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ESTIMATING THE NECESSARY COSTS FOR NATURA 2000 NETWORK MANAGEMENT IN ROMANIA

ABSTRACT

Estimating the necessary costs for the operation of Natura 2000 Network represented a constant concern at the European Union level throughout the years. For Romania, this approach is in an early stage. In this context, the main objective of the present paper targets the estimation of the necessary finance for the management of Natura 2000 Network that has been established in Romania. The research methodology presupposed the design of a questionnaire that was submitted for filling in by all the component sites of the network. The obtained data made it possible to calculate the unit cost, which was extrapolated to the entire Network. The results reveal that Romania is in the category of EU New Member States where the average costs per hectare are generally lower than those from the EU Old Member States.

Key words: Natura 2000 Network, unit costs, recurrent costs, Romania.

JEL Classification: Q57, Q59.

1. INTRODUCTION

Estimating the necessary costs for Natura 2000 network operation was and still is an extremely laborious process. Throughout the years, there were a series of initiatives in the European Union (EU) for the evaluation of requirements formulated in Article 8 from the Habitats Directive. In the last approach made, the total costs necessary for the operation of the network Natura 2000 in EU-27 were estimated at 5.8 billion euro/year, with an average cost of 63 euro/ha/year (IEEP, 2010).

The establishment of Natura 2000 network in Romania created a favourable framework for adopting the necessary measures for the prevention of natural habitat deterioration and of disturbing the wild species of Community interest, in the protected areas. Fulfilling the obligations with regard to Natura 2000 network obviously involves operation and conservation costs.

2. STATE OF KNOWLEDGE

The availability of data on Natura 2000 network is a problem both in Romania and in other EU countries, which is mainly determined by the lack of

financial and human resources for information collection, the lack of centralized data systems, etc. In the absence of a single database, the information in this field is often in the possession of government, of local authorities, different organizations and contractors, which makes it difficult to collect and estimate the costs. The data are frequently collected for other purposes and as a result their utilization leads to obtaining cost estimates that have a low accuracy level or to the impossibility of estimating the costs (IEEP, 2011).

In the specialty literature, two methods are most often used for estimating the costs, namely the top–down and bottom–up methods (Blamford *et al.*, 2003; IEEP, 2010). These methods approach the cost estimation process from different perspectives, while trying to reach the same objective. In this paper, we opted for the bottom-up approach, which enabled focusing on individual components, with a relatively "realistic" estimation of costs.

3. MATERIAL AND METHOD

The process of estimating the necessary costs for the operation of Natura 2000 Network in Romania was based on the EU experience presented in the paper *"Costs and Socio-Economic Benefits Associated with the Natura 2000 Network"* elaborated by the Institute for European Environmental Policy (IEEP), in the year 2010[1], which intended to determine the necessary finance for the habitats and species of Community interest according to the requirements presented in Article 8 of the Habitats Directive. In this context, the main objective of the paper targeted the *current estimation of the necessary finance for Natura 2000 Network management in Romania.*

For this purpose, a ***questionnaire*** was submitted for completion by all the component sites of Natura 2000 Network. Answers were received from 55 SCIs and 24 SPAs, which together cover 21% (1,153,141 hectares) of the total area of Natura 2000 Network in Romania.

The main information used were extracted from the following items of the questionnaire: i) identification data; ii) current endowment; iii) administrative costs; iv) funds attracted by projects since the declaration as protected area; v) estimated costs for maintaining/improving the conservation status of species and habitats; vi) estimation of financial compensations received.

