

# Case Studies to Share Experiences of Environmental Funds

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RedLAC Capacity Building Project for Environmental Funds



Latin American and Caribbean  
Network of Environmental Funds

## Case Studies to Share Experiences on Environmental Funds

The Latin American and the Caribbean Network of Environmental Funds - RedLAC - was created in 1999 and today brings together 22 Funds from 16 countries. Its mission is to establish an effective learning, strengthening, training and cooperation system through a Network of Environmental Funds (EFs), which is intended to contribute to the conservation and sustainable use of natural resources in the region.

With support from the Gordon & Betty Moore Foundation and the French Fund for the Global Environment (FFEM, for its name in French), RedLAC started its Capacity Building Project in order to strengthen EFs on the development of innovative financial mechanisms for the conservation of biodiversity, reducing their dependence on donations and supporting the creation of new EFs through the systematization and sharing of proven best practices in funds day to day operation

This project, which is coordinated by the Brazilian Biodiversity Fund - Funbio - on behalf of the members of RedLAC, has the goal of promoting the implementation of new revenue streams in the portfolios of the Funds, creating financially sustainable sources for these institutions to invest in conservation. Having knowledge management as its core, the project will systematize the existing information on various topics of interest to the EFs and build new contents based on the collective experience of the Funds' community.

This handbook was prepared as support to the eleventh workshop of the capacity-building initiative, focused on how to write case studies as tools for sharing knowledge between EFs and the environmental community in general. This handbook presents five case studies of Funds member of RedLAC, which were drawn up with support from the team of each Fund. The cases were chosen because they detailed innovative financial mechanisms that can be replicated or adapted by other Funds in other countries. This workshop was organized by Funbio in collaboration with Fondo Acción (Colombia), which coordinated the systematization of the cases, and Ecuador's National Environmental Fund - FAN - hosting the workshop in the city of Guayaquil, Ecuador, from October 24 to October 26, 2014.

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RedLAC Case Studies

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## Introduction

Environmental Funds (EFs) are organizations born from the need of having more resources for the conservation of the planet and from the necessity of improving the management of those resources. This type of organization began to spread in the 1990s. Some of the aspects that have been financially supported through EFs have been the recurrent expenses of protected areas, activities for the conservation of biodiversity and the sustainable use of natural resources as well as the strengthening of the local institutions involved in such activities.

In the last twenty years, the oldest Funds diversified their efforts assuming various roles, from raising funds from various sources to applying them directly in specific projects. This diversification of actions has made it essential to document and convey such experiences to other Funds. Specifically, the most-recently created Funds have benefited the most from the insight accumulated by their

older peers. This conveyance of experiences has been especially promoted by the networks of EFs, in particular the Latin America and Caribbean Network of Environmental Funds (RedLAC), the mission of which is to promote a collective learning platform among its members.

One of the most suitable systematization methodologies for the Funds, given their characteristics, is the research technique known as “case study.” In general, a case study is the preferred research strategy when answering questions related to the “how” and “why” of a specific situation. Similarly, this research strategy is most suitable when the boundary between the phenomenon under study and the context is very ambiguous. It is also the technique par excellence when the researcher has limited control over the events or when the analysis conducted is focused on a contemporary phenomenon in an actual and specific context.

Case studies, as a means of transmission of information among EFs, can be used to document successful solutions that may be replicated and adapted in different contexts, as well as to document unsuccessful projects to share the lessons learned and avoid repeating the same mistakes in other contexts.

In addition to the transfer of knowledge, EFs have also used case studies as a means to illustrate and explain their specific actions and decisions in detail and more clearly. In other words, they have allowed EFs to produce well-documented projects, which have facilitated the execution of other processes such as the generation of ideas or results to new donors and potential partners.

This document provides a concise description of the steps to be followed for the preparation of a case study, from its early stages, i.e. the definition of the research question; to its final phase, which consists of the preparation or writing of the case per se.



# 1. Case Study Method

## Definition of Case Studies

Case studies are documents that attempt to elucidate the various components and factors that influenced a decision or a set of decisions. In other words, they are inquiries aimed at determining why certain decisions were made, how were they implemented and what was their result (Figure 1). For this purpose, case studies focus on examining the contextual conditions that influenced a particular decision or a phenomenon. Likewise, case studies are used to study the dynamics of the actors and institutions participating in a specific event.

Another objective of case studies is to let the understanding and interpretation phenomena within their own context. Through case studies, the phenomenon and the environment where such phenomenon developed are studied as a whole, since the existence of complex relationships between the two is assumed. These relationships are of greater interest for the person developing the case study. As a result, case studies are based on research techniques that are capable of coping with the need to analyze a large number of variables, whose number often exceeds the size of the data available. For this reason, when preparing a case study, the researcher must use multiple sources of evidence to obtain different data that converge towards a common result.

Case studies require that the focus of the research be connected with previous theories that lead the reader to an in-depth analysis of the evidence available, allowing for interpretations and conclusions to be drawn for the dilemma in the description of the case. These documents can also be used to generate research ideas and hypotheses for further studies.

Figure 1. Objectives of case studies



In conclusion, as a research strategy, case studies are like any other type of scientific research but with much more flexible and broad objectives, focusing on the holistic analysis of the different complex relationships between the specific environment and phenomenon subject to analysis.

## Types of Case Studies

According to Yin (2013),<sup>1</sup> there are four types of case studies:

**Explicative:** The objective of these is to analyze causal relationships derived from interventions that would be too complex to determine through other research techniques, such as surveys or experimental strategies. In the language of the assessment of projects, the objective of such case studies is to examine the results of a program while evaluating its performance.

**Exploratory:** These are used to examine situations in which the intervention assessed has no clear or unique set of results.

**Instrumental:** These are used to analyze information on a particular phenomenon. This process is used to refine or expand a specific theory. The case is of secondary interest and supports the main objective, which is to assist in the understanding of a phenomenon by means of various research techniques.

**Multiple or comparative:** These case studies allow the researcher to explore the differences within and among several cases. The objective is to replicate the findings and/or phenomena through these case studies. Since comparisons must be random, it is imperative that the cases are chosen carefully for the researcher to be able to predict similar results or determine contrasting results on the basis of a theory.

## When to use Case Studies

The decision to whether or not apply case studies as a research strategy for a specific event must take into account three aspects: 1) the type of research questions raised, 2) the degree of control that the researcher has over the events that will occur, and 3) the degree of contemporaneity of the events to be examined (as opposed to historical events).

As to the first condition, it is important to note that defining the research questions is probably the most important step for case studies. The key to this step is to understand that research questions have two components: “position,” i.e. to define what is the study about? And “form,” i.e. to determine what type of question is being analyzed? The first question is related to the boundaries between the phenomenon and the environment. If what is required is a technique that does not define boundaries between the two, but the contrary, to holistically focus its

<sup>1</sup> Yin, R. K. 2013. “Case Study Research: Design and Methods (Applied Social Research Methods).” SAGE Publications, Inc. Fifth Edition.





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analysis approach on all variables, then the case study is the most appropriate research strategy. On the other hand, in relation to the second question (i.e. position), it can be asserted that case studies are appropriate when the issues under examination are related to the “how” and “why” of the phenomenon observed.

**Figure 2. Scope of case studies**



Assuming that the “how” and “why” must be the subject of study of the researcher, an additional distinction must be considered in order to decide if whether a study case, an historical study or an experiment, are appropriate as research methodology. A historical study is the preferred strategy when there is no access or control over the events to be analyzed. The distinctive contribution of the historical method is reflected on the treatment of the past and especially when the persons who were involved in the situation are no longer available. While case studies are preferred when the objective is to examine contemporary events, not only through an analysis of such events but also by collecting the testimony of main actors, but at the same time, recalling that it is retrospective and therefore, the relevant behaviors of these actors and events cannot or should be manipulated (cannot be experimental).

**“Case studies are appropriate when the issues under examination are related to the “how” and “why” of the phenomenon observed”**

Bock (1970)<sup>2</sup> stated that case studies have six key features that make them the appropriate methodology for the research and analysis of complex relationships originated from a specific phenomenon or decision. These factors are:

1. The ability to focus on contemporary issues and topics on a holistic basis.
2. The ability to focus on the dynamic interaction of the main actors in a situation.
3. The ability to study a series of actions over a period of time.
4. The ability to study the aspects of a situation.
5. The ability to survey a situation in depth.
6. The ability to corroborate theories.

In summary, these studies are the appropriate research strategy when flexibility in the scientific process and a holistic view of the problem is required, as well as the possibility of having contact simultaneously with the actors of the event or circumstance under analysis.

<sup>2</sup> Bock, E.A. 1970. “Improving the Usefulness of the Case Study in Political Science.” Working paper, Inter-University Case Program, Syracuse, NY.

## 2. Preparation of a Case Study

Each type of empirical research has an implicit research design. The research design is the logical sequence connecting the practical data with the research questions of a study and finally with its conclusions. In other words, a research design is a logical plan, a roadmap to go from a starting point to a point of arrival, where the starting point is defined as the initial set of questions unanswered and the point of arrival as the set of conclusions or answers to these questions. A number of important steps can be found between the two points, including the collection and analysis of relevant data.

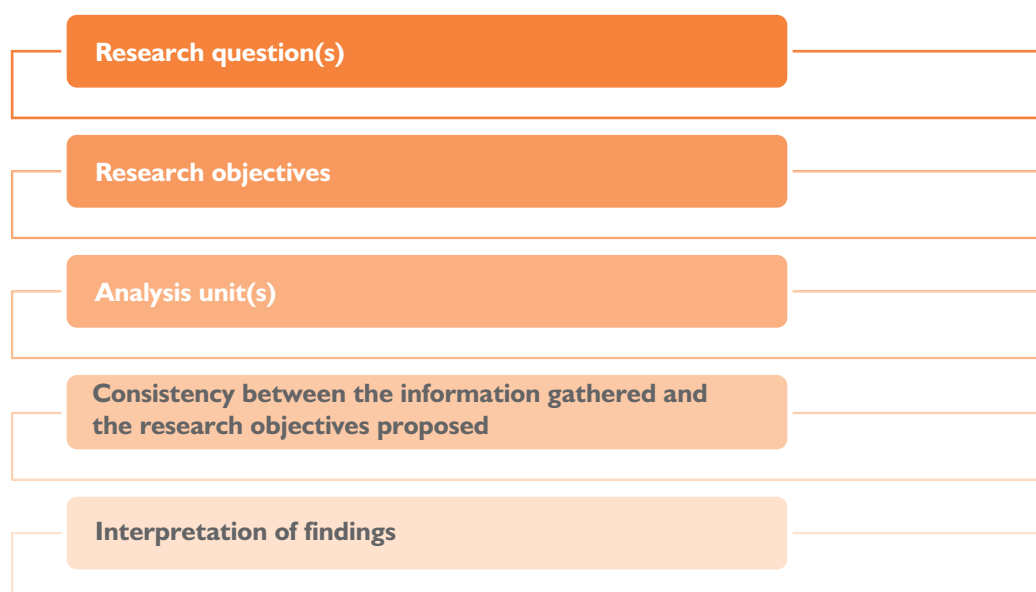
Another way of understanding a research design is thinking of it as a draft research project, which focuses on four major problems:

1. What questions should be studied,
2. What data are relevant,
3. What data should be collected, and
4. What techniques will be applied to analyze the data and draw conclusions.

For case studies, the research design can be divided into five components:

1. Establish the research question(s),
2. Define the objectives derived from the research question(s),
3. Define the unit or units of analysis,
4. Determine the logic linking the data and research objectives, and
5. Establish the criteria that will be used for the interpretation of the findings.

Figure 3. Components of case studies



A more precise explanation of each of these components is shown below:

**Establish the research question(s):** As indicated above, case studies focus on the how and why of a phenomenon. Both issues constitute the framework within which the research design must operate. Then, in relation to the research question(s), the first step is to clarify the nature of the study and take the next step in the light of this (these) question(s), which is to specify the objectives and/or purposes of the study.

**Define the objectives derived from the research question(s):** The objectives of a case research allow focusing attention and efforts towards the overriding issues to be examined by the researcher. For example, let us assume that your research is on innovative conservation financing strategies. Therefore, the objective of the study may be limited to answer the following questions: How do conservation organizations define new financing strategies? And why conventional financing strategies are not sufficient to promote conservation activities? Both questions (related to the why and how) and answers allow drawing a justification for the topic selected and the reason why the case study was chosen as the most appropriate research strategy for this issue. However, the “how” and “why” do not allow elucidating what should be studied or what topics should have further emphasis throughout the research. To this end, it is necessary to define research objectives for the research to move forward.

The research objectives allow delimiting the subject of research to measurable and manageable topics, and as a result this directs researchers to where they should seek evidence relevant to the subject, without diverting their efforts to issues beyond the scope or limits expressed in the research objectives.

Some studies may have a legitimate reason not to use research objectives in their investigation process. This usually occurs in experimental research and other research strategies in which an issue is subject to exploration. However, even exploratory studies should define the objectives that will be used as criteria, whereby the success or failure of the study can be evaluated.

**Establish the unit or units of analysis:** This third component is related to the fundamental problem of the definition of the object. For example, in a classical case study, the case may be an individual. You can easily remember cases whose issues are related to business leaders, entrepreneurs, individual members of an organization, among others. In these cases, the individual is the primary unit of analysis. Similarly, if information about different individuals is collected, this information could be included in several cases or in a global study of cases from multiple individuals. Nevertheless, it must be remembered that regardless of whether the case focuses on one or more individuals, it is necessary to define research objectives that allow identifying the relevant information about this individual or individuals, and thus avoid the temptation to cover “everything” which is impossible to do.

It may also focus on a certain event or entity that is less defined than a single individual. Studies have been conducted on more general topics, such as decisions, programs, implementation processes and organizational changes



**“The main disadvantage of documentary information is that it is exposed to selectivity biases and narrative biases and more often than expected, depositaries deny access to such documents”**

of entities. These are used to show: a) variations in the definition of the program, depending on the perspective of the various actors, and b) the components of the program that favored its success or failure.

As a general guide, the definition of the unit of analysis of case studies is related to the manner in which the authors define the research question. The appropriate unit of analysis will be selected when the main research question has been specified with precision. If the question does not lead to favoring one unit of analysis over another, the questions are probably too vague or too many and this may bring problems when a case study is to be carried out. However, it is easy to specify the units of analysis when the research questions have been clearly defined.

Once the unit of analysis for a determined case has been defined correctly, it is important to consider other details. For example, if the unit of analysis is a small group, it must be defined which persons should be included within the group and which shouldn't. Furthermore, time limits will be required to define the unit of analysis and thus determine the limits to the data collection and analysis process. It must also be noted that the choice of the unit of analysis can be reviewed on an ongoing basis as a result of the findings that arise during the collection of data.

In relation to the literature available, we recommend researchers to compare their results with previous investigations; even the definition of the unit of analysis should not be idiosyncratic. Rather, each case study and analysis unit should be similar to those previously studied by other researchers. In the case of innovations, these improvements must be clearly expressed and operationally defined under sound justifications. Thereby, the former literature can also serve as a guide to define the case and unit of analysis.

**Determine the logic linking the data with the research objectives and establish the criteria that will be used for the interpretation of findings:** The

fourth and fifth components have been the least developed in case studies. The data collected can be linked with the research objectives in many ways, but none has become a standard method, such as for example the different analysis techniques of treatment conditions on experimental research. A method commonly used in case studies is the idea of “pattern matching” described by Campbell (1969, 1975). This research methodology consists of describing a series of patterns produced by a specific phenomenon and then demonstrate with which of these patterns the data collected matches the best. If more than two potential patterns are considered as rival propositions, the pattern technique allows relating the data to these patterns under the guidance of the research objectives, since the study consists of the generation of a single case.

It is worth noting that there are no precise criteria for the interpretation of the findings of case studies. However, this is not a disadvantage because the objective of most case studies is to produce a document with all the relevant information available with respect to a phenomenon, and shift the responsibility for the analysis and formulation of conclusions to the readers.

## Relevant Sources of Information

The three sources of information most frequently used in case studies are the following: documentation, interviews, and observation.

**Figure 4. Relevant Sources of Information**



## Documentation

This type of information can take many forms and requires explicit data collection plans. The different types of documents include the following:

- Formal studies or assessments.
- Administrative documents such as proposals, progress reports and other internal records.
- Letters, memos and other communications.
- Schedules, announcements, minutes of meetings and other written reports of events.
- Newspaper clippings and other items that appear in the media or community newsletters.

These types of documents are useful although not always accurate and may be highly biased. As a matter of fact, they must be carefully used and should not be considered as literal and accurate narrations of the events that have taken place.

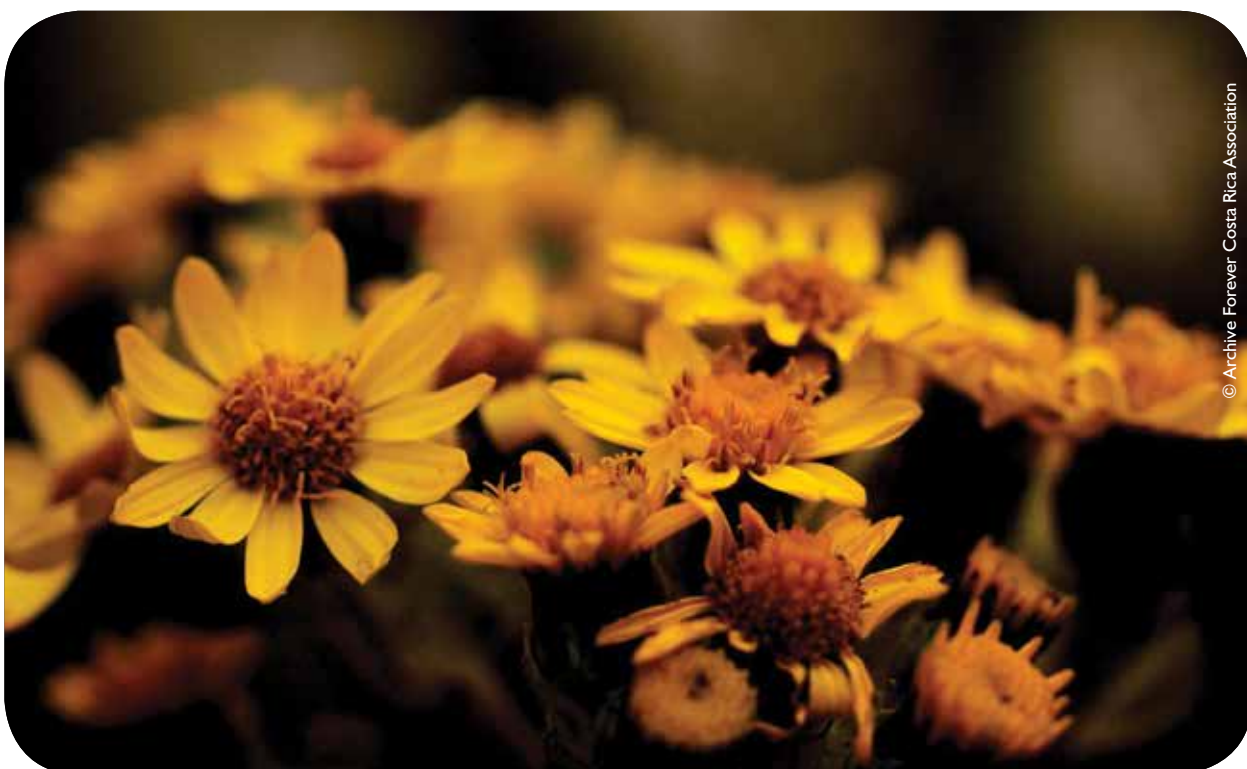
For case studies, the most important use of documentary evidence is to corroborate and extend the evidence from other sources. If the documentary evidence is conflicting and fails to match the information obtained so far from other sources, further inquiry is required on the subject.

Due to its overall value, documents have an important role in any data collection process, within the

research process, to conduct case studies. Systematic searches of relevant documents are important in any data collection plan. For example, when making a case study for an organization, the information of the organization under study must be examined, including a review of the documents filed.

It is important to highlight that many people criticize the overconfidence in documentary evidence for the development of case studies. This occurs because, largely, researchers mistakenly assume that the documentary evidence contains complete and truthful information. In fact, it is necessary to remember that each document was written with a specific purpose and audience in mind, which almost always are very different to the purposes and audiences of case studies. In this regard, the researcher must behave as an impartial observer and understand that the documentary evidence reflects the communication between two parties that are trying to achieve certain goals, and therefore identify the objectives and intentions of the persons writing these documents to avoid being misled by their content.

The main advantage of using documentation as evidence is that: 1) it is stable and can be reviewed on several occasions; 2) it is unobtrusive and therefore reduces exposure to the sensitivities of the people subject of research; 3) it is accurate and contains very detailed information about the names, references and specific characteristics of a given event, and 4) it is broad in terms of the matters covered; i.e., the documents encompass a long temporary space and a variety of events.



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However, the main disadvantage of documentary information is that it is exposed to selectivity biases (i.e. the phenomena are described incompletely with emphasis only on positive aspects or on matters convenient for the person who produced the document) and narrative biases (i.e. related to specific prejudices of the writer of the document), and more often than expected, depositaries deny access to such documents.

### *Interviews*

One of the most important sources of information for case studies are interviews. Interviews can be defined as guided conversations rather than structured inquiries. In other words, while a coherent line of interrogation will be followed, the actual flow of questions during an interview must be flexible enough to achieve fluency and avoid rigidity.

Throughout an interview process, researchers have two tasks to fulfill: 1) to follow a coherent line of questions, which must have been previously reflected in the case study protocol (see section 6); and 2) make real questions in a smooth and unbiased manner, obtaining valuable information from the interviewee through an empathetic interrogation process.

The interviews used for the preparation of case studies are open. In these interviews, the interviewees are asked about events related to the phenomenon under study, as well as their views on the events. In some situations, it is even possible to ask the interviewee to propose his own ideas and perspectives on certain facts and use such proposals as the basis for a broader investigation. The interviewee may also suggest other people to be interviewed as well as other sources of evidence. Helping in this way, the interviewee assumes the role of informant rather than being a simple respondent. In the role of informants, as noted above, interviewees become more valuable since they not only provide the researcher with their own ideas and information on an issue, but also suggest corroborating or contradictory sources of evidence and facilitate access to such sources. Therefore, interviews are an essential source of information for these studies because most of them are about human issues. Such human issues could be interpreted through the eyes and perception of the interviewees, the pur-

pose of which is not only to convey information but also to help interpreting it. Interviewees may also provide direct access to the history prior to the situation under analysis, assisting in the identification of other sources of evidence. However, the researcher, as in documentary research, must corroborate the data obtained from the interviews with information from other sources or from different interviewees.

The key strengths of interviews, as a method for gathering information, are that they are more focused on the topics analyzed, and the perceptions and sensations the interviewees have about these topics are especially valuable for materializing the actual perspective of the problem. In contrast, their disadvantages are directly associated with biases caused by the lack of preparation in the questions asked or because the interviewer directed the questions to obtain what he was seeking.

### *Observations*

Assuming that the phenomena of interest are not purely historical, some relevant behaviors or environmental conditions are still available for observation. These observations serve as a source of evidence in the case at hand.

Observations range from formal to spontaneous data collection activities. Formally, observation protocols may be developed as part of the study protocol, and can be applied to measuring the incidence of certain types of behaviors during a certain period in the field. This may involve the observation of behaviors in meetings, factories, classrooms and similar places. Direct observations are less formal, since they can be performed during all field visits, including situations during which evidence is gathered, such as for example interviews.

Observations are often useful to provide additional information about the topic being studied. If a case study involves a new venture, observations are of great value for understanding the viability of this new idea, as well as the possible problems that will be encountered.

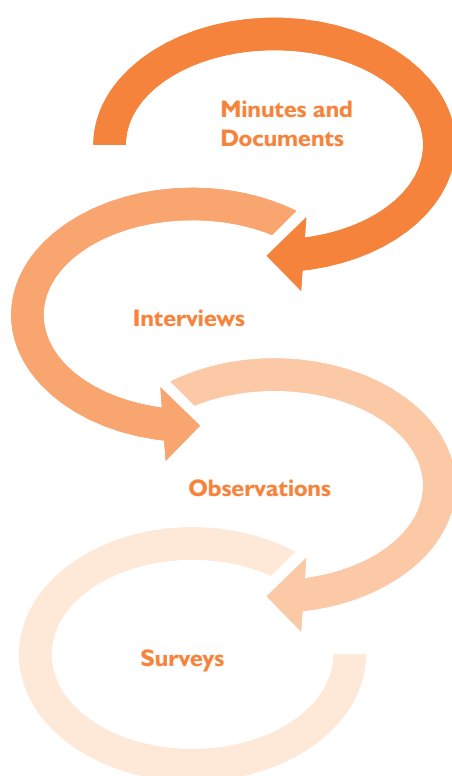
To increase the reliability of observational evidence, a common procedure is to use more than one observer. For this reason, a case study must allow the use of multiple researchers, as resources permit.

In this section we have examined the three most commonly used sources of information as evidence of case studies. Not all sources will be relevant to all case studies; however, the benefits of these sources of evidence can be maximized if two principles are followed:

### *Principle 1: Use of multiple sources of evidence*

The use of individual sources of evidence is not recommended for the realization of case studies, chiefly because its holistic particularities. On the contrary, an important feature of case studies is the use of different sources of information. This allows researchers to tackle a wider range of subjects, variables, opinions and behaviors. However, the most important advantage of using multiple sources of evidence is the development of convergence in the research topic through a triangulation process.

**Figure 5. Convergence of evidence**



In the social sciences, triangulation is often used to indicate that two or more sources of data (data triangulation), researchers (researcher triangulation), methods (methodological triangulation) and theories (theory triangulation) will be used in a study, in order to verify the reliability and accuracy of the results. The concept of triangulation is taken from spatial navigation and positioning techniques, whereby the position of a point in space is determined through the convergence of the measures taken in two other different points. The idea is that greater confidence can be attained if different sources of data, researchers, methods and/or theories lead to the same result.

Triangulation is a powerful technique that facilitates the validation of data through the crosschecking of in-

formation, based on two or more sources. As a result, by means of triangulation researchers can overcome the weaknesses, intrinsic biases and other problems arising from the analysis based on methodologies that use a single source of data, a single method, a single observer or a single theory.

Therefore, any conclusion or analysis is more likely to be convincing and accurate if it relies on various sources of information. However, it is necessary to clarify that the use of multiple sources of evidence imposes a great burden for researchers. Firstly, the collection of data from multiple sources is more expensive. Secondly, for a case study to use multiple sources of information, it is required that the researchers are skilled in a wide variety of data collection techniques. Nevertheless, it should be emphasized that if multiple sources of information are not used, the research would lose an inestimable advantage over other strategies.

### *Principle 2: Maintain a chain of evidence*

In case studies, another principle that must be followed to increase the reliability of information is to maintain a chain of evidence. The principle is to allow an outside observer, specifically the reader, to follow the derivation of the evidence, ranging from the initial research questions to the final conclusions of the case study. For this purpose, the following steps are recommended: first, the report must make enough quotations of the relevant information used throughout the entire case; second, researchers must develop a database that when inspected will reveal the content of the information and how the evidence used was collected; and finally, the research protocol must always be available, so that if anyone wants to read it the link between its content and the research questions can be easily found.

### **Protocol for Case Studies**

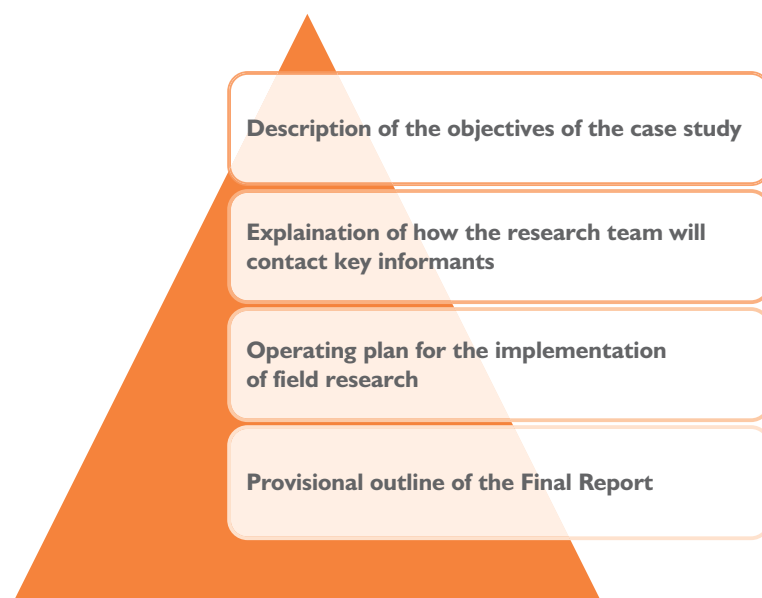
A protocol for a case study is a formal document that describes all of the steps to be followed during the research process, in particular, the steps to be followed during data collection tasks.

A protocol must include the following elements: a) the procedures to get in contact with key informants, as well as the details related to fieldwork; b) a detailed line of questions or an agenda to be used as a guide for the collection of information, including suggestions on data sources, and c) a preliminary outline for the final report of the case study.

Additionally, a protocol must be composed of four sections. The first section where a brief summary is made of the objective of the case study, the main research questions, the case subject of study, and com-

prehensively data collection strategies. The second section of the protocol must focus on the description of how the researcher team will contact with key informants for the case study, as well as the arrangements necessary for fieldwork, in addition to specifying other procedures to be followed throughout the data collection process. The importance of all these explicit steps is to verify the possibility of having unique and specific procedural requirements for each case. Hence, if a research protocol is established beforehand as a roadmap, it will be more likely to fulfill all information-gathering tasks. Moreover, if the procedures can be anticipated and are documented in a protocol, subsequent investigations will be more reliable and easy to implement.

**Figure 6. Sections or Elements of a Study Protocol**



The third section of the protocol is the most extensive section, and consists of a schematic plan of how the research will be implemented in the field. This section can be divided into several subsections, each representing an important part of the research. In turn, each subsection must consist of a series of questions to be examined by the team throughout the research. These must be part of the mental agenda of members of the research team during fieldwork. The questions in section three are not the same that were proposed for the informants or other key interviewees of the case study; on the other hand, they are directed to the case study team and can be considered as a checklist for the evidence and information collection process. Each question can be accompanied by a brief list of possible sources of information and hypothesis related to each of the topics covered by such questions. For example, the list can help the members of the research team to identify specific participants to be interviewed, specific documents to be examined or specific field activities to be carried out. In general, the members of the team need to learn the material contained in the third section as much as possible. In addition, this section could include a subsection on the analysis of contingencies, whereby the problems that may arise during fieldwork are anticipated and conjectures are made on how could these problems be addressed and solved.

**“ A protocol for a case study is a formal document that describes all of the steps to be followed during the research process, in particular, the steps to be followed during data collection tasks ”**

**Table 1. Important topics in a research protocol**

1. Propose the research questions to be asked in the case study (extensive and detailed discussion justifying such research questions).
  - a. Period of preparation of field activities.
  - b. Calendar of activities during field visits.
  - c. List of activities to be carried out during field visits.
  - d. Follow-up activities subsequent to field visits.
2. Discussion of relevant literature.
  - a. Development or revision of the logical model to be used in the case study.
  - b. Discussion on the importance of the topic and the types of evidence that must be collected in relation to the topic.
3. Preparation of the case study report.
  - a. Outline of the final report (an initial outline showing the main possible titles for the report).
  - b. Presentation of the case study preliminary draft to actors in the field for review.
4. Methodological Reminders.
  - a. Fieldwork procedure (discussion on methodological principles).
  - b. Use of evidence (analysis of evidence and need for convergence).
  - c. Other guidance topics.

A provisional outline of the final report of the case study must be submitted in the fourth section of the research protocol. Although the contents of this report are not completely known when the protocol is being drafted, it is necessary to have, in advance, an outline that allows determining the relative importance that must be given to the different topics to be dealt with during the research process. For example, if the focus of the report is to provide detailed chronology of the major events of an event, the members of the team need to know beforehand that they should collect more data on this topic, even if represented by a single question in section three. What is expected in section four of the protocol is the primary structure of the case study or a carefully constructed organizational chart to guide the writing of the final report.



A photograph of two vibrant red macaws perched on a grey tree branch. The macaws have bright red plumage with some blue and green feathers visible on their wings. They are facing each other, with their large, hooked beaks slightly open. The background is a soft-focus green, suggesting a tropical forest setting.

### 3. Writing of the Final Report

For the researcher, the factor that will probably influence the most on the submission and writing of a case is its target audience. Since the results may be of interest to a broad audience, different interests and needs must be taken into consideration. The characteristics of the audience must lead the way on how the case should be written and at the same time they will determine the information to be included or highlighted in such report. If the research is being presented to an academic audience, who is already familiar with the methodology, the details of the case will normally be of interest. On the other hand, it is likely that the audience of the case is more interested in concrete issues, i.e. in the practical lessons that the case may offer, which would make the abstract or theoretical parts of the document to have secondary importance when drafting the report.

Regardless of the audience, it must be recognized that due to the flexible nature of this type of research, the drafting and presentation of the final report becomes a great challenge. Since each topic is relatively unique in its nature, the research is not subject to predetermined structures or formulas in relation to the submission of the final report. For example, for other research methodologies, there are standard or default formats for final reports, which generally depend on the structures of scientific journals; something that is not applicable in case studies. This is how researchers have greater flexibility in the preparation of these reports. However, this flexibility comes at a price for the researcher: the standard formats that exist for other types of research make it relatively easier to write such reports; for this reason, the drafting of cases is considered as a much more complex and demanding task.

**“The characteristics of the audience must lead the way on how the case should be written and at the same time they will determine the information to be included or highlighted”**

Although the writing and submission of reports is the last stage in the case research process, researchers may (it can even be considered that they should) commence the drafting of the case from the early stages of the research process. Although writing the case from the beginning is very difficult and demanding, this type of approach would ensure the use of all the material collected, avoiding losing something during the research process. In addition, the fact of writing, while the research advances, can be favorable in the performance of the research itself, since it obliges the researcher to reflect on the case, its objectives, and the ideas or insight that are sought to be conveyed. It also avoids the uncertainty among researchers regarding “where to begin,” once all the data have been collected and the fieldwork has finished, thus fighting the problem known as the writer's block.

