

ASSESSMENT OF THE COSTS RELATED TO THE EXPLOITATION AND BENEFICIATION OF NATURAL RESOURCES

1. IDENTIFICATION OF OPPORTUNITY COST IN ECONOMICAL RATIONALITY

Natural resources exploitation and valorization in real terms could not be operated in random, hazardous regime because of finite physical amassments, quantitative and qualitative limited or delimited.

In essence, is finding out existence of a *natural capital stock* subject to laws and economic transformation toward goods and services techniques.

Results of transformations (production and reproduction) are rediscovered in *ecosystem* (in *ecology economy* respectively), which is not only supplier (from natural amassment – deposit) of resources but also collector of productive results obtained under laws and economic techniques.

In the same context is present *environment economy*, which quantifies in particular results effects of natural resources exploitation and valorization as pollution, productive externalities from technological flows (junks, wastes), etc.

Apart from consequences, causes, and effects in environmental economy are formalized techniques, procedures, and control instruments through environmental economic policies, as reflections of basic economic policy applied in the area holding exploitable natural resources.

Natural resources economy is rediscovered operational between ecology and environment economies. Mainly, natural resources exploitation and valorization production, management, and marketing have dimensions (amplitude) and intensities which could determine appreciations if there are practiced rational or abusive activities against interconnected system (*Figure 1*).

Economical rationalization of natural resources exploitation and valorization is strictly related to natural resources exploitation and valorization techniques and economy. Searching for competitive comparable options must anticipate benefit, profitability, expected advantage respectively in connection with *opportunities cost* which is dimensional characterized by economical conjuncture in the area in which are situated natural resources assessments.

From natural resources assessments sufficiency are extracted (allocated) to valorization quantitative and qualitative parts directed as use related to request. If is picked up the most acceptable alternative for use of exploited resources and putting into use decision became operative the cost related to respective alternative is characterized by opportunity.

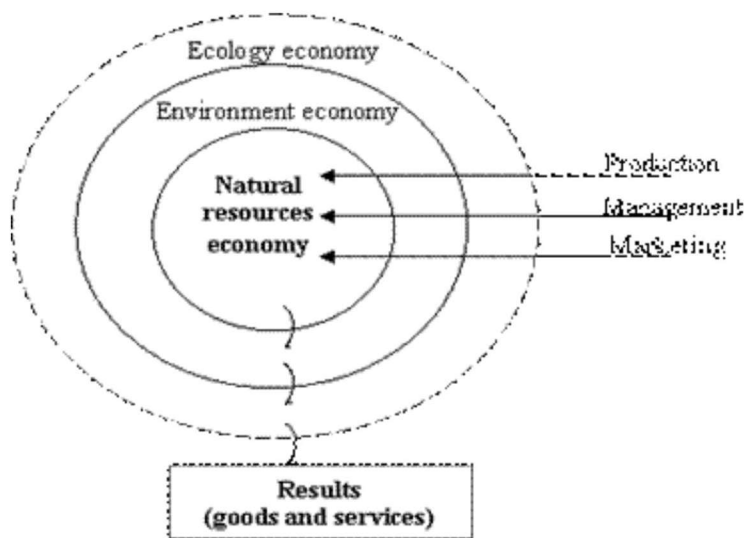


Fig. 1 – Ecology, environment, and natural resources economy influences on physical exploitation and valorization of natural resources.

Measurement of cost opportunity is difficult and presumes “finite elements” differentiation type, but practical solving of particular request for specific natural resources overflow in importance direct cost and became possible identification of real advantages in indirect costs.

2. RELATION BETWEEN SUFFICIENCY AND OPPORTUNITY COSTS

A decision is rational from economic point of view if net revenue (V_{net}) overflow opportunity cost (C_o). Profit value (V_p) is expressed in net revenue as difference between sale price (P) and opportunity cost.

In natural resources valorization and exploitation for conventional positive operative conditions (through proper rational – economical decisions) are expressed as follows:

$$\begin{cases} V_{net} > C_o \\ V_p \in V_{net} = P - C_o \end{cases} \quad (1)$$

Proportional to real cost (C_r) opportunity cost could record three reporting situations, naming:

1. *Opportunity cost is lower than real cost:*

$$\begin{cases} C_o < C_r \\ V_{net}^1 > (C_o < C_r) \end{cases} \quad (2)$$

This is the most favorable situation in natural resources exploitation and valorization decision. It is visible ascertainment that if usual real cost have a specific level (scale) generalized meted, due to some particular or circumstantial situations which refers to a specific natural resource operation cost, opportunity cost respectively, is lower and as such are generated advantages which determines taking of productive engagement decisions in exploitation and valorization.

