increase in the income of the poorest rural sectors.

Lorenzo Cardenal Sevilla
Regional Coordinador
MBC Consolidation Project
INTRODUCTION

The concept of biological corridors has been used and defined in various ways by different authors; it is a concept that has generated broad discussions and criticisms, so much in the scientific as well as in the political and social disciplines. What has been principally questioned is if in fact the concept is a tool for the conservation of biodiversity. Some are of the opinion that it is a strategy to manage modified landscapes, and others justify it as a complementary alternative for the conservation of the natural protected areas that are becoming more fragmented.

This document seeks to contribute to a conceptual discussion in the subject of biological corridors. The purpose is to identify elements that would unite diverse points of view that have been used in various countries for the design and establishment of corridors. We start by analysing published literature in various international scientific magazines that address the area of conservation; we also compiled various discussions of specialists, technicians and politicians over the last decade in the Mesoamerican region.

In the Mesoamerican region, which is one of the sites of mega-diversity in the world, we could say that the concept of biological corridors is being put to test; it is like a great laboratory of protected areas and bordering territories with high potential for conservation and its management. For the first time eight countries are in agreement to consolidate efforts in conservation and planning at a regional scale, an example that can be extended at the global level.

Although there are numerous initiatives of biological corridors throughout the world since two decades ago, there is not a group of clear definitions and criteria with respect to the subject area. This is due in part that the corridors are established for different objectives or purposes and at various levels and scales of modification of ecosystems. To date we do not have available a “manual” or a listing of “standards or guidelines” for the design and implementation of corridors.

This document does not pretend to be the “said manual” but would be a summary of the important questions that have been brought up by scientists and politicians around this subject in this region, as well in other regions. Some questions will have answers but the majority will perhaps not. It is precisely in the collective search and discussion of those answers that we will continue creating spaces of communication between the academic, conservationist, political, economic and social disciplines. It is in those non-geographic spaces that we will manage to create a vision of sustainability and connectivity for the ecosystems whose major function is to improve the quality of life and human survival. This, no doubt, ends up being a “political agenda” since all that has to do with the common good is political, even the conservation of natural resources that forms part of a social process.

The book you have in your hands is the product of a process, in which these pages were socialized and discussed openly. Furthermore, we conducted electronic consultations, meetings and regional workshops before completing this document. We acknowledge all our collaborators and participants at workshops and meetings for their valuable contributions and opinion shared.
BACKGROUND

THE MESOAMERICAN REGION

Mesoamerica is here defined as the Region comprising of four states of south-eastern Mexico (Campeche, Chiapas, Quintana Roo and Yucatán) and the seven countries of Central America: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua y Panama.

From its geological origin, be it as a group of islands or as a continental strip of land, Mesoamerica was a centre of origin and a corridor for terrestrial forms of life and a barrier for the displacement of marine species between the Atlantic and Pacific Oceans.

This is a region of great geographic, climatic, biological and cultural biodiversity with a territorial extension of approximately 769,000 km² representing 0.5% of the total emerged lands of the world. In this small percentage of the planet live approximately 7% of all forms of life known to date by science.

The natural richness of the region is explained for being a bridge two great continental masses of North and South America; by the presence of two oceans that wash their coastlines—the Atlantic and Pacific; and by the existence of many forms of relieves and landscapes, from lagoons, volcanoes, mountains, reefs, islands and plains.

In this small territory exist more than 60 forms of vegetation and 30 eco-regions, from semi-deserted to humid forests with annual precipitation of more than 7 metres. (UNDP1997).

In the region, it is estimated that there is a population above the 34 million inhabitants and estimates indicate that within ten years, there will be more than 45 million men and women. Presently, the population is increasing at the rate of above the 2% per annum, and the majority of the population live in impoverished rural zones. It comes as no surprise then that environmental problems are narrowly linked to such factors as the tendency of changes in land use and the distribution and access to the natural resources and productive resources.