## Structure of the Final Report

There are seven main types of structures from the composition point of view that may be used by cases researchers to report their results, as follows:

- a) **Linear analytical structure:** It is essentially a style or format similar to traditional scientific journals.
- b) **Comparative structure:** It is when the data of a case occur two or more times using models or alternative explanations.
- c) **Chronological structure:** It is when the material of the case is presented to the reader in a chronological or temporal sequence.
- d) **Theoretical construction structure:** It is when the structure depends on the logic of the theory developed in the case.
- e) **Suspense structure:** It is when the results or conclusions are presented first, the explanatory material second, and a surprise element is used to link both.

- f) **Non-sequential structure:** It is when the descriptive material is presented as it best fits the case in particular.
- g) **Narrative structure:** It is particularly suitable if the researcher wants the public to have a more intimate experience with the case and is presented as a story with a plot and characters. In relation to the narrative structure, it is a particularly valuable approach since it allows readers to experience what the actors experienced in the case and analyze the decisions taken in context. This approach is most useful for the presentation of persuasive research reports. This form of case research is often published in formats of books used in the academy (especially business schools).

Researchers are recommended to consider three activities during the preparation and realization of the report. Firstly, the researcher must use a checklist to ensure that the case is presented as completely as possible. For complex cases, this ensures that nothing is lost during the drafting of the case report. The second activity is to have someone involved in the case that constantly reads and comments on the report. If a case has been developed on a susceptible topic, this type of review can serve to control and ratify sensitive ideas and concepts presented in such final report. Thirdly, once the document has been completed, it should be critically reviewed by one or more persons other than the author. These readers must fulfill a function similar to an anonymous reviewer, who must verify check the style of the document and the internal consistency of ideas.

Finally, regardless of the compositional structure selected, the researcher must ensure that the case meets a set of conditions, including persuasive arguments. These must be based on transparent and comprehensible methods for the reader that are thus conducive to the analysis of the information provided in the case. The conclusions



derived from its analysis and discussion must be plausible to the reader, in the light of the unique nature of the case. And finally, it must be remembered that the presentation of the material, the discussion and the finding(s) should be commensurate with the interests of the intended audience.

## Research Ethics

Finally, before concluding this manual, it is necessary to recall some rules that the researcher must follow so that his actions during the research process are framed within canons that could be considered ethical. The following guidelines are provided for this purpose, which summarizes the main precepts the researcher is expected to fulfill during the investigative process:



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1. Honesty must be the quality that stands out during a research work. For this reason, you are expected to report information, facts and results on an honest basis. No information and/or facts obtained during the research process should be made up, forged or misrepresented.
2. Avoid any bias during the design and planning phases of the research, the analysis and interpretation of information, the drafting of reports as well as in any other stage of the investigation where objectivity is expected or required.
3. Disclose any personal or financial interests that may affect the research. The sources funding the study should not influence the results or the information reported.
4. Fulfill your promises and covenants. Act with sincerity and aim for your thoughts and actions to be consistent.
5. Avoid errors caused by carelessness and negligence. Carefully and critically examine your work and that of your colleagues. Keep appropriate records of research activities through a series of evidence containing information related to data collection activities as well as the design and planning phases of the research.
6. Keep an open and transparent attitude. When required, share data, results, ideas, tools and resources (provided none of these have been classified as confidential). Be open to criticism and new ideas.
7. Protect the confidentiality of interviewees and informants. Never share, copy or transmit documents or sensitive material classified as confidential. It is important to make emphasis on this issue since privacy issues emerge in the context of the research, especially whenever information is collected and stored in physical or digital mediums. Hence, the main challenge for researchers is to use and share data while protecting at the same time the information collected to ensure the privacy of the organizations or personnel involved.
8. The integrity of interviewees, informants and sources of information must be protected. For this reason, participants must be clearly informed of the research objectives and any possible adverse events. They must be offered the possibility of refusing to participate or withdraw from the research at any time and without any consequences whatsoever. Similarly, it must be verified that the participants in the research are sufficiently competent so as to understand the implications and consequences of their consent.
9. Avoid discrimination based on gender, race, ethnicity or other factors that are not related to the competence and scientific integrity of the study.
10. The works, ideas and opinions of others must be properly referenced. Reference all the ideas and information that do not belong to you and are not considered as common knowledge.



## 4. RedLAC Case Studies

### Case 1: Monito Lucachi Trust Fund

#### 1. Introduction

In the scientific world, the tradition is that the person who discovers a new animal species must name it under the guidelines of the International Code of Zoological Nomenclature (ICZN). In some cases, a new species is named after the people who supported the research or financed the expedition for its discovery; in this case, an innovative fundraising proposal that leverages on the assignment of the right to name a new animal species will be examined. Specifically, we will analyze the case of the Madidi titi monkey and how the scientists who discovered this species decided to assign their right to name it in a public auction, the funds of which will be used for the establishment of a trust and the returns thereof to protect the habitat of this species. This is an innovative and unique alternative when it became known, therefore, it faced the risk of failing or affecting the prestige of their promoters; including the discoverer team: Mr. Robert Wallace, Humberto Gomez, Annika Felton and Adam Felton. However, 650 thousand dollars (USD) were raised through this initiative and used to establish a trust that, since 2006, has been efficiently managed by FUNDESNA and the returns of which have been of great importance for the protection of the habitat of this monkey.



## 2. Conservation in Bolivia

Bolivia is recognized worldwide for its mountains and high plains.<sup>1</sup> Nevertheless, the forests and the Amazon jungle are the ecosystems with greater prevalence in this country. About half of its surface is covered by forests (48% of its surface), therefore it can be said that Bolivia is a country of forests<sup>2</sup> as well as of Amazon environments, qualities that make it a megadiverse country; this means that it is a nation characterized by hosting an extraordinary diversity of plant and animal species. As a result of this, Bolivia is among the ten most diverse countries on the planet<sup>3</sup> in terms of plant, animal species and genetic wealth or germplasm, on par with Brazil, Colombia, Peru, Mexico, Ecuador and Costa Rica, among others.<sup>4</sup>

Approximately 70% of Bolivia's natural richness is contained in its protected areas. The Political Constitution of Bolivia recognizes these areas as a common good, as they are part of the natural and cultural heritage of the country, because of the functions they fulfill, which include: the conservation of biodiversity, the safeguarding of ecosystems, water uptake, germplasm reserve, the source of wild resources for food security, the promotion of tourism and other economic activities. All these functions are conducive to the wellbeing of the population, not only of Bolivia but also of the whole world<sup>5</sup>.

In 1992, from the enactment of the Law on the Environment (Law 1333), the National System of Protected Areas (SNAP) was formally created. The SNAP was created to lay down the political guidelines that will direct all of the bodies responsible for managing protected areas in Bolivia. Its main purpose is to support the development and consolidation of these, as stated in Law 1333.

Before the creation of the SNAP, protected areas were declared as such randomly or due to critical situations. With the establishment of the SNAP, this situation changed diametrically, since technical-formal and homogeneous processes were adopted for its designation. Within this new institutional framework important areas such as Madidi, Kaa-lya, San Matias and Palmar de Chiquisaca were founded.<sup>6</sup>

By 2014, the SNAP was comprised of all protected areas, including those within the national jurisdiction as

well as those pertaining to subnational or local jurisdictions. Specifically, in 2014, the SNAP was formed by 22 national protected areas, 25 departmental areas and 83 municipal areas, amounting to a total of 130. At that time, other areas were in the process of creation, which are expected to join the SNAP anytime soon, with a total coverage of approximately 23% of the Bolivian territory.<sup>7</sup>

The National Service of Protected Areas (SERNAP) was created for the operational management of the 22 national protected areas. The SERNAP is a decentralized entity attached to the Ministry of the Environment and Water (MMAyA) and is under the organizational and administrative coordination, control, supervision of the Deputy Minister of the Environment, Biodiversity, Climate Changes and Forest Management and Development.<sup>8</sup>

The institutional purpose of the SERNAP is coordinating the operation of the SNAP, guaranteeing the comprehensive management of the system for the purpose of conserving biological diversity in the area within its competence. The main functions of the SERNAP are as follows:<sup>9</sup>

1. To plan and oversee the comprehensive management of the protected areas that make up the SNAP.
2. To regulate and establish rules for the activities to be carried out within protected areas.
3. To establish participatory processes to ensure the management thereof and authorize participation in the management of protected areas.
4. To coordinate with departmental and municipal protected areas and to propose standards and policies for their comprehensive management.

While Law 1333 specified that the SNAP included, besides national protected areas, departmental, municipal and even private protected areas (i.e., belonging to subnational jurisdictions), the comprehensive management of the latter remained un contemplated in the SERNAP until 2014<sup>10</sup>.

In addition to Law 1333, the Framework Law of Mother Earth and Comprehensive Development for Wellbeing was formulated in October 2012. This Law was established with respect to protected areas as places for the conservation of the natural and cultural heritage of Bolivia. The purpose of the Law is: "to establish the view and principles for the comprehensive develop-

<sup>1</sup> Ibisch P. and G. Merida. 2003. Biodiversidad: La riqueza de Bolivia. Estado de Conocimiento y Conservación. Ministry of Sustainable Development. Editorial FAN, Santa Cruz de la Sierra, Bolivia.

<sup>2</sup> Of the total surface of the country, 109 million hectares, 53 million hectares are populated by trees, i.e. 48% of the territory, of which 40 million are located in the lowlands. Little less than half can be categorized as tropical rainforests, i.e. to 22 million hectares.

<sup>3</sup> Ibisch P. and G. Merida. 2003. Biodiversidad: La riqueza de Bolivia. Estado de Conocimiento y Conservación. Ministry of Sustainable Development. Editorial FAN, Santa Cruz de la Sierra, Bolivia.

<sup>4</sup> 2007-2008 Bolivia Environmental Status Report.

<sup>5</sup> Ministry of the Environment and Water. Subnational Protected Areas Current Situation 2012.

<sup>6</sup> Ministry of the Environment and Water. Subnational Protected Areas Current Situation 2012.

<sup>7</sup> 2007-2008 Bolivia Environmental Status Report.

<sup>8</sup> Ibid.

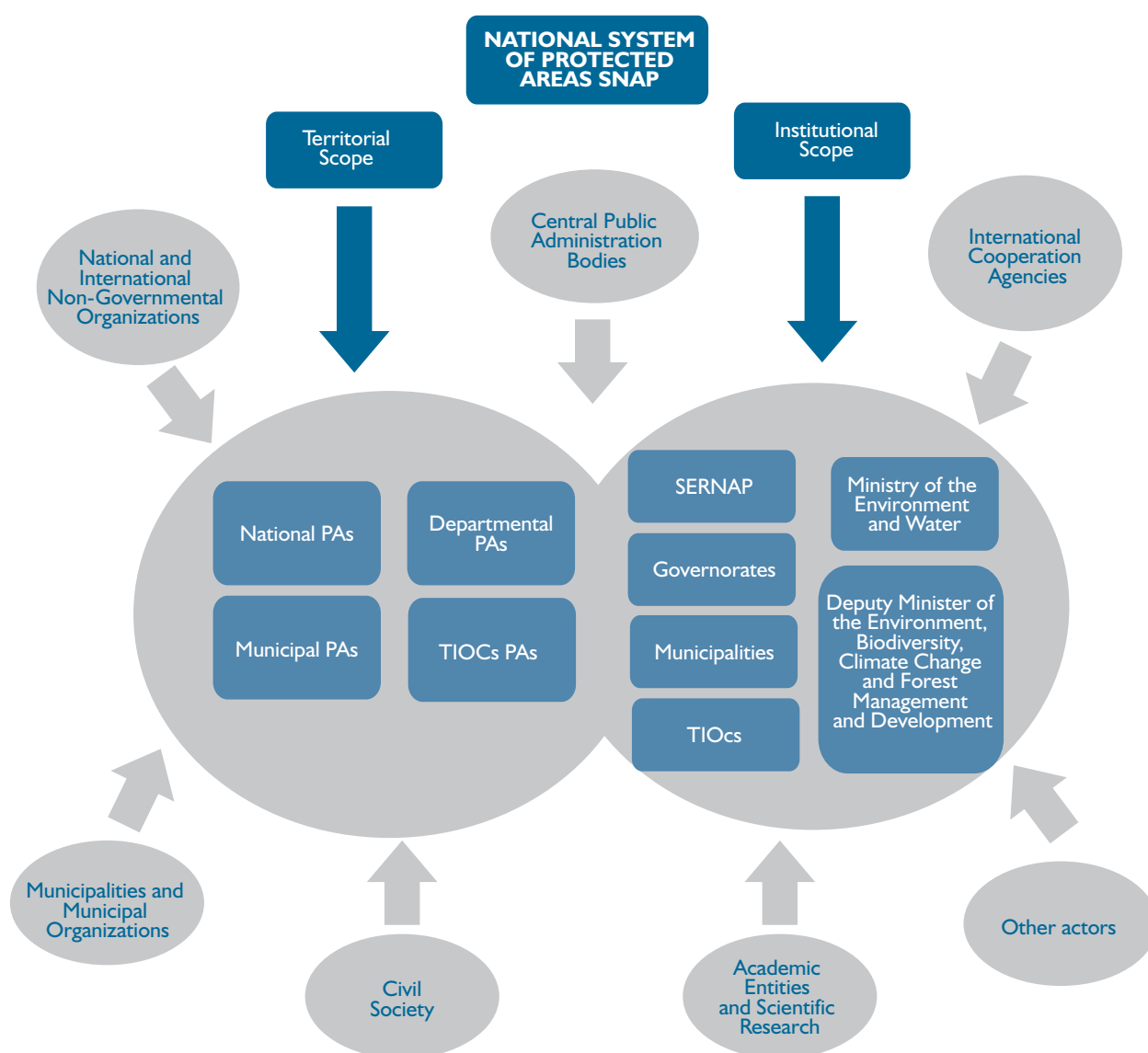
<sup>9</sup> Ibid.

<sup>10</sup> Ibid.

ment of the country under the principles of harmony and balance with Mother Earth, restoring and strengthening local and ancestral knowledge, within the framework of the complementarity of rights, obligations and duties; as well as the comprehensive development objectives as a means for achieving “Wellbeing.” The basis for the planning, public management and investments in the SNAP, as well as the strategic institutional framework for its implementation, were also established in this Law<sup>11</sup>.

Accordingly, based on the precepts laid down in Law 1333 and the Framework Law of Mother Earth, it was established that the SNAP had to be comprised of two main components: territorial and institutional. These components bring together a series of organized players from the public sector, communities, national and international civil society organizations (CSOs) and international cooperation organizations (Figure I).

**Figure I. National System of Protected Areas**



Source: MMAyA.

Finally, it is important to note that protected areas in Bolivia have been classified into six management categories, as shown in Table I. These six management categories are: National Park, Sanctuary, Natural Monument, Wildlife Reserve, Comprehensive Management Natural Area and National Immobilization Reserve. The abovementioned management categories were established by means of Supreme Decree 24781 for the General Regulation of Protected Areas (RGAP). The main purpose of the decree is the regulation of the management of protected areas, as established in Law 1333. The six management categories have been equated with the categories of the International Union for the Conservation of Nature (IUCN). In addition, it should be emphasized that the different categories are represented in each of the jurisdictional levels of the territory (national, departmental and municipal).

<sup>11</sup> <http://www.planificacion.gob.bo/sites/folders/marco-legal/Ley%20N%C2%B0%20300%20MARCO%20DE%20LA%20MADRE%20TIERRA.pdf>.



**Table I. Categories of protected areas**

Management Category		Description
General Regulation of Protected Areas (REGAP)	UICN Equivalence	
<b>National Park (NP)</b>	<b>II</b>	Strict protection. The extractive use of renewable or non-renewable resources and infrastructure is forbidden in the area, including parks, sanctuaries or monuments, except for scientific research, ecotourism, environmental education and activities for the subsistence of indigenous peoples.
<b>Sanctuary (S)</b>	<b>III</b>	
<b>Natural Monument (NM)</b>	<b>IV</b>	In addition to the above, it includes outstanding natural features of particular singularity, due to its scenic nature of physical-geographic formations or paleontological sites.
<b>National Wildlife Reserve (Rnvs)</b>	<b>V</b>	It seeks the sustainable protection, management and use, under official surveillance, of wildlife. This category includes intensive and extensive non-extractive or consumptive and extractive uses, in accordance with the zoning. The latter is subject to strict control and monitoring, referring exclusively to the management and exploitation of wildlife.
<b>Comprehensive Management Natural Area (ANMI)</b>	<b>VI</b>	It seeks to reconcile the conservation of biodiversity and the sustainable development of the local population. In general, it includes traditional land use areas, multipurpose natural resources areas and strict protection zones.
<b>Natural Immobilization Reserve</b>	<b>ND</b>	It is the legal and transitional regime of areas the protection of which is justified by preliminary assessments, but which require conclusive studies for their final recategorization and zoning.

Source: MMAyA

### 3. Funding of Protected and Conservation Areas in Bolivia

Until 1998, 98% of the funding for the national protected areas came from international cooperation (bilateral or multilateral) and just 2% from various national sources, very limited and discontinuous. Subsequently, towards 2005 and 2006, this proportion changed due to the activation of financial mechanisms such as trust funds (14%), own revenues (3%)<sup>12</sup> and contributions from the General Treasury of the Nation (TGN, in Spanish) that amounted to

<sup>12</sup> The revenues of protected areas come from the fees charged to tourists for entry, which by 2013 was representative in only two very visited areas, Madidi NP-IMNA and the Eduardo Avaro Andean National Reserve, but it will also be implemented in other protected areas.



11% of the SNAP's budget. Since then and until 2014, this situation has changed, the contribution from cooperation is still important, since it amounts to 61%, contributions from Trust Funds are equivalent to 17%, own revenues to 8% and contributions from the National Treasury totaled 14%. In 2006 it was estimated that protected areas would show a sustained deficit of 30% in their budget since 2009, as the increase in recurrent costs was projected in 40% and due to pessimistic non-continuity assumptions in terms of projects and international aid.<sup>13</sup>

Departmental and municipal protected areas have not had proper and stable financial support, and only in very specific cases have received financial support from the State, CSOs or international cooperation. Thus, the financing needs of these areas represent a much larger additional challenge for the sustainability of the SNAP as a whole.

The SERNAP has proposed the following funding scheme to achieve the sustainability of all protected areas belonging to the system:

**Table 2. Sustainable Financing Scheme**

SCOPE	LINE OF ACTION	SUB-LINE
<b>Management of Sustainable Financing</b>	Generation of own revenues.	Expansion of SISCO <sup>14</sup> to other protected areas. Development of payment models for environmental services.
	Third-party financing sources and mechanisms.	Trust Funds. Basket Funds. Private financing. Concurrent financing (Departmental and Municipal Autonomous Governments). National Development Funds (concurrent financing). GTN resources.

Source: SERNAP

In 2005, in order to promote the financial sustainability of protected areas, the SERNAP entrusted the Foundation for the Development of the National System of Protected Areas (FUNDESNA), with the development of a Strategic and Financial Plan (PEF) for the SNAP, under the perspective and the name of "Parks with people." The purpose of this PEF was not only the financial strengthening of such areas in Bolivia but also that these areas contribute to the economic growth and wellbeing of the communities living in or around them. Therefore, the financial sustainability alternatives promoted at the PEF were based on the principles of integrity, accountability, consistency, equity, ethics, suitability (potential and current vocation of the area), efficiency and integration (with each actor involved in the area).<sup>15</sup>

Of all the work required for the preparation of the PEF, it is worth noting the diagnosis carried out on the financial performance of the SNAP at that time, making emphasis on the identification of financing sources, which funded the activities to achieve the sustainability of protected areas. The funding sources identified are the following:<sup>16</sup>

- a) Contributions from the public sector; these are resources from the Central Government, Autonomous Departmental Governments, Autonomous Municipal Governments among others, which permanently and progressively contribute to the comprehensive management of the SNAP and the contributions of which are commensurate with the public policies of the country.
- b) Contributions from International Cooperation, which make a co-responsible retribution to the contribution of the functions and benefits to the ecosystem provided by the Bolivian SNAP to the world.
- c) Contributions from the private sector; these are resources from businesses and other institutions or private individuals, whose resources are focused on the management of the SNAP within the framework of a role agreed upon. These contributors are classified into the following groups:<sup>17</sup>
  - Civil Society Organizations (CSOs) that contribute to the comprehensive management of the SNAP within the context of their roles and based on the integration of interests. These contributions are aimed at supporting sustainable processes.
  - Private companies that contribute to the management of the SNAP, as a result of its articulation and integration of interests, through contributions and the development of private initiatives aimed at

<sup>13</sup> FUNDESNA and SERNAP, Strategic Plan for the Construction of a Financially Sustainable SNAP, 2005.

<sup>14</sup> SISCO: Official entrance fee system

<sup>15</sup> FUNDESNA and SERNAP, Strategic Plan for the Construction of a Financially Sustainable SNAP, 2005

<sup>16</sup> Ibid.

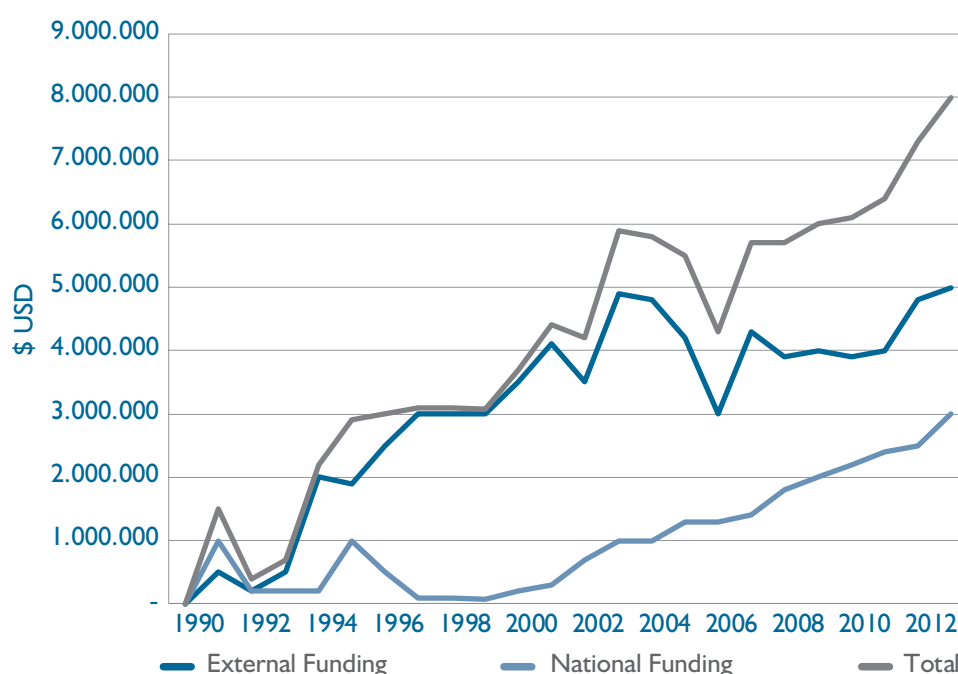
<sup>17</sup> Ibid.

supporting sustainable and cost-effective processes that generate benefits for the management of the protected area and the local population, within the framework of the objectives of the SNAP.

- The national population who contributes by assuming processes within protected areas, thus generating savings in the budget of the areas and/or through direct contributions, within the framework of the commitment and shared responsibility for the conservation of the ecosystems represented at the SNAP.
- The world population who contributes to the comprehensive management of the Bolivian SNAP, within the framework of the commitment and shared responsibility for the conservation of the environment of the planet and as a retribution for the Bolivian efforts undertaken on this matter.

Figure 2 shows the historical funding of the SNAP and the 22 national areas considered therefor. It is important to clarify that the fall in international cooperation during 2007 was due to the completion of several projects funded with resources from international cooperation; however, in the following years, new projects were opened with funds of the same nature (European cooperation funds); therefore, a recovery in the historical funding trend of the SNAP (Figure 2) is observed. On the other hand, in Figure 3 it is observed that, in 2011, the contribution from TGN increased; this occurred because the Government started to assume the payment of salaries of the personnel of protected areas.

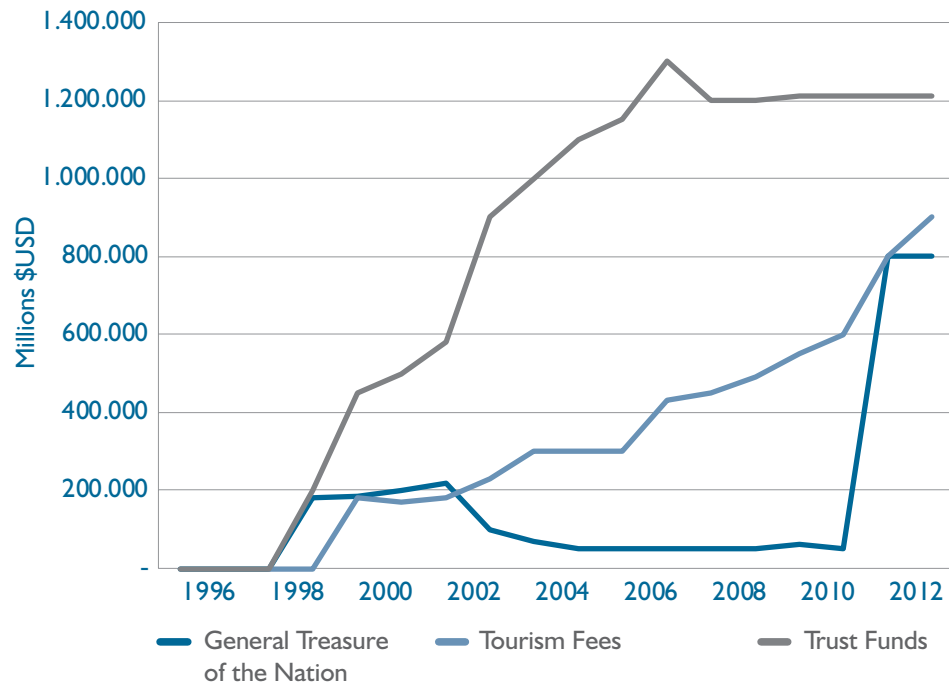
**Figure 2. Historic Funding of the SNAP by Source of Resources (1990-2013)**



Source: FUNDESNAIP.

Finally, since the beginning of the SNAP in Bolivia, a major source of financing has come from the national and international civil society. Without having a clear grasp on the scope, it is possible to indicate that both NGOs, indigenous peoples and academic entities have channeled financial and technical support through various ways, first for the establishment of the SNAP itself (before the establishment of the SNAP in 1992) and subsequently for the management of high-priority protected conservation areas. Under cooperation and even shared-management agreements (between 1992 and 2002), within the context of the public policy, an important contribution has been achieved for the development of the SNAP and its consolidation. However, as at 2013 this situation has been affected by the rearrangement in the State policy related to the channeling of financial resources by entities from the civil society. A greater control and coordination process of this mobilization of resources, by state entities, has limited the channeling of funds to the SNAP. While the cooperation of the civil society to the management of the protected areas continues, it has been drastically reduced by this process. In this regard, although the State has increased its financial contributions to the SNAP, financial gaps are still significant and therefore require more effective mechanisms to attain a greater mobilization of funds from all sectors, both from the civil society and other public levels (municipalities and governorates). Therefore, the identification of innovative financial mechanisms that contribute to the funding of areas, which must be coordinated between the civil society and the State, has become a priority.

**Figure 3. National Contribution to the Funding of the SNAP by Sources (1996-2013)**



Source: FUNDESNAIP.

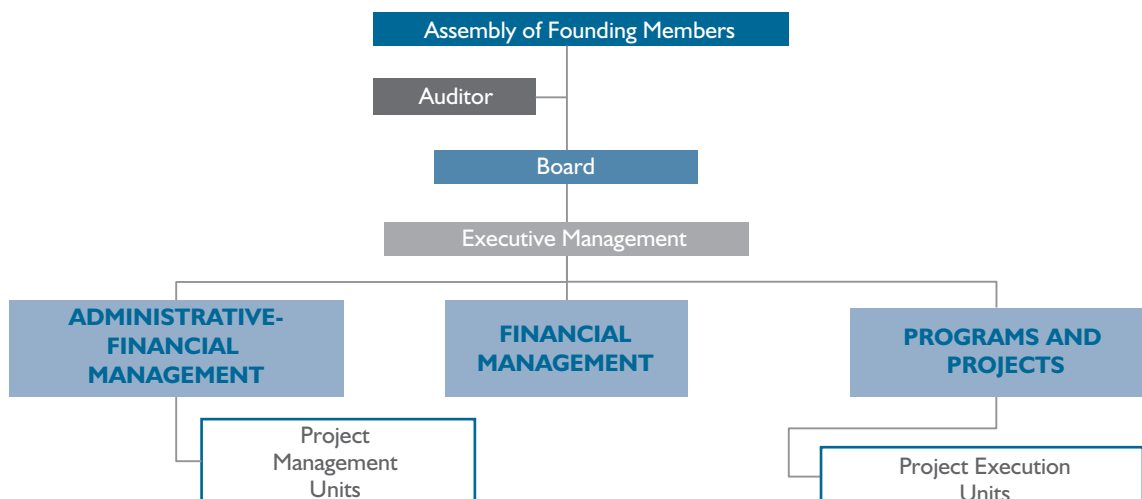
#### 4. Foundation for the Development of the National System of Protected Areas (Fundesnap)

Created in 2000, the Foundation for the Development of the National System of Protected Areas (FUNDESNAIP) is a private nonprofit entity, the mission of which is: “To contribute to the development and sustainability of the National System of Protected Areas (SNAP), through the acquisition and administration of resources intended for the execution of programs, projects and activities, involving different sectors from the Bolivian society.”

The government bodies of FUNDESNAIP involve multiple organizations, as reflected by its Assembly of Founding Members, which is comprised of representatives from various institutions such as: the Universidad Boliviana, Sociedad Civil Ambientalista, Confederación de Empresarios Privados de Bolivia, Management Committees of Protected Areas, International Cooperation agencies and national CSOs. In the early years, the Government also participated in the Assembly as a founder member with one representative, but at present due to the current regulatory and public policy, it is no longer part of the Assembly.

In 2014, the FUNDESNAIP had ten people associated with the organization. The highest body of this organization is the Assembly of Founding Members, then the Board and the Executive Directorate in that order of hierarchy. Its organizational chart is shown in Figure 4.<sup>18</sup>

**Figure 4. FUNDESNAIP Organizational Chart**



Source: FUNDESNAIP.

<sup>18</sup> <http://www.fundesnap.org/fundesnap/quienes-somos/117>.

FUNDESNAIP has eight lines of action, which are listed below:<sup>19</sup>

- a) The management of capital funds for the channeling of financial resources for supporting the management of the protected areas of the SNAP.
- b) Direct and third-party management of projects, supporting local development and conservation actions, seeking to improve the management capabilities of protected areas and the quality of life of the communities and indigenous peoples who live within these areas and their environment.
- c) Strategic Financial Planning at the level of the SNAP and each protected area, identifying current and future financial requirements based on the management guidelines established, both at the level of the SNAP and for each protected area.
- d) Financial management of funds from bilateral, multilateral cooperation, public and private funds, national and international, traditional and nontraditional, for increasing the financial underpinnings backing the sustainability and viability of the SNAP.
- e) Identification and establishment of alternative mechanisms for the generation of own revenues, such as environmental services, the management of natural resources, ecotourism and others.
- f) Promotion and strengthening of financial complementarity and simultaneity, ensuring proper coordination between different funders, public or private, institutional or social actors, that directly or indirectly support each protected area and the management of the SNAP.
- g) Positioning of the SNAP and development of the corporate image and institutional marketing of the FUNDESNAIP, in order to ensure the positioning of both the institutional purpose and the Foundation.
- h) Interagency integration at national and international level, creating strategic alliances at different levels and integrating the Foundation in discussion and exchange spaces regarding aspects directly related to the scope of action of the Foundation, as well as other issues of interest associated with the construction of the comprehensive and financial sustainability of the SNAP.

On the basis of these eight lines of action, the emblematic programs of FUNDESNAIP have been as follows:

- i. **Generation of Sustainability Capacities:** This program has been implemented simultaneously with all the active programs of the organization, so that implementers and communities assume the administrative and financial management thereof with a view to the sustainability of processes. This project has been implemented when FUNDESNAIP has made under-donations. Here it is important to mention that FUNDESNAIP is a donation and under-donation entity, so that, for example, in the specific case of the project sponsored by the Critical Ecosystem Partnership Fund (CEPF), FUNDESNAIP made under-donations to different types of entities, under a strategic monitoring and mitigation approach of social-environmental impacts from infrastructure projects, with the participation of other entities such as the Tsimane Mosekene Regional Council (CRTM), the Institute of Ecology of the University Mayor San Andres, World Wildlife Fund (WWF) and the Federation of Municipal Associations of Bolivia.
- ii. **Execution of projects financed by different international nongovernmental entities:** Given FUNDESNAIP's experience in the subject matter and mainly in the profile of environmental funds in Bolivia, which is unique in its class, it has encouraged organizations such as Wildlife Conservation Society, World Wildlife Fund (WWF), Conservation International (CI), Critical Ecosystem Partnership Fund, among others, to establish agreements or contracts with FUNDESNAIP for the development of specific programs and projects that include major under-donation components to key actors in biodiversity environmental and conservation issues in Bolivia.
- iii. **Bioculture Program:** This is a national program with funding from Switzerland Cooperation for the local development of the public policy of Wellbeing, making the most of the traditions and potentials of communities and their involvement in the productive chain in priority and fragile ecosystems. For this purpose and as a pilot experience, 25 of the poorest municipalities from the Andean region and valleys were selected; four of which belong to protected areas. Efforts were undertaken with the municipal government, local social organizations and communities, which determined in concert where the projects must be established, under the supervision of the program, to then sign a joint management agreement for the project.
- iv. **Support to subnational protected areas:** This project will initially operate in three departments of the country, mainly in the Amazon area, such as Beni, Santa Cruz and Pando. These areas are very different between them and it was necessary to study their conditions and needs to estimate gaps and make financial strategic planning projections. Fieldwork was carried out for gathering all the information required for the

<sup>19</sup> FUNDESNAIP and SERNAP, Strategic Plan for the Construction of a Financially Sustainable SNAP, 2005.

plans and expectations of the authorities in these areas and the plans and expectations that local governments and communities had for their protected areas.

