

# The Periodic Review Reports of the Biosphere Reserves of the MaB Programme. Case study: Biosphere Reserve Sierras de Cazorla, Segura and las Villas.

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**ABSTRACT:** Biosphere Reserves are areas of territory recognized for their environmental and social particularities which belong to UNESCO's "Man and Biosphere" Programme. Every 10 years, the responsible agency for the management of the Reserve must prepare a Periodic Review Report for the International Coordination Council of the Programme to evaluate the level of fulfilment of designation criteria, determining, where appropriate, its permanence in the World Network of Biosphere Reserves. This article describes the process that gives rise to these reports, by means of the analyses of a type case, the preparation for the third Periodic Review Report of the Biosphere Reserve Sierras de Cazorla, Segura and las Villas, Spain: design, application, and identification of the key aspects of its elaboration process, sources, and tools used for the collection, analysis, and validation of the information and data included in the report. In addition, the factors that could contribute to improve the evaluation's capacity of these reports are highlighted.

**Keywords:** Biosphere Reserve, MaB Program, Periodic Review Report.

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## Introduction

Every 10 years, all Biosphere Reserves (BRs) that form the World Network of Biosphere Reserves (WNBR) must review the fulfilment not only of their three functions of conservation, development, and logistical support, but also the criteria by which they were designated (UNESCO, 1996). Although some authors do not consider the process of periodic review of a Biosphere Reserve (BR) an effective quality control mechanism (Price et al., 2010), they do conclude that the evaluation can help the Managing Institutions (MI) in contributing to the consolidation of the WNBR (Price, 2002).

At the conclusion of the 10-year periodic review, the public agency responsible for the BR must prepare a report with the results of such evaluation. The purpose of the Report is to explain whether the management process of each BR meets the guidelines of the UNESCO's "Man and Biosphere" Programme (MaB) and if this management is oriented to properly fulfil the functions and criteria defined in Articles 3 and 4 of the WNBR Statutory Framework. In the Report, it should be clearly indicated whether the reserve has been established as a place where sustainable development methods are tested and demonstrated at a regional level (Price, 2002; UNESCO, 1996).

In order to guide the MI of the BRs in the preparation of this report, UNESCO has developed the Periodic Review Form (UNESCO, 2013), a document that is structured in several parts with a large number of questions and sections that is complex to fill in. The answers given to the questionnaire should contain useful quantitative and qualitative data and information to support: i) the elaboration of a summary of main changes occurred during the reviewing period; ii) a detailed description of the human, physical, and biological characteristics as well as institutional aspects; iii) the updating of contact details of the BR; iv) the collection of promotional and communication material of the reserve; v) a description of the process by which the periodic review has been developed.

The International Coordination Council (ICC) of the MaB Programme assesses the situation of each BR based on its Periodic Review Report (PRR). The ICC acts to verify that the reserves maintain the environmental and social values for which they were designated. In the case that the ICC considers that a BR no longer meets the criteria to maintain its name as such, the responsible body for the adoption of measures receive recommendations in order to keep in compliance; if the BR does not meet the terms with the proposed criteria and recommendations after a reasonable period, the area could be excluded from the WNBR.

In order to guide and perform the reviewing and evaluation of the management and the fulfilment of the BRs functions and designation criteria that are part of the Spanish Network of Biosphere Reserves (SNBR), the following documents and instruments have been produced by the Spanish Committee of the MAB Program (SCMABP): i) the System of Indicators for the evaluation of each BR (Tragsatec et al., 2011); ii) recommendations and joint considerations for the interpretation of terms and concepts in the Indicators System (Comité MaB España, 2014); iii) guide to terms and concepts (Comité MaB España, 2013); iv) proposal to improve the monitoring of the evaluation in the SNBR (Secretaría del Comité Español del Programa MaB, 2014); and v) the computer software for collecting information and preparation of the PRR.