All the information obtained from the completed questionnaires was grouped by *categories of costs* described/recommended in *"Funding the Natura 2000 Program. Practical Guidelines"*[2] and in *„The Priority Framework of Action"*[3]. Thus, in this report two main categories of costs were used – ***one-off costs*** and

[1] http://ec.europa.eu/environment/nature/natura2000/financing/docs/natura2000_costs_benefits.pdf
[2] http://www.anpm.ro/upload/5942_anpm_Finantarea%20N2k%20-%20Ghid%20practic.pdf
[3] http://www.surf-nature.eu/uploads/media/Point_4_-_note_PAF_-_Doc_Hab_11-09_08-annex.pdf

recurrent costs as well as four subcategories: i) investment costs; ii) one-off management costs; iii) managerial planning costs; iv) habitat management and monitoring costs.

The impossibility to estimate the costs by each type of activity derived from the fact that many activities cannot be defined in the absence of management plans.

4. RESULTS AND DISCUSSIONS

An adequate funding for the management of Natura 2000 sites is essential for maintaining the Network and the suitability of its habitats and species. Obtaining mostly accurate cost estimates is an essential condition in this approach. This estimation can be used as a reference point for the cost evaluation activity with regard to nature conservation, for the next period. Furthermore, an adequate estimation of costs can provide a strong negotiation power for obtaining future budgets devoted to Network management and it can also represent a real support in the adequate allocation of funds for nature conservation.

4.1. Estimating the unit costs

In the process of total cost evaluation of the Network that operates in Romania, the main objective was to **estimate an average cost per hectare**, as, compared to other methods, the utilization of average costs provides a more homogenous approach.

The results of the analysis of data from sample are presented in Table 1: the average annual cost per hectare and by types of costs under two variants: the minimal variant and the optimal variant. These were differentiated on the basis of answers received under the item by which the conservators were asked to estimate the minimum and optimum necessary costs for *"the maintenance/improvement of the conservation status of species and habitats from the protected area"*. It can be noticed that this estimation modality resulted in a difference of 16.39 euro/ha between the two variants.

It is known that a series of problems can affect the accuracy and completeness of cost estimations: overlapping and a double accountancy of expenses are possible, mainly due to the potential overlapping between the sites of community interest (SCI)/special areas of conservation (SAC) designed in conformity with the Habitats Directive and the special protection areas (SPA) designed through Birds Directive. At the same time, the estimation of costs based on the information collected through the questionnaire cannot be considered as highly accurate, as a series of "uncertainties" exist that can significantly influence the result, and we refer here, in the first place, to the answers received under the item on *"the estimated costs for maintaining the conservation status of species and habitats from the protected area"* and under the item *"financial compensations provided/under*

analysis" that can be rather considered as "speculative judgments", based on the experts' experience and expertise, than accurate data registered in an accountancy system or management plan.

Table 1
Average cost per hectare, by types of costs and sub-costs

Types of costs	Minimal variant	Optimal variant
	euro/ha/year	euro/ha/year
One-off costs	**32.92**	**32.92**
Investment costs	16.58	16.58
One-off management costs	16.34	16.34
Recurrent costs	**41.09**	**57.48**
Managerial planning costs	2.81	2.81
Habitat management and monitoring costs	38.28	54.67
Total costs	**74.01**	**90.40**

Source: The author's data processing – Database "Questionnaire – Protected areas – Natura 2000 Network", Multidimension – Research and Development.

The one-off costs were determined by the analysis of the item "*funds attracted by projects since the establishment as protected area*". Out of each mentioned project, first the main activities were selected, and then they were classified by the following types of costs: investment costs, site finalization costs and one-off managerial planning costs[4]. In the case of investment costs, the costs of endowments were added.

From the estimation, the land acquisition costs are missing, as there were no data for their calculation. These could reach very high values as Romania manifested its intention to buy land areas into private ownership in order to increase the protection of Natura 2000 sites. At the same time, in the questionnaire, the information on the infrastructure costs (infrastructure for habitat and species rehabilitation, as well as the public access and interpretation), which are known to have high values in general, were almost inexistent. The main reason is that a series of endowments were prior to the inclusion of protected areas in Natura 2000 Network.

