

Promotion and Support of the Natural Capital: Research on Ensuring the Financial Resources for the Conservation of Biodiversity (CBD) in the Romanian Space

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ABSTRACT: Our research is directed at revealing the way CBD is approached in terms of the decision to finance the actions it entails, with specific reference to the case of Romania, in the context of the international/ European and national regulations. After referring to the foreign and Romanian professional literature, we shall proceed with a synthetic approach of the objectives related to CBD and the sustainable use of its components in Romania, with specific focus on the aspects related to solving the critical issues encountered in the field. An important part of the present research is dedicated to the problems related to the financing of CBD in Romania, both for the period between 2007 and 2013, as well as for the foreseeable future, up to 2020. We will also try to identify the difficulties that may arise and, to a certain extent, provide solutions to these issues.

Key words: Ecosystems, Biodiversity, Strategic objectives, Budget, European funding

INTRODUCTION

The conservation of biodiversity (CBD) is particularly important for the survival of any life form, since it is the prerequisite of human civilization and it ensures the system that supports life and the development of social and economic systems. Since the intrinsic value of biodiversity is well known – with all its elements: non-renewable natural resources (fossil fuels, minerals, etc), as well as renewable resources (species of plants and animals used as food or for generating power or extracting certain substances) – as well as its essential beneficence for human well-being and economic prosperity, this topic has been one of the most important concerns in the European Union (CE, 2010a, 2010b; COP, 2010; CE, 2011a).

For that matter, a whole series of research studies based on preserving the environment and conserving biodiversity (Wilson and Peter, 1988; Pearce and Turner, 1990; Heywood and Watson, 1995; Davidescu, 2002; Ghidra *et al.*, 2004; Sutherland *et al.*, 2005; Brown, 2006; Lockwood *et al.*, 2006; Slingenberg *et al.*, 2009; Monavari and Momen, 2013) have drawn attention and provided warning in terms of certain perils that may arise, all the while providing certain solutions to the problems as well. The European

Commission (EC) has acknowledged the crisis that affects biodiversity and has subsequently perfected a strategy (EC, 2011b) for a 10 year time span, directed at reducing the pressures put on the natural environment and at the ecosystem related services available in the European region.

In light of the identified priority to stop biodiversity loss and damaging ecosystem services in the EU by 2020 and restoring them as much as possible, the objectives of this strategy include (EC, 2011c):

- completely enforcing EU directives protecting birds and habitats;
- maintaining and improving ecosystems and related services by creating an ecological infrastructure and restoring at least 15% of the damaged areas;
- increasing the role of farming and forestry in maintaining and improving biodiversity;
- ensuring the sustainable use of fisheries resources;
- combating the alien species that may invade the habitats;

Moreover, for the same period (until 2020), the EU has committed to a massive augmentation of its contribution to combating global biodiversity loss, by trying, among other things, to include a chapter

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on sustainable development in all the new trade agreements that would provide certain regulations related to biodiversity that are relevant for such trade activities. Reference was also made to the cooperation for the development of the EU that would have no impact on biodiversity, as well as to the regulations concerning the access to genetic resources and the fair and equitable sharing of the benefits arising from their use. Under these circumstances, ensuring the budget support for the CBD related policies and strategies became of paramount importance not only in the EU, but also in each member state. The strategy we have referred at explicitly provides that the EC and the member states will contribute in a fair way to the international efforts of increasing the resources of global biodiversity, as part of the international process of measuring the financial resources to be allocated to biodiversity and of setting certain targets for mobilising resources for biodiversity.

MATERIAL & METHODS

The elaboration of this study was mainly done on studying international and Romanian scientific articles and studies, made in the last years. Our investigation focuses on the period during 2007-2013, the data and information that have been used are public, and their validity is guaranteed by their presence in various scientific papers published under the aegis of prestigious public organisations/institutions. For a more profound documentation, the legislative framework afferent to the EU and Romanian CBD was accessed, as the websites of certain institutions and international/national authorities, them representing an important database from which the author were able to collect and interpret data for this paper. The analyses and correlations drawn by the authors have taken into account the latest editions of the journals published by these institutions, mainly consisting of reports, standards, statistical papers, etc.