The preparation of a PRR is a complex activity that requires a well-structured methodological process;

however, there are no guiding principles that provide methodological elements or orientations on how to elaborate them, in order to provide useful content following the BR Periodic Review Form.

The objective of this work is to describe the process applied in the elaboration of the Third Periodic Review Report of Biosphere Reserve Sierras de Cazorla, Segura and las Villas (BRSCSV) and to present results of the evaluation of the followed phases in that process. We have pursued the identification of methodological elements that could improve or facilitate the realization of future PRRs in other BRs, as well as to optimize their evaluation capacity.

## Materials and methods

### Study site

The BRSCSV is located at the Province of Jaén (Spain) (Figure 1) and includes either a partial or entire territory of 23 municipalities within. It was declared as such in April 1983, covering an area of 190 000 ha in Natural Park Sierras de Cazorla, Segura and Las Villas (NPSCSV). The Ministry of Environment and Territorial Planning of the Regional Government of Andalusia, Spain is the administrative entity responsible for the planning and management of the BRSCSV. The *in situ* implementation of management activities is delegated to the manager of the BR, which in this case is the Direction of Conservation of the Natural Park.

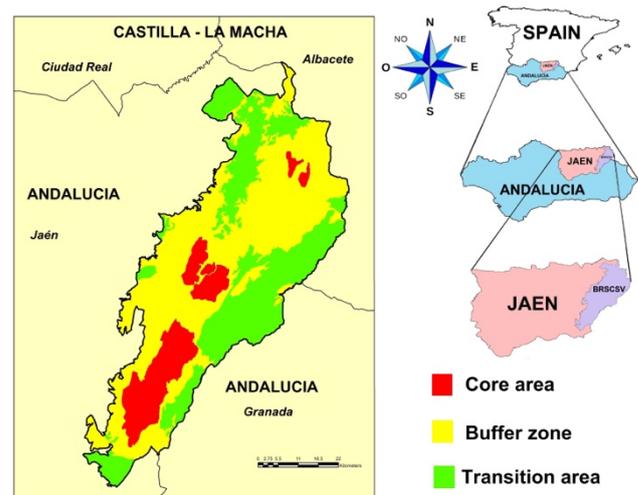


Figure 1: Location of the Biosphere Reserve Sierras de Cazorla, Segura and las Villas. Source: Own elaboration.

The territorial zone of the Natural Park completely overlaps with the surface of the BRSCSV. The executive and management entity assumes that the bodies and mechanisms of planning and administration of this Natural Park are the same tools of the BRSCSV (Domínguez-Vilches et al., 2014): the Natural Resources Management Plan (NRMP), the Master Plan for Use and Management (MPUM) and the Sustainable Development Plan (SDP).

The BRSCSV constitutes one of the main hydrographic nodes of the Spanish territory. There are rivers like Guadalquivir and Segura that originate within the reserve and their streams are feed into the Atlantic and Mediterranean

respectively. It also has forests in good ecological quality, which have abundant biodiversity. The reserve integrates the supply services of local and regional interest by means of the benefits of socioeconomic resources such as hunting, fishing, agriculture, livestock, and wildlife. Moreover, the BRSCSV has a significant representation of the sustainable management of olive cultivation. The production systems of ecological and integrated type associated with olive oil have allowed to acquire two denominations of Origin of Extra Virgin Olive Oil within the reserve. In addition to these designations of origin, the collection of the Protected Geographical Indication for the Lamb of Segura, are examples of the good quality of the products owned by the BRSCSV.