The recurrent costs were determined and analyzed by two categories:

- *the recurrent costs with managerial planning* calculated by summing up the data obtained from the following items: i) costs of management plans review and update; ii) management body operation costs, which were obtained by summing up the following types of expenses – maintenance, travel cost and other expenses; iii) costs of personnel employed in conservation activities, guardsmen, rangers. These costs had very low values. The explanation can be found in the fact

[4] The delimitation of activities is not an accurate process: in many cases, it was carried out depending on the prevalence of the majority of activities of a certain project in a certain category of costs.

that not all the Natura 2000 sites have management bodies, and among the existing ones, many were not very active: they did not elaborate action and management plans, they did not hire staff and did not attract any funds;

- *the recurrent costs of habitat management and monitoring,* mainly determined by the estimation of minimal and optimum costs for the maintaining/ improving the conservation status of species and habitats and the estimation of financial compensations granted/under analysis. In this case, the focus was laid on the necessary and desired costs, rather than on the real costs that appeared in the current activity. The habitat maintenance and monitoring costs have a relatively low value, as in Romania the conservation objectives of many sites are not known yet and/or the necessary activities for their management/administration have not been identified yet. As regards the opportunity costs, the questionnaire asked for information on estimating the sums that could be paid for the compensation of agricultural and forest land owners for the lost economic opportunities. The opportunity costs are relatively high in Romania, as agriculture is still an extensive sector.

4.2. Cost extrapolation

The data obtained from the questionnaire-based study were extrapolated for the entire Network. Data processing in conformity with the methodology described above revealed a total cost estimation for Natura 2000 Network of **412.6 million euro/year** in the case of the minimal variant and of **503.9 million euro/year** in the case of the optimal variant, with a difference of 91.3 million euro, which represents plus 22% compared to the minimal variant. Out of this amount, in the minimal variant, 44% is the share of one-off costs, and 56% are the recurrent costs; in the optimal variant, the gap is higher – the recurrent costs represent 64% and the one-off costs 36% (Table 2).

Table 2
Estimating the operation costs of Natura 2000 Network

Types of costs	Minimal variant			Optimal variant		
	euro/ha/year	€M	%	euro/ha/year	€M	%
One-off costs	**32.92**	**183.5**	**44**	**32.92**	**183.5**	**36**
Investment costs	16.58	92.4	51	16.58	92.4	51
One-off management costs	16.34	91.0	49	16.34	91.0	49
Recurrent costs	**41.09**	**229.0**	**56**	**57.48**	**320.4**	**64**
Managerial planning costs	2.81	15.7	7	2.81	15.7	5
Habitat management and monitoring costs	38.28	213.4	97	54.67	304.7	95
Total costs	**74.01**	**412.6**	**100**	**90.40**	**503.9**	**100**

Source: The author's data processing – Database "Questionnaire – Protected areas – Natura 2000 Network", Multidimension – Research and Development.

Table 3 presents the average costs per hectare in the EU member states and at EU-25 level[5]. The data reveal that Romania falls into the category of EU New Member States where the average costs per hectare are generally lower than in the EU Old Member States.