In Mesoamerica great efforts have been made in the last 30 years to conserve their patrimony and natural wealth. Practically at the beginning of 1974, the idea to realize one sole regional action to protect the natural and cultural resources of this area began to strengthen. In San José, Costa Rica, the First Meeting of Natural Patrimony is held and in which the first map of the Central American system of important areas for conservation is developed.

The declaration of protected areas was a response to the environmental degradation that was taking place. In the 1970’s, the recognition of an accelerated deterioration of resources and ecosystems, motivated the States to legally establish protected areas in their respective countries.

As a result, natural reserves increased, from less than 20 in Central America to more than 40 at the end of 1979 (Ugalde and Godoy 1992).

Thirteen years after, in 1987, the Second Central American Meeting for the Conservation of the Natural and Cultural Patrimony is held in Guatemala, resulting in the creation of protected areas in all countries to form a Central American System of Protected Areas (SICAP). That year, less than 8% of the region was under any type of protection categories. By 1991, one hundred and seventy-three (173) protected areas are registered and represented16% of the Central American territory.

Between 1990 and 1996, one hundred ninety-one (191) protected areas were declared in the region. Within three decades Mesoamerica had passed from 25 declared areas to more than 400, which is the equivalent of 22% of the total surface of this territory. Today there are approximately 597 legally declared areas and some 160 proposals to be declared (Table 1). The aforementioned confirms the efforts of the governments of the region to conserve representative samples of their ecosystems (Figure 1).
Figure 2

MESOAMERICA PROTECTED AREAS

- Lakes, Lagoons & Oceans
- Other Uses
- Protected Areas

100 0 100 200 300 400 Kilometers

Pacific Ocean
The units used in this map and the way data is presented does not imply any judgement by the Project for the Consolidation of the Mesoamerican Biological Corridor, over legal conditions of countries, territories, cities or zones, or of their authorities, or with respect to boundaries or national limits.

(*) Includes proposed Protected Areas in El Salvador (not official).

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Country | Declared Protected Areas | Declared Areas Total Surface (ha) | Percentage of National Surface (%)
--- | --- | --- | ---
Mexico* | 29 | 3,890,200 | 16.5%
Belize | 59 | 1,029,109 | 48.0%
Guatemala | 104 | 2,865,830 | 26.0%
Honduras | 106 | 2,133,938 | 18.0%
El Salvador | 3 | 34,313 | 2.0%
Nicaragua | 76 | 3,012,561 | 24.0%
Costa Rica | 151 | 1,257,467 | 25.0%
Panamá | 69 | 2,226,017 | 29.0%
Total | 597 | | |

* Only includes the four states of south-eastern Mexico

Protected areas are an integral element in a conservation strategy of the natural resources. It is not sufficient, however, to protect ecosystems through protected areas nor does this represent the magic solution to environmental problems in the area, much less the improvement of the poverty and human development index in Mesoamerica.

Table 1 | Protected Areas of Mesoamerica
--- | --- | --- |
Country | Declared Protected Areas | Declared Areas Total Surface (ha) | Percentage of National Surface (%)
--- | --- | --- | ---
Mexico* | 29 | 3,890,200 | 16.5%
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CHRONICLE OF A REGIONAL STRATEGIC AGENDA

As previously noted, declarations of parks and reserves did not guarantee the solution of environmental problems nor of human development. Besides the socio-economic problems, countries of the region debated between themselves during the last two decades in processes of war and conflicts that exacerbated the social, political, economic and environmental crisis.

Despite confronting adverse situations, human and natural, in Mesoamerica important steps have been made towards a social, political and also environmental integration. At the end of the 1980’s and the beginning of the 1990’s, a regional integration process begun in which the environmental agenda has had an important role to play.

In 1989, the Heads of States of the region signed the Agreement for Environmental Protection of Central America and established the Central American Commission of the Environment and Development (CCAD). CCAD is a regional entity whose mission is to coordinate, serve as a catalyst, facilitate and promote activities in the environmental field. CCAD is constituted by state authorities involved in environment or natural resources of member Governments in the respective territories. This entity is found within the structure of the Regional Central American Integration System (SICA).