RESULTS & DISCUSSION

In Romania, biodiversity is the national natural capital and is an essential part of sustainable development, providing goods and services, as well as food resources, carbon emission alleviation and the redistribution of marine and inland waters that are the basis of economic prosperity, social well-being and quality of life (GR, 2013b). The national territory of Romania encompasses a great number of bio-geographical regions (continental - 53%, alpine - 23%, alpine steppes - 17%, the Pannonia region - 6% and the sea shore - 1%, as can be observed in Fig. 1) as well as a whole range of protected areas (Fig. 2), that are mainly in a state of favourable preservation.

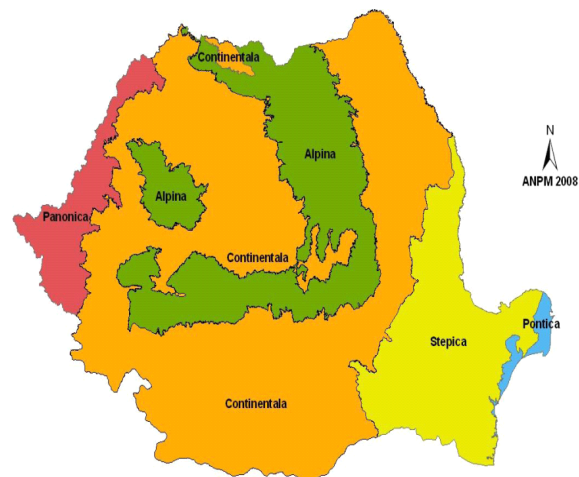


Fig.1. The bio-geographical regions of Romania
Source: ANPM (2013)

In time, the factors generating imbalances and discontinuities in the area under analysis (see the consequences on biodiversity - Table 1), have been primarily (GR, 2013b) the expansion and enhancement of the farming systems by turning natural or semi-natural ecosystems into arable land, as well as the fast-paced industrialisation through the development of the production infrastructure of large units, the unmonitored exploitation of natural forests or through the performance of ample hydro-technical works in order to create water supplies and protection against floods. Subsequently, additional negative effects were induced by the increased production capacity of electrical power, including in large thermoelectric power plants, fuelled by low quality coal, urban development as well as the expansion of the transport infrastructure, as the fleet was obsolete, the insufficient measures taken for the proper collection and treatment of waste and residual water, etc.

As far as the exploitation of the underground resources is concerned, the considered imbalances were related to the expansion of the surface mining activities and the expanding areas of refuse heap without subsequent greening, the overexploitation of the renewable/non-renewable natural resources in order to fuel various production processes and the extraction of precious metals by means of certain techniques that have serious negative effects on the environment and on peoples' health or that of nature.

Clearly, we can also consider other additional negative factors in this respect, as we have noted that the surface of the protected areas is sensibly being narrowed (Table 2).

In light of these circumstances, the need for CBD on a national level has been acknowledged long before our EU accession, and the institutional system was