#### 4.1 Administrative and Financial Management of the FUNDESNA

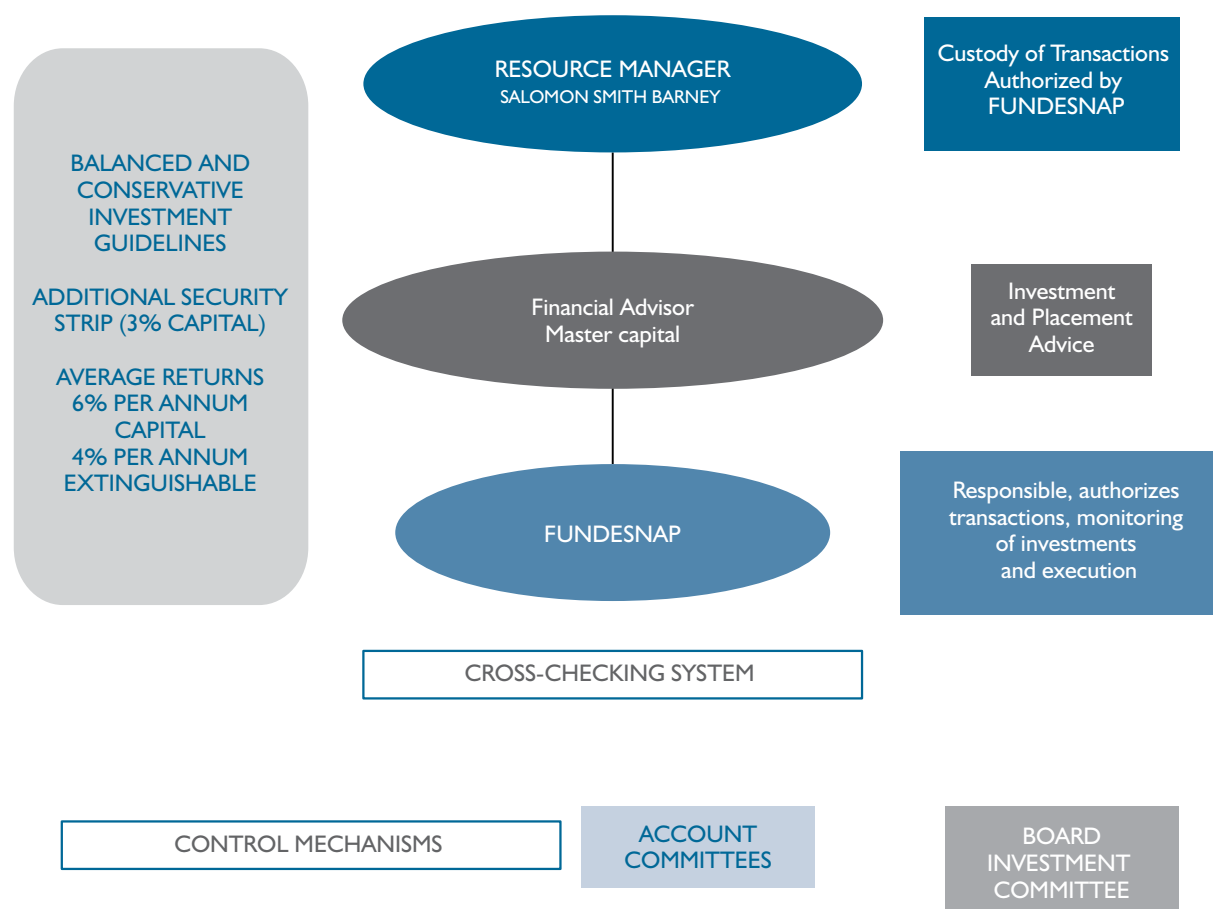
The FUNDESNA, to fulfill its mission and work approaches, has five types of financial accounts:<sup>20</sup>

- **Base capital for the SNA:** It is a capital fund composed of different accounts from donations from the World Bank-GEF, PL-480 (Public Law, Food for Peace), Switzerland and the United Kingdom.
- **KFW:** It is an extinguishable Fund, which culminated in 2010.
- **Monito Lucachi Trust Fund:** It is a private capital trust fund, derived from the auction to name a new species of monkey identified in the protected area of Madidi.
- **Gas Oriente Boliviano:** It is a private capital fund amounting to 400 thousand dollars, for the protected area of San Matias, as compensation for the passage of a gas pipeline.
- **Natura Profonacruz:** It is a private Departmental (Capital) Trust Fund, and it is currently growing to make investments in the future for the conservation of water sources in Santa Cruz, specifically related to the Amoro National Park.

Together, these activities developed by FUNDESNA generated in 2014 funds of 13.9 million dollars, which means that in 12 years it reached 11.7 million dollars in financial revenues.

Each year FUNDESNA has transferred to the SERNAP whatever this agency has requested, in accordance with its projections and Annual Operating Plans (AOP). However, this transfer of funds is also conditioned on the returns reported by investments, despite the fact that on average about 800 thousand dollars have been transferred every year to the SERNAP, funds from which 22 national protected areas benefit.

**Figure 5. Administrative and Financial Management**



Source: FUNDESNA.

<sup>20</sup> Presentation by the team of the FUNDESNA.

**“The funds contributed by FUNDESNAIP to the SNAP represent 30% of the basic needs of the system and their distribution is approximately 85% for administrative expenses and 15% for the funding of conservation-related activities”**

The funds contributed by FUNDESNAIP to the SNAP represent 30% of the basic needs of the system and their distribution is approximately 85% for administrative expenses and 15% for the funding of conservation-related activities; normally 60% of the budget is used for the payment of the salaries of personnel. For the management of these resources, FUNDESNAIP charges 10% of the yields earned. Also, until 2014, projects funds of about 18.6 million dollars have been managed. In total, during twelve years more than 38 million dollars have been managed. Figure 5 summarizes the structure of the Administrative and Financial Management of the FUNDESNAIP.

## 5. Madidi National Park and Integrated Management Area

The studies and assessments conducted for the creation of the Madidi National Park began in 1992 and a formal proposal had been drawn up for 1993.<sup>21</sup> After several years of proceedings, it was legally declared as a protected area on September 21, 1995, as of Supreme Decree 24123, under the category of Madidi National Park and Integrated Management Natural Area (Madidi NP-IMNA). The Madidi NP-IMNA has a surface of 1,895,750 hectares, becoming the third largest in Bolivia. It is located to the northwest of the country and has a wide altitude range, which goes from 6,000 masl (Andes Mountain Range), to 180 masl (Heath river plain), covering an extremely diversified ecological sequence. More than 80% of its surface is essentially mountainous, with abrupt valleys and deep canyons. Flat areas are limited to the narrow intermontane valleys of the rivers Beni and Tuichi, and the projection of the Heath river alluvial plain.<sup>22</sup>

Madidi is one of the most relevant units of the SNAP. It is an essential part of the approach of the Greater Madidi Landscape, which is promoted by WCS and constitutes one of the most important conservation units of the Vilcabamba-Amoro Conservation Corridor, promoted by International Conservation. This area is considered to be one of the areas with more biodi-

versity on the planet and one of the top twenty tourist destinations around the world.<sup>23</sup> In numerical terms, Madidi holds 11% of all the species of birds in the world and 78% of the birds in Bolivia, more than 250 species of mammals, probably over 400 species of fish, and 300 species of amphibians and reptiles.<sup>24</sup> It is then one of the most biodiverse protected areas in the world. Similarly, due to its enormous environmental quality, Madidi generates economic benefits for the region from conservation and ecotourism activities.

Madidi, together with protected areas such as Carrasco and Pilon Lajas, holds more than 20% of endangered species, in addition to having priority conservation areas in more than 80% of its territory. This is why it receives special attention, due to its great diversity of ecosystems and species. Different organizations work there, highlighting FUNDESNAIP and WCS. Specifically, WCS participated in the preparation of the first management plan, the zoning of which has been approved. It also had significant participation in terms of the research, monitoring, and financial sustainability of the Park.<sup>25</sup>

Since its inception, the Park has achieved significant progress in its creation objectives, as well as the gradual consolidation of its administration. Since 2000, Madidi has become the second most visited area in the country (about 7,000 tourists a year), after the Eduardo Avaroa Reserve. In addition, due to strategic partnerships with private institutions, the Government of Bolivia has been capable of responding to a greater degree to the needs of the population surrounding Madidi. Therefore, as a result of the efforts of the SERNAP and its collaborators, this protected area has managed to attract new investments.

The investments made have been conducive to the fulfillment of the policies and commitments of the Bolivian State with communities. For example, potable water and basic sanitation systems have been constructed in

<sup>21</sup> FUNDESNAIP, 2012. Madidi NP-IMNA Strategic Financial Plan. La Paz, Bolivia.

<sup>22</sup> Ibid.

<sup>23</sup> Fleck et al., 2006a; Malki et al., 2007. Madidi.

<sup>24</sup> Salinas, E. & R. Wallace. 2012. General conclusions. P. 172-178. In: Salinas, E. & R. Wallace (Eds.). *Madidi: Conocimientos Científicos y Prioridades de Investigación*. SERNAP & Wildlife Conservation Society, La Paz, Bolivia.

<sup>25</sup> Information provided by Robert Wallace and Lilian Painter, WCS scientists through personal communication.





the north of La Paz, covering ten communities and 1,655 inhabitants of the municipalities of San Buenaventura and Ixiamas; twenty communities and 1,890 inhabitants in the municipality of Apollo. Similarly, the productive capabilities of local organizations for the production and marketing of products such as coffee and cocoa, handicrafts and tourism, have been strengthened. The community tourism model in Chalalan has also been developed (which is now directly managed by the community of San Jose de Uchupiamonas), among other positive outcomes.<sup>26</sup>

For 2012, control and surveillance efforts achieved a reduction of 95% in illegal logging, which facilitated not only the protection of forest resources but also the recovery of the fauna in the Tuichi Valley.<sup>27</sup> This is how the elaboration process of the management plan has allowed the systematization and analysis of information regarding the biodiversity, archaeology, cultural and socioeconomic aspects of the region.<sup>28</sup> This has facilitated the identification of economic alternatives, based on the management of natural resources and the opportunity to establish baselines to increase social participation in the management of the protected area. All these actions generated positive results that are reflected in a high percentage of areas in good condition (Table 3). However, Madidi has not been free from financial difficulties that have hampered, year after year, the fulfillment of the creation objectives of the area.

**Table 3. State of Conservation of the Madidi NP-IMNA**

Protected Area	Surface (Ha)	Surface % in good state of conservation	Surface % of the NP with national priorities			
			Viability Priority	Functional Priority	Representation Priority	Key Priority
Madidi NP-IMNA	1,895,750	94	91	95	94	87
Amboro NP-IMNA	637,600	78	73	93	84	73
Pilon Lajas RB and TCO	400,000	89	87	99	83	75

Source: SERNAP.

<sup>26</sup> FUNDESNA, 2012. Madidi NP-IMNA Strategic Financial Plan. La Paz, Bolivia.

<sup>27</sup> Wallace et al., 2012. Lowland tapir (*Tapirus terrestris*) distribution, activity patterns and relative abundance in the Greater Madidi-Tambopata Landscape.

<sup>28</sup> FUNDESNA, 2012. NP-IMNA Strategic Financial Plan. La Paz, Bolivia.

## 6. Auction of the Right to Name a New Primate Species in Bolivia to Finance the Madidi National Park

Since the creation of the SNAP, one of its main weaknesses has been the lack of economic and technical resources that prevent dealing with major challenges such as protection, conservation, sustainable use of natural resources, financing and especially self-sustainability. Madidi has not been exempt from this problem and since its creation one of its main objectives has been seeking financial mechanisms to generate financial sustainability.

This section proposes a financial initiative for Madidi, which has been considered successful as since 2007 it has allowed to fund approximately 10% of the basic operating costs of the Park, while in turn has been established as a seed fund to consolidate future financial initiatives. Reference is specifically made to the Monito Lucachi Trust Fund, the particular origin and performance of which will be analyzed until 2014.

### 6.1. Scientific description of the species (Madidi Titi Monkey)

The scientist Robert Wallace of WCS has been working on biodiversity issues in Bolivia for 15 years. For his works, he relied on local and international scientists. In one of his many routine expeditions to the Madidi, Wallace and his team made up of the biologists Humberto Gomez, Annika Felton and Adam Felton, found something they did not expect to find, it was a new mammal that had not been previously cataloged.

During the course of an expedition carried out in 2000, which developed without incidents and consisted of observing and taking notes of some of the nearly 300 species of mammals, 400 kinds of fish and 12,000 varieties of plants that live in the Park, something drew the attention of the expert team. They identified what seemed to be a different species of monkey, which among other phenotypic characteristics, has a golden crown on its head. The scientists, after several hours of observation and discussions with local residents, who called the primate the Madidi titi monkey, came to the conclusion that this species had not been identified and deserved a scientific name.<sup>29</sup>

Wallace and his team took into account that they faced a long and complex process to achieve the acceptance of the newly discovered species. Within this process, the first phase consisted of ensuring that the species had not been actually listed before in the scientific literature. For this reason, they conducted an extensive

documentary research, consulting classic publications on the taxonomy of the genus *Callicebus*. It must be recalled that it was in 2000 when the monkey was observed for the first time and it was not until 2001 that an investigation in the Tuichi Valley began. Through the use of digital media, the monkey was detected and the elaboration of the article that describes its taxonomy in the genus *Callicebus* begun. Months after this effort a proposal arrived to the SERNAP to participate in the evaluation of the exclusivity of the species. In this way, Wallace and his team coordinated the capture of two specimens of this monkey with the SERNAP to conduct further taxonomic studies. In November 2003, the article where the Madidi titi monkey is proposed as a new species was sent to the scientific journal *Primate Conservation*. The article was accepted and then published in 2005 and this is how the official scientific naming of this primate took place.<sup>30</sup>

Wallace saw two opportunities with the discovery of the Madidi titi monkey. The first opportunity was that such discovery would rise and improve the profile of Madidi, both in Bolivia and in the world, confirming the fact that this area is one of the most diverse on the planet. Secondly, the discovery of the Madidi titi monkey should be seen as an opportunity to raise funds to support the operation of the Park, and in turn complete the design of the management plan of the area. For this second purpose there was not a clear idea as to the actions needed to put it into motion, until Wallace himself suggested that it would be interesting to obtain funds through an open auction, where the prize would be the transfer of the right to scientifically name this new species.

The idea of the auction was carefully analyzed by Wallace together with his scientific team as well as by members of WCS, who after an analysis considered it as a good option. The first thing they decided to do was to agree with the journal *Primate Conservation* not to publish the article until having the final name of the species, which would be given by the winner of a well structured and organized auction. In this regard, Mr. Wallace and representatives of WCS in Bolivia proposed this mechanism to the FUNDESAP. Similarly, the proposal translated into a formal agreement with the SERNAP. The process would be intended then to offer the right to name the species, based on a specific financial contribution to a trust fund to be established for Madidi.<sup>31</sup>

### 6.2. Auction mechanism

The tradition in the scientific world is that the person who discovers a new animal species must name

<sup>29</sup> <http://news.discovery.com/animals/zoo-animals/animals-biodiversity-madidi-park-1209113.htm>.

<sup>30</sup> Information provided by Robert Wallace and Lilian Painter, WCS scientists through personal communication.

<sup>31</sup> Ibid.

## “The discovery of the Madidi titi monkey should be seen as an opportunity to raise funds to support the operation of the Park, and in turn complete the design of the management plan of the area”

it under the guidelines of the International Code of Zoological Nomenclature (ICZN). However, in some cases, a new species is named after the people who supported the research or financed the expedition for its discovery.<sup>32</sup> Considering this exception, Wallace and his team decided to raise funds by granting the right to name the species to the person or institution that won a public auction.

Initially, the scientific community received the initiative to auction the scientific name of this species reluctantly. The reason for this reaction, in certain circles of the scientific community, is supported on the concern that by giving a higher market value to scientific findings, certain people would focus on discovering new species solely for financial gain.<sup>33</sup> However Wallace answered to this view of the facts of certain individuals stating that the main objective was for persons to focus on critical issues affecting the species and its ecosystem, which would make the auction successful,<sup>34</sup> if this could be achieved. From then on it became clear that the aim of the auction was not only to raise funds but also to raise awareness on the environmental problems faced by this species due to the neglect of its ecosystem, which could make it disappear in a few years.

This argument left a deep impression on WCS, who approved the idea of granting this right by means of an international auction and specified that the funds raised would be intended for the conservation of the ecosystem inhabited by the Madidi titi monkey, i.e. Madidi. Specifically, the idea of the auction consisted of establishing a trust fund from the contribution of the winner and that such funds would be jointly managed by the SERNAP (as it is a national protected area) and the FUNDESNA, recalling that the exclusive objective of these funds is the conservation of the Madidi titi monkey and its habitat.

WCS, the SERNAP and FUNDESNA promoted the initiative and disseminated the news throughout the Bolivian territory as well as globally. The auction was announced on various television channels world-

wide including CNN, BBC and ABC. Similarly, these events received attention from various print media of global importance and prestige, such as the New York Times.

In order to develop the initiative, WCS contacted Charity Folks (CF), who conducted a general survey to know the interest of the public in participating in the auction. The results showed that an audience was attracted by the idea. This audience came from different countries and consisted not only of natural persons, but also corporations. The relationship between WCS and CF is not new since there was a precedent where WCS used CF services to make a charity auction. CF is a leader in auctions over the Internet with the expertise and resources to take on the challenge of the auction of the scientific name of the monkey without any problems.

At the same time meetings were held with CF to agree on the terms of the auction, many press opportunities were generated, including a report on the U.S. television network CBS show “60 minutes.” Wallace and Sergio Eguino (Director of FUNDESNA), with the CBS team, agreed to shoot the monkey in Madidi. The broadcast of the show was strategically planned to coincide with the day of the auction. In addition to this show, the scientists were interviewed by about sixty mass media from different countries and regions of the world. As Wallace said, that “was a very intense period” with very high media exposure. It is important to stress that in addition to the coverage on mass media, WCS prepared an information package that was published at the auction for the public to have a better understanding of the species and the objective and future use of the funds raised. A description of the monkey was included in the information prepared and provided by WCS during the auction held by CF, indicating that one of its main phenotypic features was a golden crest on its head.<sup>35</sup>

The auction began on February 24, 2005 and remained open for two weeks, i.e., until March 3 of that year. It was an open, direct and first-price auction. The

<sup>32</sup> [http://www.nytimes.com/2005/02/08/science/08obse.html?\\_r=0](http://www.nytimes.com/2005/02/08/science/08obse.html?_r=0).

<sup>33</sup> <http://www.smokymountainnews.com/news/item/3979-name-that-creative-fundraising-supports-effort-to-count-every-living-thing-in-the-smokies>.

<sup>34</sup> <http://www.csmonitor.com/2005/0224/p01s03-woam.html>.

<sup>35</sup> This characteristic was what motivated the winner of the auction, the Golden Palace Online Casino to participate in it.



action behaved according to normal patterns. Most high bids took place in the last hours of the auction, a phenomenon<sup>36</sup> that CF warned the scientists and FUNDESNA about.

### 6.3. Funds raised at the auction

The scientists pointed out that they didn't have any particular expectation as to the amount they expected to raise, as they had no references from previous cases. However, there was an estimate of what could be obtained in the best of cases, corresponding to a range of revenues between 250 thousand and 1 million dollars.

Until the last day, the highest amount offered was 40 thousand dollars, but it was not until the last hour of the auction that the bids increased to a maximum of 650 thousand dollars. In the end, two bidders were fighting to win the auction, but the Golden Palace Casino won with a bid of 650 thousand dollars, an amount that was transferred to WCS and then to FUNDESNA for the management thereof for the benefit of Madidi.

The winner, Golden Palace Casino, is an American casino that as part of its marketing strategy has participated in extravagant auctions, for example, it won the pregnancy test of Britney Spears,<sup>37</sup> the first cellphone of the Pope Benedict XVI, as well as the kidney stone of William Shatner.<sup>38</sup> An open auction meant that any person or organization could be the winner, since the only condition was to make the best bid and on this occasion, the Madidi benefited from a casino with an unusual marketing strategy.

The Golden Palace Casino promoted the monkey as its pet, giving it a scientific name in Latin with advice from WCS. The scientific name chosen for the monkey was *Callicebus aureipalatii*, where *aureipalatii* is the equivalent in Latin of the name of the casino, i.e. Golden Palace. At the end, according to the statements given by representatives of the casino, the objective of participating and winning the auction was to support the conservation and give greater visibility to the Madidi and its biodiversity, which was in line with the objectives of the organizers of the auction. Hence, Golden Palace internalized the great value of supporting a good cause while being consistent with its marketing policy.<sup>39</sup>

<sup>36</sup> Popcorn effect due to the similarity of the continuous and ever-increasing bids nearing the end of the auction.

<sup>37</sup> [http://usatoday30.usatoday.com/life/people/2005-05-04-spears-pregnancy-test\\_x.htm?csp=34](http://usatoday30.usatoday.com/life/people/2005-05-04-spears-pregnancy-test_x.htm?csp=34).

<sup>38</sup> <http://www.goldenpalaceevents.com/auctions/>.

<sup>39</sup> <http://www.goldenpalacemonkey.com/>.

The proceeds of the auction were used as seed capital to establish the Monito Lucachi Trust Fund in 2006, which from 2007 generated the returns that translated into sustainable funding for Madidi. The Monito Lucachi Fund Trust is managed by FUNDESNAPE and the returns are transferred to the SERNAP. The trust is financially managed by the Salomon Smith Barney Investment Bank.

From 2007 to 2013, the total number of transfers carried out bordered approximately 14,093 dollars. The amounts transferred each year to the Madidi and that have been around 30 thousand dollars (Table 4) per year have covered 5% of its operational requirements (i.e. personnel expenses, conservation activities, maintenance of equipment, among others), although in reality equaled to 10% of the basic requirements for the protected area, which have been projected as 300 thousand dollars per year,<sup>40</sup> according to the PEF from the SNAP 2005-2015; while the returns of the fund have reached on average 3.5% per year (Table 5).

**Table 4. Monito Lucachi Trust Fund  
Transfer of Resources to the SERNAP (2007-2013)**

Year	\$USD
2007	34,339.00
2008	35,000.00
2009	23,400.00
2010	23,287.00
2011	23,150.00
2012	37,647.00
2013	37,270.00
<b>Total</b>	<b>214,093.00</b>
<b>Capital</b>	650,000.00
<b>Percentage transferred</b>	<b>32.94%</b>

Source: FUNDESNAPE.

**Table 5. Historical Returns of the Monito Lucachi Trust Fund (USD)**

Year	Initial Capital	Value as of December	Return
2006	650,000	711,068	9.40%
2007	650,000	701,256	7.89%
2008	650,000	597,892	-8.02%
2009	650,000	668,428	2.84%
2010	650,000	675,216	3.88%
2011	650,000	631,861	-2.79%
2012	650,000	683,001	5.08%
2013	650,000	710,216	9.26%

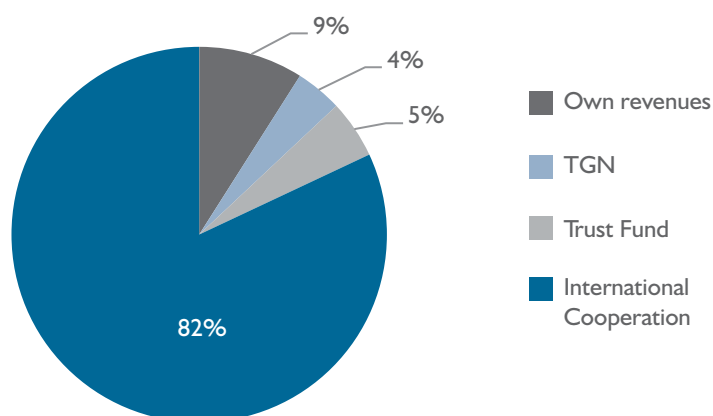
Source: FUNDESNAPE.

The financing structure of the Park, which is shown in Figure 6, includes resources beyond the basics required. Figure 6 shows that the resources from the Monito Lucachi Trust Fund represented 5% of the total funds available to the Park, a percentage higher than what is transferred by the State. Moreover, 82% of Madidi funding comes from international cooperation, funds that are estimated to shrink or disappear in the future, which is reflected on the level of financial uncertainty that the Park is exposed to and that the Monito Lucachi Trust Fund has somehow contributed to reduce.

<sup>40</sup> The annual average requirements of the Park are approximately 400 thousand dollars in its comprehensive scenario, in the basic scenario the requirement amounts to 300 dollars.



**Figure 6. Funding scheme of the Madidi NP-IMNA**



Source: FUNDESNAIP.

#### 6.4. Financial prospects of the Madidi

Table 6 shows a projection from 2014 to 2017, based on the historical budget reports and operational plans of the Madidi.

**Table 6. Financial projections of expenses of the Madidi NP-IMNA (USD\$)**

Budget item	Year					TOTAL
	2013	2014	2015	2016	2017	
Personnel expenses	156,496	176,042	199,177	213,829	223,245	968,788
Non-personal services	70,450	56,273	71,919	59,743	61,738	320,122
Materials and supplies	51,161	52,743	54,374	56,056	57,790	272,125
Real assets	76,638	55,653	95,546	0	85,489	313,325
Taxes, royalties and fees	776	776	776	776	776	776
Total Budget	355,520	341,487	421,792	330,404	429,036	1,878,293

Source: FUNDESNAIP.

Table 6 shows the need for more funds, especially in relation to personnel expenses, which is an alarming situation, particularly because the resources of the Park are expected to be reduced in the future, largely due to the decline in international cooperation. However, within this complex scenario, the resources generated by the Monito Lucachi Trust Fund have given a financial break to the managers of the Madidi. It should be remembered that the contributions to this fund are even greater than the funds transferred by the State, which further stresses the financial importance of the Monito Lucachi Trust Fund to the Madidi. In fact, these funds have made possible to carry out monitoring actions in the area that is home to the Madidi titi monkey.

The fund has no expiration date and its objective is to preserve the habitat of the Madidi titi monkey, even if the Madidi ceased to exist as a protected area, the returns of the fund would still be used to support conservation activities in this area. However, the main challenge in 2014, seven years after the establishment of the Monito Lucachi Trust Fund, is to seek other innovative alternatives to cover 82% from international funds that have a high level of uncertainty with regard to their long-term permanence.

## Caso 2. The flight of the butterflies

### 1. Introduction

The urgent need to find innovative alternatives that allow obtaining the funds needed to fulfill the mission of protecting the natural heritage of the planet has become obvious given the limited financial resources available for conservation. Mexico's experience of protecting an emblematic species, the protagonist of a migratory miracle: the monarch butterfly, will be presented in this case study. In Mexican soil, the efforts undertaken to protect this species have been shared by the Government and social and private organizations. However, the actions taken in Mexico are not enough to achieve the objective of protecting the species, since conservation concern is also the responsibility of the United States and Canada.

For this reason, a public-private initiative will be analyzed, the objectives of which are to educate the world about the existence of the monarch butterfly and the amazing migratory phenomenon it creates, to educate about the dangers posed to this species and raise funds to finance conservation actions. Specifically, we are talking about the production of an IMAX 3D film, whose main subject will be the monarch butterfly and its migration throughout North America. The film is titled *Flight of the Butterflies* and its website [www.flightofthebutterflies.com](http://www.flightofthebutterflies.com) provides detailed information about its exhibition in different countries.

This project is an example of an initiative that integrated different sectors and actors in support of conservation and that, in addition to the efforts of the film production company, included the participation of the Mexican Government at both state and federal levels, as well as the participation of private companies and the civil society organizations (CSOs), including the Mexican Fund for the Conservation of Nature A.C. (FMCN) and Mexico's environmental fund.



In the first section, the role of FMCN in the conservation activities in Mexico will be analyzed and its role in the protection of the Monarch Butterfly Biosphere Reserve (RBMM) will be specifically documented. Secondly, the initiative of the project “The Flight of the Butterflies” will be examined as well as its relationship with various activities aimed at the conservation of the monarch butterfly, its habitat and migratory route.

## 2. Mexican Fund For the Conservation of Nature, A.C.

The idea of establishing FMCN, a private non-profit organization, as the first environmental fund in Mexico, emerged in 1992 during the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil. In the framework of this event, representatives of national and international conservation organizations as well as the then President of Mexico, Carlos Salinas de Gortari, identified the need to establish an autonomous and permanent organization in Mexico, with the ability of significantly contributing to stable and long-term conservation funding and that could also receive resources from various national and international sources to support biodiversity conservation projects. The commitments of the Governments of Mexico and the United States were derived for this meeting with the purpose of establishing a capital fund for such initiative to materialize.

The design of FMCN was based on a consultation process, in which over 400 representatives of 250 organizations and national and international institutions participated. In January 1994, FMCN was legally incorporated as a nonprofit civil association. Two years later it kicked off its first conservation program through a call in which 76 projects were selected in the following categories: i) conservation of ecosystems and species, ii) sustainable use, and iii) strengthening of environmental capacities and education. The institutional profile of FMCN is shown in Annex I.

### 2.1. FMCN and Protected Natural Areas (PNAs)

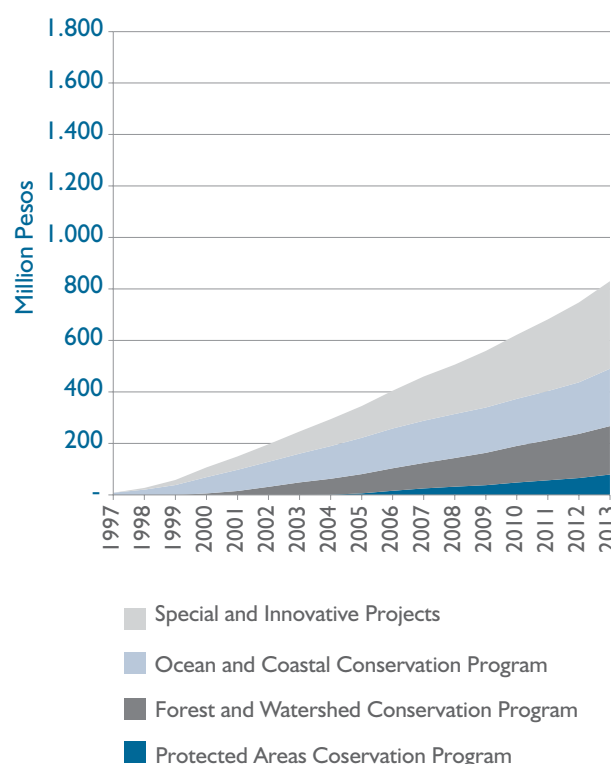
Since its inception and until 2013, FMCN has financed 1,241 conservation projects in 28 Mexican States, invested more than 65 million dollars in the field, provided technical and financial support to about 275 Mexican organizations, received donations from over 80 national and international sources, and technically and financially strengthened 24 Federal PNAs in close collaboration with the Mexican Government.

PTo accomplish this task, FMCN has maintained a close and constant relationship with governmental authorities, to such an extent that its has become one of the main allies of the Government of Mexico for the

conservation of the National System of Protected Natural Areas (Sinap), through the administration and raising of financial resources, and the management of capital funds. All in a framework of programmatic complementarity and administrative transparency.

FMCN has an office in conjunction with the National Commission of Protected Natural Areas (Conanp),<sup>1</sup> which facilitates working with the Mexican Government and keeps the projects in which both institutions work together running. The following diagram (Figure I) details the amount of FMCN's historical contributions for conservation in Mexico.

**Figure I. FMCN's historical support to the conservation**



The joint work carried out between FMCN and the Conanp has been based on the division of responsibilities between the two institutions for the management of PNAs. Thereby, FMCN has been in charge of the financial management, the application of interest, and the raising of additional and supplementary resources to the fiscal budget; while the Conanp has been in charge of field monitoring, management and conservation activities<sup>2</sup>.

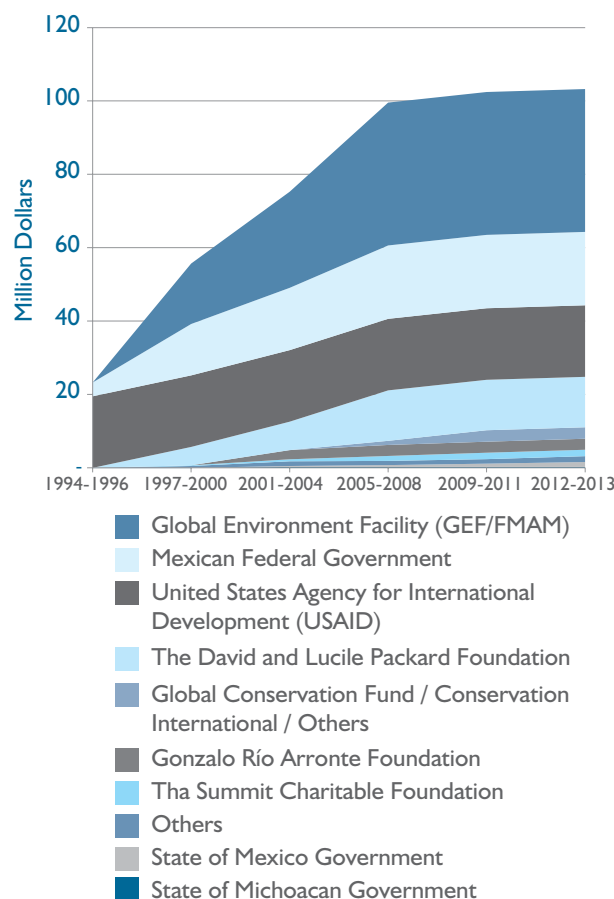
<sup>1</sup> The National Commission of Protected Natural Areas (Conanp) is a decentralized body of the Secretariat of the Environment and Natural Resources (Semarnat) of the Government of Mexico. It was created in 2000 and is in charge of the administration of the National System of Protected Natural Areas (Sinap), which currently has 176 natural federal areas representing more than 25,394,779 ha, approximately 10.6% of its surface and 1.6% of its marine area. Since May 2001, the responsibilities of the Conanp were extended to integrate Sustainable Regional Development Programs (PRODESA), with the aim of reducing the poverty and marginalization of rural and indigenous communities present in PNAs and in PRODESA regions.

<sup>2</sup> Ibid.

