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Payments for environmental services (PES) in Croatia – public and professional perception and needs for adaptation

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Abstract

Background and purpose:
Croatia is one of the countries with a long practice of payments for environmental forests' services (PES). Following the implementation of green tax in Croatia and present European trends, the aim of this research is to investigate state of economic mechanisms and possible need for change or adaptation to the new trends.

Material and methods:
Primary data were collected by interviewing forestry professionals in charge of collection and distributions of green tax to gain an insight of their perception on importance of green tax, their comments on recent decrease in prescribed rate and what are the issues related to tax collection. Also very short telephone questionnaires were conducted with taxpayers to get an impression on how taxpayers perceive their obligation, their awareness of the purpose of this payment, their participation in discussion related to green tax and do they receive annual reports from Croatian Forest Ltd. company related to money collected and spent. Secondary data consisted of review of relevant literature, legislation overview and analysis of reports on collection and distribution of green tax provided by Croatian Forests Ltd. company.

Results and conclusion:
Collected amount of green tax grew constantly given the period 1993-2009. Important factor was increased monitoring of tax collection. Main problems with green tax were constant change of governmental decisions and lack of transparency of tax distribution. Green tax was perceived as burden by taxpayers and their knowledge of its purpose was general at best.
Transparency of tax distribution and better public relations by Croatian Forests Ltd. company could improve public acceptance of green tax.

Key words:
environmental services, green tax, implementation, perception, Croatia

INTRODUCTION

Forests are highly complex ecosystems contributing to society's welfare through their ecological functions. Ecosystem functions are considered by contemporary environmental and ecological economists as services. If something is declared as service, that means that the price or value is attached to it, and therefore it could be bought or sold. Maintaining forests in sustainable way is costly. Hence, prevailing stance is that somebody should pay for it.

The concept of ecosystem services was introduced in 1981 [1]. A term ecosystem services is interchangeably used with environmental services, ecological and nature's services.

The concept was mainstreamed in 1990s with expansion of valuation methods, with milestone paper by [2] on the value of global natural capital and ecosystem services, but gained policy importance when it was included in MEA Report [3]. In MEA framework emphasis was put on human dependency on environmental services and ecosystem functioning [4].

The original purpose of environmental services, i.e. of utilitarian approach to ecosystem functions in 1960s and 1970s, was to warn about increasing deterioration of natural resources and importance of biodiversity conservation [5, 1, 6].

In the last two decades some environmental services (e.g. carbon sequestration, watershed protection, provision of habitat for endangered species, landscape protection) were articulated in markets in order to provide economic incentives for conservation by employing PES (Paying for Environmental Services) and MES (Markets for Environmental Services) schemes [e.g. 7, 8, 9].

The most cited definition of PES says that PES is a voluntary transaction where a well-defined environmental service is being bought by at least one buyer, from at least one provider, but only if provider is able to secure provision [10]. Most literature refers to PES as market based or market-like mechanism. In reality only a few PES schemes meet these criteria, so the definition has recently been criticised for being too narrow and leaving out other schemes.

Muradian et al. provide broader definition where PES is defined as "a transfer of resources between social actors, which aims to create incentives to align individual and/or collective land use decisions with the social interest in the management of natural resources" [11, p. 1205].

Environmental taxes, as public financial mechanisms, have a long history. Results of the questionnaire developed in FORVALUE study showed that environmental taxes are most frequently used financial instruments in EU for non-market forest goods and services [12]. Advantages of these negative incentives are that simple forms of taxes are easy to administer and applicable for most forest benefits. On the other side simple taxes do not provide funds that are directly available for forest measures and could be perceived as burden by those who are obliged to pay [12].

In this paper the Croatian experience will be presented through collection of green tax, its distribution, issues related to tax collection, as well as perception of green tax by forestry professionals and taxpayers. The information presented in this paper works as a small preview of larger project that is proposed to Croatian Forests Ltd. company. Project will deal with PES in a way to provide policy recommendations for improvement related to payments for forest services and their perception by taxpayers.

MATERIAL AND METHODS

For the purpose of this article authors employed secondary data analysis comprising of literature and legislation overview, as well as analysis of reports on collection and distribution of green tax provided by Croatian Forests Ltd. company.

Interviews with forestry professionals in charge for collection and distributions of green tax were conducted to gain an insight of their perception on importance of green tax, their comments on recent decrease in prescribed rate and what are the issues related to tax collection.

