INTEGRATED MECHANISMS FOR APROACHING PRIORITY ENVIRONMENTAL ISSUES AT GLOBAL LEVEL

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ABSTRACT. – Integrated mechanisms for approaching priority environmental issues at global level. At global level, there are considered priority environmental issues two interdependent processes that are essential for the support the processes that provide living conditions and wellbeing for the entire humankind: climate change and loss of biodiversity. Payments of ecosystem services became already well-known and applied economic instruments, although there are still many uncertainties in the knowledge of eco-economic interdependencies. The paper discusses these aspects in the first part highlighting advantages and disadvantages, while in the second part there is analyzed an integrated program of the United Nations, which was designed for making progress toward both climate change, and loss of biodiversity. The REDD program – Reduction of Emissions from Deforestation and forest Degradation – is addressed to developing countries and it started in 2008. Based on assessment reports we will try to formulate a number of conclusions regarding the program's effectiveness.

Keywords: climate change, biodiversity loss, market based instruments, REDD.

1. INTRODUCTION

Deterioration of subtle mechanisms that support the ecological balance and meanwhile the human wellbeing is a recognized fact by the scientific community and it also better and better acknowledged by the society. At global level are considered as priority environmental issues two interdependent processes that undermine these mechanisms: climate change and loss of biodiversity.

As long as climate change is regarded, although the results are still modest, it could be discussed numerous governmental measures that indicate the implication of high decisional levels in climate change mitigation: restrictive regulations on emissions, carbon markets, green certificate markets, carbon taxes, the European emission trading scheme (ETS) etc. These mechanisms are based on the assumption that marketization could not be avoided and that market is the most efficient means to make the equilibrium between demand and supply to correspond with the social optimum, although the "invisible hand" of the market is quite contested in situations that are less problematic in terms of information availability than climate change.

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On the other hand, slowing down the loss of biodiversity is foreseen also as a result of market relations' expansion. Thus, payments for ecosystem services became already well known and applied economic instruments, despite the many knowledge gaps regarding the eco-economic interdependencies.

The paper discusses these aspects in its first parte, while in the second one we analyze an integrated program of the United Nations, which was designed for fostering progress in both climate change mitigation and halting biodiversity loss. The REDD program – Reduction of Emissions from Deforestation and forest Degradation – is addressed to developing countries, being started in 2008. Based on the available assessment report we formulate a number of conclusions regarding the effectiveness of this program.

2. MARKET BASED INSTRUMENTS IN ENVIRONMENTAL PROTECTION

Since the initial recognition of the positive correlation between economic growth and environmental degradation at the beginning of the 1970s a lot of progress was made in addressing the most challenging issues such as climate change, pollution, ozone depletion, deforestation, water scarcity, waste management, to name only the most prominent ones.

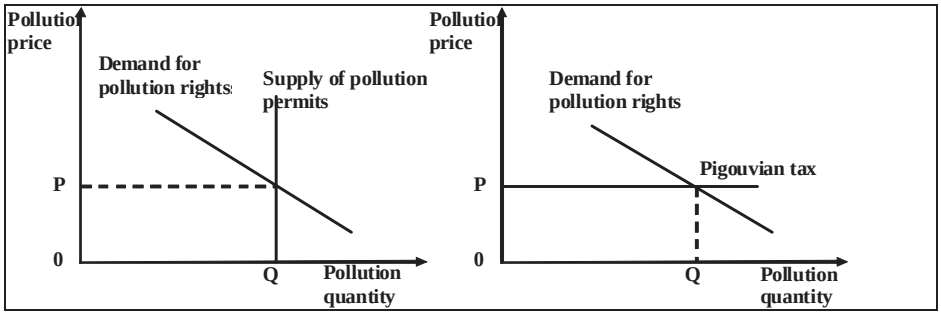
Environmental degradation was interpreted in economic terms as an expression of market failure. This means that free market is unable to provide an allocation of resources that secure a proper quality of environmental factors or a proper level of ecosystem services. Therefore, there is needed a correction that will allow externalities to be included in market prices resulting in a decoupling of the economic growth from environmental degradation. The correction could come in many shapes and these means are known as policy instruments. A widespread classification system (Bran, 2002; Bran and Ioan, 2002; Rojanschi and Bran, 2002; Rojanschi et al., 1997) group these instruments in three categories:

- regulation and standards, also known as command and control instruments;
- taxes and subsidies or market based instruments; and
- social-communicative instruments.