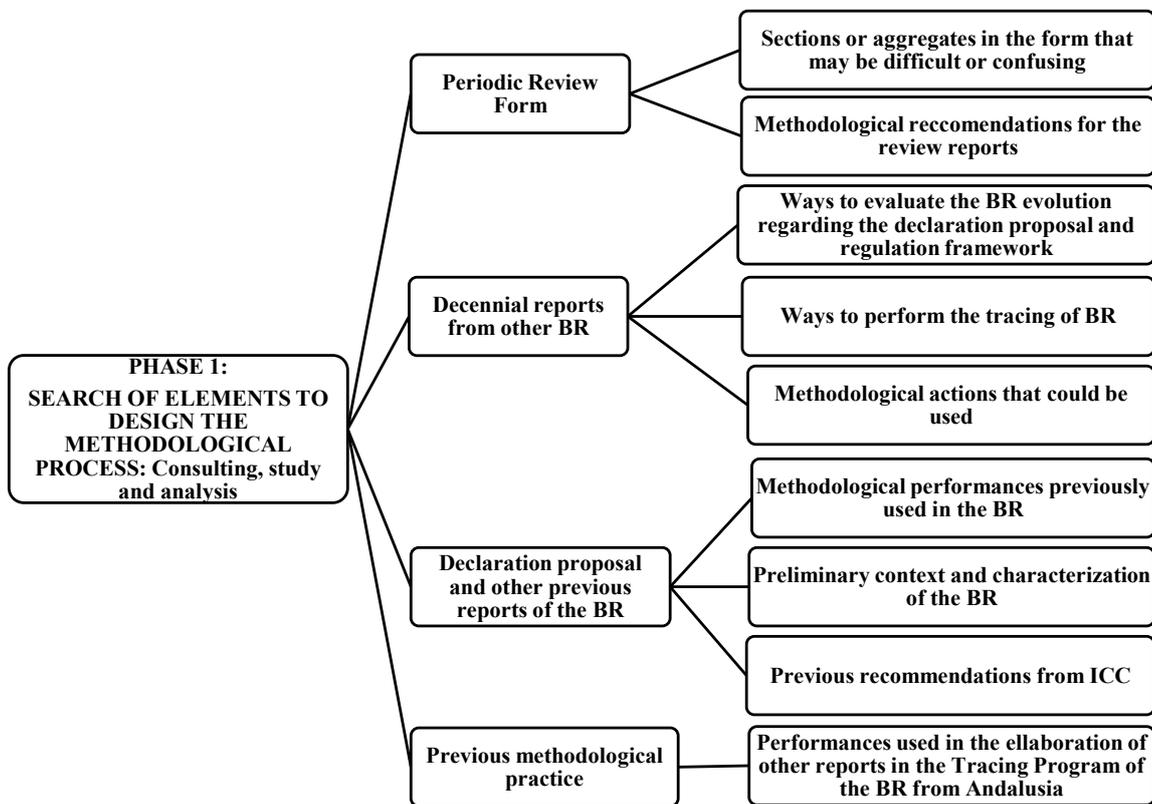


Figure 2. First phase of the methodological process (Castaño-Quintero et.al, 2016)