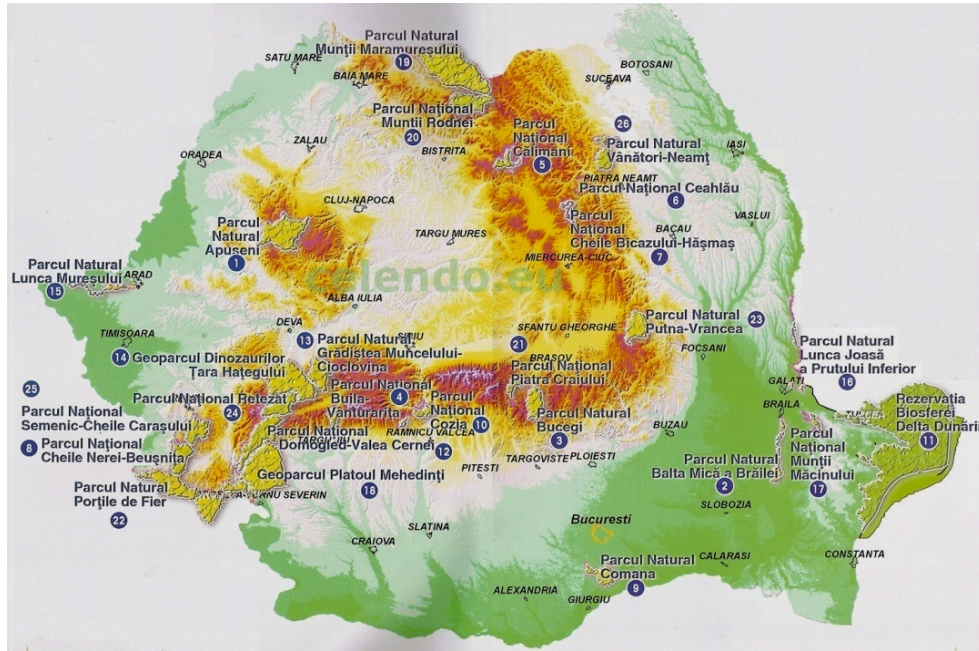


Fig. 2. The map of the natural protected habitats in Romania
 Source: CELENDU (2013)

Table 1. Consequences on biodiversity

| No. | Consequence | Observations |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | The presence of an active process of biological diversity erosion | Manifested through the disappearance of certain species |
| 2 | The fragmentation of the habitats of several species and the disconnection of the rivers (when the migration routes of the species of fish and their access to feeding and reproduction areas are severely restricted or blocked) | The longitudinal connectivity is influenced by the damming of the rivers; the lateral connectivity is interrupted by the damming of the floodable land |
| 3 | The reduction or disappearance of certain habitats in transition areas, such as forest curtains and the wet areas of the large farming areas or lot systems | The BD is affected by the negative effects, as well as the pollution control system, soil erosion, surface leaks and the evolution of the flood routing; |
| 4 | The major alteration of the structural configuration of the drainage areas and water courses, accompanied by the reduced capacity of the aquatic systems to absorb the pressure of the human factors, their increased vulnerability and the vulnerability of the social and economic systems they depend on | Sometimes, these changes exceed the critical threshold; several drainage areas have been flash flooded |
| 5 | The excessive reduction of the structure and multifunctional capacity of the ecological formations that are dominated or exclusively made up of intensive farming ecosystems. | Their dependency on the commercial material and energy input is also added here |

Source: GR (2013a, 2013b)

created almost immediately after 1990, at about the same time this concept was defined while discussing the adoption of a new international environment instrument at the Earth Summit – United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992 (GR, 2013a). The concept (biodiversity or biological diversity) stands for the diversity of life on earth and entails four levels of approach: ecosystem diversity,

species diversity, genetic diversity and ethnic and cultural diversity.

Several published papers have subsequently confirmed the actual circumstances in Romania in this respect, by comparing the situation here with that existing on an international level (Primarck, 2002; Enciu, 2003; Platon, 2004; Vuă, 2004; Melinte *et al.*, 2004; Munteanu and Mihăilescu, 2005; Doniă *et al.*, 2005; Bavaru *et al.*, 2007; Sârbu *et al.*, 2007; Giurgiu,

Table 2. Narrowing of the protected area surfaces (2008-2012) - Hectares -

| No. | Protected area | Years | | Differences |
|-----|-------------------------------------|---------|---------|-------------|
| | | 2008 | 2012 | |
| 1 | Scientific reservations | 310 232 | 24 654 | - 285 578 |
| 2 | Natural monuments | 96 228 | 15 413 | - 80 815 |
| 3 | The Maramures Mountains | 148 850 | 133 419 | - 15 431 |
| 4 | The dinosaur geo-park/ Hateg County | 102 392 | 100 487 | - 1 905 |
| 5 | The everglade of the lower Prut | 8 247 | 7 261 | - 986 |
| 6 | The Ceahlau National Park | 8 396 | 7 739 | - 657 |
| 7 | Semenic Caras Gorge | 36 665 | 36 219 | - 446 |
| 8 | The Nera - Beu?ni?a Gorge | 37 100 | 36 707 | - 393 |
| 9 | Cozia | 17 100 | 16 721 | - 379 |
| 10 | The Macin Mountains | 11 321 | 11 114 | - 207 |
| 11 | The Bucegi Natural Park | 32 663 | 32 497 | - 166 |
| 12 | Piatra Craiului | 14 800 | 14 781 | - 19 |