While all this occurred in the Central American isthmus, in the rest of the world the concept and theory of biological corridors had a strong reception in the area of conservation. The theory of the biogeography of islands, the ecology of landscapes and theoretical elements of the ecology of settlements were integrated in a holistic approach, called conservation biology. In countries like the United States, Canada, Australia and Great Britain corridors were designed as a new tool for the conservation of their biodiversity.

Our region, however, did not escape from that process and thus in the 1990’s the region’s conservationist community began the establishment of a biological corridor in Central America, lobbying for this initiative at the highest political level. But at the difference of the traditional focus of conservation that has been dealt with in forested areas, isolating them from their surroundings, the concept of biological corridors in the region focused towards an integrated environmental management that identifies the territorial order as a feasible tool for the planning of the use and management of the soil.
As part of the regional integration process in the area of natural resources, on the 5th of June 1992, the Heads of State subscribed in Managua to the Convention for the Conservation of Biodiversity and the Protection of Forested Priority Areas in Central America; the fundamental objective of this Convention is to conserve biological diversity, terrestrial and marine-coastal for the benefit of the present and future generations (CCAD 1992).

Article 21 of the Regional Convention is the first normative regional instrument that makes reference to Biological Corridors. It states: “The Commission of Central American Protected Areas will be created and will be responsible for coordinating regional efforts to organize policies with, and the development of, the Regional Protected Areas Systems as an effective Mesoamerican Biological Corridor” (CCAD 1992).

In 1994 the Central American Alliance for Sustainable Development (ALIDES) was established in Managua. ALIDES was conceived as the Integral Strategy for Regional Sustainable Development to coordinate and harmonize interests and initiatives of development.

One of the objectives of ALIDES, states: “to rescue, know and use the region’s biodiversity, promoting among other things, the development of biological corridors and protected areas”. Likewise, as a priority commitment in the area of the environment, it will instruct national authorities to establish and promote within a short period the development of the Mesoamerican Biological Corridor.

Between 1993 and 1994 an initiative was developed that produced a proposal for the creation of the MBC. This initiative resulted from a consortium of international conservation organizations called “Paseo Pantera”. That initiative was revisited in participating countries through the CCAD until it culminated in the request for funding from donors to implement the Mesoamerican Biological Corridor occurred.
Within the framework of CCAD, collaborative linkages were established between the Central American countries and Mexico. This initiative allowed the inclusion of Mexico as an extra-regional partner in the activities of ALIDES and the Mesoamerican Biological Corridor.

In 1995 also, the CCAD requested from the UNDP for preparatory financial assistance to design the Mesoamerican Biological Corridor. One year later, in each country a technical proposal on corridors was formulated which ended the preparatory process with the approval and implementation of a Regional Programme for the Consolidation of the Mesoamerican Biological Corridor.

In 1997, the MBC initiative was presented to the highest political authorities during a Summit of Central American Heads of State by the signing of a joint declaration that defines the MBC as follows:

The Mesoamerican Biological Corridor is a system of land use planning comprised of natural areas under special administrative regimes, nucleus zones, buffer zones of multiple uses and areas of interconnectivity, organized and consolidated, that offers various environmental goods and services to the Central American society and the rest of the world, providing social harmonization opportunities to promote investment in the conservation and sustainable use of the resources.

The CCAD presented a financial proposal to the Global Environmental Facility of the GEF through UNDP to develop the project: “Establishment of a Programme for the Consolidation of the Mesoamerican Biological Corridor (MBC)”. The respective Ministers and authorities responsible for the environment in the eight participating countries approved this proposal.

This project commenced operations in April of 2000, under the auspices of the Ministries of the Environment and Natural Resources in each of the participating countries. One of the principal goals of the project is to improve the conservation of biodiversity through the consolidation of the MBC.