Table 3
Average cost by type of costs and EU member states

Country	Network area (ha)	One-off costs (€/ha/year)	Recurrent costs (€/ha/year)	*Total costs (€/ha/year)*
Austria	1,232,904	11.85	33.61	*45.46*
Belgium	387,131	129.61	65.62	*195.23*
Bulgaria	3,861,300	14.84	25.24	*40.08*
Cyprus	210,952	644.34	306.58	*950.92*
Czech Republic	1,503,411	16.81	39.05	*55.86*
Denmark	1,667,600	13.54	10.71	*24.25*
Estonia	1,489,000	19.33	17.34	*36.66*
France	12,300,000	1.63	36.89	*38.52*
Germany	5,775,366	27.7	79.65	*107.35*
Greece	3,407,551	9.06	19.45	*28.51*
Hungary	1,968,218	25.89	65.5	*91.39*
Ireland	1,335,535	28.37	110.31	*138.68*
Italy	6,721,590	4.73	22.28	*27.01*
Latvia	811,309	92.59	16.41	*109.01*
Lithuania	781,479	5.25	30.57	*35.82*
Luxemburg	45,260	517.21	329.58	*846.8*
Malta	23,257	377.38	503.77	*881.14*
Netherlands	1,121,900	183.07	98.05	*281.12*
Poland	7,954,710	0.62	13.86	*14.48*
Portugal	2026954	13.72	55.64	*69.37*
Slovakia	1343000	10.67	12.36	*23.03*
Slovenia	720270	21.53	3.65	*16.7*
Spain	14200000	36.53	71.12	*109.64*
Sweden	5816650	16.38	17.98	*34.36*
United Kingdom	3793095	3.3	33.17	*36.47*
EU - 25	**80498448**	**20.77**	**42.51**	***63.21***
ROMANIA	**5574045**	**32.92**	**41.09**	***74.01***

Source: IEEP, 2010, Costs and Socio-Economic Benefits Associated with the Natura 2000 Network: p. 34, Romania – author's estimation.

A comparative analysis by types of costs reveals that Romania follows the EU pattern, where the recurrent costs – 56%, in the minimal variant (close to the existing situation) are much closer to the New Member States (57%) than to the

[5] Cost comparison must be made under the reserve that the data referring to the EU member states refer to the year 2009, while the data for Romania are calculated at the level of the year 2011/2012. At the same time, the EU-25 average does not include Romania.

Old Member States – EU-15 (70%). This tendency is due to the fact that Natura 2000 Network was already established in EU-15 and a great part of the effort made by these states focuses on site administration at present, while in the New Member States the investments in Network establishment and in infrastructure still represent an important priority.

5. CONCLUSIONS

In conclusion, the *presented estimations should be seen in the key "what is desired "in the near future rather than in the key "what has been done"*, being based on the specialists' experience who answered the questions from the applied questionnaire. For a most accurate evaluation of costs the development of a standardized form/questionnaire would ne needed and of a common database, which could be linked to the reporting requirements with regard to Natura 2000 Network. This would permit the periodical information collection making it possible comparisons between the sites. *The estimation of costs, as made in this study, has not an immutable character, as it reflects the existing situation at a certain moment in the presented conditions.* For the next period, premises exist for the modification of costs: both the one-off costs (mainly for the new sites, which will be included in the Network) and the recurrent costs (the current sites will focus on reaching the favourable conservation stage with corresponding financial implications).

The *estimations* made were meant to capture what would be necessary – in minimal and optimal terms, rather than what was spent. Generally, the detailed information on the profile of future costs is quite a difficult approach. With all these, in the future, an increase of costs is possible on most sites. Balmford *et al*. (2003)[6] reveal that for a most accurate estimation of necessary financial resources for Natura 2000 Network operation, a series of aspects were taken into consideration, among which the most important are the following:

- approach according to the site size: the costs per hectare are lower for the large sites;
- accessibility/proximity of sites to the urban areas: a greater pressure on the sites may determine an increase of costs;
- the age of network and the previous expenses also affect the total costs: the expenses made in the past can reduce the future expenses;
- population density in the area where the site is located: the costs per hectare increase with the population density increase;
- the development policies: for instance, the agricultural policy that proposes agriculture intensification can be quantified as a significant factor influencing the cost increase.

[6] Mentioned in IEEP, 2010, Costs and Socio-Economic Benefits Associated with the Natura 2000 Network.

In Romania, in order to reach long-term objectives, the network will need additional costs in the future, mainly as a response to the following aspects:

- increase of area under the network;
- obtaining the favourable conservation status, which will determine a significant increase of financial inputs;
- increase in number of the Network staff.

In Romania, on the short term, the largest part of expenses is expected to be allocated to the Network completion and for the finalization and approval of management plans.

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