It is worth noting that in 1997, the PNAs that benefited from Protected Natural Areas Fund (FANP) of FMCN were only ten, for which 16.48 million dollars from capital resources were available, while in 2013 the number of PNAs increased to 24 and capital resources to 76 million dollars. This means that for 1997, the program's investment was approximately 1.64 million dollars a year and for 2013, this amount increased by 48%, i.e. to 3.16 billion dollars annually on average. These resources are additional and complementary to the federal budget that in 2014 was close to 90 million dollars for the entire system of 176 PNAs.

FMCN has different funding sources and mechanisms for its projects, which include the Mexican Government, the U.S. Government through the United States Agency for International Development (USAID), the Global Environment Facility (GEF), the David and Lucile Packard Foundation and Fundacion Gonzalo Rio Arronte, I.A.P., just to mention the most important. The proportion of these and other sources is detailed in Figure 2.

**Figure 2. FMCN's capitalization**



## 2.2 Work of FMCN in Monarch Butterfly Biosphere Reserve (RBMM) and the protection of this species

The RBMM is one of the 24 PNAs that benefited from the Protected Natural Areas Conservation Program that was financially coordinated by FMCN. The RBMM holds great national and international relevance

since one of its main conservation goals is the population and migration of the monarch butterfly, one of the iconic species of Mexico and North America.

The RBMM also receives resources from the Forests and Watersheds Conservation Program of FMCN. In 2009, FMCN supported the development of the forest baseline for the core area of the RBMM. This technical tool allowed establishing the surface to be supported with the funds in collaboration with the National Forestry Commission (Conafor). Similarly, FMCN has directly supported the monitoring of the Monarch Butterfly Fund and in the past has supported and financed the monitoring of hibernating colonies in the RBMM.

To measure the importance of the RBMM and how FMCN is connected with its conservation, an overview of this PNA, its actors and the financing mechanisms supporting it is shown below.

## 3. The Monarch Butterfly Biosphere Reserve

### 3.1 Characterization

The RBMM was re-decreed in 2000 to adjust its scope to the conservation needs of the species. It is located in the Trans-Mexican Volcanic Belt, to the east of the State of Michoacan and to the west of the State of Mexico. It covers the municipalities Temascalcingo, San Jose del Rincon, Donato Guerra and Villa de Allende in the State of Mexico and Contepec, Senguio, Angangueo, Ocampo, Zitacuaro and Aporo in the State of Michoacan (Figure 3). It has 56,259 hectares divided into three core areas (13,551 has) and two buffer zones (42,707 has). The RBMM is refuge to millions of monarch butterflies, especially between December and late February<sup>3</sup>.

The landscapes of the RBMM are characterized by valleys and mountains with altitudes ranging from 2,040 to 3,640 meters above the sea level. It is covered by temperate high forests, dominated by conifers such as fir, pine, oak and cedar species, which are important for the maintenance of natural processes such as water recharge, carbon capture and the conservation of a great biodiversity of vascular plants (493), fungi (50) and wild-life species (198 vertebrate species)<sup>4</sup>.

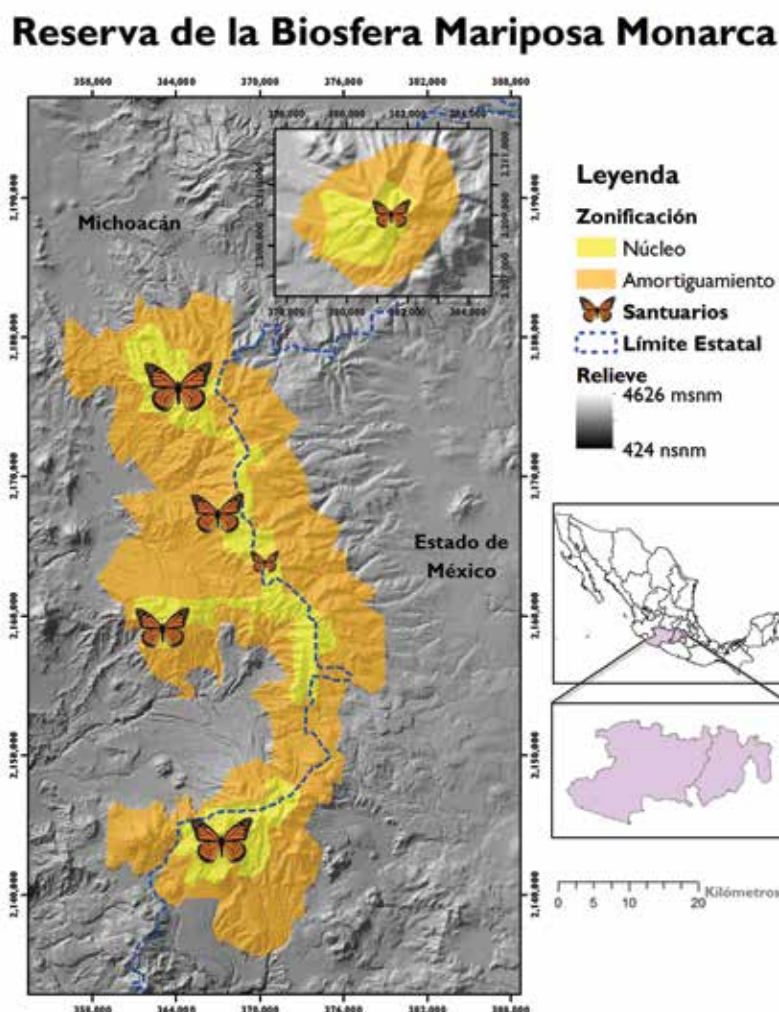
The area was recognized by the National Commission for Knowledge and Use of Biodiversity (Conabio) as a priority Terrestrial Region and Hydrological Region. The site was defined as an Area of Importance for the Conservation of Birds (AICA), it is located in a critically

<sup>3</sup> Sigala P. "El entorno socio ambiental de la mariposa monarca." Universidad Autónoma de Chapingo.

<sup>4</sup> "El Fondo Monarca: Un instrumento innovador de pago por servicios ambientales en apoyo a la conservación de bosques y a la retribución a comunidades forestales." Semarnat, Conanp, FMCN, WWF and States of Mexico and Michoacan. 2013. Available at: [http://www.conanp.gob.mx/que\\_hacemos/pdf/programas\\_manejo/monarca.pdf](http://www.conanp.gob.mx/que_hacemos/pdf/programas_manejo/monarca.pdf).

endangered ecological region. In 2008, it was declared Natural Heritage of Humanity by the United Nations Organization for Education, Science and Culture (UNESCO). In addition, it is part of two of the largest and most important basins of the country: the Lerma River basin and the Balsas River basin, contributing with 30% of the water supply for Mexico City. Therefore, it also represents a priority region for the conservation and provision of environmental services<sup>5</sup>.

**Figure 3. Limits of the RBMM**



The region where the RBMM is located poses a challenge to conservation due to its unique physical, geomorphological, climatic, hydrological and biogeographical features, but especially because it is the end of the migration cycle of millions of monarch butterflies that journey from 3,000 km to 4,500 km south during October and November, from the northern area of the United States and Canada, to overwinter in Mexico. The flying speed of the monarch butterflies ranges between 15 and 45 km/h, depending on humidity and wind conditions, traveling approximately 120 km per day. During February, these butterflies mate and start their intergenerational migration back north by depositing their eggs in three different species of milkweeds<sup>6</sup> along the route<sup>7</sup>.

In regards to their migration, the most important issues for the scientific study of this species are: the selection and fidelity to hibernation and breeding sites; the distribution of the species and subspecies; the behavior, genetics and ecology of populations, and the interaction of populations of this species with the management of natural resources. Other issues that have received less scientific study are the matching of the annual migration cycle and the astronomical sequence of equinoctial periods and solstices; the influence of the general circulation of the atmosphere and the direction of the prevailing winds in the displacement of monarch butterflies; as well as the effects of global climate and atmospheric changes in the reproductive dynamics of populations of the species<sup>8</sup>.

<sup>5</sup> Conanp. Monarch Butterfly Biosphere Reserve Management Program. 2001. Available at: [http://www.conanp.gob.mx/que\\_hacemos/pdf/programas\\_manejo/monarca.pdf](http://www.conanp.gob.mx/que_hacemos/pdf/programas_manejo/monarca.pdf)

<sup>6</sup> The Milkweed is a genus of dicotyledonous, perennial, herbaceous plants with about 140 known species. It belongs to the family Apocynaceae and many of their species distributed in the Nearctic.

<sup>7</sup> Conanp. Monarch Butterfly Biosphere Reserve Management Program. 2001. Available at: [http://www.conanp.gob.mx/que\\_hacemos/pdf/programas\\_manejo/monarca.pdf](http://www.conanp.gob.mx/que_hacemos/pdf/programas_manejo/monarca.pdf)

<sup>8</sup> Conanp. Monarch Butterfly Biosphere Reserve Management Program. 2001. Available at: [http://www.conanp.gob.mx/que\\_hacemos/pdf/programas\\_manejo/monarca.pdf](http://www.conanp.gob.mx/que_hacemos/pdf/programas_manejo/monarca.pdf).



**“The region where the RBMM is located poses a challenge to conservation due to its unique physical, geomorphological, climatic, hydrological and biogeographical features, but especially because it is the end of the migration cycle of millions of monarch butterflies”**

### 3.2 Social context of the RBMM

The occupation of Mazahua and Otomi indigenous groups in the region now covered by the RBMM holds historical relevance. During the Spanish colony, this area was completely conquered and became a timber and mineral producing area, due to the existence of rich deposits of both resources. After the independence of the country, logging became the main economic activity and its extractive nature put the forest and natural resources of the region at risk. Subsequently, at the end of the Mexican Revolution and during the presidential period of General Lázaro Cárdenas, the Agrarian Reform was promoted in which large estates were expropriated and the majority of the common lands<sup>9</sup> and indigenous communities that currently make up the agrarian centers<sup>10</sup> of the area were established.

Today, the ownership of the land in the RBMM is primarily social. The 59 common lands and 13 indigenous communities cover more than 24,000 hectares of forests in the buffer areas (42.7%) and 13 thousand hectares more in the core area (23.1%). In 2013, the population living in the area of the RBMM and surrounding areas reached 500 thousand inhabitants. This population is characterized by high rates of poverty, illiteracy, marginalization and a strong dependence on the forest and agricultural production,<sup>11</sup> which has put a high pressure on the natural resources of the RBMM.

While the Government of Mexico has issued three presidential decrees (1980, 1986 and 2000)<sup>12</sup> to protect the forests that are home to the monarch butterfly's hibernation sites, the RBMM has been exposed to different pressures largely as a result of the level of marginalization of the population living in the same area. As mentioned above, the region has a record of mining activity, unplanned extension of agricultural and grazing areas at the expense of forest areas, clandestine or illegal wood harvesting, overexploitation of natural resources and unplanned national and international tourism of more than 250,000 national and foreign visitors every year. These activities have led to the degradation and loss of over 10,500 hectares of forest in the Reserve. In addition to these social problems, there are also natural threats that alter the habitat of the RBMM, such as pests, fires, floods and droughts, exacerbated by the effects of the climate change. All these social and natural phenomena have made these environmental issues to be addressed on an interagency basis, which has given rise to the creation of synergies between the different actors, such as various governmental bodies, civil associations, academic institutions and common lands and communities. The objective of these alliances is to work together to design and implement community forestry development and management programs that address the environmental problems comprehensively, thus allowing to maximize the preservation of the environmental services of the forest at local, regional and national level<sup>13</sup>.

In 2000 and as an amendment to the previous decree of 1986, a third decree was issued for the RBMM<sup>14</sup>, with expanded the area core from 4,490 hectares to 13,551 hectares (23.1% of the surface), to include all

<sup>9</sup> Common Land: portion of lands, forests or waters that the Government handed over to a farmer population for its exploitation (Agrarian Law, 1992). The emergence of common lands dates from the end of the Mexican Revolution and constitutes the return of territories to farmers, which establish the governance and zoning principles of the area granted. The latter is characterized because it is divided into human settlements, common use lands and grassland areas over which each common land owner (individual owner) holds certain rights of alienation (Zuniga and Castillo, 2010).

<sup>10</sup> Ibid.

<sup>11</sup> The populations of the place generally use firewood for cooking, wood for marketing or extract non-timber products such as edible mushrooms to survive.

<sup>12</sup> Decree 1980: National Journal of the Federation of April 9, 1980.

Decree 1986: National Journal of the Federation of October 9, 1986.

Decree 2000: National Journal of the Federation of November 10, 2000.

<sup>13</sup> “El Fondo Monarca: Un instrumento innovador de pago por servicios ambientales en apoyo a la conservación de bosques y a la retribución a comunidades forestales.” Semarnat, Conanp, FMCN, WWF and States of Mexico and Michoacan. 2013. Available at: [http://www.conanp.gob.mx/que\\_hacemos/pdf/programas\\_manejo/monarca.pdf](http://www.conanp.gob.mx/que_hacemos/pdf/programas_manejo/monarca.pdf).

<sup>14</sup> <http://www2.inecc.gob.mx/publicaciones/gacetas/282/monarca.html>

hibernating colonies. This limited the use of forest resources for the community<sup>15</sup>. In this way, the measures undertaken with this third decree caused conflicts among the communities that were economically dependent on logging in the area<sup>16</sup>.

### 3.3 The Monarch Butterfly Fund

The conflicts that emerged from the expansion of the core area of the RBMM with the decree of 2000, resulted in the initiative of creating a financial scheme to compensate for the cancellation of logging permits existing in 2000 and support conservation activities of forest land owners and thereby achieve the protection of forests in the core area. The initiative consisted of the establishment of a fund for the conservation of the monarch butterfly, which was called the Monarch Butterfly Fund (MBF).

A relevant aspect related to the MBF is that it was designed according to the needs and requirements of the owners affected by the decree of 2000 and, at the same time, with the aim of promoting the conservation of the area, facilitating the unification of efforts from various sectors with the interests in the RBMM, such as the government, academia, civil society and land owners.<sup>17</sup>

A capital fund of 6.5 million dollars was created in the year 2000 in order to ensure the conservation of the core area of the RBMM. This is how the MBF was born, as an initiative of FMCN and the World Wildlife Fund (WWF), with financial support from the Packard Foundation, the Semarnat, at that time known as the Secretariat of the Environment, Natural Resources and Fisheries (Semarnap) and the Governments of the States of Mexico and Michoacan, as shown in Table 1.<sup>18</sup>

By 2013, the capital fund reached a number close to 7.5 million dollars from the recent contributions of the Government of the State of Mexico. This capital is managed through a trust administered by FMCN and supported by a multisectoral technical committee, whereby two types of economic incentives are applied:

1. Support to common lands, indigenous communities and private properties by modifying their forestry permits in the core area, and the payment of 18 dollars per cubic meter of wood not to be harvested.
2. Support to common lands, indigenous communities and private properties that had no harvesting permits, which will receive 12 dollars per hectare preserved. These payments are made in exchange of the commitment to preserve the core area and collaborate with the RBMM to ensure its protection.

The interest generated from the capital fund of the MBF were used to create the Monarch Butterfly Conservation Trust Fund, which has established a permanent compensation program for making direct payments to common lands that did have forestry permits and economic incentives in the form of payments for environmental services (PES) to 34 common lands, indigenous communities and private properties in the core area of the RBMM. The agreement was signed in October 2000, a supplementary agreement has signed in 2001 and the final trust agreement was executed in 2002.<sup>19</sup>

**Table 1. Contributions to the Monarch Butterfly Fund**

Donor	Contribution in Dollars	%
Packard Foundation	5,000,000.00	65.83%
Semarnat	1,000,000.00	13.17%
State of Mexico	1,345,270.46	17.71%
State of Michoacan	250,017.29	3.29%
<b>Total</b>	<b>7,595,287.75</b>	<b>100%</b>

<sup>15</sup> Ibid.

<sup>16</sup> Sigala Pascual. "El entorno socio-ambiental de la mariposa monarca." Universidad de Chapingo.

<sup>17</sup> "El Fondo Monarca: Un instrumento innovador de pago por servicios ambientales en apoyo a la conservación de bosques y a la retribución a comunidades forestales." Semarnat, Conanp, FMCN, WWF and States of Mexico and Michoacan. 2013. Available at: [http://www.conanp.gob.mx/que\\_hacemos/pdf/programas\\_manejo/monarca.pdf](http://www.conanp.gob.mx/que_hacemos/pdf/programas_manejo/monarca.pdf).

<sup>18</sup> Presentation: Capital funds and PNAs in Mexico: Experience of 20 years by Renee Gonzalez, November 2013.

<sup>19</sup> "El Fondo Monarca: Un instrumento innovador de pago por servicios ambientales en apoyo a la conservación de bosques y a la retribución a comunidades forestales." Semarnat, Conanp, FMCN, WWF and States of Mexico and Michoacan. 2013. Available at: [http://www.conanp.gob.mx/que\\_hacemos/pdf/programas\\_manejo/monarca.pdf](http://www.conanp.gob.mx/que_hacemos/pdf/programas_manejo/monarca.pdf).

In 2000, the core area had 40 properties, which were distributed among 23 common lands, nine indigenous communities six small properties, one state-owned and another federally owned. The two federally and state-owned properties (one each) are not applicable to the MBF.<sup>20</sup>

The PES scheme contemplated by the MBF was implemented in two stages<sup>21</sup>. In the first stage between 2000 and 2009, the interest of the MBF went to support the two types of economic incentives mentioned above. Most of the amount delivered corresponded to the funds available for equitable distribution; i.e., the resources were received by the president of the assembly's common land commission, who divided the total amount in the number of common land owners. In addition, the payments were allowed to vary according to the contributions to conservation tasks or as determined by their assemblies. Other amounts were intended to support the strengthening of community policing, carry out works for common benefit (such as repairs of roads, water supply, schools, churches, etc.) and pay for environmental impact studies.

In the second stage, planned from 2009 to 2026, Conafor joined this conservation effort through the creation of local PES mechanisms through concurrent funding, which means that the MBF will make an estimated contribution of five million dollars and the Conafor will contribute with four millions dollars, totaling more than nine million dollars, which will be directly intended to 38 owners of the core area for a period of 18 years (Table 2).

**Table 2. Payments and projections of Conafor and Monarch Butterfly Fund**

Period	Amounts paid (dollars)				Payment
	Payments by Conafor		Payments by MBF		
	Concurrent funds	Technical assistance	Concurrent funds	Conservation services	
2009-2011	385,444.09	-	805,096.36	96,925.82	1,190,540.45
2012-2018	1,828,479.48	189,131.89	1,878,558.16	2,473,648.39	4,091,773.63
2019-2026	1,793,333.26	223,961.13	1,983,317.06	2,827,026.74	4,224,158.97
Subtotal	4,007,256.83	413,093.03	4,666,971.57	5,300,675.13	-
Total	4,420,349.86		5,086,123.19		9,506,473.05

For Eligio Garcia Serrano, Coordinator of the MBF, the recovery of 700 hectares is one of the biggest achievements of the program. This goal was not easy to attain largely because the community-based management of the RBMM implies challenges arising from its governance system. Around 9,000 common land owners and community members and small owners were involved in this program, who as a rule replaced their authorities every three years, requiring the new authorities to receive an induction on the standards of the MBF. Based on the foregoing, Garcia Serrano concluded that organized common lands can generate higher profits, which in turn benefits the RBMM and its inhabitants.

However, a problem mentioned by the Coordinator of the MBF is the perception of many common land owners that the funds received do not really represent a compensation, which could be considered an error of assessment by the individuals benefited, since they did not fully assess their conservation revenues; i.e. their calculations did not account for the payments made by the Conafor and the National Forestry Program (Pronafor).<sup>22</sup>

It is then concluded that it is necessary to strengthen strategic alliances in order to keep the PES program, i.e. to continue working hand in hand with communities, allowing them to actively participate in decision-making activities and articulate actions with state and federal governments. In this respect, Jorge Rickards, Conservation Director for WWF in Mexico, considered that the governance of the RBMM will always be difficult due to the form of social ownership of the land and because it is under the jurisdiction of two states. Despite these difficulties, achievements have been made in forest conservation, which are largely due to the work carried out by the CSOs working in the area.<sup>23</sup>

### 3.4 Tourism in the RBMM

Since 1986, forestry activities (wood and resin production) in the RBMM have decreased by more than 60%, as a result of the environmental restrictions generated by the decree for the protection of the monarch butterfly

<sup>20</sup> Socioeconomic and environmental characterization of the properties involved in the Monarch Butterfly Conservation Fund. Biologist Eligio Garcia Serrano, M.D.R. Jose Antonio de la Cruz Hernandez, Mexico 2005.

<sup>21</sup> Ibid.

<sup>22</sup> Interview with Eligio Serrano Garcia, Coordinator of the Monarch Butterfly Fund. Mexico City, March 13, 2014.

<sup>23</sup> Interview with Jorge Rickards, Conservation Director at WWF. Mexico City, March 10, 2014.

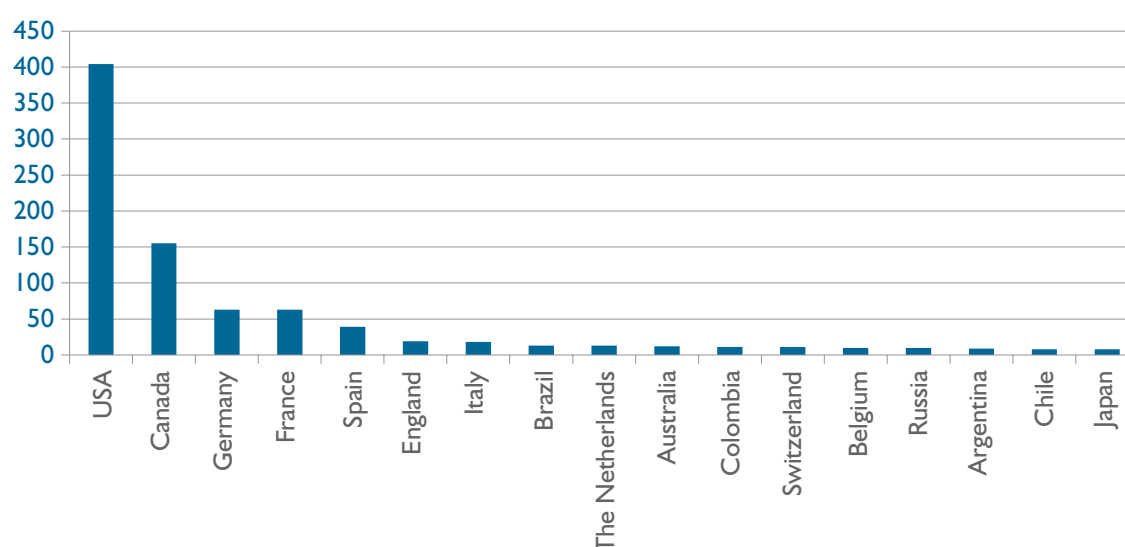
and the amending decree in 2000. As an alternative to counteract the limitations imposed by the new decree, other economic activities such as tourism, handicraft marketing, honey production and trout farming were promoted, among others<sup>24</sup> Among these activities, tourism is the activity that is becoming increasingly more relevant due to its high potential for generating resources. In recent years, the number of both national and international tourists has increased as a consequence of greater international visibility on the area. For example, during the 2012-2013 winter season in North America (until March 31), tourism figures show a significant increase of 56% as compared to the visits during the same season in the period 2011-2012, as shown in Table 4.<sup>25</sup>

**Table 4. Tourism in 2012-2013**

Sanctuary	Number of visitors
El Rosario	47,776
Sierra Chincua	21,369
Senguio	572
La Mesa	1,631
Capulin	211
Macheros	1,032
<b>Total</b>	<b>72,591</b>

Ninety-nine percent of the total of visitors are Mexicans and come mainly from the Federal District of Mexico, from the states of Michoacan, Guanajuato and Jalisco. At international level, visitors come mostly from the United States, Canada, Germany, France and Spain, as shown in Figure 4.<sup>26</sup>

**Figure 4. International attendance to the RBMM. Conanp**



Furthermore, it should be mentioned that the entire RBMM region is rich in natural attractions. Nevertheless, tourist attention has focused exclusively on the visit to the colonies where the monarch butterfly hibernates, which could also be considered a problem due to the excess pressure that this puts on these colonies. These are located in the area of six common lands, of which only four sanctuaries are opened to the public (El Rosario, Sierra Chincua, El Capulin and La Mesa).<sup>27</sup> There are other attractions in the RBMM such as waterfalls, springs, crystal clear waters, mountain landscapes, lush forests of firs and pines, forests mountain with rich flora (orchids, bromeliads, tree ferns, multicolored mushrooms, among others), places for the practice of extreme sports such as rappelling and hiking, mountain biking and adventure tourism. If the advantages of these other attractions could be capitalized on for tourist activities throughout the year, this could contribute to the diversification and generation of tourism revenues for the benefit of a greater number of communities and in turn, could reduce the pressure on the hibernating colonies of monarch butterflies.

<sup>24</sup> Document shared by FMCN's liaison office at Conanp. 5. Alternatives for the diversification of tourism in the Monarch Butterfly Biosphere Reserve and support requirements.

<sup>25</sup> Document shared by FMCN's office at Conanp. I. Season 2012-2013, tourism report.

<sup>26</sup> Document shared by FMCN's office at Conanp. Tourism Report. Season 2012-2013.

<sup>27</sup> Document shared by FMCN's office at Conanp. 4. Catalogue of RBMM services.

“The monitoring of the colonies of monarch butterflies, carried out by the Conanp, FMCN and WWF, revealed that the number of monarch butterflies that completed their migration in the Mexican forests decreased in 2012-2013 to its lowest level”

In relation to the entrance fees to sanctuaries, these ranged between three and four dollars in 2013. Considering the growing tourist influx, total ticket revenues are an important funding source. However, given that the fee per person is not high, the deficit of the RBMM is remains at 25% to 30%.<sup>28</sup>

#### 4. The Endangered Monarch Butterfly, a Problem that Transcends Borders

During their migration to the south, each year the monarch butterflies travel three countries during October and November; in this long journey only one generation of monarch butterflies covers the flyway. The migration from south to north in February encompasses three generations of butterflies and requires the presence of milkweeds along the way to deposit their eggs and feed.

**Figure 5. Important host plants for monarch butterflies**



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The monitoring of the colonies of monarch butterflies, carried out by the Conanp, FMCN and WWF, revealed that the number of monarch butterflies that completed their migration in the Mexican forests decreased in 2012-2013 to its lowest level in the last two decades. It is argued that this is caused by the change in some agricultural practices in North America, specifically because of the agricultural industrialization in the United States and the use of new generation herbicides. This has resulted in an alarming reduction in the number of milkweeds,<sup>29</sup> which has a particular impact on the south-north migration of the monarch butterfly.

<sup>28</sup> Ibid.

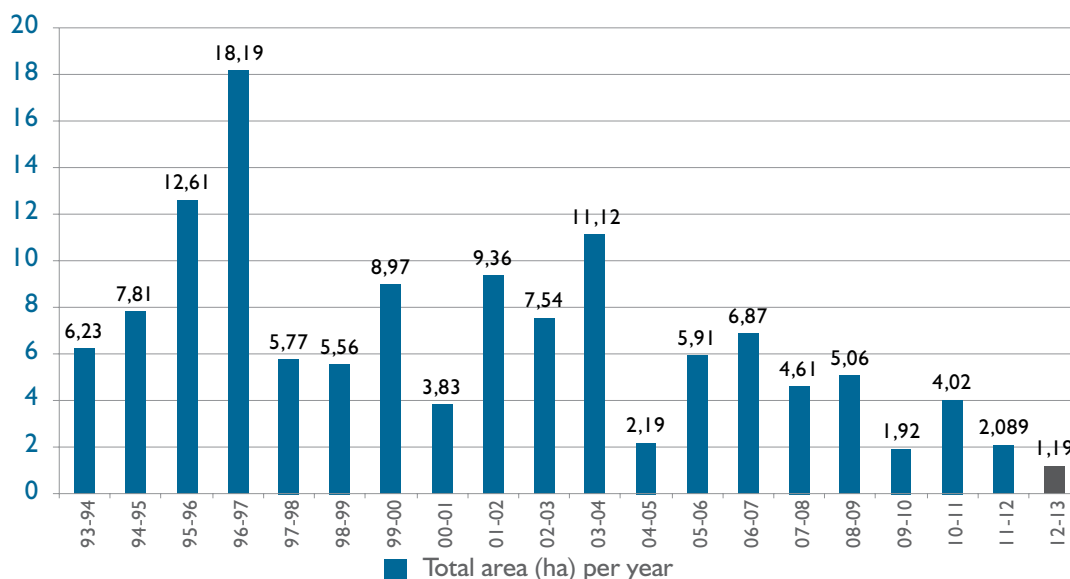
<sup>29</sup> Meeting with the Director of the RBMM, Gloria Tavera, at Conanp, David Gutierrez and Alfredo Arellano, officials of the Conanp and FMCN. March 14, 2014.



In addition to the reduction of milkweeds, it is believed that another factor that has had an influence on the decrease of monarch butterflies is the increase of temperature, exacerbated by the effects of the climate change. This has disarranged its reproductive cycle forcing the species to lay eggs before reaching its normal cycle. Furthermore, the blooming of the milkweeds that produce the nectar they feed from has also been affected, which has resulted in an important biological imbalance during migration.<sup>30</sup>

Figure 6 shows that the number of hectares occupied by butterfly colonies in the RBMM has varied from one period to another, evidencing a clear downward trend. According to official sources, the hectares occupied by the butterflies have decreased by 59% between 2012 and 2013. This indicates a serious imbalance in the trophic chain and the ecosystem at continental level.

**Figure 6. Size of hibernating colonies<sup>31</sup>**



The good news for Mexico and the world is that, due to the efforts made by the Mexican authorities, CSOs and the communities that inhabit the region of the monarch butterfly, deforestation in the core area of the RBMM has declined from 731 hectares in the period 2005-2007 to just 16.6 hectares in the period 2012-2013. Scientist and experts commented on these positive changes as follows:

*"The actions of the federal Government, led by the Semarnat and the Governments of the States of Mexico and Michoacan, to protect these forests as well as the commitment and continuous financial support for more than one decade by philanthropists and Mexican organizations – including FMCN and WWF - in order to generate new sources of revenues for local communities, resulted in the decline of large-scale illegal logging in one of the most iconic protected areas in the world, which went from 731 ha affected in 2005-2007 to none in 2012."*<sup>32</sup>

The public policies for the protection of the ecosystem in Mexico as well as the initiatives from national and international conservation organizations and donors such as the Packard Foundation, have been linked to community participation and have yielded very good results in relation to the conservation of the hibernation habitat of the species in Mexico. Thus, the key question is: why is the number of butterflies arriving to the RBMM decreasing?

Even though the Mexican Government together with the actors involved in the RBMM have generated very good results for the conservation of the area, the flyway involves two other countries, United States and Canada, and they should also commit themselves to the maintenance of the resources required by the monarch butterfly as it travels throughout their territories. As a result, the pressure to carry out more and better conservation actions, which previously rested solely on Mexico, must be applied to the United States and Canada; i.e., multilateral commitment and coordination are necessary to protect this species.<sup>33</sup> Mexico has invested many resources and has managed to eliminate deforestation in the core area the RBMM. Now it is the responsibility of the United States and Canada to strategically contribute to the conservation of this species.<sup>34</sup>

<sup>30</sup> Ibid.

<sup>31</sup> [http://www.wwf.org.mx/noticias/noticias\\_mariposa\\_monarca.cfm?208325/registra-monitoreo-la-superficie-mas-baja-de-mariposa-monarca-en-mexico-en-20-anos](http://www.wwf.org.mx/noticias/noticias_mariposa_monarca.cfm?208325/registra-monitoreo-la-superficie-mas-baja-de-mariposa-monarca-en-mexico-en-20-anos)

<sup>32</sup> Vidal, O. Lopez J. Rendon. E. Trends in Deforestation and Forest Degradation after a Decade of Monitoring in the Monarch Butterfly Biosphere Reserve in Mexico. Conservation Biology, 2013.

<sup>33</sup> Interview with Jorge Rickards, who worked in the WWF. Mexico City, March 10, 2014.

<sup>34</sup> <http://www.sumatealaodisea.org/l/category/noticias/l.html>

The alarming reduction in monarch butterflies in hibernation sites during the 2012-2013 season has made it urgent for the three countries to develop a joint effort. This is not the first time that trilateral cooperation has been developed for the protection of monarch butterflies, since 20 years ago, with the signing of the North American Free Trade Agreement (NAFTA), the three countries agreed to protect migratory species such as the monarch butterfly, the gray whale and waterfowl. It is worth noting that the monarch butterfly is part of the logo of the Commission for Environmental Cooperation (CEC), which is a trilateral institution of the NAFTA (Figure 7).<sup>35</sup>

**Figure 7. Logo of the Commission for Environmental Cooperation**



The 2010-2015 Strategic Plan and other recent documents of the CEC do not raise any key actions to protect the migratory route of the monarch butterfly. The North American Monarch Conservation Plan was published in 2008, but beyond the proposal of including specific policies and actions to improve the biological status of the species, it's a diagnosis of the situation of the butterfly where it was concluded that, for its protection, Mexico, Canada and the United States must join forces to ensure the availability of: i) appropriate and sufficient habitat in the hibernation territories in the United States and Mexico for the populations to persist, and ii) sufficient reproduction and migration habitat in these three countries. In addition, the following specific conservation actions are identified:<sup>36</sup>

- Reduce logging and preserve the hibernation ecosystem and at the same time, support the sustainable development and the management of the forest.
- Effectively preserve the migratory route, based on research and monitoring to identify the main migration routes in spring and autumn.
- Promote among government agencies, private conservation organizations and public and private landowners, land use practices that support the reproduction of the monarch butterfly.
- Provide incentives to communities such as the PES.
- Monitor the distribution and abundance of the population of the monarch butterfly as well as the quality of its habitat, and use monitoring data to understand the factors that favor the recovery of butterfly populations, as well as the diagnosis of the biological and socioeconomic factors that stabilize the population dynamics of the species.

Until 2013, the coordination of efforts and joint actions by these three countries has been limited, so none of the above objectives has been achieved. To this day, achievements have been made because of government or private initiatives at national level, especially in the case of Mexico.<sup>37</sup> The Conanp has indicated that for almost six years, the issue of the monarch butterfly not has not been addressed again at the CEC.<sup>38</sup> Hence, despite the fact that the Government of Mexico, the Mexican society, Mexican companies and especially communities and common land owners have carried out their job, it is not enough if the species is not protected throughout its migratory route. In other words, without joint action between the three countries involved in the problem, the danger of affecting the migration phenomenon will remain latent.

