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# Green tax influence on Croatian forestry

by Stjepan POSAVEC

***Croatia has established an assessment of the total economic value of forests. Meanwhile, the Forest Law of the country has provided funding for forest policy by implementing a mandatory payment: the green tax.***

***This paper presents this experience: its implementation and its results, but also the difficulties in accepting and understanding by the public an approach brought in non-participatory manner.***

## Introduction

Total area of forests and forest land in Croatia amounts to 2 688 687 ha which is 47% of its total land area. Out of that, 2 106 917 ha is state-owned (78%), whereas 581 770 ha are privately owned (22%). Vast majority of state-owned forests is managed by Hrvatske šume (2 018 987 ha). Except according to the ownership, forests are classified according to their purpose as well. The Forest Act states that according to their purpose, forests can be commercial, protective and those with a special purpose.

The current Forest management plan (adopted in 2006 and valid until 2015) defines the ecological, commercial and social basis for the biological improvement of forests and the growth of forest production. The goal of the forest management in Croatia is a sustainable and harmonious usage of all the forest functions and the continuous improvement of their condition.

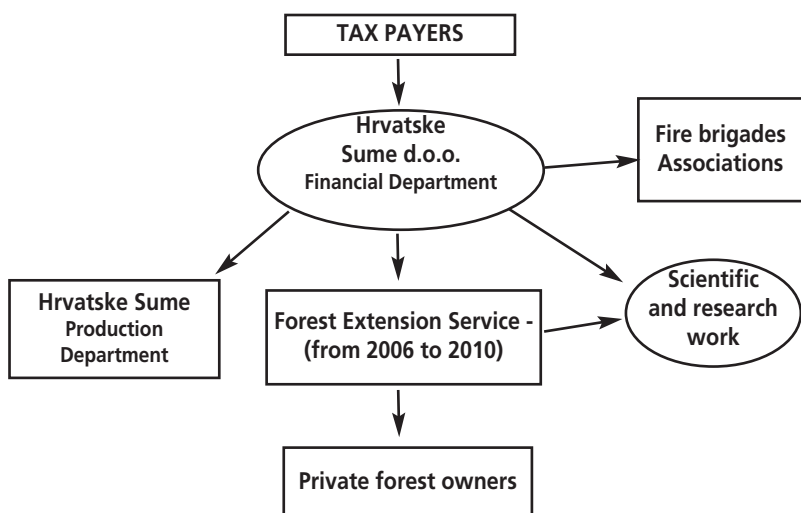
Generally, non wood forest functions are classified as ecological (protective), social, and combined social/eco-physiological (PRPIĆ, 2003). The ecological functions are the ones that have the strongest impact on the environment. Among them are those that influence the balance of the water regime in the landscape and prevent the occurrence of high water levels. Other ecological functions are anti-erosion, climatic function, anti-immission. Social functions are related to aesthetics, health, recreation and tourism. The social/eco-physiological consists of ecological and social factors connected with the sciences of genetics and physiology, i.e. this group of functions is related to genetics, biological diversity, environmental protection and physiology.

Forest law [2005, article 3] defines 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.

The method intended to combine monetary values with ecological parameters (PRPIĆ, 1992), has been applied and has become essential in expressing forest values and in calculating damage reimbursement in Croatia. The evaluation of non-wood forest functions has been investigated in Croatia by different authors, PRPIĆ (1992), SABADI (1997), KRZNAR (2000), ŠIMAŠEK (2007), VULETIĆ (2009), and POSAVEC (2000).

Figure 1: Green tax beneficiaries.



## Forests and green tax

The Croatian karst forestry history dated in 1878 (City of Senj) with establishment of first littoral karst organization (The Royal Inspectorate for the Afforestation of Karst), and afforestation with Aleppo pine, cypress, cedar, stone pine and maritime pine.

Mediterranean coastal forests consist of pubescent oak, Aleppo pine, Austrian pine and Holm oak. Aleppo pine forests grow naturally in the warmer regions, whereas in colder areas they are raised by afforestation of the barren karst areas just as the Austrian pine. In this pine forests many broad-leaved species are gradually gaining a hold, thus recovering the original state of the native vegetation. Important other scrub species are the strawberry tree, mastic tree, coastal junipers climbers and honeysuckle, where in colder areas bay laurel can be found.

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.

Forests and forestland of the Croatian Mediterranean area currently account for 24% of all forests in Croatia. In a total of 662 000 ha sub-Mediterranean forests have a share of 457 000 ha, eu-Mediterranean forests 120 000 ha and bare non-forest land 85 000 ha. Relatively small territory of Croatia contains five different site and vegetation areas extending across an altitudinal range from sea level to over 1 800 m above sea level. As many as 97% of these forests have a natural structure consisting of indigenous species of trees, shrubs and ground vegetation distributed in line with adequate site features.

Mediterranean forests are mostly degraded. Coppice forests and other degraded forms cover 83%, plantations and high forests cover 17%. Those forests are usually exposed to forest fires, uncontrolled grazing and illegal logging what cause continuation of degradation.

In calculating the non-market forest functions, all 776 304 ha of the forest-covered areas of the Croatian Mediterranean region were considered. Total value was estimated on 31,9 billion Euros (FORESTS OF THE CROATIAN MEDITERRANEAN 2011).

In 1980, based on Forest law from 1977 forest service tried to establish fund and provide funding for afforestation, forest renewal and fire protection in the karst region.

In 1990 when Croatia became independent, the new Forest Law prescribed 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 to the special account of Public Forest Enterprise which has transformed into Limited Liability Company.