CONSERVATION BIOLOGY AND BIOLOGICAL CORRIDORS

It is accepted as a general rule that the most serious and major risk for the conservation of biodiversity is the fragmentation of habitats, and that this is the principal cause of the present crisis - the extinction of species. Fragmentation has two essential components: the reduction of the total area of available habitat and the fractioning of the remaining area in isolated patches (Noss 1987).

Wilson & Willis (1975) originally proposed biological corridors concept based on the theory of equilibrium of the biogeography of islets in declaring that the fragments of habitats united by a similar habitat corridor have more viability than those isolated fragments of similar size.

To conserve biodiversity, one of the essential strategies is to focus on the structure and dynamics of the regional landscape. In this mosaic it is necessary to maintain and restore adequate surfaces of diversity of native ecosystems and their connectivity. It is necessary to carry out an adaptive management in agricultural, livestock and forestry zones adjacent to protected areas searching for alternatives to maintain acceptable levels of biological diversity and viable settlements in these zones (Galindo-Leal 2000).

Within the managed zones and their surrounding, it is important to maintain or restore structures (like live fences) that provide refuge to a large amount of organisms. It is necessary to favour connections through landscapes, restoring or protecting riverine ecosystems that connect fragments and allow the movement and colonization of species. In extended or larger scales it is fundamental to maintain a diverse mosaic of ecosystems (even agricultural) and its ecological processes among diverse patches (Galindo-Leal 2000).

Biological Corridors evolve as a mechanism that seek to provide major viability to the conservation of species found in forested areas. Its objective is to allow the displacement of individuals of distinct species between a protected area and another, or between one or another fragmented ecosystem or habitat (García 1996).

Throughout the years, various authors have debated the benefits, costs and disadvantages of
corridors as a biodiversity conservation strategy. The following is a summary of the most important arguments found in literature that are focused, above all, towards the conservation of species and terrestrial habitats (Noss 1987):

**POTENTIAL ADVANTAGES OF CORRIDORS**

**Increase the rate of migration in a reserve, which could:**

- Increase or maintain stable the richness & diversity of species.
- Increase the population size of species and reduce levels of extinction.
- Allow the reestablishment of locally extinct populations.
- Maintain genetic variability of populations.
- Provide feeding or displacement areas for major species.
- Provide cover habitats against predators between patches of habitat.
- Provide heterogeneity of habitats for species that require a variety of habitats for its life cycle.
- Provide alternative refuge habitats.
- Provide “greenbelts” for urban areas.

**POTENTIAL DISADVANTAGES OF CORRIDORS**

**The increase of migration levels could:**

- Facilitate the transmission and dispersal of diseases, pests, exotic and invading species.
- Decrease the level of genetic variation of populations and sub-populations.
- Facilitate the dispersion of abiotic perturbation phenomena (fire, pests).
- Increase the rate of predation or hunting for some species.
- Costs and conflicts with other uses of the soil.

Perhaps the best arguments for corridors is that at some point all landscapes had interconnections, an affirmation that does not deny the importance of natural barriers such as rivers, mountains and others for biogeography and evolution. Nevertheless, this connectivity decreases as landscape modification by humans increases. Corridors are an attempt to restore or maintain the natural connectivity of the landscape (Noss 1987).

This approach or focus of connectivity is vital and it is one of the key areas to plan the objectives and criteria of corridors, as we will see in the following chapter. As pointed out by Bennett (1999), “connectivity” is the principal factor of how the landscape facilitates or makes movement and flows difficult, between patches of habitats or ecosystems. A landscape could provide a high level of connectivity for certain types of organisms but low levels for others.

Connectivity is not achieved only by physical linkage between patches of continuous habitats, but it goes beyond that. Connectivity is better given by a gamut of configurations of habitats or mosaics that could also be physically separated (Bennett 1999).