Telephone interviews with taxpayers were conducted in a manner of very short questionnaire for the purpose of probing and not of getting representative sample. Therefore, telephone calls with numbers randomly acquired from telephone book were conducted to get an impression on how taxpayers perceive their obligation, their awareness of the purpose of this payment, their participation in discussion related to green tax and do they receive annual reports from Croatian Forest Ltd. company related to money collected and spent.

RESULTS

Environmental tax for forest services in Croatia

Forests are considered as resources of special importance for Republic of Croatia and therefore under state's special attention [13, article 2]. Forestry sector in Croatia understood importance of being a good master of these valuable natural resources long time ago, which led to almost 30 years long experience with paying for forest services.

Croatian forestry is characterised by high share of public forests (78%) and 43% (1.143.250 ha) of total amount of forests are forests on karst [14]. Forests on karst are highly valuable for providing forest functions but their management can not be financed only by wood selling, since income from wood from these forests is insignificant.

Forest Law [13, article 3] recognizes/identifies following forest services:

- soil protection from erosion caused by water or wind,
- water balance and prevention of floods and high water waves,
- water purification by filtration through forest soil and contributing to sources of potable water,
- positive impact on climate and agriculture,
- air purification,
- influence on landscape beauty,
- creating favourable conditions for human health,
- providing space for recreation,
- contributes to development of forest based tourism and hunting,
- secures gene fund of forest species,
- protection of diversity of species,
- ecosystems and landscapes,
- supporting general and special nature protection (national parks etc.) of forest landscape,
- mitigation of "greenhouse effect" by carbon sequestration and provision of oxygen,
- enhancement of human environment,
- protective function in a case of war operations and contribution for development of local communities."

Total value of forest services in Croatia was estimated according to methodology prescribed in Rulebook of Forest Management [15] to 43.40 billion euro [14, p 222]. Rulebook prescribes valuation method based on estimation of 10 elements [16].

In the 1980, while Croatia was still socialistic republic and part of Yugoslavia, forest service, the Republic and communities made a deal, based on Forest Law from 1977, to provide funding for afforestation, forest renewal and protection of forests against the fire for forests in karst areas [17], but it has not achieved expected effect [18]. Initial attempt to collect environmental tax for forest services dates in 1983 [19, articles 80, 81]. Aim of this fund was to secure money for forest regeneration and afforestation, in order to improve management of forests in karst areas. In karst areas productive function of forests is of secondary importance and forestry is not in position to finance forest reproduction from wood selling. Nevertheless, collecting has failed due to lack of monitoring [20].

After fall of Yugoslavia and establishment of democratic Republic of Croatia, new Forest Law [21, article 70] imposed obligatory payment for all economic subjects who are registered in Croatia, in amount of 0.07% of annual income for using forest services. Collection started in 1991 and money went straight to the special account of Public Forest Enterprise Croatian Forests, empowered by state for management of forest resources. Companies in charge of forest management, e.g. Croatian Forest, were excluded from this payment scheme until 2006. All of those obliged to pay do it quarterly based on annual income for previous year, and after the current year ends calculated difference between advance payment and actual tax based on actual income for that year.

In the meantime Public Forest Enterprise Croatian Forests has transformed into Limited Liability Company and new and the latest Forest Law has been brought. The latest Forest Law [13] did not brought significant change related to environmental tax, but after the amendment in 2006 entrepreneurs were excluded from this obligatory payment scheme [22], as a part of governmental scheme to support small entrepreneurship, which means that from that year on only legal subjects are paying this environmental tax.The most important change occurred very recently when Government decided to reduce the rate of environmental tax for 25%, from 0.07% to 0.0525% of annual income, starting with 1 July 2010 [23], as a part of anti-recession measures [24]. It is still too soon to foresee the impact of this change, but Croatian Forests Ltd. has already planned to reduce funding for mine sweeping and afforestation. Fund is managed by Department for Public Welfare Fund Programme at Croatian Forests Ltd. company. It is used for financing renewal of forests, forest protection, management of forests in karst areas, restoration of forests threatened by dieback and diseases, forest roads' building, mine sweeping, protection of gene diversity, establishment of clone plantations, forestry-based scientific work, forest management programs for private forest owners [13, article 64].