Each category has its advantages and drawbacks. In fact, environmental policy is implemented by using a combination of these instruments the challenging question being the receipt of blending or how to establish the most appropriated instrument to address a certain environmental issue. In this respect, Rojanschi and Bran (2002) provide some guidance. Thus, they stress that the only type that cannot be avoided is the first one: regulations and standards. For instance, these are needed for establishing emission ceilings for trading schemes (market based) or the framework for voluntary agreements (social-communicative). According to Bran and Ioan (2002) command and control instruments are featured by some serious disadvantages: are very time-consuming; could give the wrong impression that something is done; cannot cover all situations in an equitable and flexible manner.

The last decades gave a lot of focus for market based instruments. The main reason for supporting them is efficiency. Regulation must provide only a framework for the emergence of new markets. IPCC (2007) recognizes that the global emission trading scheme established by the Kyoto Protocol has the potential the reduce emissions to a level that will allow humankind to avoid the catastrophic effects of climate change. In case of dangerous substances, such as pesticides or other chemicals, these instruments could not guarantee for the sudden withdrawal even if there is plenty of evidence about their toxic effects.

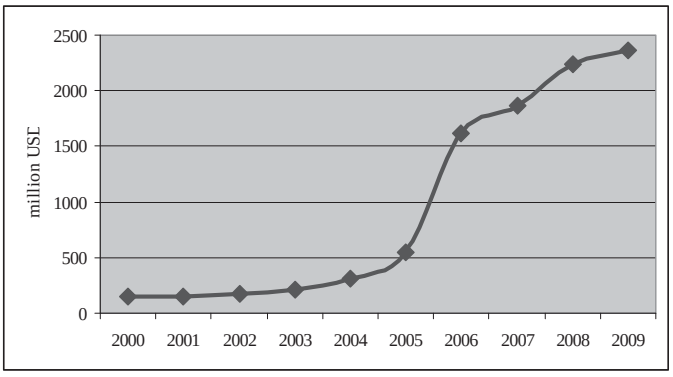
The price-correction could be shaped as a tax or subsidy sized in accordance with the size of the externality, or as a new market for the rights to pollute or impact in other ways on the environment's quality. The mechanism of action for these two types is presented in fig.1.



Source: Bran, F. (2006), *The efficiency of using pollution permits in fulfilling environmental protection goals*, Bucharest: ASE Publishing, pp. 64-74.

Fig.1. ***The mechanism of action for pollution permits and for „green" taxes***

Climate change is recognized as the most important environmental issue today. Fighting this problem could be effective only by a global approach seconded with energetic national programs which are convergent in their goals with the objectives.



Source: Carbon Finance Unit, World Bank

Fig.2. ***Evolution of carbon funds at the World Bank***

Most of the strategies for climate change mitigation use market based mechanisms. This is implemented at global level by the Kyoto Protocol by the Clean Development Mechanism (CDM). For example, he World Bank's Carbon Finance Unit uses money contributed by governments and companies in OECD countries to purchase project-based greenhouse gas emission reductions in developing countries and countries with economies in transition. The so called carbon funds increased steeply in the last years (fig.2).

The European Union, which is recognized for its environmental leadership, also chose these instruments in order to meet Kyoto commitments. In fact, there are two market based instruments that are enforced for reducing greenhouse gas emissions: the emission trading scheme (ETS) and green certificates. Plumb and Zamfir (2009) conclude that the later proved to be quite effective in the promotion of the use of renewable energy sources for electricity production.