The latest Forest Law from 2005 did not brought significant change related to the green tax, but after the amendment in 2006 entrepreneurs were excluded from this obligatory payment scheme, as a part of governmental measures 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 green tax for 25%, from 0.07% to 0.0525% of annual income, starting with July 1<sup>st</sup> 2010, as a part of anti-recession measures. In March 2012, Government prescribed another reduction to 0.0265%. Due to the changes in the regulation, company has reduced funding for mine sweeping and afforestation. Fund is managed by Department for Public Welfare Fund Programme at Croatian Forests Ltd. company. The company is obliged to send annual report to Croatian Parliament on tax collection, its distribution, as well as planned distribution for next year. Figure 1 shows green tax beneficiaries.

## Results

According to the Forest law, the green tax fund could be 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 genetic diversity, establishment of clone plantations, forestry-based scientific work, forest management programs for private forest owners [2005, article 64].

Table 1 shows collected amount and distribution for different purposes in year 2011. Main sources have been used for mine

Mine sweeping (state and private forests)	9.965.257
Forest stand preparation	354.930
Young stands nursing	1.744.888
Stands thinning	793.372
Sowing and planting	1.049.956
Burn out area reforestation	492.516
Forest protection and preservation	8.961.251
Forest management plans	7.767.882
Restoration of threatened forest	904.439
Forest roads building (fire breaks)	9.227.690
Protection of genetic diversity	197.241
Private forests	5.788.099
Fire brigades associations	2.567.665
Science – Research work	1.367.261
<b>Total according to the forest law (in 2011)</b>	<b>51.182.454,66</b>

sweeping and forest fire protection and preservation.

Of all harmful factors in a forest, fires are the most dangerous. Protection of forests against fires requires a detailed study of efficient measures for fire prevention and suppression, as well as the recovery of the ensuing damage. In average, about 85% of forest fires occur in the karst region (Table 2).

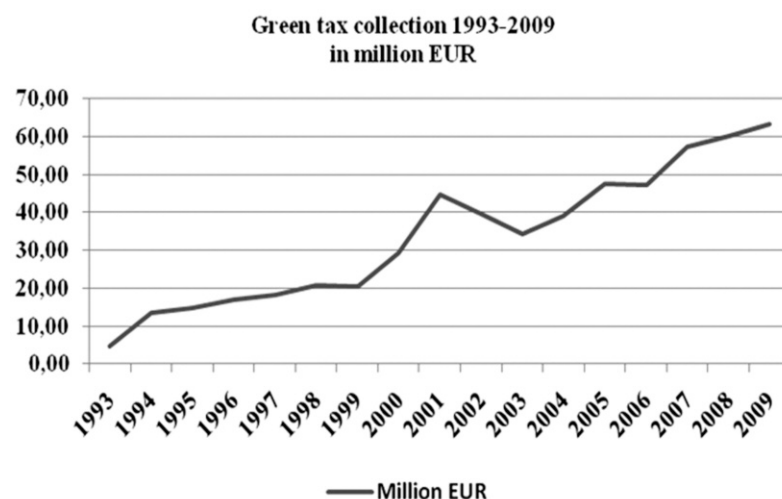
Collected amount of green tax grew constantly given the period 1993-2009 for which data is available (Figure 2). Starting with year 2008 much more attention is paid for monitoring tax collection which is one possible explanation for its increase in comparison with years when collection was not monitored.

Year	2009	2010	2011
Number of fires	181	131	280
Burnt area (ha)	2900	1122	15554

**Table 1:** Collected amount (in Euro, 1 Euro = 7,5 HRK) and distribution for different purposes in year 2011.

**Table 2:** Number of fires and burnt area (CRO)

**Figure 2:** Green tax collection 1993-2009 in million euros.



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## Conclusion

As a specific natural resource, used also for commercial purposes, forests are often subject of different political and economic scenarios. 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. Forest professionals recognise green tax as a proof for multifunctional forest functions and services. On the other hand Employers Association strongly argue that green tax is one of the more parafiscal taxes on company income (among other taxes) and it is not needed any more, especially not in economy in recession.

Another issue is that decisions related to green tax implementation were brought in non-participatory manner, i.e. solely by governmental directives, with small options for negotiation. The prescribed amount was not based on new valuation of forest resources – it was a political decision. 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. Progress towards governance of sustainability may only come from a better linkage between scientists and decision makers at various levels (BUTTOUD).

On July 1, Croatia became a new EU member state. According to the EU regulation green tax is recognised as a subsidy to the state forest company what is not allowed. That definition has caused additional pressure for final green tax abolition. It is a obvious that there is a need to introduce cooperation, co-ordination and better communication between the political decision makers and the forestry sector.

It is clear that better transparency of tax distribution and better public relations could

improve public acceptance and understanding of green tax model, raise awareness of forest resources values and forestry sector benefits. Croatia as tourist destination should find the way for preservation and development of forests on karst as an related attraction.

**S.P.**

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## Summary

### Green tax influence on Croatian forestry

The value of the non wood forest product and services became recognised in Croatia many years ago. Croatian mediterranean forest are especially important and highly valuable for providing ecological, social and physiological functions for the tourism. Their value differ from those of the continental forests. The evaluation method of non-wood products and services has been brought together with Croatian Forestry Society, forestry science and practice, as a basis for the green tax collection. The paper will present Croatian experience presented through green tax collection, distribution and issues related to the collection.

Key words: mediterranean forests, green tax, evaluation, Croatia