In February 2014 dozens of scientists, artists, writers and environmentalists urged the leaders of Mexico, Canada and United States to devote a portion of the NAFTA meeting of that year (on the occasion of the 20th

<sup>35</sup> The CEC receives financial support from the Governments of Canada (through the Federal Ministry of the Environment) the United States of America (through the Environmental Protection Agency) and Mexico (through the Semarnat) and its mission is the preservation, protection and improvement of the environment of North America. Consulted in June of 2014 at: [http://www.cec.org/Page.asp?PageID=1226&SiteNodeID=310&BL\\_ExpandID=895](http://www.cec.org/Page.asp?PageID=1226&SiteNodeID=310&BL_ExpandID=895)

<sup>36</sup> CEC. North American Plan for the conservation of the monarch butterfly 2009.

<sup>37</sup> Ibid.

<sup>38</sup> Meeting with the Director of the RBMM, Gloria Tavera, at Conanp, David Gutierrez and Alfredo Arellano, officials of the Conanp and FMCN. March 14, 2014.

## “It is necessary to inform the population in Mexico, the United States and Canada about the problem facing the monarch butterfly”

anniversary of NAFTA) to discuss ways to protect the monarch butterfly.<sup>39</sup> A letter sent to the three leaders, signed by more than 150 intellectuals, made reference to the fact that the monarch butterfly population had fallen to its lowest level since it began to be recorded in 1993. It was explicitly stated in this letter that the reason lies in the lack of joint regional actions and local actions by the Governments of the United States and Canada. In the United States, the work has been mainly carried out by CSOs and colleges. Due to the lack of government participation, the actions undertaken in the United States and Canada have lacked the scale necessary to counteract the serious threat regarding the extinction of the species.

As part of the solutions produced, different Mexican and international organizations proposed a reduction in the use of herbicides in the United States; as well as creating a transcontinental corridor of milkweeds.

It is necessary to inform the population in Mexico, the United States and Canada about the problem facing the monarch butterfly. The civil society, in each of these countries, can urge their government to perform the large-scale actions required.

### 5. Production of the Imax Film “The Flight of the Butterflies”

While the Governments of Canada, United States and Mexico coordinated their efforts in order to establish a joint strategy focusing on the protection and conservation of the monarch butterfly and its habitat, independent projects are simultaneously generated which focus not only on these objectives but also on raising the awareness of society in regard to the serious problem to which the species and its habitat are exposed. The case of the production of the IMAX 3D film on the monarch butterfly, titled “The flight of the butterflies” is presented below. Multiple benefits have contributed to this initiative; including among these, the creation of a platform to integrate different sectors, as in addition to the producer, the Government of Mexico at state and federal level, private companies and CSOs, notably FMCN, participated in the film.

#### 5.1 FMCN and the seventh art

In 1998, Lorenzo J. de Rosenzweig, CEO of FMCN, was part of the Advisory Committee of the San Diego Natural History Museum, California (United States), which, among other activities, had an environmental research and education program in the Baja California peninsula, a region of interest for FMCN. This Committee decided to produce an IMAX documentary called “Ocean Oasis” in which FMCN participated as one of the members of the international advisory committee. This initiative made it possible for FMCN, as a Mexican financial intermediation conservation institution, to become involved in the project through activities related to the search for financing. However, the support of FMCN was not necessary in the end.<sup>40</sup>

The interest in this type of documentaries resulted long after in the possibility for FMCN to start a fundraising campaign to replicate this experience in another film project. For this purpose, a draft project was prepared with the director of “Ocean Oasis,” Soames Summerhays, for the production of an IMAX film on the Mesoamerican Barrier Reef System. However, the Board of Directors of FMCN decided not to participate in the project due to the financial risk involved.

Finally, a new opportunity to participate in a film project presented itself in 2010. Maria Elena Gutierrez and Robert Sullivan, directors of Chora, a consulting firm specializing in strategic and education projects, informed FMCN that they were involved in the realization of an IMAX film the main theme of which was the migration phenomenon of the

<sup>39</sup> [http://www.huffingtonpost.com/2014/02/14/leaders-discuss-monarch-butterfly\\_n\\_4786218.html](http://www.huffingtonpost.com/2014/02/14/leaders-discuss-monarch-butterfly_n_4786218.html)

<sup>40</sup> Interview with Lorenzo J. de Rosenzweig, CEO of FMCN. 2014.

monarch butterfly and that the initiative was in preproduction stage, specifically in the search for financing.

Simultaneously, the Secretariat of Tourism (Sectur), through Alejandro Moreno, Undersecretary for Tourism Operation, and the Conanp, through Ernesto Enkerlin H., its principal, extended an invitation to FMCN to participate in the project as a partner that would benefit from the profits of the film to be channeled to conservation and community development actions in the RBMM. In addition, both the Sectur and Conanp requested FMCN to participate in the attainment of supplementary financial resources from the national and international private sector.

After this first approach both of the government and producers, the Board of Directors of FMCN expressed its interest in this project in support to the conservation efforts carried out for more than one decade in the RBMM. Jonathan Barker, producer of the film and Director of SK Films, traveled to Mexico several times to discuss with FMCN the possibility of collaborating in the initiative. Furthermore, during his trips to Mexico, the Director of SK Films contacted other institutions interested in supporting the film. They noted that the involvement of FMCN in the project, to manage any potential benefits, would make them more confident, considering its experience and distinction in the management of financial resources for PNAs. All these factors have been thereby conducive for FMCN to participate in the film project titled “The Flight of the butterflies.”

## 5.2 “The Flight of the Butterflies”: description of a dream

### 5.2.1 Synopsis of the documentary

“The Flight of the Butterflies” is a film production recorded on a 3D digital format for IMAX platform, the objective of which is to capture the migration phenomenon of the monarch butterfly between Canada and Mexico and describe the story of how a Canadian scientist and his wife “discovered” its hibernation sites in the States of Michoacan and Mexico. Through cutting-edge technology on a film format, viewers are transported to the incredible microcosm of the monarch butterfly. The film will be shown in more than 40 countries and 150 cities around the world, which is a unique vehicle to promote the natural capital of Mexico and raise funds for the conservation of the sanctuaries of the monarch butterfly.

“The Flight of the Butterflies” is much more than a 3D show, it is a comprehensive educational project, which aims to teach about the biology, life cycle and habitat of this butterfly. The migration phenomenon is used to demonstrate basic concepts about ecosystems,

biodiversity and the interconnection of species. The film conveys knowledge about the surprising biological phenomenon of the migration of this species and the history of the scientific work that led to solve the mystery about its hibernation sites and migratory route.

Jonathan Barker and Mike Slee, director of the film, experts on the 3D technique, considered that this format would be best suited to convey the details of the migration to a biological and ecosystem level, while at the same time leaving an impression on the public. “The Flight of the Butterflies” addresses scientific and biological enigmas about the monarch butterfly that have been studied for decades. The production of the film is based on academic and scientific research to tell the story of the butterfly more accurately; its journey through North America to the sanctuaries in the States of Mexico and Michoacan; the ecological and scientific importance of its discovery; as well as the cultural context and folk traditions of the communities that celebrate its existence and migration.

The documentary has a strong focus on the discovery of the flyway and hibernation sites. It tells the story of the Canadian Fred Urquhart; who is responsible for the discovery, and his wife Norah, who devoted nearly 40 years of their lives to the investigation of the monarch butterfly and for which they founded the Insect Migration Association (known today as Monarch Watch). They welcomed thousands of volunteers throughout North America who contributed to the discovery of the migratory route of the species through tagging and recapture techniques<sup>41</sup>

The film follows the story of butterfly PS 397, which was tagged and released by two students and their primary school teacher in the city of Chaska, Minnesota (United States), in August 1975. This same butterfly was found four months later, in January 1976 in Cerro Pelon (today part of the RBMM). Fred and Norah traveled to the hibernation site with Kenneth Brugger and Catalina Aguado, key protagonists in the discovery of the sanctuaries. After the label was identified, Fred continued collecting evidence to reaffirm the fact that these butterflies migrated from Canada and the United States.

The only person of the research team that is still alive is Catalina Aguado, who accompanied the team of SK Films and contributed for the history to be faithfully replicated.<sup>42</sup> Although the film was not recorded on Cerro Pelon, a similar place was chosen: the El Rosario sanctuary, considered to be the most visited of the RBMM.<sup>43</sup>

<sup>41</sup> <http://www.flightofthebutterflies.com/discovery-story/>

<sup>42</sup> Ibid.

<sup>43</sup> Meeting with the Director of the RBMM, Gloria Tavera, at Conanp, David Gutierrez and Alfredo Arellano, officials of the Conanp and FMCN. March 14, 2014.

### 5.2.2. From an idea to reality: Fundraising for the film “The Flight of the Butterflies”<sup>44</sup>

As noted above, the idea of the project consisted of capturing the history of those who discovered the migration of the monarch butterfly in a film on IMAX format, narrating not only the investigative work performed, but also explaining the surprising migratory journey of this species, which is one of longest journeys made by any insect species in the world.<sup>45</sup> That is why one of the objectives of the film is helping the public to understand this magnificent natural process, which is currently at risk due to the intervention of men.

The two non-financial objectives of SK Films to make this film, according to producer Jonathan Barker, were:<sup>46</sup>

1. To raise greater awareness in the public about the fragility of the biological cycle of the monarch butterfly and its migration process.
2. Understand the importance of milkweeds, as host plants, for the monarch butterfly.

If these two goals are analyzed, it can be inferred that the communication and awareness-raising objectives that the world scientific community has called for with respect to this issue are concurrent. Likewise, these objectives are largely related to the conservation efforts expected from Canada and the United States, specifically, to contribute in the protection of the migration route of the monarch butterfly because of its importance for the life cycle of the species.<sup>47</sup>

The preproduction of the film began in 2005. A search for financial resources to develop the project started in mid-2006. SK Films secured funds from the National Science Foundation (NSF), which contributed with three million dollars. Since the total production budget amounted to 12 million dollars (Table 5), it was necessary to identify additional funding sources; and due to the nature and subject matter of the project, it was decided to seek funds in Mexico. To this end, Chora assumed fundraising functions and FMCN formulated a first financial architecture strategy and developed an action plan taking advantage of the interest of the Government of Mexico to promote ecotourism and the natural heritage of the nation in contrast to the image of the country's violence.

The efforts carried out by FMCN in coordination with SK Films resulted in the raising of four million dollars from the Government Federal, through the Semarnat and Sectur, one million dollars from the Governments of the States of Mexico and Michoacan, and a contribution from the private sector in an amount of approximately 1.6 million dollars from Grupo Bimbo S.A.B. de C.V. (Grupo Bimbo) and Fomento Economico Mexicano S.A.B. de C.V. (FEMSA), who benefited from a legal tax incentive and the exposure of their social responsibility activities to the media.

**Table 5. Budget of “The Flight of the Butterflies”**

Category	Amount in Dollars
Design, planning and fundraising	870,000
Production	6,969,559
Postproduction	1,176,200
Environmental Education	800,000
Other costs	2,193,241
<b>Total</b>	<b>12,000,000</b>

Obtaining all the funds necessary to carry out the film took four and a half years. The fundraising process was long since institutions and companies do not frequently finance such projects. Moreover, the participation of the Mexican Government was not easy since it was difficult to justify the investment of public resources into private documentaries. However, because of the participation of FMCN and the innovative vision and capacity of the federal government, this problem was solved. Table 6 shows the details of the contributions to the project from each of the institutions.

<sup>44</sup> Interview with the President and CEO of SK Films, Jonathan Barker. 2014.

<sup>45</sup> <http://www.mariposasmonarca.com/>

<sup>46</sup> <http://www.cronica.com.mx/notas/2014/814630.html>

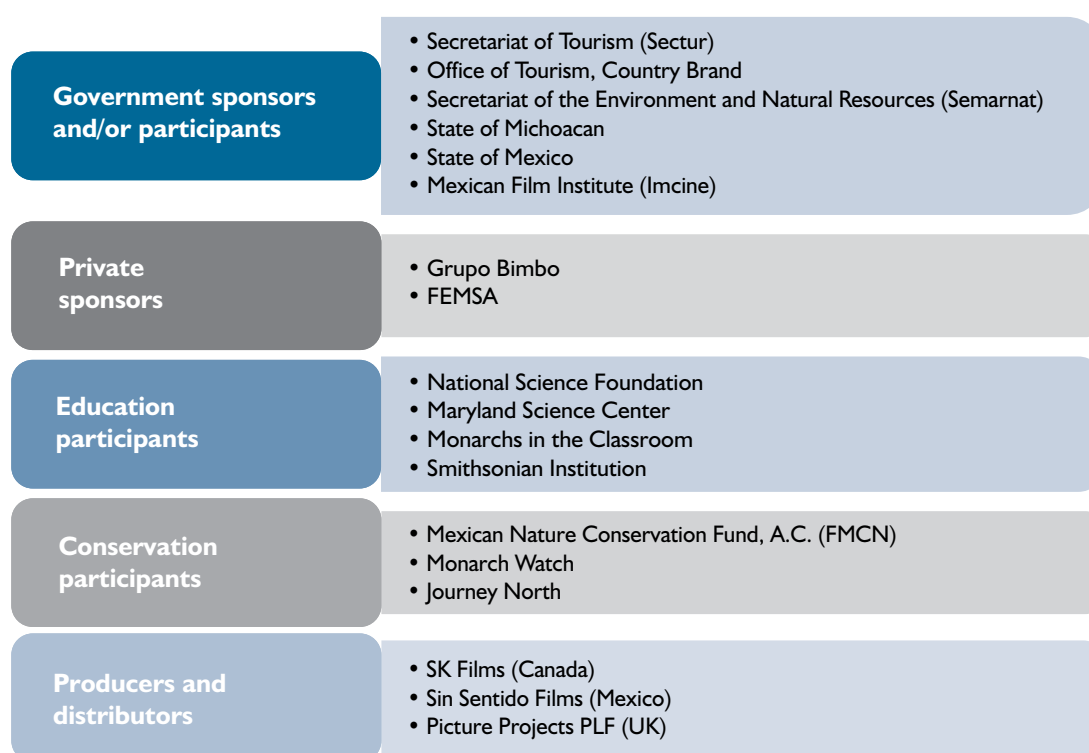
<sup>47</sup> CCA, 2009.



**Table 6. Funding sources for “The Flight of the Butterflies”**

Type	Source	Millions of Dollars	%
Federal Government of Mexico	Sectur	3.0	33%
	Semarnat	1.0	
State Government of Mexico	Government of the State of Mexico	0.5	8%
	Government of the State of Michoacán	0.5	
U.S. Government Agency	<i>National Science Foundation</i>	3.0	25%
Private Sector	Grupo Bimbo	0.8	7%
	FEMSA	0.8	7%
		2.4	20%
<b>Total</b>		<b>12,0</b>	

The production of the film took 18 months and its release took place on September 22, 2012 in Washington, D.C. Many private and public actors collaborated so that “The Flight of the Butterflies” became a reality. Figure 8 shows the actors and their classification.

**Figure 8. Participants in the realization, broadcasting and promotion of the film**

### 5.2.3. The film as a promotional mechanism of tourism in Mexico

Felipe Calderon Hinojosa, President of Mexico (2006-2012), when referring to the film “The Flight of the Butterflies,” indicated that it was important to use it to arrange an intelligent, differentiated and competitive tourist offer. The film represented an interesting and innovative tool to achieve the objectives of attracting quality and differentiated tourism interested in the natural wealth of Mexico. In other words, the screening of the film in the most important museums and science centers in the world was perceived as a unique opportunity to promote Mexico in 40 countries and 150 cities as a cultural and natural tourism destination. The museums and science centers where the film was screened or is to be screened include:<sup>48</sup>

- *Smithsonian Institution, Washington, D.C., United States (premiere).*
- *The Museum of Science and Industry, Chicago, Illinois, United States.*
- *California Science Center, Los Angeles, California, United States.*

<sup>48</sup> Presentation shared by FMCN. FOB August 17, 2011. Executive Presentation, October 1, 2010.



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- *Ontario Science Centre, Toronto, Ontario, Canada.*
- *American Museum of Natural History, New York, United States*

To enhance the impact of the film as a tool for promoting tourism to Mexico, a series of strategies and promotional materials were developed, among which stands out the preparation and distribution of educational material, as well as the use of the film for formal events and the country's tourism promotion.<sup>49</sup> The media plan with which the Government supported the promotion of the film was designed by the Mexico Country Brand.

The Mexico Country Brand<sup>50</sup> initiative was born in 2010 by decision of the President of Mexico, Felipe Calderon Hinojosa. Gloria Guevara, Secretary of Tourism, was appointed as head of the initiative, whose field of action was not limited to purely tourist issues but also to building the brand and to the promotion of the image of the country internationally. This initiative was intended to define and implement strategies to improve Mexico's image abroad and reduce the gap between perception and reality based on three elements: i) tourism and culture, ii) economy and investment, and iii) sustainability. Under the concept of these elements, the project "The Flight of the Butterflies" was deemed consistent with the Mexico Country Brand objectives, so it was reasonable for the initiative to actively collaborate with the promotional campaign of the film.

In order to coordinate the messages of communication campaigns, the Mexico Country Brand joined the communication strategy of the film when it was already underway.<sup>51</sup> The media plan began in October 2012 and ended in March 2013 and received extensive coverage around the world, with a strong emphasis in the United States and Canada.

Although this production was thought as the perfect vehicle to "promote a world class community tourist destination model in the region of RBMM (Sectur-Conafor-Conanp)",<sup>52</sup> the Conanp considered that there should be a plan whereby the growth of the tourist influx would serve to obtain greater support for the communities in the Reserve, so they could have adequate infrastructure to receive visitors. All these actions in support of the RBMM promotional campaign must be reflected in the management plan of this territory, especially in regards to the assessment of the carrying capacity, with a fundamental study to attain the conservation objectives of the RBMM.<sup>53</sup>

<sup>49</sup> Presentation shared by FMCN. FOB August 17, 2011. Executive Presentation, October 1, 2010.

<sup>50</sup> Currently, the Mexico Country Brand is part of the Presidency of the Republic. This led the initiative to have greater authority to coordinate the unified message that each State Secretary's Office was to convey.

<sup>51</sup> Interview with Eva Farias and Samantha Calderon from Mexico Country Brand. March 2014..

<sup>52</sup> Meeting with Gloria Tavera, Director of the RBMM and other members of the team of the Conanp and FMCN. March 14, 2014.

<sup>53</sup> Ibid.

**“The efforts carried out by FMCN in coordination with SK Films resulted in the raising of four million dollars from the Federal Government, one million dollars from the State Governments and a contribution from the private sector in an amount of 1.6 million dollars”**

“The Flight of the Butterflies” was screened for eight months at Papalote Museo del Niño and was watched by more than 200,000 spectators. The grossing of the film has placed it as the second most-watched movie in the history of the museum, after the film “To The Arctic.” The premiere of the film in Mexico, in this Museum, was held on October 12, 2012. Thirty-five representatives of the common lands that are part of the RBMM were invited. These representatives were pleased by the experience; however, some of them questioned the exclusive approach on the discovery of the butterfly and the manner how the communities that live within the RBMM were portrayed in the film, which did not reflect reality. Among other things, the communal representatives expressed their disagreement with a scene of the film showing an armed individual interacting with two of the characters in the movie (Kenneth Brugger and Catalina Aguado); a scene that they thought could be misinterpreted and further reinforce the image of violence that Mexico has had in the world as a result of the armed conflict derived from drug trafficking.<sup>54</sup>

In this regard, Lorenzo J. de Rosenzweig, CEO of FMCN, stated that the narrative of the life of Fred Urquhart and the film's plot seemed interesting in general; nevertheless, certain scenes such as that of the armed person and the children who did not know the butterflies, seemed to detract the cultural value of communities and their relationship with the species.<sup>55</sup>

#### *5.2.4 Role of Mexican sponsors in the film “The Flight of the Butterflies”*

##### *5.2.4.1 Federal Government*

The Sector, which brought 75% of the total federal source funds, considered that supporting this initiative would offer a tool to position Mexico's image by highlighting the natural wealth of the country, a task in which it had been working since long ago, through the Mexico Country Brand initiative.

The Sermanat, through the Conanp, contributed with 25% of the total federal resources. As an instrumentality of the government it considered that it was an opportunity not only to promote one of the most emblematic PNAs in the country worldwide, but also with the profit-sharing agreements negotiated by FMCN, to strengthen the financial self-sufficiency of the RBMM and therefore improve the conditions of life of the communities of the region.

For Eva Farias, Strategy Director of the Mexico Country Brand, the objectives of film production were in line with the objectives of the institution at that time, which emphasized on reducing the gap between the global perception of violence and the reality of Mexico. This last objective was the main motivation for the participation of the Mexican Government on this film project, not only with financial resources and promotional activities but also with active and direct participation from the President of the Republic, Felipe Calderon Hinojosa, who recorded a promotional video of the movie and attended the world premiere on September 22, 2012, at the Smithsonian Institution National Museum of Natural History, in Washington, D.C.<sup>56</sup>

##### *5.2.4.2 The Mexican Film Institute and the private sector*

The Mexican Film Institute (Imcine) is a decentralized public agency that promotes the development of cinematographic activities in Mexico by supporting the production, encouraging creators and industrial development and through the promotion, distribution, broadcasting and dissemination of Mexican film industry. It was created in 1983 with the objective of establishing a policy for the promotion of the Mexican audiovisual sector and to strengthen the values, customs and ways of life of the nation.<sup>57</sup>

Since 2005, a fiscal stimulus has been implemented for companies that support national cinematography, regulated by the Income Tax Law (LISR). This stimulus

<sup>54</sup> Ibid.

<sup>55</sup> Interview with Lorenzo J. de Rosenzweig, CEO of FMCN. 2014.

<sup>56</sup> <https://www.youtube.com/watch?v=Y5MhWiyhB7w>

<sup>57</sup> <http://www.imcine.gob.mx/el-instituto.html>

is supervised by the Inter-Agency Committee for the Application of the Fiscal Stimulus for Investment Projects on National Film Production (Eficine). The stimulus consists of a tax credit against the income tax payable by companies, equivalent to the amount contributed to investment projects related to national film production and the distribution of national cinematographic films. This stimulus is limited to approximately 800 thousand dollars per company, per film, per year.

In the case of “The Flight of the Butterflies,” this stimulus was a good alternative for funding the project. However, the production had a problem since it was not a Mexican production per se, despite the fact that an important part of the production concentrated in Mexican territory. For this reason, to carry out the project, SK Films associated with the Mexican producer Sin Sentido Films. This alliance made possible to obtain the national seal required by the film to attract resources from Mexican private companies seeking tax benefits. After the alliance between SK Films and Sin Sentido Films had materialized, FEMSA and Grupo Bimbo, Mexican private companies, decided to join the project with a contribution of 800 thousand dollars each.

#### 5.2.4.3 *Fomento Economico de Mexico S.A.B. de C.V.*

FEMSA is a Mexican company headquartered in Monterrey, Mexico. It is the largest beverage company in Latin America and the second largest of the Coca-Cola system in the world.<sup>58</sup>

With support from Maria Elena Gutierrez, director of the consultancy firm Chora, FMCN submitted to FEMSA, through Genaro Borrego Estrada, Director General of Corporate Affairs, the investment proposal related to the film “The Flight of the Butterflies.”

The proposal was revised by FEMSA’s committee, which advised the Executive Committee to invest in the film. According to Luis Felipe Quiros, Director of Public Relations for FEMSA, the interest of the company was not only in the tax benefit derived from the investment, but also that the project was consistent with its “Monarch Butterfly Protection Program.” This program consisted of promoting Mexican artists, allowing them to express their works related to the monarch butterfly in limited edition bottles of Coca-Cola (Figure 14), in the contest “Your reason for believing in a better Mexico.” At the end of the program, these limited edition bottles were auctioned, raising funds for the establishment of a nursery aimed at increasing the number of fir trees, an important species for the hibernation of the monarch butterfly in the RBMM.

**Figure 9. Collectible bottles of the monarch butterfly**



In addition to direct investment in the film, FEMSA carried out other promotional activities related to the same idea: it released commemorative Coca-Cola cans of the butterfly. The exhibition called “Jardin de las Mariposas” was held during the premiere of the film at the Papalote Museo del Niño, which remained open during the entire promotional period of the film. Furthermore, tickets were distributed to FEMSA’s employees, schools and CSOs to watch the film for free.<sup>59</sup> FEMSA and its philanthropic arm, Fundacion FEMSA, are also important actors in the promotion of integrated forest management and watershed management schemes and therefore of the strategic water supply to important population centers.

#### 5.2.4.4. *Grupo Bimbo*<sup>60</sup>

Grupo Bimbo is a global leading Mexican bakery company. It has operations in America, Asia and Europe, offering over 10,000 products under more than 100 brands. Grupo Bimbo has extensive experience in corporate social responsibility and within this framework it has supported “The Flight of the Butterflies.”

Both FMCN and the producer of the film, Jonathan Barker, considered that this company had the suitable profile to become a potential production ally. For this reason, FMCN met with Ernesto Herrera, Director of Reforestamos Mexico, A.C., a conservation organization with great prestige that was born as a contribution of Grupo Bimbo to the Mexican society, and with Karina Monica Fogel, Inter-Institutional Relations Manager for Grupo Bimbo, to formulate the investment proposal of the film, which was analyzed by a team from Grupo Bimbo. This group came to the conclusion that the message of the film was in line with the philosophy and values of the company, which includes its interest in the care of the environment. Additionally, the technical team also concluded that the film was consistent with two corpo-

<sup>58</sup> [http://www.femsa.com/es/business/coca\\_cola\\_femsa/](http://www.femsa.com/es/business/coca_cola_femsa/)

<sup>59</sup> Interview with Luis Felipe Quiros, Public Relations Director for FEMSA, Mexico, March 2014.

<sup>60</sup> Interview with Karina Monica Fogel, Inter-Institutional Relations Manager for Grupo Bimbo, Mexico, June 2014.

rate responsibility programs that Grupo Bimbo was carrying out at the time: 1) the program “Sembrando Juntos,” which was aimed at the protection and conservation of the planet, and 2) the work of the organization Reforestamos Mexico, A.C., focused on forestry sustainable development issues in conjunction with common land owners and communities from different areas of the country, including the RBMM.

For these reasons, the Executive Committee of Grupo Bimbo, comprised of directors of the company, decided to invest 800 thousand dollars in the production of “The Flight of the Butterflies” and also decided to actively participate in the sponsorship of the exhibition of the documentary in Mexico.

#### *5.2.5. The role of FMCN in “The Flight of the Butterflies”*

The context and the general proposal of this film project were attractive to the Government, private enterprises and CSOs in Mexico. Not only because the project was appropriate as a promotion mechanism to improve the image of Mexico in the world, but also because it was considered to be a profitable investment that would generate direct earnings to support community and conservation projects in the RBMM and its sanctuaries. In relation to this, a percentage of the revenues from the film were expected to be channeled to the sanctuaries through a long-term and transparent financing mechanism such as FMCN.<sup>61</sup>

FMCN’s participation in the production of “The Flight of the Butterflies” was motivated by the component preservation of the film. The directors of FMCN considered the proposal of receiving a percentage of the profits from the film and allocate it to the MBF and other CSOs to finance conservation activities in the RBMM as very attractive.

##### *5.2.5.1 FMCN and producers*

FMCN signed an agreement with the producers SK Films and Sin Sentido Films, whereby at the end of the lifecycle of the film (estimated in seven years), they are required to transfer to FMCN 45% of the earnings (after deducting the contributions made by investors and distribution expenses) to invest them in conservation actions for the RBMM. Similarly, minimum profits of 500 thousand dollars for FMCN have been specified in said agreement in the most pessimistic scenario (little or no profits). On the other hand, FMCN agreed to invest a minimum of 50 thousand dollars per year during the first five years of screening of the film; funds that would be intended to implement a fundraising campaign, using the film as the media basis for social networks.

FMCN also participated in the management and coordination of actors, including the Federal Government, which took FMCN nearly two years to accomplish and required recruiting a consultant to be in charge of the issue. FMCN was not responsible for the negotiation activities with the Government; however, a more active participation of the organization was required to overcome certain obstacles. One of the most critical moments was when the Secretariat of Public Service informed no public funds could be delivered to a private company. However, the active management undertaken by a group of experts and lawyers provided a solution to this problem. By the end of 2013, the total investment of FMCN, in administrative tasks intended for this cinematographic project, amounted to approximately 100 thousand dollars (amount which did not include fifty thousand dollars payable every year for the promotional campaigns established in the agreement).<sup>62</sup>

##### *5.2.5.2 Fundraising campaign “Sumate a la Odisea”*

As part of the agreement signed between FMCN and SK Films, FMCN committed itself to investing a minimum of fifty thousand dollars annually on communication and/or promotion strategies related to the film. In this context, FMCN decided to create a website to raise donations from individuals (crowdfunding or micropatronage) to support conservation actions in the RBMM. This website was launched on October 12, 2012, date of release of the film, taking advantage of the attention drawn by the event.

Part of the motivation for venturing into an unknown and innovative issue such as crowdfunding comes from the boom worldwide of this type of campaigns for social and environmental initiatives. Moreover, the market consultancy company hired for this purpose, Digital Friks (DF), supported the idea of carrying out a campaign of this kind guaranteeing success in terms of recovering, at least, three times the investment made.

At that time, FMCN had analyzed the possibility of working with DF in other projects; however, such projects did not come to fruition. FMCN assigned the crowdfunding project related to the film to DF and since it had no

<sup>61</sup> FMCN, 2014.

<sup>62</sup> Interview with Lorenzo J. de Rosenzweig, CEO of FMCN. 2014.



experience in the implementation of this type of fundraising strategies, it fully delegated the control of the project to the consultant.

DF did not support the crowdfunding project strategy with a market research that would determine the target audience to whom the campaign should be directed. On the contrary, DF executives determined ad hoc that target group corresponded to young people between 18 and 25 years of age, not considering that many of them did not have access to electronic payment methods nor had any purchasing power that would induce them to donate a portion of their income. The only advantage identified in this market group was its high activity on the Internet.

On the other hand, the criteria used by DF executives as starting point for the design of the project were purely anecdotal, such as that Mexico was a pioneer in crowdfunding in Latin America and therefore, an initiative like this would have an important reception, as well as the consideration that the time spent by the people of that country on the Internet was increasing. DF executives were unaware of the degree of development of crowdfunding in Mexico and could not account for the level of reception that could be expected for the initiative. DF's strategy focused exclusively on electronic payment methods (i.e. PayPal and Click & Pay). They did not consider that in Mexico, the distrust in online transactions could limit the use of this type of payment mechanisms. If DF would have valued this fact, it could have considered other payment alternatives to facilitate the participation of donors, such as bank deposits or text messages.

The work carried out by DF in terms of contents and design of the webpage was not in tune with official broadcasting and communication strategies for the film. While FMCN provided audiovisual material related to the film, DF decided to use public content as well as content requested from organizations related to the conservation of the monarch butterfly (i.e. those that were part of the core work of FMCN), but that were not directly related to the film. This caused the webpage of the campaign not to be fully connected with the communication strategy of the latter. "Sumate a la Odisea," which was the name chosen by DF for the website, was not in line with the production media plan and did not have the characteristics necessary to be a name that can be recalled.

The results of the campaign were not positive. The amount raised through donations was 852 dollars. Of these funds, 78% came from donors in the United States and only 22% from donors in Mexico, in spite that the latter were the target market of the campaign. The return on the investment for FMCN was negative, approximately -98%. In view of these results, DF executives justified their actions by claiming, "it was difficult to promote the conservation of an insect."<sup>63</sup>

Despite the fact that the financial results of the campaign were negative, FMCN believed that the experience was valuable since it thought many lessons; the main lesson was to recognize the complexity and risks of implementing new indirect fundraising forms, through electronic means. In addition, it was understood that it is not appropriate to fully delegate control of communication campaigns and fundraising strategies to external consultants; conversely, such campaigns must be managed directly by the organization and consultants may only carry out specific support work tasks.

FMCN noticed that, after six months of implementation, the crowdfunding campaign did not generate the results expected. For this reason, its medium-term strategy was decided to be changed in mid-2013 to avoid losing 200 thousand dollars additional to the amount to be invested over the next four years. This also led to rethink its participation in the commercial and promotional strategy of the film and accept a renegotiation of the agreement with SK Films.

FMCN requested SK Films to revise the clause that forced them to invest fifty thousand dollars every year in communications and/or promotion activities, a request that was accepted by SK Films under the condition of reducing the minimum amount to be received from 500 thousand dollars to 300 thousand dollars. Accordingly, an addendum to the agreement was made whereby FMCN was released from the obligation of making annual investments in promotion and/or communication actions and the amount of the contingent payment was reduced to 300 thousand dollars.

In addition, SK Films suggested to adjust the percentage of earnings for FMCN from 45% to 40%, considering that the negotiations with the Government took longer than expected (about two years) and that the funds obtained from the Mexican private sector were lower than forecasted (due to adjustments in the dollar to Mexican peso exchange rate). However, FMCN, for the sake of the transparency with which it manages its projects, argued that for a change of this type to occur the Mexican Government, the main sponsor of the film, should be consulted first.

<sup>63</sup> Interview with Raul Gutierrez and Juan Campo, Development Directors for Digital Friks. Mexico, March 2014.



Jonathan Barker, producer of the film, considered the adjustment in the contingent payment from 500 thousand dollars to 300 thousand dollars did offset the profitability of the project for SK Films and that it was not necessary to take discussions to governmental levels, wherefore the profit-sharing percentage of FMCN finally stood at 45%.

#### *5.2.5.3. Situation as of 2014*

As of 2014, FMCN is yet to receive any revenues from the film. These are expected to be received by the institution within a maximum period of seven years after its premiere (approximately in 2019). With a conservative estimate based on financial projections taking into account an audience of 25 million people during the useful period of the film, the profit-sharing is calculated (45%) to be between one million and a half and two million dollars, which will be used to strengthen the financial strategy of the RBMM. These funds will be intended to finance conservation activities as well as the regional and community development in the RBMM to improve the living conditions of the rural communities in the region. In the short term, the film and the environmental education programs are expected to improve the knowledge and awareness on the species and its habitat in Canada, the United States and Mexico.