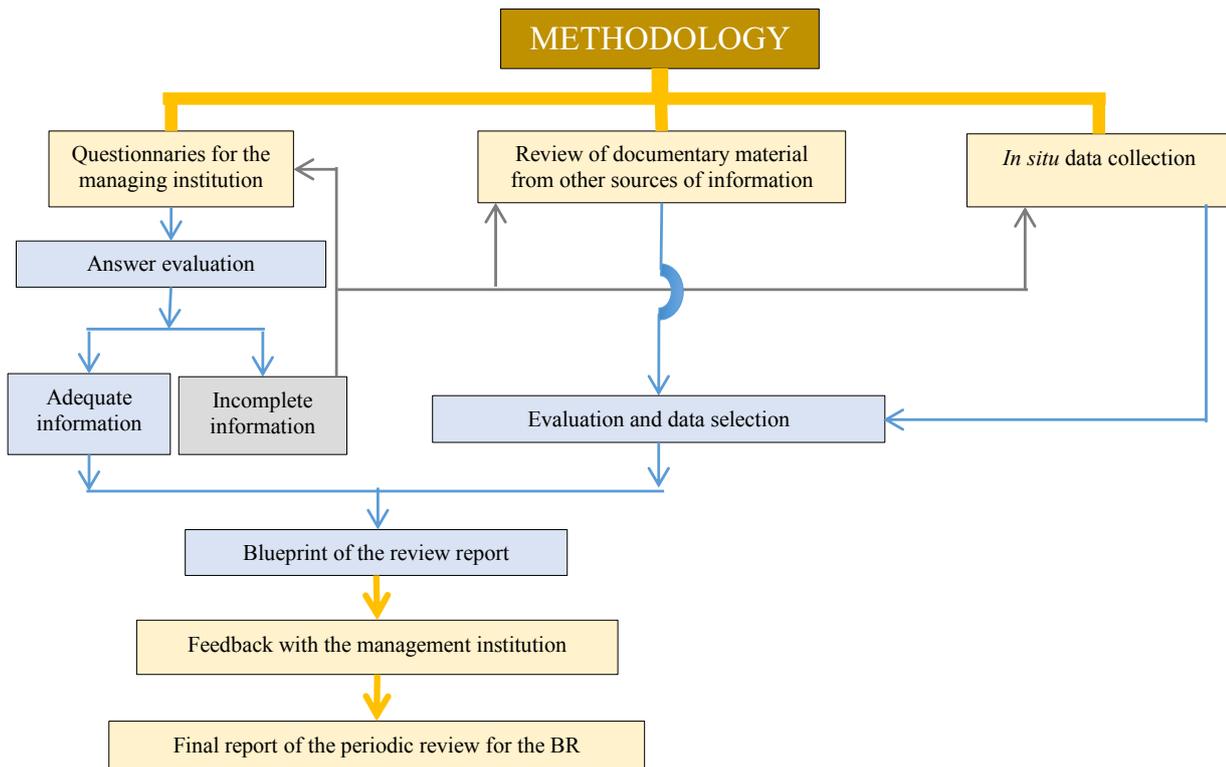


Figure 3. Second phase of the methodological process (Castaño-Quintero, et.al, 2016)

The MI of the BRSCSV is responsible for providing the main data and information for the preparation of the PRR. For this reason, three meetings were held including the MI in order to elaborate and develop a strategy for gathering information. The strategy included several questionnaires that had been previously prepared by the team that recruited the report. The questionnaires were planned to simplify data exposure for this MI. The MI informed about the different instruments prepared by the SCMABP to support the preparation of the PRRs. However, their process of being implemented was currently underway, and no information could be obtained from them.

By means of the revision of documented material from other sources of information, scientific material, regulations, and legislation were consulted, as well as reports and documents of public and private institutions present in the area or with competence in the zone (Castaño-Quintero, 2015). On the other hand, during the preparation and drafting of the report, a continuous evaluation was carried out that analysed the usefulness and effectiveness for each of the actions and elements

applied throughout the process of data collection, assessment, and drafting of the ten-year report. The intention of this evaluation was to corroborate the credibility (internal validity) of the data considered and the results obtained (Mertens, 2005). The evaluation of the procedure used is presented in the discussion section of this article.

## Results and discussion of the process

### *Compilation and analysis of data and records*

*Questionnaires for the MI.* The questionnaires that the editing team prepared for the Third PRR so as to be processed by the MI contributed to: i) guide the MI in the selection of appropriate data and records to be included in the report; ii) to distinguish between information, which, although it is important for the Natural Park that integrates the BR, was not useful or representative to describe the management process, iii) to incorporate the diverse reports, management documents, and the evaluation that the MI provided, and iv) to identify key information provided by the MI.

*Review of documentary material from other sources of information.* The main difficulty observed in the review of complementary material was the selection of information that could be considered useful to be part of the contents of the PRR. The main criterion for selecting the information was that they should enlighten the evolution and trends in conservation, development, and logistic support functions of the BR. However, the large amount of information obtained, limited the constant and efficient application of this criterion. The review provided specific information, which in some cases made it possible to complement the information provided by the MI. Including, the fact that local authorities offer supplementary information on social and socio-economic practices and customs, especially those related to traditional uses and cultural aspects of the resident population of the areas (tourism, local festivals, handicrafts, and agro-food products).