Source: E-CONTEXT (2013)

2010; Sava *et al.*, 2012; Pohoaa, 2013). The recurring idea is that biodiversity, consisting in the variety of ecosystems, species and genes, is an intrinsic value of life on earth, that should be taken into account in any future development project. This entails that human activities should be assessed in terms of their direct or indirect impact on the components of biological diversity with a view to enforcing adequate measures that would diminish negative effects and that would rehabilitate and help recover the affected ecosystems.

From a legal standpoint, CBD and the sustainable use of its components is subject to an entirely different set of specific instruments – both European and national (GR, 2005; GR, 2007; EEC, 1979; EEC, 1992). On the whole, we can say that this specific regulatory framework is consolidated, but there are still certain shortcomings in terms of the secondary legislation and certain inconsistencies, lacks and disparities as far as the sector regulations are concerned. On the other hand, in light of the above presented information and of the current international and European circumstances, as the European Union has assumed a leader position in stopping the loss of biodiversity, Romania has also recently developed its own national Strategy for CBD, that is an essential reference point for the sustainable development of our country (GR, 2013a).

The medium term goals Romania has set by means of this strategy, for a time span ranging between 2014-2020 and in compliance with the international regulations in the field (RAMSAR, 1971; UNESCO, 1972; WASHINGTON, 1973; BONN, 1979; BERNA, 1979; LONDON, 1991; ONU, 1994; HAGA, 1995;

MONACO, 1996; COE, 2000), encompass several targets related to solving the critical issues in this sector (GR, 2013a). Among these, mention should be made of the following: arresting the decline of biological diversity, integrating the CBD policies in all the other sector policies, promoting the traditional innovating know-how, practices and methods and clean technologies as measures supporting CBD, seen as the cornerstone of sustainable development, as well as improving communication and education in the field of biodiversity.

Clearly, in order to complete these goals, an articulate action plan was also created, accompanies by a list of the ways in which the Strategy will be put into practice. However, we will not insist on these any further, as we wish to focus more closely on the financial aspects.

Referring specifically to the CBD funding in Romania, reveals that in light of its economic power, Romania is making visible financial efforts in order to support environmental policies in general. For instance, in 2012 (for which we have certain/final information from the appointed government organisation (NIS, 2013) at the time the present research was completed), the costs for environmental protection on a national level amounted to approximately 17.6 billion Lei, accounting for 3.0% of the GDP, as compared to 3.2%, in 2011 (Tables 3 and 4). The expenditure mentioned here includes investments, current internal expenses, which also refer to the current costs of the residents' own environmental protection activities, as well as other expenses of the public administration structures – for instance, received subsidies or transfers.

Table 3. Expenditure allocated for environmental protection for each industry sector and category of expenses, in 2012

- Thousand Lei, current prices -

| Economic sector | Total costs | Of which: | | | |
|-------------------------------------------------------------------------|-------------------|------------------|------------------|------------------|----------------|
| | | Investments | Current costs | | Other costs |
| | | | Internal | External | |
| Unspecialised producers | 7 054 426 | 2 353 193 | 3 495 240 | 1 205 993 | - |
| Forestry, forest exploitation and related services | 52 881 | 26 014 | 15 064 | 11 803 | - |
| Extraction industries | 676 606 | 403 769 | 120 565 | 152 272 | - |
| Manufacturing industries | 3 354 904 | 389 913 | 2 591 272 | 373 719 | - |
| Production and supply of electric and thermal energy, gas and hot water | 1 315 438 | 577 780 | 240 800 | 496 858 | - |
| Catchment, treatment and distribution of water | 83 127 | 5 228 | 37 248 | 40 651 | - |
| Constructions | 83 127 | 5 228 | 37 248 | 40 651 | - |
| Transport | 89 876 | 50 844 | 4 056 | 34 976 | - |
| Specialised producers | 10 208 965 | 499 699 | 8 597 637 | 1 111 629 | - |
| Public Administration | 3 571 218 | 1 263 309 | 1 049 767 | 957 368 | 300 774 |