3. REDD – REDUCTION OF EMISSIONS FROM DEFORASTATION AND FOREST DEGRADATION

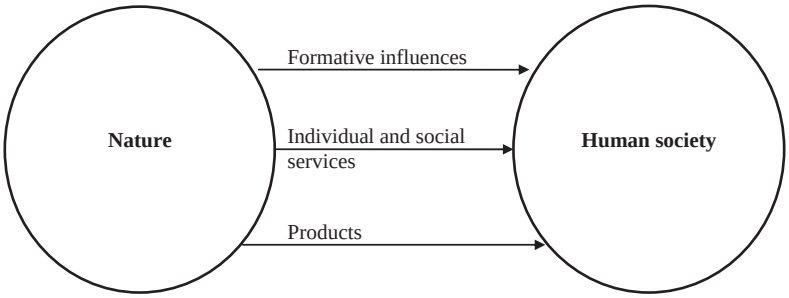
The recent emphasis on the economic dimension of environmental issues is most easily to be noticed in case of nature conservation or fight against biodiversity loss. In this area, in no more than a decade a concept was advanced, checked, debated, and up taken in policy framework. This concept is *ecosystem service* (for definitions see box 1). Although it was proposed in the very early age of environmentalism, it becomes a subject of intensive research only in the late 1990s.

Box 1. ***Ecosystem services - definitions***

Ecosystem services are material, energy, and information flows from the natural capital stocks which combine with the services of the manufactured and human capital for producing human wellbeing (Constantza et al., 1997).
Ecosystem services are benefits obtained by humans from ecosystems. These include providing, regulation, support, and cultural services (MEA, 2003).
Ecosystem services are components of nature consumed or used directly for producing human wellbeing (Boyd and Banzhaf, 2006).

Today, ecosystem service is a common place in the policy documents. Projects like Millennium Ecosystem Assessment, TEEB (The Economics of Ecosystems and Biodiversity), and GEM-CON-BIO (Governance and ecosystems management for the conservation of biodiversity) had an important contribution in this respect.

The concept reflects a quite obsolete anthropocentric nature-human mind map (fig.3), which is based on the perception that the value of nature reflects only its utility.



Source: Ioan, I., Bran, F., Rădulescu, C.V. (2010), *Dimensiunea managerială a conservării naturii*, Bucharest: Universitară Publishing.

Fig.3. ***Nature for humankind***

Despite the theoretical basis, there are already great expectations to create markets for the ecosystem services. Among the first initiatives of this kind there is REDD – Reduction of Emissions from Deforestation and forest Degradation which is the first payment for ecosystem services (PES).

REDD is a program proposed by the United Nations that aims to fight climate change, but along with this broad goal there are also pursued biodiversity and poverty reduction targets in developing countries. The program is underpinned by the fact that in these countries deforestation is the main source of greenhouse gas emissions. It intends to use funds from the developed nations for avoiding deforestation in developing ones by using complex financial mechanisms.

The collaborative program will have two components: (i) assisting developing countries prepare and implement national REDD strategies and mechanisms; (ii) supporting the development of normative solutions and standardized approaches based on sound science for a REDD instrument linked with the UNFCCC. The program will help empower countries to manage their REDD processes and will facilitate access to financial and technical assistance tailored to the specific needs of the countries.

Source: UN-REDD Program.

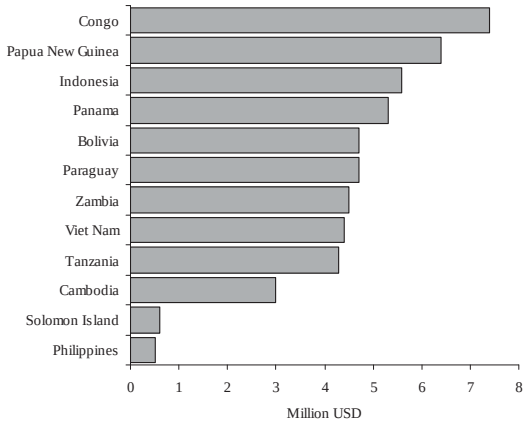
Fig.4. ***REDD partner countries***

The partnership comprises 29 countries to be supported with financial resources. These are divided according to the way of how the support is made available (fig.4). Thus, there are 12 countries which receive direct support and

other 17 countries participating as observers to the Programme's Policy Board, and through participation in regional workshops and knowledge sharing.

The donor countries supposed to be the developed ones. Till date there are not many to be found on this list. In fact, there are only three: Norway, Denmark, and Spain. The first and largest contributor is Norway with almost 150 million USD contribution, which represent almost 93% of the total contributions. Less than half (76 million USD) of the total contribution is allocated for supporting projects in developing countries as approved budgets. Nevertheless, not all this amount is transferred yet, and only around 7 million is the expenditure recorded to date.