*In-situ data collection: visits to the BR.* Visits to the BRSCSV allowed the collection of information, photographic, and documentary material regarding two fundamental aspects: i) main conflicts in the BR within the last 10 years, how they had influenced on reserve management, which had been the tools to manage these conflicts, how were these solved; and ii) knowledge, perception, and participation on the existence and management of the BR, in which the population performs.

Sections of the periodic review form identified special relevance to obtain information on:

*Ecosystem Services (ES).* At the time of the preparation for the third PRR, a characterization or specific assessment of ES in the BRSCSV had not been carried out in its territorial context. The documents consulted aided as technical guidance to research, structure, and present general information related to the ES present in the BR. As a result, a qualitative assessment was obtained, as an initial approach to the regulatory, supply, and cultural ES provided by the BRSCSV. Components identified (basic characteristics), beneficiaries, and main sources from which more detailed information could be obtained for further study and evaluation were analysed for each service.

Biodiversity involved in the provision of these services was also mentioned. In the PRR the convenience of carrying out a specific study of the ES provided by the BRSCSV was recognized.

*Development function.* In order to demonstrate the level of willingness with this function, information was collected from local or regional institutions that promote actions for the socioeconomic development of the municipalities from the reserve. This task added a difficulty to the preparation of the report, since in many cases, studies are not available to compile different actions that have had an impact on the development function of the evaluated reserve or its contribution to the sustainable development of these municipalities.

The SDP of the NPSCSV was enforced from 2003 to 2009. The report of this SDP provided the main information used to complete the section of the development function of the periodic review form. However, a documentary review had to be carried out in order to reconstruct information from data provided by the BRSCSV MI, since: i) the period of the SDP report did not cover the entire decade under review (2003-2013); ii) the information provided in the SDP report did not address all aspects required to describe the BRSCSV development function; iii) the responses given by the MI, both in the questionnaire designed by the team that produced the PRR and also, within the periodic review form, required reliable quantitative data to be sustained.

With the data and information available, it was possible to determine the trends in the evolution of the socio-economic parameters from the main sectors of the reserve, which represent the achievements and approaches to the current situation of the impact on the development actions for this area.

*Logistic support function.* Through the review of the sources it was found that a vast number of research, education, and training activities were carried out, and developed by national and international universities, public institutions from national to local level, and local private organizations. It was possible to enrich descriptions, objectives, and

results of those programs and actions that were encountered in the logistics function that a BR must develop. However, it was concluded that the initiatives did not start from a programme with an integrative and systemic vision of all the activities carried out in this area, which made it difficult to select the sample information that would be provided in the PRR.

*Governance, management, and coordination.* The BRSCSV does not have a participation body specifically created, although this requirement is specified in the MaB Spanish Programme (Comité Español del Programa MaB, 2013). The managing institution informed the editing team of the PRR that the participative activity of the local population in the planning and implementation of the functions of the BRSCSV is made possible through the participation mechanism of the PNSCSV. However, the Ministry of Environment and Territorial Planning, which is the managing body of the BRs of Andalusia, did not have any document that had formalized that the body of participation of the PNSCSV assumed the dual role of participation body of the BRSCSV.

As a result of the evaluation of the previous PRR of the BRSCSV (the second PRR was in 2003), the ICC of the MaB Programme recommended that a specific Action Plan and management should be developed for the BRSCSV. In this regard, the managing institution reported that the corresponding management and action plan was pending approval by the Andalusian government. Not having a specific action and management plan could lead to the possible implementation of the WNBR Exit Strategy (Secretaría del Comité Español del Programa MaB, 2015). To avoid this, the team that prepared the Third PRR decided to look for a number of elements, by which it could be demonstrated that during the period under review, the BRSCSV did have mechanisms that allowed an adequate management of the BR, and therefore, could be considered as a management plan with its corresponding programmes as a whole.