Conservation biology provides technical tools to understand the ecological systems and adequately maintain them. Conservation, however, is a social process. Consequently, the solutions include the participation of communities and the understanding of political and socioeconomic aspects. To determine the most adequate management and design for a corridor, it is necessary to understand the biological, social and political issues that can influence its effectiveness (Galindo-Leal 2000).
Figure 2

**MESOAMERICA PROTECTED AREAS & BIOLOGICAL CORRIDORS**

- Blue: Lakes, Lagoons & Oceans
- Red: Biological Corridors
- Green: Protected Areas
- Light Green: Other Uses

Distance Scale: 100, 200, 300, 400 Kilometers

Pacific Ocean
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BIOLOGICAL CORRIDORS
what are they or what are they not?

DEFINING A BIOLOGICAL CORRIDOR

In you look in a dictionary for the meaning of the word *Corridor*, the following definitions will be found: passage way, pathway or trail, structure of a building. Therefore a corridor is a structure whose function is to connect, unite or link. If it were so, it would not be difficult to arrive at a definition for *Biological Corridor*. Would it be something like a pathway for life? Or would it be a connectivity for all forms of life? Or would it be a pathway that connects and unites living things?

Now we will discuss the *Biological surname* this corridor has. Some experts and scientists in Mesoamerica believe that the term *biological* should not be used when the concept is related to social, political and economic aspects.

Other *surnames* have been proposed. These include *sustainable development corridor, sustainable landscape*, among others. The truth is that with any *surname*, as human beings (as living beings) we can not be set aside, since we are part of that complex chain of interactions that are given in natural or modified ecosystems.

Therefore, considering that the *Biological Corridor* is understood in various manners by various groups in Mesoamerica, we have tried to find a technical and physical definition, without reducing the possibility that later we can add to it different objectives, missions, visions according to the heterogeneous social and political reality of our countries.

After many proposals, variations and modifications, we arrived at the following definition:

A Biological Corridor is a defined geographic space that provides connectivity between landscapes, ecosystems and habitats, natural or modified, and ensures the maintenance of biological diversity, ecological and evolutionary processes.

MESOAMERICAN BIOLOGICAL CORRIDOR
¿ARE THERE DIFFERENT TYPES OF BIOLOGICAL CORRIDORS?

As far as published literature goes, no category or typology of corridors exists. Many differences have been identified and these are based on the objectives for which corridors are created.

Published Literature indicates that the types of corridors are determined by the composition and quality of the habitats they are composed of; at the same time the management it requires will depend on the same composition and quality of habitats. It is important to analyze that the conceptual focus of biological corridors has generally been directed or biased towards biological species (“species-centered”). Thus, while we seek design criteria for corridors the focus appears to be limited.

Noss (1990) states, “the maintenance of biodiversity implies the conservation of the composition, structure and functions of the landscapes, ecosystems, communities, populations and species and of the genetic information, at diverse scales of time and space”.

Based on the previous citation, we need to vitally consider not only the focus on species, but also towards ecosystems and landscapes. Therefore, a corridor should provide flow and connectivity between heterogeneous patches of ecosystems to form a diverse mosaic in the landscape. It is also fundamental to visualize and focus on a third scale: the exchange and connection between populations; in other words between organisms or individuals.

Therefore, we do not have categories or typologies of corridors in this conceptual framework. The objectives and aims that are proposed for each corridor may have difference in focus depending on the ecosystems and landscapes that they will connect. What we do propose are geographic scales of work with biological corridors. We propose two scales:

• **Regional Scale (more than 10,000 km²):** based on connectivity between landscapes, or mosaics of land use through resource use planning. Its principal aim is to generate environmental goods and services, and also the maintenance of the ecological processes.

• **Ecosystems and habitats Scale (from a micro habitat, up to 10,000 km²):** in this scale we emphasize the connectivity of ecosystems, the reduction of fragmentation of habitats, as well as the restoration of ecosystems and the maintenance of viable populations of species of interest.

MISSION AND OBJECTIVES OF BIOLOGICAL CORRIDORS

The Declaration of the Central American Heads of State (1997), sometimes referred to as the MBC concept, exposes the mission of the Mesoamerican Biological Corridor, since it encompasses the aim and objectives at the same time.