The participation of FMCN in this initiative, in collaboration with governmental authorities, the private sector, the film industry and the communities of the RBMM, opens exploration opportunities for future communication and fundraising conservation efforts. As stated by FMCN “More opportunities will undoubtedly be generated in other geographical areas and in other pressing issues, to publicize the importance of our natural resources and the sound management of the same, essential for the stable and long-term development of the nation. In this way, FMCN will continue with its work of building a better future for all Mexicans.”

### **Annex 1. Institutional Profile of FMCN**

The Mexican Nature Conservation Fund, A.C. (FMCN) is a private nonprofit institution created in 1994, to finance and strengthen strategic actions and projects to preserve the natural heritage of Mexico. This is accomplished through the creation of public-private partnerships, the development of collaborative networks and the financing and implementation of innovative projects for the conservation and sustainable use of biodiversity.

#### **Us**

FMCN is one of the largest and most effective environmental funds in Latin America and the Caribbean. Its mission is to build a better future for Mexico through the raising of financial resources, the creation of partnerships,

by learning and taking advantage of opportunities focused on the conservation and use of our natural resources. In close collaboration with the civil society, national and international governmental agencies as well as the private sector, FMCN is recognized as a reference in the search for new conservation mechanisms and tools, the promotion of the exchange of knowledge and the identification of opportunities to contribute to the proper use of Mexico's natural capital.

### **Our work**

In 20 years of operation, FMCN has funded 1,241 conservation projects and invested more than 65 million dollars in the field. It has provided technical and financial support to approximately 275 Mexican organizations, it has received donations from national and international sources and financially strengthened 24 federal protected natural areas in close cooperation with the Government of Mexico. It has created organizations, currently independent, such as the Environmental Communication and Education Fund, A.C. and New Ventures Mexico, A.C., the latter recognized as the main organization promoting sustainable businesses in Mexico. Likewise, FMCN has participated in the design and commissioning process of the Latin American and Caribbean Network of Environmental Funds (RedLAC), a cooperation and dissemination forum of proven practices of more than 30 environmental funds in the region. FMCN is also a founding partner of the Mesoamerican Barrier Reef System Fund (MAR Fund), a regional fund that promotes the conservation of the Mesoamerican Barrier Reef System region. Similarly, FMCN has implemented the MAR Leadership Program, in which training and opportunities are provided to individuals with innovative ideas for the conservation of the reef. In 20 years, FMCN has consolidated a capital of more than 120 million dollars.

### **Positioning**

FMCN is aware of the environmental challenges and needs in Mexico, and has efficient and quality operating and administrative systems, a team of capable professionals and a committed and very prestigious Board of Directors. This makes FMCN an attractive and effective option to manage and raise funds from a wide variety of donors, from multilateral institutions to private foundations and corporations.

### **Structure**

The work team of FMCN consists of 44 professionals located in five offices in the country, who supervise the implementation of four conservation programs: Protected Natural Areas; Forests and Watersheds; Seas and Coasts, and Special and Innovation Projects. The General Assembly is the highest authority of the organization and integrates 32 members. This body is responsible for approving the financial report and annual statements, as well as for recruiting and appointing the members of the Board of Directors.

The Board of Directors is comprised of 19 representatives from various sectors of the society, including businessmen, social experts, academics and members of conservation organizations from the civil society. The incumbent principal of the Secretariat of the Environment and Natural Resources (Semarnat) is an ex officio member of the same. The Board is responsible for overseeing the Director General of the organization as well as approving projects and the annual budget.

### **The future**

As part of the celebration of the 20th anniversary of the institution in 2014, FMCN has launched the 2020 Capital Campaign that is aimed at reaching a goal of 220 million dollars, negotiated and deposited in FMCN before the end of 2020. Similarly, the objective of FMCN is to integrate four cross-cutting issues in all its programs: conservation leadership, capacity-building, mitigation and adaptation to the climate change and the contribution to an effective public environmental policy through the generation of the best knowledge and the strategic dissemination thereof through communication campaigns targeted to key audiences and decision makers.



A photograph of a wetland area, likely a pond or marsh, filled with water lilies and tall, thin grasses. The water is calm, reflecting the surrounding greenery. The lily pads are mostly green, with some showing signs of aging or damage. The grasses are tall and slender, growing in clusters. The overall scene is a lush, natural environment.

## Case 3. Save Palo Verde Campaign

The protected area of Palo Verde National Park (Palo Verde NP) is located in the province of Guanacaste, Costa Rica and is made up of a great variety of habitats, such as wetlands, rivers, mangles, meadows, dry forests and calcareous hills, in which there is a wide variety of animal and plant species. This area represents the preferred place to take in migrating birds in the Central American region and additionally it provides various ecosystem services which include the supply of water to human settlements and productive zones, and the adjustment of the water cycle.

Unfortunately, in 2012 Palo Verde NP continued to face a major problem of proliferation of facultative species, which included the typha (*Thypha domingensis*) which presence altered its wetlands. This problem required an immediate action that could not depend on bureaucratic procedures of a public management system that had shown, up to that moment, not to have the capacity to deal with it in an integral way. Because of this in April 2012 the Save Palo Verde Campaign was launched. It was a fundraising effort from the Forever Costa Rica Association and Teletica Canal 7 (Costa Rican broadcaster). The objective of the campaign was to collaborate in the restoration and conservation of a vast part of the Park, by means of the donation of the necessary machinery to control and eradicate those species, the ones that were considered the major menace for its conservation.



The antecedents, details, and results of the campaign are narrated in this case study, which is considered successful, not only because of the objectives reached, but because through the campaign, private and public companies joined efforts in favor of conservation, something that had no precedent in Costa Rica until then.

## 1. Conservation in Costa Rica

Through the National System for Conservation Areas (SINAC in Spanish), the Ministry of Environment and Energy (MINAE in Spanish), administers the biological riches of Costa Rica, contained in the protected areas of the country. The SINAC was legally constituted by article 22 of the Biodiversity Law No. 7788, of 1998. This law defines the SINAC as a “decentralized and participatory MINAE system of institutional management that integrates fields in forestry, wild life, water systems, and protected wild areas, with the objective of pronouncing policies, planning, and executing processes addressed to obtain sustainability in the management of natural resources in Costa Rica”.<sup>1</sup> Additionally, the SINAC was conceived as an integral conservation concept joining actions of the State, society, private companies, and each individual concerned in the conservation of Costa Rican natural capital.<sup>2</sup>

In 2014, the SINAC has 28 natural Parks and various biological and forest reserves under its care, which are classified in different management categories (Annex 1) and are territorially organized in eleven areas of conservation (Annex 2).

25% of Costa Rican territory fits into one of these protection categories. This percentage can increase if the private reserves especially dedicated to ecotourism and research were included. This is a conservation effort that few countries in the world have carried out and in which Costa Rica has invested lots of financial and human resources, for the wellbeing of present and future generations.

As for the legal frame for the conservation and sustainable use of biodiversity in Costa Rica, it can be said that it is very broad, in particular because of the Biodiversity Law, approved in 1998, of which the formulation was done by a participatory process at both local and national levels, oriented by the National Conservation and Sustainable Use of Biodiversity Strategy, which was completed and was made official in 1999. The Biodiversity Law establishes that the National Commission for Biodiversity Management (CONAGEBIO) together with the SINAC is responsible for the administration of natural resources in the country. And, in addition to the national activities in legal issues, on an international and regional level there are various treaties signed and ratified by Costa Rica, such as the Biological Diversity Convention (CBD), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), as well as the Ramsar Convention on Wetlands among others.<sup>3</sup>

According to Alexander León Campos, Director of the Arenal Tempisque Conservation Area (ACAT), approximately 70 to 80% of the SINAC funding comes from Government transferences, while the rest is obtained from the payment of tickets to the conservation areas (Park Funds), as well as from international cooperation. The Government and its offices have decided to collaborate closely with the Forever Costa Rica (CRXS) in order to manage some of those international funds. It is necessary to specify that up to 2014 there are at least thirteen international cooperation projects going on, among which, there is a loan with the Inter-American Development Bank for 25 million dollars, framed within the project to boost the Tourism Program in Protected Wild Areas, which intends to increase sustainable tourism in the most visited areas of the country.<sup>4</sup>

## 2. Forever Costa Rica

Forever Costa Rica (CRXS) is a private NGO established on November 18, 2009, aimed at contributing to the conservation of Costa Rica's natural patrimony<sup>5</sup>. From the beginning, the CRXS has operated as an Environmental Fund, which main objective is to collaborate so that Costa Rica's government can meet the national conservation goals, related to the Work Program for Protected Areas from CBD, which have not been met because of budget limitations. It is for this reason that the CRXS administers both the “Irrevocable trust fund Costa Rica Forever” and the “II Debt for Nature Exchange Among the US and Costa Rica” Trusts. These trusts have the joint goal of contributing to financing the land and marine protected areas in the country. All this is done under the main lines of work and objectives that are mentioned below:<sup>6</sup>

1 <http://www.sinac.go.cr/documentacion/Planificacin/Plan%20Estrat%C3%A9gico%20Institucional%20SINAC%202010-2015.pdf>

2 <http://www.sinac.go.cr/conozcanos/Paginas/default.aspx>

3 [http://www.inbio.ac.cr/es/biod/bio\\_biodiver.htm](http://www.inbio.ac.cr/es/biod/bio_biodiver.htm)

4 Interview with Alexander León Campos, Director of Tempisque Conservation Area. San José, March.2014

5 <http://costaricaporsiempre.org/en/the-association.aspx>

6 Ibid.

## 1. Ecological Representation of the protected areas

- a) Improve the ecological representation and integrity of continental biodiversity, incorporating among the wild protected areas system approximately 0,5% of continental territory.
- b) Improve the ecological representation and integrity of coastal-maritime biodiversity, by incorporating the most important coastal-marine ecosystems into the protected areas system.

## 2. Effective Management

- a) Ensuring that the protected areas are effectively managed, that is, that the conservation objectives for which they were created are accomplished. That is why the CRXS pretends that:
- b) 100% of protected areas, created or increased with the support of the CRXS have the planning instruments that allow efficient and effective administration according to their management objectives.
  - i. The wild protected areas should be doubled in relation to the ones that existed in 2009.
  - ii. 75% of the wild protected areas existing in 2009 systematically evaluate their management efficiency.
  - iii. 57 protected areas existing in 2009 increase their efficiency in management to acceptable or superior levels.

## 3. Climate Change

- a) Develop a complete baseline in order to design, starting in 2015, the climate change mechanics and adaptation plans in Costa Rica.
- b) Identify the adaptive capacity to climate change of vulnerable ecosystems, together with potentially viable adaptation measures, in relation to the protected areas system.
- c) Develop an adaptation strategy for the Land Protected Areas towards the potential impacts generated by climate change on diversity and its ecosystem services.

In order to achieve the previous goals, on July 27th, 2010, the CRXS submitted a Cooperation Convention with the NCSA, in which both parts commit to implement a five year Execution and Monitoring Plan, in order to turn Costa Rica into one of the first underdeveloped countries to meet the goals of the Program of Work on Protected Areas of the CBD of 1992. In 2014 there were more than 75 projects or activities related to the protection or conservation of protected areas and over a million dollars were received to increase their field of action.

## 3. Palo Verde National Park<sup>7</sup>

Palo Verde lake and its surrounding areas were declared wild life shelter in 1977 and it was named Refugio Dr. Rafael Lucas Rodríguez. In 1978 an area known as Catalina was declared as Palo Verde National Park and it was merged with the Refugio Dr. Rafael Lucas Rodríguez, ending up in what is known today as Palo Verde NP.

Palo Verde NP was created by the Decree No. 20082-MIRENEM of December 10th, 1990. It has an extension of 19.800 hectares, an average temperature of 28 °C, and an average annual precipitation of 1.230mm. It is located between the Bebedero and Tempisque rivers, a region referred to as the Low Tempisque Basin, in the Bagaces canton, province of Guanacaste, about 20 kilometers from that city (Figure 1). Palo Verde NP is set on a dry tropical forest region, and it covers a series of six wetlands that are part of a group of marshes, lakes, estuaries, rivers, and brooks, in the Low Tempisque Basin. These water ecosystems are reduced and some completely disappear during the dry season, clearly showing a seasonal nature.

It is important to highlight the fact that historically, this land had been a ranch that was home to 12,000 cattle which, for the most part, were adapted to temporary floods in the place that generated a biological control to the facultative plant species. On the other hand, some cattle brought from other regions of the country, preferred to stay on the borders of the lakes and its presence negatively affected the dry forests. There was then a contrast between the advantages and disadvantages of cattle in the region.<sup>8</sup>

When the area became a shelter for wild life, restricted access of cattle was allowed. But when it was declared a National Park, pasturing was prohibited and the wetland suffered serious effects to its natural conditions, because of the increase of facultative plants such as typha and prickly shrub (*Mimosa pigra*). These plants covered most of the water bodies, causing the migratory birds to stop coming and, at the same time, an increase in the risk of fire because these plant species are combustible and conduct fire even over water. Because of these facts, the wetland

<sup>7</sup> <http://www.sinac.go.cr/AC/ACAT/PNPaloVerde/Paginas/default.aspx>

<sup>8</sup> Informe Misión Ramsar 1998. Available at: [http://www.ramsar.org/cda/en/ramsar-documents-rams-mision-ramsar-de-16021/main/ramsar/1-31-112965E16021\\_4000\\_0\\_\\_](http://www.ramsar.org/cda/en/ramsar-documents-rams-mision-ramsar-de-16021/main/ramsar/1-31-112965E16021_4000_0__)



was included in the Montreux Register, which groups the Ramsar places in which urgent attention is needed in order to guarantee its conservation.<sup>9</sup>

In 1985, due to these serious difficulties, authorities recognized that the extraction of cattle at Palo Verde NP had been a mistake and, protected by a special permit, established agreements with ranchers of the region so that after paying a fee, these could leave their cattle in certain areas of the Park in a periodical and controlled manner. In relation to this matter, in the 90's a group of scientists questioned this kind of use because they considered it adverse to the proper characteristics of a National Park, such as a strictly conservation category.<sup>10</sup>

The evidence reported by the studies and the experience made it clear that Palo Verde NP had some special conditions that should be attended to in a different way, and so, in spite of the controversy in 1988 the MINAE emitted Decree No. 27345, in which the active management of the Park was established. This management includes a combination of methods of planned intervention and are addressed to the ecological restoration, including: pasturing, *fanguero*,<sup>11</sup> weeding and trimming grass, estuary rehabilitation, introduction and water control, controlled fire, earth movements, and other necessary means to restore the affected ecosystems.<sup>12</sup>

In 2014 the controversy goes on, on one hand because of the presence of cattle and on the other, because of the machinery. Nevertheless, there is more and more consciousness of how essential it is to have an active management and thus, about 1,500 cattle come into Palo Verde NP each year. For this reason, temporary contracts have been signed so that tractors can do *fanguero* in the area but still, the wetland has not reached the ideal conditions of the days as a ranch.<sup>13</sup>

### 3.1. Biodiversity at Palo Verde NP

The two main areas of life that are part of Palo Verde NP, dry forest and wetlands, boost the existence of twelve different plant communities, in which up to now, more than 750 plant species have been identified. Among those species, the most outstanding is the palo verde (*Parkinsonia aculeata*), a species that gives the Park its name, a bush that keeps its leaves and branches green color all year round. Other important plants that may be found

<sup>9</sup> Ibid.

<sup>10</sup> Interview with Alexander León Campos, Director of Arenal Tempisque Conservation Area. San José, March.2014.

<sup>11</sup> Fanguero/deep plowing is a term taken from rice plantation that consists of beating the soil surface with a tractor that has iron wheels in order to aerate it and incorporate the straw and stubble left from harvesting with a combine harvester. For the case of the restoration of the wetlands, the wheels are used for cutting and grinding typha.

<sup>12</sup> Decree N.. 27345-MINAE. Establishes an Active Management Policy in the wetlands of Palo Verde NP and pasturing areas. It creates a Consultation Committee.

<sup>13</sup> Interview with Alexander León Campos, Director of Tempisque Conservation Area. San José, March.2014.

in the Park are: pochote (*Bombacopsis quinatum*), bitter cedar (*Cedrela mexicana*), guayacán real (*Guaiacum sanctum*), cocobolo (*Dalbergia retusa*), laurel (*Cordia alliodora*), tempisque (*Maschitodendro capiri*), white guanacaste (*Albizia caribea*), saman (*Pethecellobium saman*) and guanacaste (*Enterolobium cyclocarpum*).

Birdlife in Palo Alto NP is the most noticeable. There are over 280 local and migrant birds, some in danger of extinction or with highly reduced populations, such as the red limpet (*Ara macao*), the peacock (*Crax rubra*), the toledo (*Criroxiphia linaria*), the galán sin ventura (*Jabirú mictoria*), the falcon (*Polyborus plancus*) and the duck (*Anas*) and the heron (*Casmerodius albus*).

As for the mammal population, these are varied and abundant, deer (*Odocoileus virginianus*) are highlighted, peccary (*Tayassu tajacu*), ocelot (*Felis pardalis*), coyotes (*Canis latrans*), pumas (*Felis leopardus*), tolomucos (*Eira barbara*), guatusas (*Dasyprocta punctata*) and tepescuintles (*Agouti paca*).

Finally, the herpetofauna is also very diverse at the Park, there are crocodiles, iguanas, different kinds of frog snakes, as well as other snake species, for example bequer (*Boa constrictor*), rattle snake (*Crotalus durissus*), and coral snake (*Micrurus nigriventris*). Lastly, among the amphibians there are large populations of frogs and toads, typical of wetlands.

Apart from being the perennial habitat of many kinds of animal and plant species, Palo Verde is recognized for being a hibernation spot for thousands of birds that migrate from the northern hemisphere during the Winter septentrional season. Other aspects that make Palo Verde a natural importance for Costa Rica and the world are:<sup>14</sup>

- Since 1991 it is a Ramsar Place of international importance.
- Bird Island, the place with the highest concentration of water bird species in Central America is under its jurisdiction.
- It is one of the last three remains of the dry tropical forest that there are in Mesoamerica.

### 3.2. State of Conservation

Even though up to 2014 Palo Verde NP has had important improvements in order to restore its natural conditions and revise its management strategies; it still faces various internal problems related to its administration. Among them, the first one is insufficient availability of personnel from SINAC to work in the Arenal Tempisque Conservation Area (ACAT), where

presently there are 18 people working in conservation chores, when it is estimated that there should be twice as many. Other important problems in the area are the impossibility of consolidating biological monitoring in the area, the difficulty in boosting recreational and pleasure activities;<sup>15</sup> plus diverse obstacles in specific conservation activities such as the facultative plant species control mentioned before.

The Park has also faced problems related to human activities, for example, the unsustainable and illegal extraction of fish and mollusks, poaching and, from an environmental perspective, the high risk of fires, which has generated a decline in its ecosystems. A sample of the last is the fire occurred in April 2010 in which about 3,000 hectares of the Park were burned.<sup>16</sup>

The problems to diminish the threats over the ecosystems of Palo Alto NP are largely due to budget restrictions in management of the ACAT that, as has already been mentioned, prevents executing restoration actions in the Park. It is necessary to remember that this phenomenon is not exclusive of Palo Alto NP but, on the contrary, it is a generalized problem in all protected areas of Costa Rica.

SINAC is aware of the needs of Palo Alto NP and hopes that by 2015 it can count on a new General Management Plan (financed by the Private Trust of CRXS) and a Low Tempisque Basin Master Plan, in which the regional planning focus favors the conservation of resources of this area, reconciles the differences among actors, and integrates in a better way the inhabitants of the region. An important and not very often considered factor until now is tourism,<sup>17</sup> for its development, the ecosystem needs to be recuperated, it is necessary that birds come by thousands, and that the infrastructure and personnel are in appropriate conditions of welcoming them.

It is important to specify that most of the recommendations for Palo Verde NP stated in the Ramsar Convention 1998 report were already considered in the different Development and Management Plans for the area (and they have helped improve the conditions of Palo Verde since the 80's). In fact, the Ramsar Convention concluded the following:<sup>18</sup>

*Based on the analysis of the situation, made by the Ramsar team, it is obvious that the causes of the problems of the ecosystems in Palo Verde NP have a very strong external factor. The impacts that the activities (tourism, urban, and agricultural development) taking place outside Palo Verde*

<sup>14</sup> Ídem

<sup>15</sup> Interview with Alexander León Campos, Director of Tempisque Conservation Area. San José, March.2014.

<sup>16</sup> [http://www.aldia.cr/ad\\_ee/2010/abril/18/nacionales2337332.html](http://www.aldia.cr/ad_ee/2010/abril/18/nacionales2337332.html)

<sup>17</sup> Interview with Alexander León Campos, Director of Tempisque Conservation Area. San José, March.2014

<sup>18</sup> Informe Misión Ramsar 1998. Available at: [http://www.ramsar.org/cda/en/ramsar-documents-rams-mision-ramsar-de-16021/main/ramsar/1-31-112%5E16021\\_4000\\_0\\_](http://www.ramsar.org/cda/en/ramsar-documents-rams-mision-ramsar-de-16021/main/ramsar/1-31-112%5E16021_4000_0_)



*NP have on the Park itself, are not solved by managing the ecosystems inside its boundaries.*

*After twenty years of its creation, and in spite of multiple workshops and experts visits, the problem has not been solved, because the ongoing discussion on whether water and forest plants should be managed and controlled is ignoring the real problems and it is a way of postponing solutions.*

*The real solutions to the deterioration and loss of the ecosystem problems are found at the political and administrative decisions level, both inside and outside of Palo Alto NP's boundaries. It is necessary to move forward and that the agendas of the Palo Verde NP authorities, the SINAC authorities in San José, the communities, the ranchers, and tourist workers coincide.*

*Thus, the alteration of the ecological characteristics of the Palo Alto NP wetlands is, in our perspective, the final result of a series of problems both at space and temporary levels. For this it is necessary that the Park's staff and the MINAE/SINAC authorities in San José, develop a global and strategic ability to identify a few urgent actions, define those that are truly prior and, at the same time, act as facilitators of the necessary actions.*

This shows that the solutions to Palo Alto NP's problems have been known for years, but the lack of financial resources and political will, have made it difficult to effectively implement these solutions. This motivates the Park's staff to search for financial alternatives to solve the problems.

The following section addresses one of those initiatives, which ended up being very successful, not only because of the amount of financial resources collected through it, but also because it achieved the active participation of different sectors of Costa Rican society.

### 3.3. Palo Alto NP's Difficulties

As can be seen, the most suppressed threat for the ecosystem balance at Palo Verde NP has come from the difficulty in controlling the proliferation of species such as the typha and bramble species. The consequences of this problem in the Park have been evident; it is for this reason that such an altered ecosystem demanded an immediate action that could not depend on the bureaucratic paperwork of a public system that eventually could not attend it.

In 1998, the Ramsar Convention had already mentioned that the studies and recommendations were enough for actions to take place, but it had been impossible to keep implementing effective measures that attended those recommendations; on the contrary, the environmental deterioration continued, just with immediate improvements until 2013, given the partial application of active management. The following is an outline of the previously mentioned measures taken through time:

At first it was thought that these species were invaders, and due to the multiple studies that the dif-

ficulties aroused, it was proved that they were endemic, but that their devastating behavior was caused by the absence of cattle as a biological control and to its prolific qualities. Thus being, the first alternative to the solution to recover the bird populations in the area was promoted by the National University of Costa Rica and it consisted of manually weeding typha and bramble when they surpassed 45 cm above the water level; nevertheless, this technique required lots of time and personnel, since both plants spread easily.

Continuing with the search for solutions, rice harvesting techniques were revived, thus adapting the tractor blades to cut the typha, but this alternative did not end up in good results because the cortex of the typha is very thick. As parallel initiatives, some communities joined a project to take advantage of the remains from typha weeding, to produce good quality paper. In spite of being a very promising entrepreneurship, communities were not organized in order to keep it going and attend the market that received the product very well.

Studies and alternative evaluations went on, and in the 90's the use of "fanguadoras" (metallic wheels that are adapted to a tractor to develop the *fanguero* activity) was approved as an improved strategy of the one used in rice plantations. The results were good, but at a higher cost. Eradicating the plants this way required contracting machinery and personnel, which is very expensive, and thus unsustainable.

The Park's fundamental location and, at the same time the one that is mostly affected by the difficulties, was the Palo Verde lake. This is an area of Palo Verde NP in which there are records of 60 kinds of birds among native and migratory, and so it represents the most important place in terms of biological richness. There, the most abundant species was typha. For this reason, since 2001, with the support of the MINAE strategies like *fanguero* and pasturing were implemented for the recovery of the wetland. By 2003, this Ministry together with the Organization for Tropical Studies (OTS) with headquarters in the Park, designed the Palo Verde Restoration and Management Project, in which one component was to monitor to verify if the executed actions were the appropriate ones to return to the situation 20 years before, in reference to the population density of birds and the water level.<sup>19</sup>

Some of the environmental benefits derived from the Project were to create bodies of water for more birds to come, generate an increase in other plant species that the typha does not allow to grow, recover the richness and abundance of other vertebrate species, fish, anura (which also serve as bird food), obtain an improvement in water quantity and quality due to the

<sup>19</sup> Palo Verde Lake Restoration and Management Project. OTS, 2003

“A successful initiative, not only because of the amount of financial resources collected, but also because it achieved the active participation of different sectors of Costa Rican society”

controlled opening of the Tempisque sluice gates, and change the course of contaminated waters that come from the crops in the area.<sup>20</sup>

It is important to highlight that typha does have positive aspects, for example, its branches can be favorable to species such as the hemiptera (bugs), and besides, it can serve as hangers for some anura species and as a place for nesting for other birds. This is why leaving some patches of typha was recommended in order to keep the biodiversity balance in the ecosystem. Additional actions were suggested, like doing workshops and talks so that the communities would understand the importance of the typha control projects.

It was determined that to meet all the objectives of the Laguna Palo Verde Restoration and Management Project, a moderately low initial investment was needed. Only the objective related to changing the course of contaminated waters required a high initial investment. Table I shows the approximate investments for each activity, as well as the instructions for their financing..

**Table I. Costs-Project 2001**

Objective	Activity	Aproximate Cost. USD	Institution (s) in charge
1*	A. Fanguero	\$30/Ha/yr	MINAE /OTS
	B. Introducing cattle	0	MINAE
	C. Fauna and flora monitoring	\$5,000	OTS
2	D. Topographic survey	\$30/Ha/year I	OTS
	E. Recovery of water flows	\$15,000	MINAE OTS/SENARA (Servicio Nacional de Aguas Subterráneas Riego y Avenamiento)
	F. Water level management	\$15,000	MINAE /OTS/SENARA
3	G. Change of course of contaminated waters	\$70,000	MINAE /OTS/SENARA
	H. Contaminants monitoring	\$20,000/yr	MINAE /OTS/SENARA
	I. Agriculturer training	\$75,000/yr	INA/SENARA/OTS

Source: OET

\*The time length of activities A,B,C,F, and H is two years.

The conclusion of this Project was that the perfect solution to eradicate typha consists of a combination of various techniques, among them responsible pasturing, in which the cattle men follow a Management Plan, through which it is indicated how many cattle to pasture, as well as where to put them. This last item generated conflicts with the cattlemen involved in the recovery of the wetland, who stated that they did not wish to do very intensive pasturing in the lake, since they ensured that cattle loses weight when enclosed in the lake, nevertheless, there is an investigation that proves the opposite.<sup>21</sup>

Further on, when the Project was over and they started to look for funds back in 2004, and through another project, they were able to do *fanguero* 350 ha. Parallel to this, isolated management actions were taking place and by 2010, the need to search for funds that allowed for a definite solution to the problem that this kind of species were generating in the Park arouse again.

<sup>20</sup> Ibid.

<sup>21</sup> Palo Verde Lake Restoration and Management Project. OTS, 2003.

**“The isolated actions to maintain Palo Verde NP had been effective in the moment of their implementation, but they needed continuity, since the results quickly became diluted because of the plants’ propagation speed”**

#### 4. Save Palo Verde Campaign

By 2010 the situation was so critical that, according to Alexander Leon, more birds were found outside the conservation area than inside. The isolated actions to maintain Palo Verde NP had been effective in the moment of their implementation, but they needed continuity, since the results quickly became diluted because of the plants’ propagation speed. The scientific fundamentals of control needed to be materialized in concrete and long term actions. Financing was required for this and that is how Save Palo Verde Campaign began.<sup>22</sup>

In 2010, in the midst of this necessity, Pilar Cisneros, director of the program Telenoticias de Teletica Channel 7, went on a trip to Palo Verde NP, for different activities, among these bird and star watching. Ulises Chavarría, the Park manager, took advantage of the opportunity of having her there and told her about the wetland difficulties. Chavarría and Cisneros analyzed different options of management. Cisneros argued that more extensive cattle could be the perfect solution to the problem, and Chavarría replied that such alternative was applied at a lower scale and in a controlled manner, since the conservation principles of the area could not be totally lost.<sup>23</sup>

That is how, after a long conversation of the two of them, Chavarría asked if Teletica would be interested in helping raise funds for the recovery of the wetland. Cisneros answered positively and even indicated that the moment was the perfect one for that kind of project, since Channel 7 was participating in different social fundraising campaigns, thus she considered that the channel would be very interested in expanding the initiatives to environmental issues.

In spite of Cisneros’ enthusiasm for the idea, Chavarría and his SINAC colleagues did not decide to visit her in San José until almost 8 months later, in 2011. In this meeting it was decided that the objective of the campaign should be to obtain the necessary funds to buy at least one tractor to be used for the fanguero activities. Chavarría explained to Cisneros that up until then, the SINAC rented tractors sporadically, due to the lack of financial resources that could ensure a permanent basis. He also stated that with the purchase of the tractor, the resources destined to machinery contracting would be less and the Park personnel could develop the ability to operate them and obviously, the conditions of the ecosystem would improve to an ideal 30% recovery of the wetland. This is a desirable percentage to open water bodies and bring birds again, as well as to keep the specific benefits of the typha.<sup>24</sup>

Pilar Cisneros and her team, directed by journalist Jaime Sibaja, started to look for companies that sold the required equipment (tractor and fanguero accessories) while at the same time Sibaja got the responsibility of carrying out interviews and reports on the area, with the support of the company. Cisneros and Sibaja were initially in charge of deciding which activities would be part of the Save Palo Verde Campaign, stating that, direct donations from companies and individuals by text messages would be considered as the main components of fundraising.

##### 4.1. Details of the Campaign and Televised Promotion

To publicize the campaign and its importance for the recovery of Palo Verde lake, the Telenoticias team recorded a series of short reports (about seven minutes long) in which previous images of the Park were shown in which thousands of birds used to land, and they were contrasted against the present images, in which the problem could be seen: that is, shortage of birds, and typha and bramble covering a large area of the wetland. These reports included interviews with staff from SINAC and scientists who have worked on the area. They emphasized the environmen-

<sup>22</sup> Interview with Alexander León Campos, Director of Arenal Tempisque Conservation Area. San José, March, 2014.

<sup>23</sup> Interview with Alexander León Campos, Director of Arenal Tempisque Conservation Area. San José, March, 2014.

<sup>24</sup> Interview with Ulises Chavarría, Palo Verde NP Administrator. Palo Verde, March, 2014.

tal difficulties of the area and encouraged TV watchers to collaborate and thus, be part of the solution. These reports were emitted during four emissions of the TV news broadcast, which is considered the one with the largest audience in the country.<sup>25</sup> Other short ads were transmitted during commercial segments throughout the day.<sup>26</sup>

#### 4.2. The Role of Forever Costa Rica

Cisneros and her support team on Channel 7 expected the campaign to be a success in terms of communication but, they came to realize they needed the support of a trustful organization (public or private), that would be responsible for the funds administration and delivering reports to donors, in relation to the use of the money, something that was necessary especially because of the media display of the fundraising campaign. At the beginning they thought about giving the money to the Government but, when Sibaja met with the Environment and Energy Minister, he recommended it was better that the funds raised in the campaign not be handed to the public entity since the project could not be properly executed because of the bureaucratic frictions that could take place, and he indicated that the best option was to constitute a trust.<sup>27</sup>

For this reason, Channel 7, through Cisneros' team, contacted CRXS that, in spite of being a young organization at that time had shown to have great abilities in fund management for conservation projects. Additionally, among CRXS strengths was that this organization was financing the elaboration of the Palo Verde NP Management Plan and held a cooperation agreement with SINAC as it was seen, to meet the goals of the Protected Areas Program of the CBD.<sup>28</sup>

The Board of Directors of CRXS agreed to the participation of the organization in the campaign, which was also seen as an opportunity to promote the image of CRXS. For this reason, CRXS made one of their accounts and its entire staff available to all donors, in order to collect and administer the collected funds. Once the project was constituted, CRXS signed a contract with the Costa Rican Electricity Institution (CEI), to make available to the public a number to deposit donations by text messages. Additionally, the CRXS assigned a checking account exclusively for the campaign, designed an investment policy of the collected funds, in accordance with the execution needs of the project. CRXS agreed

not to charge for the administration of the fund collection, as well as for the account management, including the outlay for purchases and maintenance. Nevertheless, it is estimated that for the design and fundraising, the compensation for CRXS was approximately 50 thousand dollars for administrative and staff expenses, since they had to pay for items such as travelling to the area, fence installation, making contracts with each donor company, plus support chores to all the companies participating in the campaign.<sup>29</sup>

**Figure 1. Delivering the keys to Palo Verde NP's Administrator**



#### 4.3. Components of the Campaign

##### 4.3.1. Text Messaging

Kolbi is the most important mobile phone communication company in the country. At the time of the campaign it held 85% of the market share.<sup>30</sup> It is a state company that is part of the ICE group. In 2014 its market share diminished because of the entrance of Claro and Movistar in Costa Rica<sup>31</sup>; nevertheless, it is still the leading company in the market of mobile telecommunication in Costa Rica.

Channel 7 was able to obtain the collaboration of ICE through Kolbi, so that one of the means for collecting funds for the Save Palo Verde Campaign would be through text messages. The Regulation of Requirements and Conditions for the Promotion<sup>32</sup> was established for this purpose and published in the printed media as well as their website. In it, it was indicated that Kolbi trademark and the publicity of the Promotion Save Palo Verde, were exclusive property of ICE. It was also established that the Promotion, the name given to this component in the contract of the campaign, was valid between 00:00 hours of April 19th, to 11:59 p.m. of May 4th, 2012. In terms of the mechanics of fund recollection, it was established that only clients and users, natural and legal

<sup>25</sup> Rating of the early news broadcast (6:00 a.m.) was 3.6, for the noon broadcast (12:00 p.m.) it was 6.3, for the night broadcast (7:00 p.m.) it was 6.6 and for the late night news (11:00 p.m.) it was 3.1.