In order to justify the existence of a research plan, the following are highlighted: i) the research objectives in the NRMP; ii) priority subjects for

research exposed in the MPUM; and iii) training of human resources and promotion of research and development endorsed by the SDP. The existence of a monitoring plan was argued by presenting the monitoring indicators of the research of the mentioned planning instruments. The sustainability education plan was argued by the objectives and activities that were stipulated in the NRMP.

#### *Evaluation of the process*

*Contributions of the process.* The process presented for the elaboration of this PRR of BR has served to: i) adjust to the guidelines of the Form of Ten-Year Review that UNESCO requires for such a task, avoiding the duplication of data and records provided, even when the content of the questionnaire itself is reiterative in some chapters and sections; ii) facilitate the collection and interpretation of the most appropriate data for the preparation and drafting of the Report; iii) enable the identification of the most relevant aspects to be taken into account for the ten-year management evaluation of the BR; iv) highlight the successful experiences that MI has carried out to fulfil the functions for which it was designated; v) to highlight those issues which UNESCO (final evaluator of the Review Report, approves it, with modifications or rejects) could recommend to be modified, improved or introduced in the coming years to optimize the management process of the same, and vi) to provide a protocol that can help the MI to organize, pre-select and archive in advance the information and data that must be provided for the preparation of the following Monitoring Reports or Review of the BR.

*Main difficulties highlighted and opportunities for improvement.* The main difficulties encountered in the preparation of the PRR were related to two fundamental aspects: i) dispersion of the records and data needed to evaluate the accomplishment of the functions and designation criteria of the BR; and ii) the different criteria that both the BR management institution and the team that produced the PRR had available to select the

information that should be incorporated into the content of the Report.

It is understood that the whole process described can be carried out in a simpler way if: i) a unified instrument of planning, management, and participation of the set of protection figures that integrate the BR, approved and recognized as such by the MI, in which the objectives and actions that facilitate the accomplishment of its functions and criteria of designation as a BR were explicitly highlighted; ii) a proper monitoring and evaluation system of the management plan with the corresponding indicators in the right place had been available, it would have enabled an objective assessment of the degree of fulfilment of the functions and criteria for which it was designated; iii) the use of the guides, recommendations, indicators, and tools developed by the SCMABP for the preparation of the PRR would have been optimized.

## Conclusions

During the preparation of the Third PRR of the BRSCSV, the management of information and data has been one of the main difficulties evidenced. Consequently, resulted in being dispersed, fragmented, or did not cover the period evaluated, and rarely explicitly referred to this BR. In this sense, the methodological process used for the preparation of the report has proved to be effective in restoring the collection and selection of information and for improving its structuring.

In turn, the process has shown the need for the Reserve to have a plan as a specific instrument for its management and for the evaluation of the fulfilment of its functions and the criteria for designation. Several mechanisms of other protection figures that have been used for their management are no longer in operation or are still being updated. The optimization of the use of the different instruments, guides, and recommendations provided by the SCMABP - besides guiding the elaboration of such plan and instrument - contributed to diminish the difference

of criteria that were presented between the editing team of the Third PRR of the BRSCSV and its MI.

The process studied has also proven to be effective in generating a trusting environment with the MI. The communication, relationships, and work dynamics established with this institution were fundamental elements for the preparation of the report on time, which showed the evolution of the BR during the last 10 years. The report also noted the compliance with the standards established by UNESCO for the PRRs of BRs, which indeed led to its approval by the organization in September 2015.

Finally, it is important to note that the preparation of the Third PRR of the BRSCSV, showed that the Review Reports are specifically intended to expose in a descriptive way if the BRs meet, the functions of conservation, development, and logistic support to fulfil its criteria of designation. In order to assess the real impact of the MaB Programme and to guide the management of the BR, it would be advisable to develop methodologies to verify the level of compliance with these requirements, their quality and the results of the actions carried out in the ground of the BR while allowing them to assess the level of sustainable development achieved in their territory.

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