This declaration proposes the following as the mission of the MBC:

**MISSION**

To offer a set of environmental goods and services to the Mesoamerican and global society, through the sustainable use of natural resources and thus contributing to the betterment of life of the inhabitants of the region.

**GENERAL OBJECTIVES**

• Favor the maintenance of biological diversity, reducing fragmentation and improving the connectivity of the landscape and the ecosystems.

• Promote production alternatives that are eco-friendly.

• Support the improvement of the quality of life of the involved local populations.
In this section, biological and socio-economic criteria are proposed to analyze biological corridors so that they may be applicable at different scales and countries as a common conceptual framework for planning and monitoring. It is prudent to clarify as a starting point some assumptions before applying those criteria:

- The fundamental base or principal objective in designing biological corridors is the maintenance of biological diversity.
- These criteria will be applied to corridors that have been designed and geographically delineated. The main purpose of this application would be to prioritize and monitor the state of advance in the management of these corridors.
- These criteria can also be used as a guide to design corridors, but are not the main tool to design these corridors.

In order to apply these criteria as tools for analysis we propose that:

- The biological criteria determine the biological viability of a corridor.
- The socio-economic criteria determine the socio-economic viability of a corridor, and influences directly on its feasibility.
- It is possible to assign a weight to each criterion separately, as well as to the sum total of these criteria.
- The combination of the weighted values of all criteria will result as the feasibility of a corridor.

This valuation is proposed in a simple manner with three weights: low, medium and high. These combined weights will allow the establishment of the feasibility or priority of a determined corridor (Table 2).

The level of priority in which the corridors will be placed will be determined not only by biological criteria but more so by the overlap with socio-economic criteria. Assuming that a set of biological criteria is met, the socio-economic criteria are, to certain extent, what determines the feasibility of a corridor since they represent factors for their implementation.

Please note how a corridor having a high biological viability, but low socio-economic viability, would have a medium feasibility. Similarly, a corridor that has high socio-economic viability but low ecological attributes will have a medium feasibility.

The following step in a common strategic conceptual framework would be the establish-

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<td>Medium Biological Viability</td>
<td>X</td>
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<td>Low Biological Viability</td>
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<tr>
<td>Low Socio-economic Viability</td>
<td>Medium Socio-economic Viability</td>
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<td>X</td>
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ment of indicators to monitor that the adopted criteria are being met or are being achieved in the medium to long-term timeframe.

Biological corridors are seen as physical spaces where processes are occurring. This means we should identify criteria to select and classify those physical spaces based on biophysical parameters (condition of the vegetation, key species, habitat types, among others), but, in addition we take into consideration the social processes and economic factors that are occurring in a dynamic continuum.

Firstly, it will be necessary to analyze the biological criteria as the basis and reason for the existence of corridors. Afterwards, the socio-economic criteria are crossed and these will be crucial to determine the viability of the corridors.

In order to use these criteria in the analysis of a corridor, we propose the following scheme:

- Read each criterion with ease and do away with those that do not apply to the area being analyzed.
- Assign to each criterion a weighted value of 1-3, depending on its level of achievement or veracity of the criteria. For the low 1, 2 for the medium and 3 for the high.
- Obtain a total of the points for the biological and socio-economic criteria. This is obtained by adding the assigned points to each criterion.
- Grade in which segment of viability does the analyzed corridor falls, according to the points obtained. There are three possibilities: high, medium or low viability. For this, only the analyzed criteria are considered and not those that were done away with. As an example, if it were decided that the 20 criteria were applicable for the area, then the ideal score would be 60 (20 x 3). The viability would then be classified this way:

<table>
<thead>
<tr>
<th>Score less than 20</th>
<th>low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score between 20 &amp; 40</td>
<td>medium</td>
</tr>
<tr>
<td>Score more than 40</td>
<td>high</td>
</tr>
</tbody>
</table>