Source: NIS (2013)

Table 4. Expenditure allocated for environmental protection for each environment sector and categories of producers, in 2012

- Thousand Lei, current prices -

| Environmental sector | Total | Unspecialised producers | Specialised producers | Public Administration |
|----------------------------------------|-------------------|-------------------------|-----------------------|-----------------------|
| Air protection | 1 197 834 | 943 819 | 85 676 | 168 339 |
| Water protection | 3 251 824 | 1 747 081 | 88 415 | 1 416 328 |
| Waste management | 10 080 456 | 378 849 | 8 751 153 | 950 454 |
| Soil and subterranean water protection | 324 425 | 285 030 | 25 308 | 14 087 |
| Natural resources and CBD protection | 185 726 | 155 094 | 26 182 | 4 450 |
| Other environmental sectors | 2 519 354 | 2 338 560 | 120 602 | 60 192 |

Source: NIS (2013)

However, the current external costs are not included, as they are mainly related to the purchasing of environmental protection services from third parties. Romania's financial effort is made in compliance with the EU and the international regulations (Burciu *et al.*, 2010; Bostan 2011; Bostan and Grosu, 2013; Onofrei and Bostan, 2013).

The Post-Accession funds have become available after becoming a member of the EU. CBD activities are mainly funded by FEDR funds, through the POS Environment – Priority Axis 4 and by FEADR, through PNDR. For the 2007-2013 period, the Financing Program of the Sector-Environment Operational Program, divided in priority axes, is presented in Table 5.

The activities funded through this programme are mainly those related to the development/revision of the plans, strategies and management measures for the protected natural areas, investments in public use infrastructure designed for the protection and management of the environment in the protected natural areas, as well as the improved conservation of the species and habitats.

The main measures of PNDR (GR, 2013b), addressing the recovery and protection of biodiversity in farmed areas, refer to the support provided for the underprivileged mountainous regions (Measure 211 – until January 2013, beneficiaries have received payments of about € 400 million), support for the

Table 5. The financial plan according to the Sector - Environment Operational Program, divided into priority axes for the 2007-2013 period, in million Euros (€)

| Priority axes* | Total | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|----------------|----------|--------|--------|--------|--------|--------|--------|--------|
| A ₁ | 3 266.50 | 117.41 | 387.54 | 487.41 | 483.58 | 554.07 | 602.37 | 634.10 |
| A ₂ | 1 167.77 | 51.28 | 105.85 | 143.57 | 152.98 | 192.87 | 243.34 | 277.85 |
| A ₃ | 458.53 | 0.00 | 38.96 | 66.24 | 90.09 | 75.81 | 70.29 | 117.11 |
| A ₄ | 214.98 | 3.97 | 20.29 | 20.70 | 35.19 | 43.07 | 43.93 | 47.80 |
| A ₅ | 329.14 | 0.00 | 36.93 | 53.82 | 71.37 | 55.99 | 60.04 | 50.96 |
| A ₆ | 173.92 | 8.48 | 22.74 | 23.46 | 24.20 | 23.42 | 30.15 | 41.42 |

Source: NIFT (2010)

Note*: A₁ - Extending and modernizing the water and sewerage systems; A₂ - Managing waste; A₃ - The reduction of air pollution; A₄ - The implementation of adequate natural environment protection systems (also includes the development of infrastructure and managing and protecting biodiversity and the Natura 2000 Program); A₅ - Creating adequate structures for the prevention of natural risks in the more exposed areas; A₆ - Technical assistance to support risk management and the evaluation activities of the program, as supported in the information and publicity activities of the program.

underprivileged extra-mountainous regions (Measure 212) and agro-environmental payments (Measure 214). The payments for the last measure mentioned above are conditioned by the observance of certain minimal requirements, as well as of certain specific criteria referring to the excessive use of the land based on the reduction of input.