2. *Opportunity cost is equal with real cost:*

$$\begin{cases} C_o = C_r \\ V_{net}^1 > (C_o = C_r) \end{cases} \quad (3)$$

Identity between conditions that justify natural resources exploitation and valorization decision, productive flow being confirmed as feasible engagement in generality situations accepted by decision bodies is ascertained in this case.

3. *Opportunity cost is greater than real cost:*

$$\begin{cases} C_o > C_r \\ V_{net}^1 > (C_o > C_r) \end{cases} \quad (4)$$

This situation represents reason for extremely careful managerial concern from decision bodies regarding their engagement in natural resources exploitation and valorization process.

It has been founded that reported to usual level of costs for the same natural resource type in a specific location where assessment is located, proper cost (opportunity cost) overflow known average used on international or global scale. Operating with greater costs risk of non-achieving acceptance level for net revenue to ensure expected profit value arise.

At the same time, usually:

$$V_{net}^1 > V_{net}^2 > V_{net}^3 \quad (5)$$

In exchange in absolute value, it is always necessary to be fulfilled requests for recording profit values (V_p^1, V_p^2, V_p^3) which has to be strictly positive:

$$\begin{cases} V_{net}^1 \rightarrow (V_p^1 > 0) \\ V_{net}^2 \rightarrow (V_p^2 > 0) \\ V_{net}^3 \rightarrow (V_p^3 > 0) \end{cases} \quad (6)$$

Comparisons between ranges of profit values shows that, in practice, could be differentiate one from another (Δ) and hierarchy related to quality of decisional, technical, technological, infrastructural, etc. elements founded from one type of natural resource to another.

$$\{\Delta V_p^1 \cong \Delta V_p^2 \cong \Delta V_p^3\} > 0 \quad (7)$$

Therefore, opportunity cost attenuate sufficiency of natural resources, offering the chance for multitude of their exploitation and valorization alternatives.

Romanian economic environment is frequently confronted with need to take decisions in sufficiency of resources conditions. Not only natural resources enter under the incidence of complex decisional process, but also other micro- and macro-economical segments which necessitates allocations and distributions (national public budget, public domain management, water, environment).

Decisions in sufficiency conditions could affect both human communities and material domains or structures, physical from general country infrastructure. It comes out that, almost every time, opportunity cost is take into account as fundamental decisional parameter in formalization of productive and reproductive operational alternatives.

Essentially, opportunity cost participate to resources allocation solving or to identification of most feasible natural resources exploitation and valorization ways, motivating economic operators in productive values system engagement.

3. ORIGINAL CONTRIBUTIONS AND CONCLUSIONS

Starting with 1989 when was produced economical system change in Romania productive operators in national economic environment approach opportunity costs, but their engagement aim toward speculative – circumstantial side in micro-economy.

Frequently, incipient decisions for resources exploitation and valorization was finally invalidated by non-obtaining profit values.

In other cases level of profit values proved to be exaggerated and denatured “input – output” reports in transformation productive flows.

For the first time, in this paper is considered that economic rationality must have included in valuable judgments parameter denominated “opportunity cost”.

Reports between ecology economy elements, those of environment, and natural resources ones presumes manifestation of opportunity costs, which may sustain registration of expected profit values.

Between sufficiency and opportunity costs exists maximum importance relations in respect of solving optimal resources allocation and distribution.

Original relational expressions on opportunity cost related to real cost represent outstanding contributions to identify translation ways of natural resources sufficiency towards their physical, dimensional, and qualitative conventional normality.

Economies, - Cambridge University Press, 1981. 3. Fisher, C.A. *Measurement in Natural Resource Scarcity*, - John Hopkins University, Baltimore, 1979. 4. Brown, GM; Field, B. *Implications of Alternative Measures of Natural Resources Scarcity*, - *Journal of Political Economy*, no.86/1978.

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