Croatian Forests Ltd. company is obliged to send annual report to Croatian Parliament on tax collection, its distribution, as well as planned distribution for next year.

Distribution of fund

In this section distribution of collected tax will be presented based on information provided by Croatian Forests Ltd. company. For some years numbers were not available, but numbers serve here for illustration.

Collected amount of green tax grew constantly given the period 1993-2009 for which data is available (Figure 1). Starting with year 2008 much more attention is paid for monitoring tax collection which is one possible explanation for its increase in comparison with years when collection was not monitored. The total amount spent for supporting forest services in each year does not have to coincide with amount collected for each year, because money not spent in a current year is transferred to next year. The peak in 2001 is result of concerted action by forest management company to enhance green tax collection [20].

TABLE 1
Share of green tax in 2009 according to economics activities (based on National Classification of Economic Activities, OG 58/2007) (source: Croatian Forests Ltd.)

Economic activity according to National Classification of Economic Activities (2007)		No.of econ. subjects	Share in 2009
A	Agriculture, Forestry and Fishery	2.312	2,6%
B	Minning	248	1,4%
C	Processing Industry	10.945	24,2%
D	Provision of electivity, ga, steam and air conditioning	191	4,3%
E	Provision of water, waste water disposial, water management and environmental sanation	515	1,1%
F	Constraction	12.151	10,0%
G	Trade; Repairment of motor vehicles	27.262	35,1%
H	Transport and warehousing	3.522	4,7%
I	Acommodation and food servicing	4.833	2,1%
J	Information and communications	3.576	4,8%
K	Financial acitvities and assurances	671	0,8%
L	Real estate	4.134	1,5%
M	Professional, scientific and tehnical services	12.926	4,6%
N	Administrative activities	3.262	1,3%
O	Public administration and defence; Mandatory social security	37	0,1%
P	Education	828	0,1%
Q	Healt and social service	917	0,3%
R	Art, entertrainment and recreation	791	0,6%
S	Other services	2.194	0,4%
T	Household help	2	0,0%
Total		91.320	100%

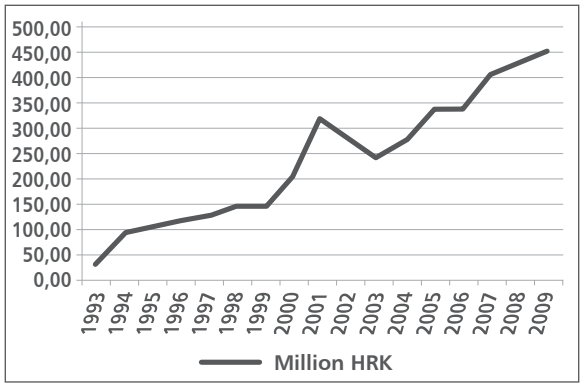

FIGURE 1
Green tax collection 1993-2009 in million HRK (1 HRK=0,137 € on 30 August 2010)

Trade sector, processing industry and construction had the biggest share in green tax collection in year 2009 (Table 1).

Biggest percentage of money is spent for financing activities of forest renewal, prescribed in article 28 of Forest Law [13]. Apart from green tax, these activities are financed by allocation of 3% from wood selling, from annual business plan of Croatian Forests Ltd. company and other sources [13, article 61].

So far Croatian Forests Ltd. company spent 160 million HRK (approx. 22 million €) for mine sweeping [25], but still a lot of forest area is out of reach due to mines. Company started with these activities in 2002 (Table 2).

TABLE 2
Money invested in mine sweeping including green tax (2002-2008) (source [25])

Year	m^2	HRK
2002	414.688	4.340.270
2003	626.230	3.144.518
2004	938.828	8.316.413
2005	1.999.398	20.460.251
2006	3.105.853	27.839.847
2007	3.827.770	44.298.010
2008	5.366.813	52.127.604
Total		160.526.913

According to Law on Fire Fighting [26] 5% of collected green tax is allocated for supporting fire departments in karst areas based on forest area covered by these fire departments. Fire is a big problem during summer months. Only in 2009 occurred 140 fires, of which 104 in karst area and causing in total 2.213 ha burnt area [27].

Problems with tax collection

Lack of control over tax collection caused that a great amount could not be collected, especially at the beginning of collection. The amount varied especially in the 1990s with seven time raise between 1993 and 2000 (Figure 1).

