

THE ECOLOGICAL FOOTPRINT: A TOOL TO BE USED IN SUSTAINABLE DEVELOPMENT DECISIONMAKING PROCESS AT REGIONAL SCALE IN ROMANIA

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ABSTRACT. The paper deals with the opportunity of using the ecological footprint as a tool in elaborating and correcting sustainable development plans and strategies in Romania. The authors briefly present the concept and consider it as one of the most appropriate approach of the balance society – natural resources supply. As the experience of other countries shows up, the use of the ecological footprint at sub-national level (region, department, big urban area) could be a viable way to avoid the over-exploitation of natural resources. A list of potential advantages coming from the implementation of this tool in Romania, at region or county scale is also presented.

Keywords: sustainable development, ecological footprint, county, region, Romania

INTRODUCTION

Any crisis, consists in an imbalance, a disequilibrium. Depending on the system we consider, the imbalanced factors can be more or less easy to be identified. In complex systems (e.g. ecological systems) this task is relatively difficult due to multiplicity of factors and to interactions between them (e.g. partial substitution). At global scale, the environmental crisis is a mean issues, coming at it's more general level from an imbalance between humanity and our supporting environment.

The power of humans to modify the environment in an unwanted way is a direct function of world population level and technological achievements. One of the first scientific approach of the maximum population living in a limited habitat is the logistic model describing the density-dependent population growth, known also as Verhulst model (1925). The most influential publication about the ecological global crisis could be considered „Limits to Growth” (Meadows et al., 1972). In a general historical perspective, we must mention the emergence of the sustainable development concept, defined as „... the development which meets the needs of the present without sacrificing the ability of future generations to meet their needs” (1987, The Bruntland Report of the United Nations World Commission on Environment and Development). The concept is revised and its 27 principles established at the United Nations Conference on Environment and Development (Rio, 1992), followed by the 21st Agenda. Since, a plethora literature on sustainable development has been flourished. The nowadays problem linked to this item is undoubtedly finding the conciliation between the ecological, the economical and the social aspects of the

sustainability, not in theory, but in practice. There are many convention institutions, NGO-s, laws, development plans, policies et dealing with sustainability, but practical achievements are scarce.

By this paper, we try to put in attention to Romanian public general aspects about a powerful tool in assessing the sustainability, the ecological footprint, and we discuss its feasibility at regional, sub-national (county/department) scale.

OVERVIEW OF THE ECOLOGICAL FOOTPRINT

The basic question leading to the definition of the ecological footprint (EF) is: *How many of the Earth's resources are used by humans ?* The Earth's capacity to support sustainable human societies is defined as biocapacity, i.e. the biological production in an area (Lewan & Simmons, 2001). Both EF and biocapacity are expressed in hectares of world average bioproductive space, or global hectares per individual and year.

By resources provided to humans, it means: food, fibre, timber, land on which to build, land to absorb CO₂ released by burning fossil fuels. The biocapacity is the amount of biologically productive area (cropland, pasture, forest, and fisheries) that is available to meet human's need.

In order to compare demand and offer (resources and ecosystem's services), equivalence factors are used to make possible the comparison, and normalize the expression of EF and biocapacity. Based on works of Wackernagel and other authors, since 1999, a methodology is used, at the nations level, based of national statistics.

The analysis (fig. 1) shows that the EF has exceeded, in 2003, the Earth's biocapacity by about 25 %. The significance of that is the over-exploitation of

natural resources beyond their regenerable capacities. We are drawing down the natural capital.

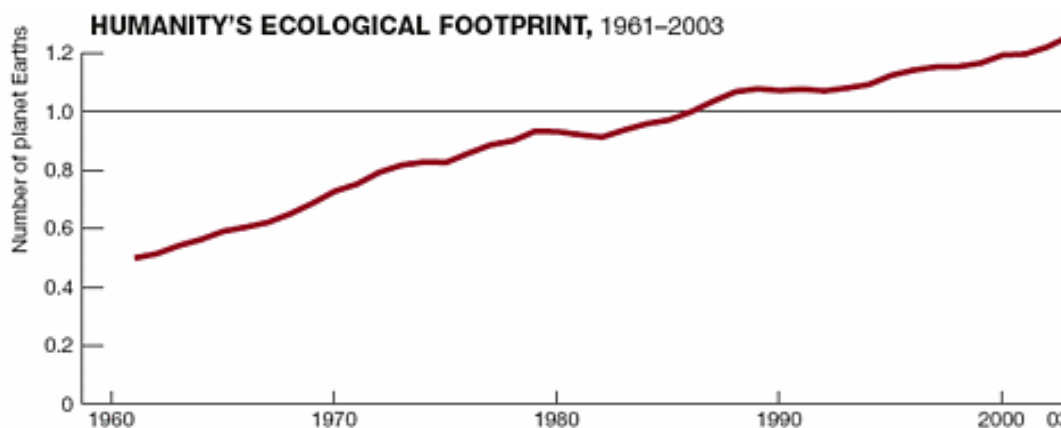


Fig. 1. The evolution of the ecological footprint on Earth (from http://assets.panda.org/downloads/living_planet_report.pdf)

It is obviously a far from sustainability situation. This ecological deficit appears like exhaustion of ecological assets and could caused collapse of ecosystems. In confruntation with optimistic opinions (wich assign hope to technological non-harmful technologies), this kinds of arguments is more powerful.