Countries that have approved budgets, ordered by the size of this budget (fig.5), are: Democratic Republic Congo, Papua New Guinea, Indonesia, Panama, Paraguay, Bolivia, Zambia, Viet Nam, Tanzania, Cambodia, Solomon Island, and Philippines. Until now only in two of the countries were recorded expenditures and these are Congo and Viet Nam.



Source: UN-REDD Programme.

Fig.5. ***REDD countries by their budgets***

Since its implementation, REDD was carefully watched by the scientific community which made reports on its implementation progress, potential to bring in benefits, barriers to be overcame, and outcomes. Kanowski et al. (2010) reviewed the literature on the subject and made an inventory on the potential benefits and dis-benefits (Box.2).

Box 2. ***Potential benefits and dis-benefits of REDD***

Potential benefits

The prospective immediacy of its benefits.

Cost-effectiveness, relative to other mitigation options.

Support of biodiversity conservation and delivery of other environmental services.

Contribution to poverty reduction and improved rural livelihoods.

Potential dis-benefits

Implementation arrangements could deny the rights of indigenous and forest-dependent peoples over their territories and resources and prejudice progress towards more

decentralised, locally-empowering modes of forest governance. For example, indigenous peoples' agency in REDD+ negotiations remains problematic (Schroeder, 2010), and there is continued disagreement on what constitutes a REDD+ eligible "forest". A focus solely on forest carbon will override concerns about biodiversity conservation, particularly if the definition of ''forests'' eligible for REDD+ credits does not distinguish between natural forests and plantations and encourages replacement of the former by the latter. The additionality, leakage, and permanence of forest-based emissions reductions compared to those of other sectors.

Source: Kanowski, P.J, McDermott, C.L., Cashore, B.W. (2010), Implementing REDD+: lessons from analysis of forest governance, *Environmental Science and Policy*, article in press, 859, pp.2.

The most powerful reason to support REDD is that storing carbon in forest, in addition to its co-benefits in terms of biodiversity preservation and poverty alleviation, could "buy time" to prepare a more comprehensive climate strategy. Such action is needed considering the difficulty in making progress in climate negotiation, case that is illustrated by the happening of the Copenhagen Conference.

4. CONCLUSIONS

Climate change is the most challenging environmental concern due to its global scale that involve difficult international negotiations, strong relation with one of the most important resource on which human kind depends – fossil fuels, and catastrophic outcomes in case that no changes are made.

As any other environmental issue, climate change was addressed using a wide area of policy instruments. For the implementation of the Kyoto Protocol, the international agreement for climate change mitigation, prevalence was given to market based instruments, at least for Annex I countries. This means to create a new market for carbon dioxide emissions that allow states and companies to trade emission permits. The potential of this mechanism to reduce emissions to a safe level is accredited climate change economics. Nevertheless, the Kyoto Protocol is about to end in 2012. the Copenhagen Conference in 2009 revealed huge difficulties in negotiation emission targets toward a new and more comprehensive global climate agreement. Thus a new problem raised: from where could by bought time for preparation.

Based on a quite obsolete human-relation mind map ("Nature for humanity") the concept of ecosystem service brought in nature conservation projects the flexibility of market approaches. Designing an ecosystem service payment scheme at global level seemed very attractive in increasing efficiency. From here to the potential of such project to sequestrate carbon (one of the regulating services of ecosystems) was only one step, which was made by designing the REDD program.

The program comprises twelve developing countries in which forests are already assessed to be included in ecosystem payment schemes. The payers are represented by the program itself, managed by the United Nations, and some donor countries. Since 2008 then the program started, three such countries were involved: Norway, Denmark, and Spain. The largest donor is, by far, Norway, accounting for 93% of the total contributions. Democratic Republic of Congo is the country that received to date the largest financial support (almost 8 million dollars), while Philippines accounts for the smallest budget (0.5 million dollars).

Although controversies still persist, we found that there is a solid argument to support this program at least because it is able to buy the time needed for the preparation of a more comprehensive climate agreement.

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