<sup>26</sup> Interview with Jaime Sibaja, Channel 7 journalist. San José, March 2014.

<sup>27</sup> Ibid

<sup>28</sup> Interview with Zdenka Piskulich, Executive Director and Pamela Castillo, Program Manager. Forever Costa Rica. San José, 2014.

<sup>29</sup> Ibid

<sup>30</sup> <http://www.iocit.com/segun-el-ice-kolbi-mantiene-85-de-mercado-movil/>

<sup>31</sup> [http://www.nacion.com/nacional/telecomunicaciones/ICE-participacion-mercado-telefonía-celular\\_0\\_1402059836.html](http://www.nacion.com/nacional/telecomunicaciones/ICE-participacion-mercado-telefonía-celular_0_1402059836.html)

<sup>32</sup> [http://www.grupoice.com/wps/wcm/connect/3d34a2004af439cc9492bd2b66beb155/Reglamento\\_palo\\_verde.pdf?MOD=AJPERES](http://www.grupoice.com/wps/wcm/connect/3d34a2004af439cc9492bd2b66beb155/Reglamento_palo_verde.pdf?MOD=AJPERES)



persons, with pre or post payment plans could make donations of one hundred and fifty colons (150 colons is approximately 0.3 dollars), every time a text message with the words “palo verde” (in capitals or lower case letters) was sent to code 7700. The 150 colons was the standard donation amount per message, to which 1.50 colons had to be added for the cost of operation and 0.19 colons for tax payment thus, the final cost of sending a message was 151.69 colons. Additionally, it is necessary to emphasize that ICE took over 3.86% of the total import charged to cover costs for the concept of billing, distribution, and retrieval.

Kolbi designed different communication strategies to motivate donations among its users. For example, it held a raffle of 100 tickets to a Costa Rica against El Salvador soccer game on June 8th, 2012. It also used the social networks, especially Facebook, as an informative and promotional platform of the campaign.<sup>33</sup>



Source: [www.facebook.com/iceatulado](http://www.facebook.com/iceatulado) and [www.facebook.com/kolbicr](http://www.facebook.com/kolbicr)

#### 4.3.1.1. Cooperation Agreement Between The Costa Rican Electricity Institute (ICE) and Forever Costa Rica

CRXS signed an agreement with ICE to establish the basis for the money transfer, the main agreements established in this contract, besides the ones previously mentioned in the Regulation of Requirements and Conditions for the Promotion were<sup>34</sup>:

- ICE would support the campaign reinforcing its principle of Corporate Social Responsibility.
- ICE would support the campaign with equipment, financial resources, human resources, and materials for the money collection, through text messaging and prepaid cellular phone refills, channeled by the CRXS organization.

<sup>33</sup> [https://www.facebook.com/iceatulado/posts/364994316869299?stream\\_ref=5](https://www.facebook.com/iceatulado/posts/364994316869299?stream_ref=5)  
<https://www.facebook.com/kolbicr/posts/391123457594255>

<sup>34</sup> CON-141.12. April 19th, 2012

- CRXS would commit that the Kolbi trademark would enjoy visibility while the campaign with Channel 7 lasted. The relevant ICE product trademark for effects of the contract would be Kolbi.
- The ICE will transfer the collected funds to an assigned bank account on a monthly basis at billing closing.
- CRXS must include Kolbi in all the planned promotions to motivate donations.
- The expected time length for the agreement with the ICE is six months or until the last liquidation of the donations is done, whichever happens first.

It was additionally established that the contract for fund management for each year during the second term must state management goals that would be contrasted with the project's goals for the next year, which would be socialized with the SINAC and the other participants of Save Palo Verde Campaign.

## 5. Corporate Donations

Besides the donations from text messages, direct donations from business corporations were also carried out. For this purpose, Channel 7 contacted various companies considered as potential donors and made them the proposal of donating 5 thousand dollars (USD) for the tractor purchase. In exchange, they were offered the possibility of appearing in Telenoticias, whether in the 12:00 a.m. or the 7:00 p.m. broadcast. In these transmissions a symbolic act of donation was shown, in which a representative from the company would hand in Sibaja a check with the donation. This generated a lot of interest among the contacted companies which accepted to participate and many even donated more than what was asked for, as it is shown in the following table:

**Table 2: Company donation**

COMPANY	Donation USD\$
Alimentos Pro Salud	\$20, 000
Holcim Costa Rica	\$10, 000
Credomatic	\$10, 000
Sur Química (Pinturas Sur)	\$10, 000
Agencia Datsun S, A,	\$5, 000
Wallmart	\$5, 000
Bridgestone	\$ , 000
Compañía Numar	\$5.000
Coca Cola	\$5.000
Derivados de Maíz (DEMASA)	\$5.000
Florida Bebidas	\$5.000
Dos Pinos	\$5.000
Telecomunicaciones Claro	\$5.000
Otras (menores a USD\$5,000)	\$7.547,9
TOTAL	\$102.547,9

Source: CRXS

Apart from money donations, donations in kind from certain private corporations were received such as vehicle dealers and Matra and Vetrasa machinery, and the architecture and construction company Valdesol S.A. and MECO. All these companies also had space in the short reports in which all their representatives could speak about the support of their companies to the campaign. The participation of each of these companies is described next:

**Vetrasa:**<sup>35</sup> it is an automotive company that represents Suzuki in Costa Rica, which is part of the Rudelman group that operates in different countries. Vetrasa donated a FOTON 60hp tractor valued in 15 thousand dollars

<sup>35</sup> Interview with Yoav Rudelman, Executive Director Rudelman Group. San José, March 2014.

for road repairs and plant cutting. Additionally, Vetrasa donated advice in how to use the tractor bought through the campaign in a more efficient way.<sup>36</sup> From its experts' evaluation, in cooperation with the Park's Staff, it was concluded that a higher potency tractor was required, so it was decided that the FOTON tractor be used as partial payment of a 105hp Kubota, which could better perform the fangueo activities.

**Matra:**<sup>37</sup> it is the company that represents Caterpillar and John Deere in Costa Rica, dedicated to import and sales of construction machinery, as well as offering rentals, spare parts, and repairs to the machines. Its contribution to the campaign was a discount on the bigger tractor (155hp), destined to the construction of canals for fire prevention and trace during summer. This discount was valued in 53 thousand dollars. They also gave in field assistance and maintenance of the tractor for 2.000 hours or three years, a service estimated in 6 thousand dollars.

**MECO:**<sup>38</sup> it is a regional construction company, specialized in land movements, roads, and touristic, industrial and commercial infrastructure works, of large magnitude that started in Costa Rica. This company donated 20 days of machinery to remove typha in 60 hectares. This donation was estimated in 25 thousand dollars and took place in the midst of the campaign which served as an infield working strategy, while the fundraising was finished and the implementing of the new machinery was beginning.

**Valdesol S. A.:**<sup>39</sup> Rafael Viquez, one of the partners in Valdesol, an architecture and building company, expressed that it had always been interested in supporting conservation projects in Costa Rica, for this reason, in previous occasions they had donated the designs and infrastructure to SINAC, and had also supported constructions for ecotourism. Because of this, when Viquez saw the ads of Save Palo Verde Campaign on Channel 7, he considered it was relevant to participate in it.

To begin with, Valdesol made the planning and design of a warehouse for the Park. For this purpose, the company decided to take over all the expenses related to this activity, including transport. In the end, the company estimated the contribution in approximately 8 thousand dollars. CRXS was in charge of contracting the construction company for this construction, considering all the legal requirements related to constructing on State lands (property of SINAC).

## 6. Delivery Caravan

A caravan from San José to Palo Verde NP took place on July 2nd, 2012, and CRXS, Channel 7, the four companies that made contributions in kind, representatives of SINAC and MINAE participated. Obviously, the Channel did a great coverage of this event, since it was a way of communicating the results of this joint effort to all citizens.<sup>40</sup>

On the day of the caravan the two tractors were taken, along with their accessories and again, the companies had the opportunity to communicate what they had donated. That day, CRXS also had the opportunity to talk about the campaign, Zdenka Piskulich, Executive Director of the Association, expressed for Channel 7 that, besides the two tractors, they were working, through CRXS, in the construction of the warehouse to protect them, as well as in contracting additional services to support the fangueo and that even maintenance for the next five years would be supported, all this in order to reach the goal of recovering 300 ha.<sup>41</sup>

### 6.1. Collecting and Investing the Funds

Save Palo Verde Campaign collected more than expected. The goal was to reach 70 thousand dollars for the purchase of a tractor, but it reached four times that amount, exactly 284.161 dollars which sources are described in Table 3. With the funds raised, and the support of companies like Vetrasa and Matra, it was possible to buy two tractors with their respective complementary tools. In the same way, with those funds it was possible to build a warehouse, and a remainder was set aside to be used for the maintenance of the equipment for at least five years.

<sup>36</sup> Video on Vetrasa y MECO donation at: <https://www.facebook.com/video/video.php?v=410349242330949>

<sup>37</sup> Interview with Mario Ulate, Sales Manager of Agrícola de Matra. San José, March, 2014.

<sup>38</sup> Video on the caravan at: <https://www.facebook.com/video/video.php?v=441385185894021>

<sup>39</sup> Interview with Jaime Viquez, Manager and partner of Valdesol S.A. Heredia, March, 2014.

<sup>40</sup> Video on the caravan at: <https://www.facebook.com/video/video.php?v=441385185894021>

<sup>41</sup> Ibid.

**Table 3: Amounts collected by source**

Source	Amount USD	%
Natural Persons	\$3,570.49	1%
Legal Persons	\$102,547.90	36%
ICE-Kolbi text messages	\$178,042.61	63%
<b>Total</b>	<b>\$284,161.00</b>	<b>100%</b>

Source: CRXS

The immediate investments made with the funds collected during Save Palo Verde Campaign are shown on Table 4 (without counting the 30 thousand dollars of the warehouse).

**Table 4: Immediate Investments with Funds from “Save Palo Verde Campaign”**

Initial Investment		
Initial Investment		
Tractor 1 "Summer"	\$53,000	Matra 155 HP con 2000 maintenance hours
Tractor 2 <i>fanguero</i>	\$38,000	Kubota 105 HP con 2000 maintenance hours
Rake 28 Discs	\$17,000	Matra jagged the 28 Discs
Additional Equipment	\$12,300	84 in weeder back hydraulic shovel
Fanguero Equipment	\$5,000	Vetrasa Tailored wheels
Fanguero services	\$13,052	
<b>Total</b>	<b>\$125.300</b>	

Source: CRXS





“An important factor in the campaign was that the achievements that were reached in each stage were clearly shown”

Table 4 shows the initial investment (125.300 dollars) and, given that after the success of the campaign there is a surplus in year 0 (2012) of 145.809 dollars, this is invested to hire resources that cover preventive maintenance, corrective measures, and hiring third parties for the support in the fanguero activities. The extinguishing use of the money and its interest was projected until the year 2020. The annual expenses executed and projected until 2020 are specified in Annex 3.

## 6.2. Results

CRXS expects that five years after the campaign, Palo Verde NP's management will be ideal, thus avoiding the proliferation of species like typha and bramble, and that it is able to manage the natural conditions of the conservation area and with them all the ecosystem services, while at the same time it is better adapted to climatic change. Nevertheless, this is something uncertain that should be measured to set a precedent and continue working.

### Illustration 2 2014 Bird Festival Invitation



An important factor in the campaign was that the achievements that were reached in each stage were clearly shown from the amounts that were being collected to the delivery of the machinery caravan, including the 2014 Bird Festival,<sup>42</sup> where the recovery goals of the Park were shown, reflected in an increase of the bird population.

### 6.2.1. Mass Media Publications

After the closing of fundraising of the Save Palo Verde Campaign, CRXS has negotiated twelve mass media publications in which the campaign's conservation investment results were shared. These publications have been estimated in 55.704 dollars and were done in different media such as:

- [Diario Digital Nuestro País.](#)
- [Crhoy.com](#)
- [ADN Radio.](#)
- [Telenoticias.](#)
- [Teletica.com](#)
- [La Nación.](#)

The Save Palo Verde Campaign reached very good results for this protected area. Highlighted among these is the recovery both of the ecosystems, as well as the Park's image which, in turn, generated an increase in visits. Nevertheless, there are ongoing problems, for example: in spite that the SINAC acquired the necessary machinery to control facultative species in the Park as well as the funds to keep this machinery working for at least nine years, the institution is facing a lack of personnel and the uncertainty of the resources that will allow the operation of the machinery, after the end of the nine years that the donations can finance. This last part is very important because the challenge of the Park's conservation has always been to have ongoing actions to prevent the negative effects of these plants that, as is well known, expand quickly when constant control activities are not sustained through time.

<sup>42</sup> Specifically in the 2014 Bird Festival, one of the main activities was to invite people from the region to visit the NP since although many of them lived near the park, they had never been there.

## ANNEXES

### Annex 1. Costa Rica's Protected Areas Management Categories

Category	Description <sup>43</sup>
<b>National Parks</b>	These are regions that are destined to the protection and conservation of diverse fauna and flora of great national and international importance, a great variety of ecosystems that have not been affected by human occupation. These regions are under official surveillance and protected by national decrees. Because of the grand beauty of the natural landscape, general tourism is permitted under supervision.
<b>Biological Reserves</b>	They are mainly created for the following purpose: the study and research of wild life and the ecosystems in which it lives. They are: forests and forest territories with wide biodiversity and as a consequence present more strict rules in terms of the exploitation of their resources. For this, the law stipulates that all these zones must be acquired by the State.
<b>Forest Reserve</b>	Forest territories, appropriate for wood production, where management actions are executed with sustainability criteria.
<b>Wetland</b>	An ecosystem that depends on water flow regimes, natural or artificial, permanent or temporary, fresh or salty, including the maritime extensions or coral reefs up to 6 m below low tide. The Organic Law of Environment was dictated in September 1995, and it states which areas are protected because of their valuable ecosystem.
<b>Wild Life</b>	These are forests especially designated to the protection, conservation, increase, and management of the different fauna and flora species of the environment. Their main characteristic is that they hold a large amount of flora and fauna, which allows the qualification and evaluation of which are in danger of extinction. The law recognizes three types: State Owned Shelters, Mixed Owned Shelters, and Privately Owned Shelters.
<b>Shelter</b>	An area made up of forests and lands with sustainability for wood production, where the main objective is to protect the soil, the regulation of water flow regime, and the conservation of the environment and hydrographic basins.
<b>Protective Areas</b>	Areas that hold a cultural, historical, or archeological outstanding resource, of great importance due to the unique characteristics or of special interest. Its extension depends on the size of the resource that is likely to be conserved and how much adjacent land is needed to ensure its protection and appropriate management. The administration of these places falls on the respective townships of the area.
<b>National Monument</b>	An extension of land, usually privately owned, which main function is to connect protected wild areas to facilitate migration and dispersion of fauna and flora species thus ensuring their conservation. The characteristics of a corridor (location, dimension, agroforestry, cattle breeding, or others) are determined after identifying the species that are expected to use it.
<b>Biological Corridor</b>	An extension of land, usually privately owned, which main function is to connect protected wild areas to facilitate migration and dispersion of fauna and flora species thus ensuring their conservation. The characteristics of a corridor (location, dimension, agroforestry, cattle breeding, or others) are determined after identifying the species that are expected to use it.

<sup>43</sup> <http://areasyparques.com/areasprotegidas/sinac-terminos/> y <http://www.nacion.com/zurqui/biodiversidad/4/>

## Annex 2. Conservation Areas in Costa Rica

<b>North Huetar Sandy Conservation Area</b>
Arenal Volcano National Park
Caño Negro Wild Life National Shelter
Juan Castro Blanco National Water Park
Border Corridor Wild Life National Shelter
Maquenque Wildlife Mixed National Shelter
<b>Tempisque Conservation Area</b>
Palo Verde National Park
Tenorio Volcano National Park
Cipancí Wild Life Shelter
Barbudal Hills Biological Reserve
<b>Guanacaste Conservation Area</b>
Horizontes Experimental Station
Guanacaste National Park
Rincon de la Vieja National Park
Santa Rosa National Park
Junquillal Wild Life Shelter
<b>Central Volcanic Mountain Chain Conservation Area</b>
Guayabo National Monument
Braulio Carrillo National Park
Irazú Volcano National Park
Poás Volcano National Park
Turrialba Volcano National Park
Alberto Manuel Brenes Biological Reserve
Grecia Forest Reserve
<b>Caribbean Friendship Conservation Area</b>
Barbilla National Park
Cahuita National Park
Hitoy Cerere Biological Reserve
Gandoca-Manzanillo Wild Life Mixed National Shelter
Friendship International Park
Limoncito Wild Life Mixed National Shelter
<b>Friendship-Pacific Conservation Area</b>
Chirripó National Park
Tapantí Death Mountain Range National Park
Friendship International Park
Macho River Forest Reserve
Las Tablas Protective Zone
Navarro River-Sombrero River Protective Zone

<b>Coconut Island Marine Conservation Area</b>
Coconut Island National Park
Submarine Mountains Maritime Conservation Area
<b>Osa Conservation Area</b>
Terraba Sierpe National Wetland
Corcovado National Park
Whale National Maritime Park
White Stones National Park
Golfito National Wild Life Shelter
Caño Island Biological Reserve
Fresh Gulf Forestal Reserve
<b>Tempisque Conservation Area</b>
Cañas River Lacustrine Wetland (Mangle)
Stone Pen Lacustrine Wetland/Mangle
Barra Honda National Park
Diriá National Park
Baulas National Maritime Park
Caramonal Wild Life Shelter
Ositonal Wild Life Shelter
Caletas Arío Wild Life National Shelter
Cipancí Wild Life National Shelter
El Viejo Ranch Wild Life National Shelter
Iguanita Wild Life National Shelter
Mata Redonda Wild Life National Shelter
Conchal Wild Life Mixed National Shelter
White Cape Absolute Natural Reserve
<b>Montealto Protective Zone</b>
Torguero Conservation Area
Tortuguero National Park
Guácimo-Pococí Aquifers
<b>Barra del Colorado Wild Life Shelter</b>
Central Pacific Conservation Area
Carara National Park
The Crab National Park
Manuel Antonio National Park
Quetzales National Park
Saint Luke Island Wild Life National Shelter
Playa Hermosa-Punta Mala Wild Life National Shelter



### Annex 3. Executed Palo Verde (2012-2014) and forecasted (2020)

	HISTORICAL		
	FY2012	FY2013	FY2014
	(2011-2012)	(2012-2013)	(2013-2014)
<b>Income</b>			
Donations	\$284,161	\$ -	\$ -
Interest	\$ -	\$13,478	\$1,989
<b>TOTAL</b>	<b>\$284,161</b>	<b>\$13,478</b>	<b>\$1,989</b>
<b>Expenses</b>			
Campaign Tractors	\$125,300	\$ -	\$ -
Tractors Circulation Rights	\$ -	\$ -	\$64
"Fangueo" Equipment repairs and maintenance	\$ -	\$1,984	\$1,880
Monitoring	\$ -	\$6,956	\$ -
"Fangueo" Services	\$13,052	\$ -	\$10,160
Warehouse construction for donated tractors	\$ -	\$22,133	\$13,737
Meetings and other expenses	\$ -	\$836	\$10
<b>TOTAL</b>	<b>\$138,352</b>	<b>\$31,909</b>	<b>\$25,851</b>
Income - Expenses	\$145,809	\$(18,431)	\$(23,862)
Accumulated Funds		\$127,378	\$103,516

	FORECAST					
	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020
	(2014-2015)	(2015-2016)	(2016-2017)	(2017-2018)	(2018-2019)	(2019-2020)
<b>Income</b>						
Donations	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interest	\$4,969	\$4,049	\$3,291	\$2,498	\$1,665	\$858
<b>TOTAL</b>	<b>\$4,969</b>	<b>\$4,049</b>	<b>\$3,291</b>	<b>\$2,498</b>	<b>\$1,665</b>	<b>\$858</b>
<b>Expenses</b>						
Campaign Tractors	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Tractors Circulation Rights	\$67	\$70	\$74	\$77	\$81	\$85
"Fangueo" Equipment repairs and maintenance	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000
Monitoring	\$4,069	\$1,356	\$1,356	\$1,356	\$ -	\$ -
"Fangueo" Services	\$5,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000
Warehouse construction for donated tractors	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Meetings and other expenses	\$2,000	\$400	\$400	\$400	\$400	\$400
<b>TOTAL</b>	<b>\$24,136</b>	<b>\$19,826</b>	<b>\$19,830</b>	<b>\$19,834</b>	<b>\$18,481</b>	<b>\$18,485</b>
Income - Expenses	\$(19,167)	\$(15,778)	\$(16,538)	\$(17,336)	\$(16,816)	\$(17,627)
Accumulated Funds	\$84,349	\$68,572	\$52,033	\$34,697	\$17,882	\$255

## Case 4. Biodiversity Conservation Mechanism of the State of Rio de Janeiro- FMA/RJ

### 1. Introduction

This case study will describe the Biodiversity Conservation Mechanism (known as FMA/RJ for its name in Portuguese -Fundo da Mata Atlântica-) in the state of Rio de Janeiro, in Brazil. This mechanism was designed to receive a variety of financial resources that should be dedicated to protected areas and biodiversity protection in the state. It has been operating since 2010 with resources from the environmental compensation mechanism that was established by the Law for the National System of Conservation Units (known as SNUC Law for its name in Portuguese), and has mobilized a significant amount of funds for the conservation of Protected Areas. In this case we will analyze the establishment of the FMA/RJ as a management plan for those compensation funds as well as its future and the possibility of replication in other Brazilian states.

### 2. Conservation in Brazil

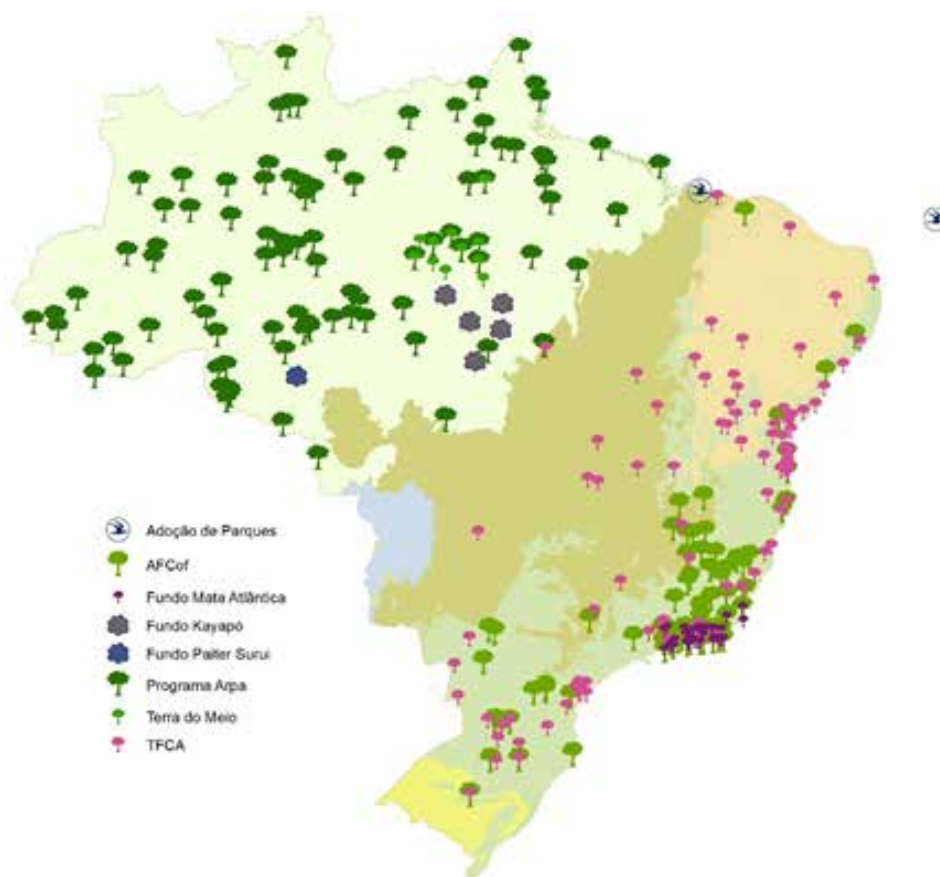
Brazil has one of the largest economies in the world and, among other traits, is characterized by several of the richest biomes on the planet. These two facts are linked because Brazil's natural resources support its economic growth. However, the latter does not imply that the conservation of natural capital has been a priority for this country. The permanent depletion of natural resources in the last few decades has turned conservation into one of the most urgent matters of concern for the government, international cooperation agencies, the private sector and society as a whole<sup>1</sup>.

<sup>1</sup> Maretti, Claudio et. al. Protected Areas and Indigenous and Local Communities in Brazil. [http://cmsdata.iucn.org/downloads/cca\\_cmaretti.pdf](http://cmsdata.iucn.org/downloads/cca_cmaretti.pdf)



The Brazilian Amazon Region and the Atlantic Rainforest (Mata Atlântica in Portuguese) are the most exemplary eco-regions in the country. The former covers around 50% of the territory and the latter harbors around 80% of the country's population (more than 200 million people<sup>2</sup>) in 17 states and generates more than 70% of the Gross Domestic Product (GDP). This presents different challenges; for instance, in the Atlantic Rainforest, the high level of human inhabitants, dating back to the colonial period, has put great pressure on the ecosystem<sup>3</sup>. Mining, logging, cattle-raising, crop planting, housing and infrastructure projects require better planning of resource extraction. The different intra-generational and inter-generational equity effects must be considered, as well as how those activities could ensure fair distribution of the wealth that comes from nature now, and the possibility of preserving its benefits for the future<sup>4</sup>.

**Figure 1 Brazilian Biomes and Funbio's main programs that support protected areas.**



Source: Funbio – Alexandre Ferrazoli Camargo

The establishment of protected areas is a well-known instrument used to control the expansion of human exploitation in natural areas. Protected areas are also recognized as a direct instrument focused on the protection and maintenance of biological diversity and ecosystem services, as well as natural and cultural resources. It might be difficult to determine the current proportion of territory that is protected in Brazil as well as the quality of its management because the Brazilian national system has three levels of protected areas: federal, state and municipal which make up almost 26% of its total territory<sup>5</sup>.

The National Constitution states that the conservation of both the environment and natural capital is a right and a duty of all citizens as well as an obligation and responsibility of all three levels of the government. The other two lower levels should use the national laws and categories as models, but each one can create different management categories<sup>6</sup>.

## 2.1. General Management Categories for Conservation Units

Protected areas in Brazil are established on both conservation units and indigenous lands and seek to preserve and protect fauna, flora, and the environment as a whole, as well as the culture and way of life of indigenous peoples<sup>7</sup>.

<sup>2</sup> <https://www.cia.gov/library/publications/the-world-factbook/geos/br.html>

<sup>3</sup> Maretti, Claudio et. al. Protected Areas and Indigenous and Local Communities in Brazil. [http://cmsdata.iucn.org/downloads/cca\\_cmaretti.pdf](http://cmsdata.iucn.org/downloads/cca_cmaretti.pdf)

<sup>4</sup> UNEP Training manual on international environmental law. 2006.

<sup>5</sup> World Bank. The Little data book. 2014. [http://data.worldbank.org/sites/default/files/wb-ldb\\_green\\_2014-crpd.pdf](http://data.worldbank.org/sites/default/files/wb-ldb_green_2014-crpd.pdf)

<sup>6</sup> Maretti, Claudio et. al. Protected Areas and Indigenous and Local Communities in Brazil. [http://cmsdata.iucn.org/downloads/cca\\_cmaretti.pdf](http://cmsdata.iucn.org/downloads/cca_cmaretti.pdf)

<sup>7</sup> <http://teen.ibge.gov.br/mao-na-roda/protecao-ao-meio-ambiente-unidades-de-conservacao-e-terras-indigenas>

The Federal Government assigned conservation units as areas of special natural interest, legally recognized by the State and protected with defined objectives and boundaries. Conservation units can be created by federal, state or local governments and, according to Law No. 6938/1981; they are one of the instruments of the National Policy on the Environment<sup>8</sup>.

Conservation units are divided into different categories depending on the government level, but as previously mentioned, there are some general categories, which are outlined in the following table:

**Table 1 Categories of conservation units**

Category	UICN Category	Description
<b>Strict protection</b>		
<b>Ecological Station</b>	<b>Ia</b>	This area has the objective of preserving and promoting authorized scientific research. Natural resources are allowed to be used but consumption, collection and destruction of any of these resources is forbidden. Public visitation is prohibited, except for academic purposes.
<b>Biological Reserve</b>	<b>Ia</b>	In this type of conservation unit the idea is to preserve the remaining areas without modifications and direct human intervention. Public visitation is prohibited, except for academic purposes.
<b>National Park</b>	<b>II</b>	This is the most popular and oldest category whose objective is to preserve highly relevant ecosystems and those with exceptional scenic beauty. Scientific research, educational activities, natural interpretation, recreation and eco-tourism are permitted.
<b>Natural Monument</b>	<b>III</b>	Its main objective is to conserve places with exotic, singular and beautiful ecosystems. Visitation and authorized research are permitted.
<b>Wildlife Refuge</b>	<b>III</b>	Its goal is to protect natural environments that ensure conditions which support the existence and reproduction of local and migratory species.
<b>Sustainable use</b>		
<b>Environmental Protection Area</b>	<b>V</b>	Extensive area with a certain degree of human occupation. It has biotic, abiotic, esthetical or culturally important attributes for human welfare. Its objective is to protect biodiversity and to ensure the sustainable use of resources.
<b>Relevant Ecological Interest Area</b>	<b>IV</b>	This area is generally small and has little to no human occupation. It is characterized by rare and singular local or regional nature.
<b>National Forest</b>	<b>VI</b>	This area is mainly covered by native trees where sustainable use and scientific research are fostered.
<b>Extractive Reserve</b>	<b>VI</b>	This unit is used by traditional populations that depend on agriculture and small animal farming; and has the objective of preserving traditions. Public access is allowed if it is compatible with local interests.
<b>Fauna Reserve</b>	<b>VI</b>	Area with terrestrial and aquatic populations, resident or migratory animal species. The objective is to develop a scientific and technical economic management of fauna resources.
<b>Sustainable Development Reserve</b>	<b>VI</b>	Natural area that houses traditional populations with sustainable systems to exploit natural resources.
<b>Private Reserve of Natural Heritage</b>	<b>IV</b>	Conservation unit established on private land that acquires tax exemption, which seeks to conserve biological diversity that exists there and establish sustainable use of natural resources (restricted to ecotourism).

Source: ICMBio<sup>9</sup>

Indigenous lands are owned and created by the Brazilian Federation for the use of indigenous groups<sup>10</sup>. Indigenous lands are not *stricto sensu* protected areas and they do not have nature conservation goals. The National Constitution defines Indigenous Lands as those where “they live on a permanent basis, those used for their productive activities, those indispensable to the preservation of the environmental resources necessary for their well-being and for their physical and cultural reproduction, according to their uses, customs and traditions”. Nevertheless, several

<sup>8</sup> <http://www.tecsi.fea.usp.br/eventos/Contecsi2004/BrasilEmFoco/ingles/meioamb/arprot/snuc/index.htm>

<sup>9</sup> Institute Chico Mendes for Biodiversity conservation (ICMBio) is a public institution to foster and implement programs of research, protection, preservation and conservation. It also acts as the environmental police in the federal conservation units. <http://www.icmbio.gov.br/portal/biodiversidade/unidades-de-conservacao/categorias>

<sup>10</sup> Maretti, Claudio et. al. Protected Areas and Indigenous and Local Communities in Brazil. [http://cmsdata.iucn.org/downloads/cca\\_cmaretti.pdf](http://cmsdata.iucn.org/downloads/cca_cmaretti.pdf)



of those areas maintain a well conserved status. They represent around 12% of the Brazilian terrestrial territory. These areas are “vital for the preservation of the natural resources” (1988 National Constitution)<sup>11</sup>.

## 2.2. National System of Conservation Units

The National System of Conservation Units is the integration of federal, state and municipal conservation units. It is composed of the 12 management categories mentioned in Table 1. The national system was created in 2000 through Law 9.985. It establishes the official set of guidelines which enable different government levels and the private sector to create, implement and manage the conservation units. Its main objective is to enhance the role of the conservation units, assuring that significant ecological population samples of different habitats and ecosystems are highly represented in the national territory and territorial waters<sup>12</sup>.

The next table shows information about conservation units by biome:

**Table 2 Conservation units by biome**

	Atlantic Forest	Amazon	Caatinga	Cerrado	Pampa	Pantanal	Marine area
<b>Total area (ha)</b>	111,018,200	419,694,300	84,445,300	203,644,800	17,649,600	15,035,500	355,576,900

Group	Atlantic Forest			Amazon		
	N°	Area (ha)	%	N°	Area (ha)	%
Strict protection	331	2,731,100	2%	77	41,111,400	10%
Sustainable use	679	8,115,000	7%	237	70,121,200	17%
Total in the biome	1010	10,846,100	10%	314	111,232,600	27%

Group	Caatinga			Cerrado		
	N°	Area (ha)	%	N°	Area (ha)	%
Strict protection	32	969,900	1%	115	6,273,600	3%
Sustainable use	97	5,356,000	6%	247	1,171,000	1%
Total in the biome	129	6,325,900	7%	362	7,444,600	4%

Group	Pampa			Pantanal		
	N°	Area (ha)	%	N°	Area (ha)	%
Strict protection	10	61,400	0.3%	7	440,400	3%
Sustainable use	11	4,249	0.0%	17	255,100	2%
Total in the biome	21	65,649	0.4%	24	695,500	5%

Group	Marine area		
	N°	Area (ha)	%
Strict protection	62	475,400	0.1%
Sustainable use	89	4,901,700	1.4%
Total in the biome	151	5,377,100	1.5%

Source: Environmental Secretariat of Rio de Janeiro

## 3. The State of Rio de Janeiro

Rio de Janeiro is one of the 27 states in Brazil. It has a total area of 14,653 square kilometers which makes it as one of the smallest states in Brazil; however it is the third most populated state (with more than 16 million inhabitants) and has the third longest coastline in the country<sup>13</sup>. Residents and land are organized into 92 municipalities.