SOCIO ECONOMIC CRITERIA

- There is the will and support by local stakeholders to contribute to an adequate use of the natural resources.
- There is an acceptable degree of organization and local community participation.
- There is a tradition of land use in harmony with nature, be it with indigenous or peasant populations.
- The structure of land tenure is known and no conflicts exist between sectors.
- Nearby protected areas generate income and employment directly or indirectly for the local people.
- There is real support by local and national political authorities.
- There is coordination between rural development initiatives or for the management of natural resources in the area.
- There are opportunities for income generation directly from the sustainable use of natural resources, particularly from forest management and ecotourism.
- The area is prioritized geographically for incentive programs, be it for forestry or tourism.
- There is low rate in land use change.
### BIOLOGICAL CRITERIA

- Patches of natural vegetation exist with a variable length and width, but not less than 200 meters wide.

- There are structures such as live fences, windbreaks or plantations that offer dispersal resources or shelter for animals.

- There are natural vegetation strips that offer protection to micro watersheds.

- Vegetation cover is at least 30% of the area, even when the forest is at different succession stages.

- There is the presence of faunal species as indicators of healthy ecosystems.

- There is natural regeneration of forest species in patches without vegetation.

- The corridor favors the connectivity between fragments of habitat within the same ecosystem.

- The corridor will provide habitat for the movement of fauna important to the health of the ecosystem.

- The corridor will provide habitat for reproduction and feeding for important species.

- The corridor will provide seasonal migratory routes for the said species (altitudinal y latitudinal).

- The corridor provides connectivity between floral species, thus facilitating seed dispersal that will enhance regeneration and enrichment of patches of secondary forests.

- Presence of individuals of endemic or threatened species in the said corridor.

- The size and width of the delineated corridor area constitutes a habitat on its own and provides conditions for movement and food for the species.

- There is a wide cross section of habitats even when the natural vegetation cover is less than 30%.

- Species richness is maintained.

- The corridor favors the maintenance of natural ecological processes in the landscape (subterranean aquifers, marine ecosystems, climate stability and hydrological cycles) that are of a trans-boundary nature or have national or regional importance.

- The corridor presents a mosaic of continuous habitats of different levels of conservation, necessary to obtain a sample of them at a landscape scale.

- The corridor contributes to maintain a representative sample (aim: 10%) of an ecosystem at the national or regional level.

- The corridor favors the protection of watersheds, especially bi-national watersheds.

- The corridor permits the connectivity between two patches of ecosystems of great size, relevance and representativity at regional level (for example: humid forests, pine savannahs, wetlands, coral reefs).
When we proposed to write this document, we began with a need to clarify positions and conceptualize what is the MBC or what it is not. There is a lack of definition in the region on what the MBC concept is. On one hand, the perception exists at the political level that the MBC is a conservationist initiative while on the conservationist and academic arena the perspective is that the MBC is a more a political agenda than an environmental one.

At the middle of both circles- political and conservationist- is the general public and civil society groups engaged in the management and conservation of natural resources in the region. It is towards this last group that we target our clear and concise information and we hope we will be able to reach them.

We did provide a concept of biological corridor, a technical definition on which to base socio-political approaches.

In addition to a conceptual proposal, we also described a set of criteria for the design, establishment and management of biological corridors, as well as monitoring the feasibility and successes of corridors in the region.

The wide variety of stakeholders that contribute to this proposal creates many visions and perceptions, as there are groups of stakeholders, thus making it difficult to arrive at a single regional vision. For some, the MBC is a biological concept that is being applied in a conservation project; for others the MBC is a conservation and sustainable development strategy for the region. Also, for other groups, the MBC is originally a biological concept that crosses a regional political agenda. Possibly, it is all of the above.

Possibly this document leaves even more questions without answers. But this, without a doubt that the MBC is yet a concept and a land use planning tool that is “in constant construction”. As was mentioned in the body of the document, we are constructing a laboratory, where constantly different “reagents” enter into the scene to be a part of the mix.
BIBLIOGRAPHIC REFERENCES