Governmental decision in 2006 to exclude entrepreneurs caused decrease in collected tax. Forestry professionals argue that this was not a valid criterion because a lot of eligible tax payers have low income, resulting in small amounts of green tax they have to pay. On the other side, entrepreneurs' incomes could be much higher, but according to Law they are excluded from payment scheme (personal communication).

In 2008 record amount of approx. 436 million HRK (approx. 60 million €) was collected, but due to economic recession expected decrease in income for 2009 was 17.5% [28]. Croatian Forests Ltd. company has intensified tax collection by sending reminders to tax payers and paying lawyers and public notaries to pursue those who avoid paying. In 2008 database of taxpayers were adapted to facilitate tax collection. These measures, even though causing additional costs, proved successful. Reminders were sent in 2009 to tax payers who owed in total 226.81 million HRK (approx. 31 million €) for the period between 2004 and 2009, what resulted in 39.4% of collected debts [27]. Still, some of the biggest debtors avoid paying (personal communication). Croatian Forest Ltd. company pays interests for money not spent in current year, and sometimes big payments are received in December. These payments are transferred to next year.

Perception of tax by professionals and tax payers

Forestry professionals argue that proposed amount is insufficient and poor compensation for all services forests provide (personal communication). Recent change in amount of tax that needs to be paid resulted in estimated loss of 100 million HRK (approx. 13.7 million €) (personal communication).

Since the beginning of environmental tax collection, it has been heavily criticized, especially by those who were obliged to pay it (e.g. Croatian Association of Employers). The tax was perceived as just one burden more on the back of some taxpayers, probably because it was imposed as obligatory and the prescribed rate was pure political decision (personal communication).

Contacted taxpayers, no matter how big they are or how big is amount they pay, perceive obligatory tax payment for forest services as unnecessary burden. Some are aware of importance of this payment for social welfare, but as a company they would prefer not to pay. Taxpayers' knowledge on purpose of this payment is general at best, and many do not know specific purpose of payment. Some are not even informed on recent tax reduction. They do not receive annual report on tax collection and distribution from forest management company or any other information related to how collected payment was spent. Interesting question is their opinion on participation in decision making related to payment for forest services. Majority expressed opinion that it is not necessary. Since this sample is not representative certainly it would be interesting to investigate this question further and obtain more relevant answers.

DISCUSSION AND CONCLUSIONS

Introduction of green tax in Croatia certainly contributed to preservation of forest resources given the money collected so far and its distribution. Nevertheless, there is still margin for improvement. Decisions related to green tax implementation were brought in non-participatory manner, i.e. solely by governmental directives. The prescribed amount was not based on valuation of forest resources, but was pure political decision. Therefore it is a reasonable question to ask is this fund enough to fulfil all aims it is meant for and to answer on questions of those who perceive this obligation as too high and somebody else's business. The process of selecting the financial mechanism comprises of following steps: identification of need to act and the demand for the forest good/service, identification of cause-effect relation between the forest and the good/service provided, identification of provider and beneficiary, valuation of the environmental good/service and selecting of financial mechanism [e.g. 29, 30]. It was not the case in implementation of Croatian green tax. Forestry sector is weak and unable to advocate for itself probably due to the fact that contribution of forestry sector to GDP in case of Croatia is only 1%. Lack of political power of forestry sector led to it facing some governmental decisions, brought without analysis on possible impact on forest resources or company in charge of their management. Croatian Forests Ltd. company has been a holder of FSC certificate since 2002 for all forest area the company

is in charge for. Forest management according to FSC principles is more expensive than business as usual so it is easy to conclude that cost of forest management has increased.

The scariest fact is that latest report on tax collection and distribution, i.e. report for 2009, reveals significant forest acreage contaminated by mines from latest war (1991-1995). Almost 140 thousand ha is still contaminated, comprising 17.5 million m3 of wood out of reach. With current level of activities on mine sweeping it will take 300 years to decontaminate all area under suspicion. This is only one example in support of green tax in our case and its importance for entire society.

Efficient tax acquisition and monitoring of payment proved important in this case, even though it raises costs for Croatian Forests Ltd. company.

Transparency of tax distribution and better public relations could improve public acceptance of green tax, raise awareness of values of forest resources and important issues forestry sector is dealing with, like preservation of forests on karst and mine sweeping. Furthermore, it could tackle discussion about alternative and/or additional sources of funding for forest services.

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