Measure 221, referring to the first reforestation of farmed land, is directed at creating forest surfaces on former agricultural land, that can subsequently help enhance local biodiversity, by stimulating the reappearance of areas that favour the development of the insect, bird and mammal population. The total funds allocated for the period 2007-2013 amounted to €996.4 million. The operational objectives for the provision of the adequate financial resources for the period 2013-2020, are directed at (GR, 2013b):

establishing a distinct financing line for CBD at the central government structures in charge of environmental protection;

- increasing the efficiency of the POS Environment and of the Environment Fund performance;
- developing additional and efficient financial instruments and mechanisms for CBD;
- monitoring the allocation of public funds for biodiversity.

When policy makers (central government level) have developed the National Strategy for CBD (2013-2020), they have estimated a certain level of the implementation costs of the respective Action Plan, as shown in Table 6. The respective resources will be provided from the government budget, the Environment Fund, structural and cohesion funds (from the EU), the LIFE+ Programme of the EC, etc.

Since the estimated financial level (detailed above) is quite adequate and in agreement with the national economic level and what the EU can provide, the stringent needs address the improved absorption capacity of the external funds.

As far as we are concerned, we believe that a visible positive change in this respect would consist in revising the accession criteria and the bureaucratic system. Their complex nature has caused inefficiency in the past, as they were perceived as real hindrances that were rather difficult to overcome.

On the other hand, the strengthening of the funding capacity of existing financial instruments (i.e. the Environment Fund) is also a priority.

In terms of the positive experience of other countries, we believe that new financial and economic instruments should be developed in order to meet the CBD objectives. More specifically, apart from the implementation of the subsidy/ donations system (Bostan, 2014), another recommendation would be the financial mechanism known as “debt in exchange for environmental conservation”, applying the principle known as “the user pays”, fiduciary funds for conservation, right to use licenses, taxes and other royalties related to the protected areas.

CONCLUSIONS

The promotion and support of the natural and cultural capital, of the traditional practices and activities – that encourage the sustainable use of the land and of the natural resources – from the protected natural areas, require consistent financial allocations.

In Romania’s case, the financial resources allocated for CBD mostly come from European funds,

Table 6. Estimated financial allocations for meeting the medium-term CBD objectives - Lei -

| Objectives | Estimated value | Funding sources | |
|-------------------------------------------------------------------------------------------------------|-----------------|-------------------|------------------|
| | | Government budget | External sources |
| 1. Developing the regulatory/ institutional framework and providing funding | 22 900 000 | 1 900 000 | 21 000 000 |
| 2. Ensuring the coherence and efficient management of the national network of protected natural areas | 405 090 000 | 132 500 000 | 272 590 000 |
| 3. Ensuring favourable conservation conditions for the protected wild species* | 15 250 000 | 2 650 000 | 12 600 000 |
| 4. Sustainable use of the biodiversity components | 505 720 000 | 700 000 | 505 020 000 |
| 5. <i>Ex-situ</i> conservation | 500 000 | 500 000 | 0 |
| 6. Control of invasive species | 1 230 000 | 550 000 | 680 000 |
| 7. Access to genetic resources | 0 | 0 | 0 |
| 8. Support and promotion of the traditional practices, innovations and know-how | 0 | 0 | 0 |
| 9. Development of scientific research and promotion of technological transfer | 27 000 000 | 27 000 000 | 0 |
| 10. Public communication, education and awareness* | 50 000 | 50 000 | 0 |

**Note: Partial estimate.*

Source: GR (2013b)

the LIFE+ Programme, and the Environment Fund. Their level has been relatively low lately, partly due to the fact that no adequate measures were undertaken to absorb external funds, by means of a coherent coordination on a central government level and, on the other hand, no internal financial instruments were developed that could complement external sources. In our opinion, the adoption of the National Strategy for The Conservation of Biodiversity (2013-2020) will eventually create the favourable circumstances for the occurrence of new financial instruments (without overlooking the improvement of the already existing ones). Thus, we believe that all these are meant to ensure the financial resources needed for the recovery and monitoring of the marine ecosystems and of the coastal line, for the development of the green infrastructure, for raising the awareness of the population as concerns the importance of CBD and the sustainable use of its components.

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