The State of Rio de Janeiro has the second largest GDP. The industrial sector is the most important (approximately 51% of its GDP), with oil extraction being one of its main activities. Many international companies, such as

<sup>11</sup> Ibid.

<sup>12</sup> <http://www.mma.gov.br/areas-protegidas/sistema-nacional-de-ucs-snuc>

<sup>13</sup> [http://www.brazil.org.za/rio-de-janeiro.html#.U\\_ydpvmSzyA](http://www.brazil.org.za/rio-de-janeiro.html#.U_ydpvmSzyA)



Shell, EBX and Esso, have branches and headquarters in this State. In the service sector, banking is very relevant since Rio's stock exchange Bolsa da Valores is the second most dynamic stock market in Brazil. Other important economic sectors in the state of Rio are the agricultural production of sugar-cane, oranges and coffee. Of course, tourism also plays an important role, mainly in the capital city: Rio de Janeiro. All of these sectors require great expansion of infrastructure for further support<sup>14</sup>.

The State of Rio is characterized by the combination of economic development with environmental protection. It is a well-known fact that, in 1992, Rio de Janeiro hosted a United Nations event whose focus was the environment and which was attended by heads of state. This event, Rio 92, was considered one of the largest conferences ever held on the planet and was also a landmark event for the topic of sustainability. In 2012, Rio hosted Rio +20, an event to celebrate twenty years of the United Nations Conference on Environment and Development (Rio 92), and whose objective was to help define the world's sustainable development agenda for the following decades<sup>15</sup>.

The State Government has proved its commitment to keeping economic development in harmony with natural conservation. It has established several programs to improve waste management, reduce greenhouse emissions, foster the green economy, adapt to climate

change, change towards renewable energy sources and protect biodiversity through the creation and expansion of state parks. All of these policies have been promoted and coordinated by the Environment State Secretariat of Rio de Janeiro (SEA/RJ) and Environment State Institute of Rio de Janeiro (INEA/RJ)<sup>16</sup> which is bound to SEA/RJ. All of them are supported by municipalities and NGO's<sup>17</sup>.

### 3.1. The Conservation Panorama

The state of Rio de Janeiro is characterized by its high biodiversity because of its location with an assortment of geographical formations and habitats. In this region, where endemism is very high, the predominant ecosystem is the Atlantic Rainforest which covers coastal regions as well as inland areas on mountains and plateaus, from northeastern to southern regions of Brazil as well as northern Argentina and southeastern Paraguay. Humidity and rainfall are constant. History tells that about 97% of the State's territory was covered by Atlantic Rain Forest, but now it has been reduced to less than 19% of the original area. Moreover, it continues covering around 20% of the local vegetation<sup>18</sup> and that same portion represents the remaining Atlantic Forest in the

<sup>14</sup> <http://www.v-brazil.com/information/geography/rio-de-janeiro/economy.html>

<sup>15</sup> <http://www.theclimategroup.org/who-we-are/our-members/state-of-rio-de-janeiro>

<sup>16</sup> INEA: its function is executing the environment state policies on hydric and forest resources. It is decentralized and has nine regional offices.

<sup>17</sup> <http://www.theclimategroup.org/who-we-are/our-members/state-of-rio-de-janeiro>

<sup>18</sup> Pinheiro da Costa, Denise; Paranhos de Faria, Clarisse. Conservation priorities for bryophytes of Rio de Janeiro State, Brazil. *Journal of Bryology* (2008).

**“History tells that about 97% of the State’s territory was covered by Atlantic Rain Forest, but now it has been reduced to less than 19% of the original area”**

entire region<sup>19</sup>. This area has been the focus of multiple initiatives to stop main current threats: deforestation related to land conversion and charcoal production, soil erosion caused by deforestation, overgrazing and inappropriate agricultural practices<sup>20</sup>. Infrastructure projects for city expansion and, for nonrenewable resources, extraction also drives forest degradation.

### 3.2. The Atlantic Forest

The Atlantic Forest in Brazil is among the most endangered rainforests in the world. But despite its mass destruction where more than 80% of the forest has been depleted, it still contains impressive diversity of plants and animals (its level of biodiversity is occasionally compared to the Amazon), many of them are endemic to the Atlantic Forest and threatened with extinction<sup>21</sup>. As a result of this, its protection has become a top priority.

The future of the Atlantic Forest in the country is even less promising because around 80% of the Brazilian population is settled in this biome. The largest cities such as Sao Paulo, Rio de Janeiro, Recife and Salvador are located in this region. Human pressure related to high population density reduced the Atlantic Forest to a mere 8% of its original national area. The State of Rio has been working to conserve it from its own jurisdiction and is now recognized as the state that best preserves its tropical vegetation<sup>22</sup>.

The remaining land of the Atlantic Forest contains around 2,200 species of birds, mammals, reptiles and amphibians (5% of the vertebrates on Earth). It includes nearly 200 bird species found nowhere else in the world, and 60% of all of Brazil’s threatened animal species dwell here. Brazil is the world’s leader in primate diversity, with 77 species and subspecies identified to date. Of these, 26 are found in the Atlantic Forest, of which 21

are found nowhere else in the world. Some of the Atlantic Forest’s most charismatic species include the golden lion tamarin, woolly spider monkey, red-tailed parrot, and maned three-toed sloth. Tree diversity is also one of the highest in the world, and in some parts over 450 different species have been identified in a single hectare. These forests also have a huge variety of other plants, including ferns, mosses, lianas, orchids and bromeliads<sup>23</sup>.

Effectively managed protected areas safeguard biodiversity for future generations, and also conserve critical environmental services such as water supply. Local communities also benefit in many direct ways, by means of improvement of recreation facilities and income<sup>24</sup>. Having more and better managed protected areas is an important way to preserve this biome that is currently being reduced to mere green dots among the urban sprawl.

The total protected area within the Atlantic Forest was approximately 10.9 million hectares by 2014; almost 10% of the region. This area conserves 14.4% of the forest’s coverage. Scientific studies have shown that management of regions as a whole must begin with the transformation of large mature forest territories into conservation reserves and also with the restoration of key connectivity links between the larger remnants<sup>25</sup>.

Some efforts to improve the current situation and the conservation of the Atlantic Forest include the establishment of the ‘Atlantic Forest Biosphere Reserve’, which extends through 14 Brazilian states the Brazilian Natural World Heritage Sites Program and the Central Biodiversity Corridor. A range of organizations, such as WWF, SOS Mata Atlântica, The Nature Conservancy, REGUA and the World Land Trust, are also working to protect and restore the forest, to expand protected areas, and to raise awareness through environmental education. Initiatives are focused on some of the Atlantic Forest’s most charismatic ‘flagship’ species, such as the lion tamarins and muriquis. Those organizations have al-

<sup>19</sup> World Bank. Expanding Financing for Biodiversity Conservation <http://www.worldbank.org/content/dam/Worldbank/document/LAC-Biodiversity-Finance.pdf>

<sup>20</sup> <http://www.adaptationlearning.net/project/rio-de-janeiro-sustainable-integrated-ecosystem-management-productive-landscapes-north-north>

<sup>21</sup> [http://www.wwf.org.uk/where\\_we\\_work/south\\_america/atlantic\\_forest/brazil\\_s\\_atlantic\\_forests.cfm](http://www.wwf.org.uk/where_we_work/south_america/atlantic_forest/brazil_s_atlantic_forests.cfm)

<sup>22</sup> [http://www.ambienteantiga.rj.gov.br/revista\\_economia\\_verde/index.html](http://www.ambienteantiga.rj.gov.br/revista_economia_verde/index.html)

<sup>23</sup> <http://www.nature.org/ourinitiatives/regions/southamerica/brazil/placesweprotect/atlantic-forest.xml>

<sup>24</sup> [http://www.wwf.org.uk/where\\_we\\_work/south\\_america/atlantic\\_forest/brazil\\_s\\_atlantic\\_forests.cfm](http://www.wwf.org.uk/where_we_work/south_america/atlantic_forest/brazil_s_atlantic_forests.cfm)

<sup>25</sup> Ribeiro, Milton Cezar, et al. The Brazilian Atlantic Forest: How much is left, and how is the remaining forest distributed? Implications for conservation. Biological Conservation 2009. [http://www.dpi.inpe.br/referata/arq/26\\_Miltinho/Ribeiro\\_et\\_al\\_biocons\\_2009\\_authorscopy.pdf](http://www.dpi.inpe.br/referata/arq/26_Miltinho/Ribeiro_et_al_biocons_2009_authorscopy.pdf)

ready helped to raise awareness and increase forest protection<sup>26</sup>. The government passed Law 11.428 in December 2006 to support protection in this region. It stated principles for the use and protection of vegetation in the Atlantic Forest biome. Under this law, conservation units have the right to be protected in their surroundings and the prevalence of establishment when a conflict of interest may arise in a specific zone<sup>27</sup>.

About 30% of the Atlantic Forest in the State of Rio de Janeiro is located within conservation units. The SEA declared that in the last seven years, the State became the leader of protected areas in the country and by 2013 the number of hectares arose to 204 thousand hectares, meaning approximately 14% of the total area of the State<sup>28</sup>. However, these conservation units need to be better managed and interconnected which demands more funding than the public sector is able to provide.

### 3.3. The SNUC in Rio de Janeiro

In the State of Rio de Janeiro, there are 437 conservation units, 84 of them are managed by the federal government, 90 are managed by the state and 263 by municipalities. The management and government categories of these units are shown in the following table.

**Table 3 Conservation units in the State of Rio de Janeiro**

Group	Category	Administrative level			
		Federal	State	Municipal	Total
Strict protection	Ecologic Station	2	2	2	6
	Biological Reserve	3	3	9	15
	National Park	5	13	81	99
	Natural Monument	1		16	17
	Wildlife Refuge			2	2
	Private Reserve of Natural Heritage State/Municipality		55	5	60
	Ecological Reserve		1	3	4
	Municipal Nature Reserve			1	1
<b>Total Strict protection conservation units</b>		<b>11</b>	<b>74</b>	<b>119</b>	<b>204</b>
Sustainable use	Environmental Protection Area	5	16	124	145
	Relevant Ecological Interest Area	1		17	18
	National Forest	1			1
	Extractive Reserve	1			1
	Sustainable Development Reserve			2	2
	Private Reserve of Natural Heritage Federal	65			65
	Municipal Forest			1	1
<b>Total Sustainable use conservation units</b>		<b>73</b>	<b>16</b>	<b>144</b>	<b>233</b>
<b>Total conservation units</b>		<b>84</b>	<b>90</b>	<b>263</b>	<b>437</b>

Fuente: INEA<sup>29</sup>

### 3.4. Conservation Units Funding

Brazil is below the minimum percentages of the global level agreed upon in conventions for Biodiversity Protection of ecosystems and biomes. Existing units still have a generally skewed distribution in terms of categories, regions and biomes and many other problems within the SNUC, such as land tenure issues, lack of personnel, poor funding and inadequate management<sup>30</sup>.

Sources of financing for protected areas must be amplified and the mechanisms for transferring funds to them must be transparent. They also must guarantee the coherent allocation of what is collected, not only to the management bodies, but also in such a way as to strengthen sustainable initiatives and productive chains that involve

<sup>26</sup> <http://www.arkive.org/eco-regions/atlantic-forest/>

<sup>27</sup> [http://www.planalto.gov.br/ccivil\\_03/\\_Ato2004-2006/2006/Lei/LI1428.htm](http://www.planalto.gov.br/ccivil_03/_Ato2004-2006/2006/Lei/LI1428.htm)

<sup>28</sup> <http://www.bgci.org/resources/article/0582/>

<sup>29</sup> INEA, 2014. <http://www.hidro.ufrr.br/perhi/documentos/PERHI-RE-18-Unid-Conserva%C3%A7%C3%A3o.pdf>

<sup>30</sup> Drummond, José et al. A Historical Overview of their Creation and of their Current Status. [http://www.academia.edu/3317741/Brazilian\\_Federal\\_Conservation\\_Units\\_A\\_Historical\\_Overview\\_of\\_their\\_Creation\\_and\\_of\\_their\\_Current\\_Status](http://www.academia.edu/3317741/Brazilian_Federal_Conservation_Units_A_Historical_Overview_of_their_Creation_and_of_their_Current_Status)



traditional knowledge of the involved communities. Other sources of financing, such as the Environmental Compensation Fund, and the international cooperation initiatives, are key tools for ensuring the future of conservation units and indigenous lands as instruments of rainforest conservation. In order to optimize investments and the efforts involved, it is still necessary to take on the challenge of creating protected areas in a participatory manner and to consolidate territorial plans to manage them, with a focus on a shared socio-environmental agenda<sup>31</sup>.

The achievements of SEA are not just a result of its traditional operation (e.g. funding through public budget) but a product of the strategic alliance with the Environmental Fund: Brazilian Biodiversity Fund (Funbio) to develop the Biodiversity Conservation Mechanism (FMA/RJ), a mechanism that better fulfills the conservation units' requirements<sup>32</sup>.

#### 4. Brazilian Biodiversity Fund - Funbio

The Brazilian Biodiversity Fund (Funbio) is a registered non-profit civil association. It started operating in 1996 as an innovative financial mechanism for the development of strategies that contribute to the implementation of the UN Convention on Biological Diversity (CBD) in Brazil. Throughout its 17-year existence, Funbio has been a strategic partner for the private sector, different state and federal authorities, and organized civil society. Thanks to these partnerships, it has been possible for the companies involved to make social investments, and reduce and mitigate their impact, while they fulfill their legal obligations. In the public sphere, they serve to consolidate conservation policies and enable environmental funding programs<sup>33</sup>.

For its creation (during the design of a World Bank-GEF project), various alternatives were considered. One of these was the integration of Funbio in the National Environmental Fund (FNMA). This option was rejected because FNMA is a government institution and subject to the normal volatility of change in governments and procedures. In addition, being part of a public institution could have reduced opportunities for engaging the private sector in participating as a partner in a project for which one of the fundamental purposes is to explore innovative financial mechanisms in cooperation with the business sector<sup>34</sup>.

Funbio was established as an independent project, and later in 2000 was established as a private institution, with a GEF grant of 20 million dollars in sink-

**“The achievements of SEA are not just a result of its traditional operation (e.g. funding through public budget) but a product of the strategic alliance with Funbio to develop the FMA/RJ”**

ing funds, with Funbio agreeing to raise an additional 5 million dollars in national counterpart funding. The GEF disbursed half of the 20 million dollar capital at the beginning of the project and required the national counterpart funding to be raised, before the second tranche of the GEF funding could be released<sup>35</sup>. In the third year, with the “Partnership Funds” initiative, Funbio leveraged \$ 6.5 million and received autonomy over the use of the remaining resources<sup>36</sup>.

Up to now, Funbio has managed about 477 million dollars, of which 80% were dedicated to Protected Areas, mainly to the Amazon and the Atlantic Forest regions. The ARPA program in the Amazon mobilized more than 180 million dollars since its beginning in 2003 and has the goal of composing a 215 million dollar fund to consolidate 60 million hectares of protected areas in the biome. The FMA/RJ already mobilized 150 million dollars for the Atlantic Forest protected areas in the state of Rio. The debt-for-nature swap between the USA and Brazilian governments, under the TFCA agreement, brought 20 million dollars to the Atlantic Forest, Caatinga and Cerrado biomes, under Funbio's management. Additionally, other programs such as the Atlantic Forest Conservation Fund (AFCoF) financed by the German government with 12 million dollars and three GEF funded projects that together total almost 10 million dollars more.

The organization raises and distributes economic resources to finance activities with biodiversity conservation objectives. It is an intermediary between sources of funding and project implementing organizations, seeking to support the Protected Areas agenda and to develop environmental enterprises that are sustainable. It works to complement government actions, in accordance with the Convention on Biological Diversity (CBD) and the National Biodiversity Program. FUNBIO's clients include private sector partners and NGOs, as well as local communities and governments that are implementing

<sup>31</sup> IMAZON. Protected Areas in the Brazilian Amazon. 2011.

<sup>32</sup> [http://www.inea.rj.gov.br/cs/groups/public/documents/document/zwff/mde0/~edisp/inea\\_014682.pdf](http://www.inea.rj.gov.br/cs/groups/public/documents/document/zwff/mde0/~edisp/inea_014682.pdf)

<sup>33</sup> <http://www.funbio.org.br/en/o-funbio/quem-somos>

<sup>34</sup> National Environmental Funds in Brazil

<sup>35</sup> Idem.

<sup>36</sup> World Bank ICR report, 2004

projects for conservation and sustainable use of biodiversity. Funbio's vocation is to attract additional contributions from the private sector, including businesses and NGOs.

#### 4.1. Funbio's Operation<sup>37</sup>

The highest decision-making body at Funbio is the Board of Directors, referred to as a Governing Council, comprising 16 leaders from distinct segments of society who are involved in biodiversity conservation in Brazil (four non-governmental (NGO) representatives, four private sector representatives, four academics and four government representatives). Members are selected to ensure a balance in geographic representation, with leadership in biodiversity conservation as the most important criteria for selection. One-fourth of the members are up for election each year.

Funbio's operations are managed by an executive committee, permanent and ad hoc technical committees and an executive secretariat. The technical committees conduct analysis and supervision and are organized by specific expertise, the permanent ones are in the following areas: (1) Finance and auditing; (2) Asset management; and (3) Fauna. The technical committees are made up of members of the Governing Council and individuals are invited to participate based on their areas of expertise.

Funbio's mission is currently stated to provide strategic resources for the conservation of biodiversity. Funbio does this in the following ways:

- Identifying key investment needs and opportunities.
- Creating new financial instruments and financing mechanisms.
- Supporting programs and sustainable investments.

One of the contributions of environmental funds to environmental management is the impact that they can have on policy and operational practices. FUNBIO provides an example, during its initial years of operation, some of its institutional processes and practices served as a model for other NGOs and government agencies. This was the case with its project review and selection process, and its operational systems.

Some of the major challenges that FUNBIO has faced include the lack of legislation promoting or supporting financial donations to NGOs, which has limited FUNBIO's local fundraising efforts<sup>38</sup>. Fortunately, this fact has changed as shown in the next section.

## 5. The Environmental Compensation

The environmental compensation mechanism in Brazil exists to compensate environmental damages caused by implementing development projects that could not be prevented or mitigated. The approval process to get the license to install or operate a project requires using the best methodologies available for two types of measures: mitigation and compensation. Mitigation measures are ten times more productive in terms of volume and resources than compensation measures. Nevertheless, there is an estimate that the compensation amounts, including both federal and state resources, reach about 500 million dollars<sup>39</sup>.

Compensation is established as a value by a federal law, more specifically, Law 9.985/00 (the one that created the SNUC), where in article 36 it is stated that the offset corresponds only to those projects generating damages as shown in the environmental impact assessment<sup>40</sup> and obliges developers to help by implementing and maintaining the conservation units of the Strict Protection Group<sup>41</sup>.

The federal Law establishes an offset of up to 0.5% of the total amount invested in the business to create or support conservation units. Some of the activities undertaken are the plans and studies, land tenure regularization, purchase of materials, or the procurement of services. One of the main uses of these funds is to support the creation of management plans of several of these conservation units.

<sup>37</sup> Funbio annual report 2013

<sup>38</sup> National Environmental Funds in Brazil

<sup>39</sup> According to ICMBio estimative and secondary data.

<sup>40</sup> The environmental impact assessment (EIA) should be presented to the INEA as it is a requirement to get the license to install a development project (Constitution of Brazil. Article 224. IV)

<sup>41</sup> Integrated Conservation Group: it consists of the conservation units with a strict protection category of management. This group is prioritized, but when there are direct impacts on a unit of sustainable use, it should be benefit by the compensation measures. As a rule, each impacted PA should benefit.



The 0.5% works as a model for the states which can be modified and have Rio de Janeiro as a pioneer in this kind of measure establishing a 1.1% of the investment. In the original model, to apply these resources, developers were responsible for executing compensation resources or in some cases making deposits to public accounts. Having a third party contracted to execute this offset was also an option<sup>42</sup>.

Some problems arose with this model, for example the conservation units were not being helped as expected. It was difficult to verify the right application of the resources, and money entering into the public dominium was an object of bureaucratic processes and was available for different uses in case of emergency. Developers also expressed that it was difficult for them to meet the environmental requirements of the compensation due to their business core<sup>43</sup>.

### 5.1. Origin of the Biodiversity Conservation Mechanism in the State of Rio de Janeiro – FMA/RJ

In the pursuit of a solution for the difficulties found in fulfilling the goal of maximizing the scope of positive outcomes derived from the environmental compensation, in 2007, the Environmental Secretary at SEA/RJ, Carlos Minc, had the idea to outsource developers' management services to another institution that could accomplish those environmental responsibilities. To execute this, Carlos Minc asked for the opinion of the General Attorney of the State, Tostes de Alencar Mascarenhas, and through dictum 04/09-RTAM-PG-, he opened the way to let INEA outsource management.

The dictum concludes: a) funds coming from the environmental compensation and under the accomplishment of Law 9985, are not considered public, b) the correspondent amount can be paid by the developer to a Public Interest Organization of Civil Society (OSCIP, in Portuguese) which would be contracted directly by the State of Rio de Janeiro, and c) the operational costs related to this measure application can be covered with compensation resources.

In December 2007 the SEA/RJ hired Funbio to design a mechanism that would make it viable to manage and execute the State's environmental compensation. Originally, private developers were responsible for executing compensation resources themselves. With this mechanism, private developers may choose between direct execution, contracting a third party to execute resources under their responsibility, or work through the FMA/RJ<sup>44</sup>.

<sup>42</sup> Funbio. Presentation on FMA/RJ.

<sup>43</sup> André Ilha. Former Director of the INEA.

<sup>44</sup> Funbio. Biodiversity Conservation Mechanism in the State of Rio de Janeiro – FMA/RJ.

**“With this mechanism, private developers may choose between direct execution, contracting a third party to execute resources under their responsibility, or work through the FMA/RJ”**

The FMA/RJ was designed by Funbio based on the ARPA experience; a federal program was successful in the task of supporting protected areas in the Amazon. In 2007 691,5 thousand dollars<sup>45</sup> were invested in the design process and the product was the financial and operational mechanism developed to provide agility, efficiency, and transparency to a portfolio aimed at strengthening state and municipal protected areas, including projects focused on conservation and restoration of the state's biodiversity and also applying economies of scale. An interesting matter is that the FMA/RJ was designed in a flexible fashion, allowing it to receive resources from several sources, not only environmental compensation resources.

In 2008, a pilot phase was carried out with an environmental compensation of the company's Thyssenkrupp CSA's Siderúrgica do Atlântico project for a total of 1.6 million dollars and a donation from KfW of 200 thousand dollars. In December 2009, in a pilot phase, an agreement was signed between SEA/RJ and Funbio for operation, maintenance and control of FMA/RJ which currently benefits conservation units in Rio de Janeiro, and is also able to support other conservation efforts.

FMA/RJ enables the state to capture funding from different sources, such as contributions from environmental compensations, voluntary donations, domestic and international grants, and carbon credits. Through Funbio, the terms and conditions can be agreed upon with each source to meet the needs of the projects. The largest funding source so far is compensations for environmental impacts paid for by industrial and infrastructure projects. In addition, the FMA/RJ hosts an endowment fund intended to support recurrent costs of protected areas on a long-term basis<sup>46</sup>.

## 5.2. FMA's Achievements<sup>47</sup>

The FMA/RJ is an innovative mechanism because it presents a solution to a long running difficulty in the state of Rio regarding the management and execution of environmental compensation resources. It directs millions of dollars (that would otherwise be constrained by administrative barriers) to local protected areas.

This model is currently being replicated in other Brazilian states (Minas Gerais, Pará, Paraná, Amapá, Amazonas and Rondônia), and could be applied in any scenario when a private company has to fulfill legal environmental obligations. In accordance with local law and government, the Fund may play the role of facilitator by designing and executing solutions for compensation and biodiversity conservation.

As of December 2013, FMA/RJ has a portfolio of over 150 million dollars in resources from environmental compensation, out of which over 30 million dollars has already been executed. As of December 2013, 76 businesses have chosen the mechanism for compensating. In 2012, an endowment fund of over 10 million dollars was created to cover recurring costs of state conservations units in the long term.

In total, FMA/RJ has benefited in 40 protected areas in Rio de Janeiro, including:

- Projects to elaborate/implement management plans.
- Projects for architecture design.
- Projects for infrastructure building.
- Projects to strengthen and support PA management.
- Projects of land tenure regularization.

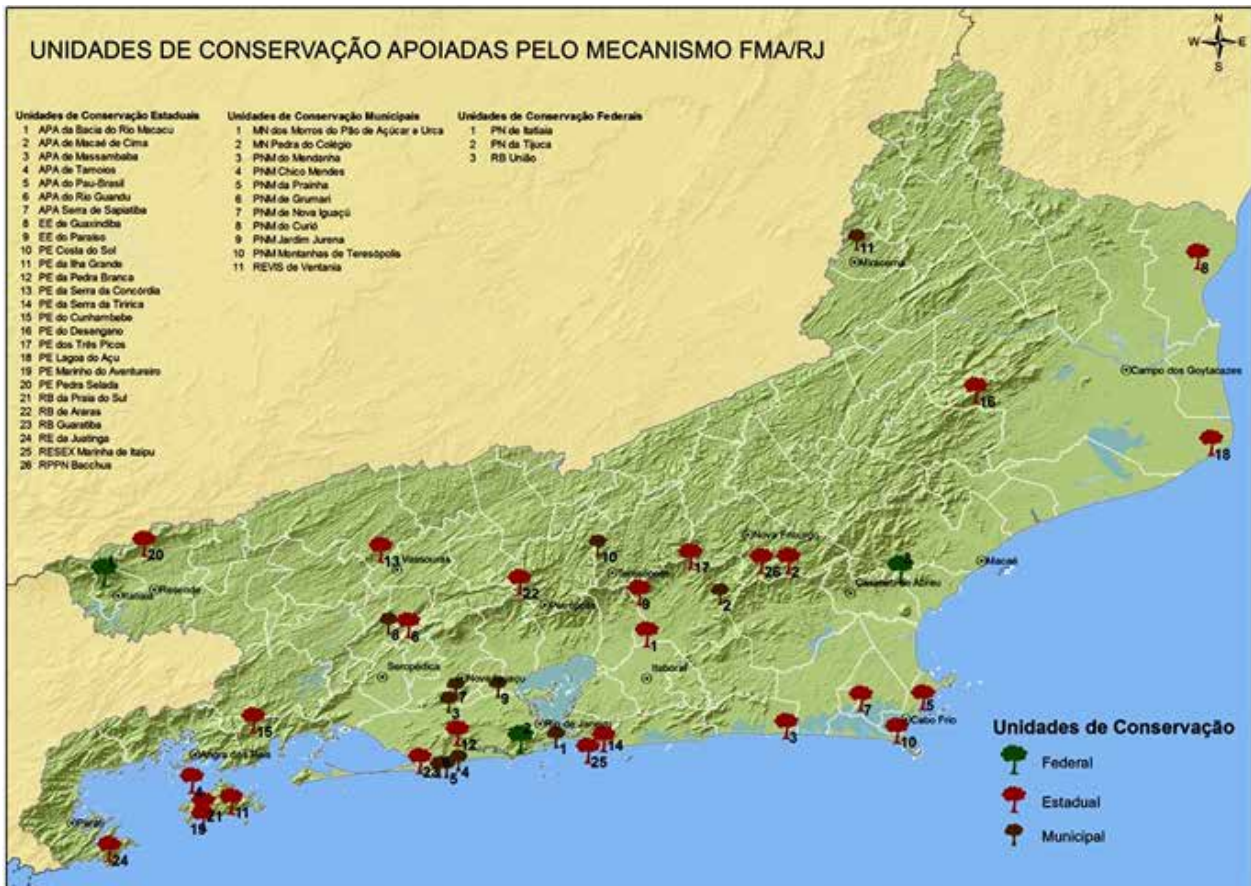
<sup>45</sup> Funbio. Presentation on FMA/RJ.

<sup>46</sup> <http://www.worldbank.org/content/dam/Worldbank/document/LAC-Biodiversity-Finance.pdf>

<sup>47</sup> Funbio, 2014.



Figure 2 – Protected Areas benefited by FMA/RJ



Source: Funbio - Alexandre Ferrazoli Camargo

It is necessary to emphasize in this part the process through which firms decide to participate in the mechanism. First, INEA/RJ presents developers with the three available options for executing the environmental compensation required by Law 9.985/00. These options are direct execution, execution by contracting third parties under its responsibility, or working through the FMA/RJ. The chosen alternative results in the developer and INEA/RJ formalizing the Environmental Compensation Pledge.

If the developer chooses to work through the FMA/RJ, besides formalizing the Pledge, developers need to sign a letter of intent that the Licensing Department of the INEA/RJ will provide for SEA/RJ and Funbio. Developers will make the deposits, under the conditions established in this Pledge, in a specific bank account indicated by Funbio (for each business there is an exclusive bank account). Beneficiaries may access these resources through projects that they have to elaborate and present for approval by the Chamber for Environmental Compensation of Rio de Janeiro (CCA/RJ), in accordance with the procedures set forth in the SEA/RJ resolutions. SEA/RJ will deliver these projects to Funbio, which will establish a direct link with the beneficiaries to implement the agreement.

This innovative option for executing environmental compensation through the FMA/RJ has different advantages from both a public and private point of view, which are described in the following table:

Advantages from the Public point of view:	Private point of view:
<ul style="list-style-type: none"><li>• The mechanism is designed to allow short, medium and long term investments in conservation units, providing effectiveness.</li><li>• Improved quantity and quality of conservation units, economies of scale.</li><li>• Support to implementing conservation units, e.g. expediting the process of legalizing land tenure.</li><li>• Public governance and private execution allows transparent and agile management of funds while preserving the public role of decisions.</li><li>• FMA/RJ is cheaper than other tested models. Considering the amount mobilized, Funbio's execution costs are lower than the interests earned in the investments.</li><li>• Flexible mechanism, open to receive other types of resources.</li><li>• The mechanism can be reproduced in other states and countries.</li></ul>	<ul style="list-style-type: none"><li>• There is a voluntary option of execution.</li><li>• Easy solution for the compensation obligation through an efficient mechanism.</li><li>• Low risk execution of compensation resources.</li><li>• No additional execution costs.</li></ul>

Source: Funbio's presentation on FMA/RJ

Considering that the eligible expenditures are restricted and established by the law, which not only lists eligible items but also prioritizes them, directors of the conservation units served by the FMA/RJ have manifested that with the mechanism it has been possible to support areas less prioritized by public resources. For example, two of the first items to finance with compensation resources are management plans and land tenure regularization, so the FMA/RJ meets these requirements previously identified in the state system of protected areas. Another innovation provided by Funbio, also inspired by its experience with the ARPA program, is the issuance of a pre-paid debit card to make the day-to-day operation of the conservation units easier. The implementation of the assigned debit card is considered a great advantage by the conservation unit directors. This tool allows the director of every conservation unit to use the FMA/RJ resources for small expenses (gasoline, meetings snacks, bottled water, equipment maintenance, etc.), avoiding bureaucratic paperwork with the INEA<sup>48</sup>. As of December 2013, the FMA/RJ has provided about 300 thousand dollars through the debit cards.

### 5.3. FMA/RJ Governance

The governance structure of the mechanism was designed to allow public decision making and private execution, without conflict of interests. The SEA/RJ is in charge of coordinating the operation, while the Chamber of Environmental Compensation (CCA/RJ), located within SEA/RJ, is responsible for approving and directing funds to conservation units and projects. CCA/RJ is a multi-stakeholder committee, allowing for private sector and civil society representatives to take part in the decision making process.

The INEA/RJ, is one of the beneficiaries of the resources from environmental compensations deposited in the FMA/RJ. Other beneficiaries are ICMBio (the federal parks agency) when a federal area within the state is benefited, and the municipal environmental agencies that manage municipal conservation units.

The FMA/RJ manager, currently Funbio, is in charge of the technical and financial monitoring of projects approved by the CCA/RJ, providing procurement services (purchases and contracts), financial resource management (includes proposing and implementing an assets management policy), coordinating with environmental bodies, presenting physical-financial monitoring and accountability reports, and developing / implementing a computer system for project implementation, follow-up and accountability. Transparency is fundamental for the social control over the use of the compensation resources.

**“Transparency is fundamental for the social control over the use of the compensation resources”**

### 5.4. The Future of FMA/RJ

As previously mentioned, the FMA/RJ model is being adapted to be replicated in other Brazilian states. Most states, and also the federal government, have compensation resources that could be funding protected areas but that are not being used due to the several operational bottlenecks to execute them. Therefore, a mechanism such as the FMA/RJ is necessary to mobilize those resources as done in Rio de Janeiro. However, such types of mechanisms still need more time to become a widespread funding source. As compensation is a legal obligation of the firms, imposed by law to help finance a public good (protected areas), there are different understandings about how it should be operated and by whom. The Union Court of Auditors has understood, in its decision n°2650/2009, that the legal nature of environmental compensation is to support protected areas and that there is no legal obligation for the entrepreneur to only transfer funds to a public agency. Funbio has been successful in using these resources and several prosecutors from different states have been asking Funbio to design mechanisms inspired by the FMA/RJ, not only to use compensation resources but also resources coming from other types of obligations (such as licensing process conditions, fines, penalties, etc.). On the other hand, one prosecutor from the Public Ministry of the State of Rio de Janeiro is legally questioning Funbio and the State of Rio de Janeiro with the argument of illegitimate use of public funds. His understanding is that compensation resources should be considered as budgetary resources and should be executed by following the rules for public resources (in Brazil the law for the execution of public resources is Law 8666/1993, which specifically regulates bidding and contracting by public institutions).

During the course of this judicial action, the state of Rio de Janeiro congress approved the state law – Law 6572/2013 – that formally establishes the FMA/RJ and the way it is operated. The enactment of Law 6572/2013, together with the previous opinion of the State General Attorney, should help clarify the use of compensation resources and this process may contribute to the protection and consolidation of the FMA/RJ which is a financial mechanism that has improved the funds' flow from business to conservation of protected areas in Brazil.

<sup>48</sup> Ricardo Wagner, Director of the conservation unit Serra da Concordia.



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