Taking into account that at global level we can enumerate few acheivements in favour of sustainability, the EF is to be considered at sub-national level.

The situation in Romania over 43-year period is presented in fig. 2. Afler two dedades (1971-1991), when EF overtakes the biocapacity, in 1991-2003 period, both parametres evolve closely; responsible for the situation are many factors as: decline of industry and agriculture, emigration, weather etc.

It appears that for Romania, present time is optimal for including EF as tool in natural resources management.

Footprint and Biocapacity

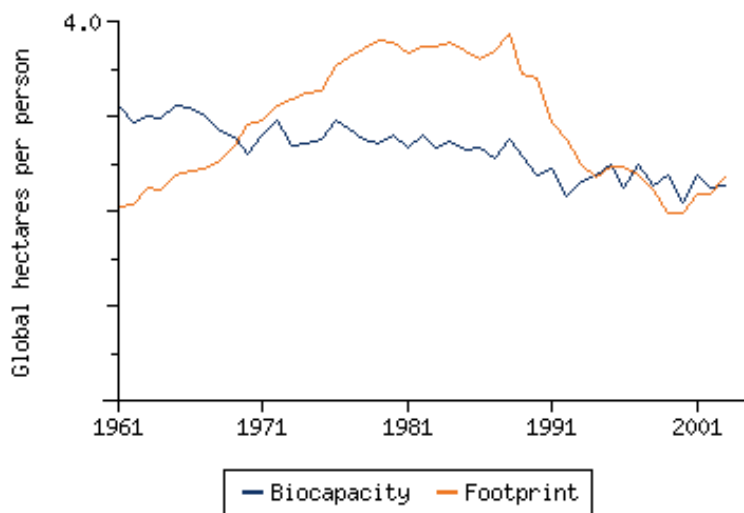


Fig. 2 The evolution of ecological footprint in Romania (1961-2003) (from <http://www.footprintnetwork.org/webgraph/graphpage.php?country=romania>)

DISCUSSIONS AND CONCLUSIONS

In transition Romanian society, it is clear that economical aspects come firsts. To realize the conectivity and the insertion with and in the E.U. economies and societies, it is necessary to adopt efficient ways and measures in a short period of time. As the environment problems are central in Europe, Romania have to solve similar problems. National

plans and strategies, corect and modern in their lines, are to be analyzed aside regional and local ones, according to ecological laws and principles. We identify as obstacles to regional/local sustainable development in Romania:

- the lack of knowledge about local natural capital, in spite of the recognized high value among EU countries;

- the poverty, comparing to other EU countries, which push decisionmakers to set the economical development as the central point in their actions;
- a poor level in school formation and public information about sustainability goals and tools. As a consequence, the scientific contribution and public participation in developing regional/local plans are formal or quasi-absent;
- the intrusion of a primitive political system in administration, and economy;
- the lack of articulation and coordination between state institution which deal with development and environment protection (e.g. EPAS, local councils; national and natural parks departments councils, schools, professional organisations).

A quick transition to an functional system, or similar one to with systems in developed countries is an utopia, giving the compexity of picture. Unfortunately, few progresses have been recorded during transition, and many mistakes could be avoided. An efficient change is to be based on an effective change in accepted values system, doubled by realistic plans and a functional control.

Our investigation shows up that the Ecological footprint is used in Romania only as a statistic indicator or descriptor and only at national level.

Introducing this tool at the county level, or urban big areas level (see Oslo Workshop on *Ecological Footprint: What works for what?* August 24th-26th, 2001, at URL: <http://www.prosus.vio.no/english/sus-dev/tools/oslows/index.htm>) would result in:

- enforcing efforts to make on accurate inventory of natural capital;
- inducing a holistic perspective and approach on environment integrative in contrast with the nowadays economic reductionism;
- creating a frame for solving many problems of the development;
- setting more appropriate conditions for applying development plans;
- introducing and enforcing the ethical and equitability dimension in discussion about future, poorly present today in the sustainable development equation;
- harmonizing efforts of all sustainable developments agents.

The steps of taking into account the ecological footprint tool at county level could be, in our view:

- starting a scientific program for having as main goal to fill the gap in knowledge about the Romania natural capital;
- elaborate a methodology for an accurate evaluation of ecological footprint;
- disseminate information about the utility of the ecological footprint in planning;
- create county commission with both scientific and monitoring the implementation of the EF.

As institutions susceptible to be involved, we see: county councils, statistics county bureaus, research institutions.

Finally, adopting ecological footprint is the opportunity to create a bridge between ecological theory and sustainable development practice.

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