

Promotion of forest environmental services

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Summary

Central and Eastern European Countries (CEECs) are different in economic, social, cultural and natural conditions. Also position of forestry in the countries and in their national economies is different. Forest services reflect changing diverse environmental needs and demands of respective societies, nations and states. There are miscellaneous sets of instruments promoting non-market forest services between individual CEECs, which causes questionable comparisons. Effectiveness of promotion of non-market environment forest services can be expressed only partially and with great difficulties.

Economics of forest market services is more and more affected by gradually growing public requirements for forest environmental non-market services. Therefore, timber as environment friendly and sustainable material becomes less competitive or even uncompetitive with other less environment friendly and unsustainable materials on the market.

If forestry is a part of market economy based on different types of ownerships and not a part of budget economy based on the state ownership only, then there must be identified all factors worsening economics of timber production service caused by catering society with non-market forest services. Effective systems of promotion of non-market environmental services adapted to individual socio-economic and nature conditions of respective countries will have to be developed and applied in the practice.

Keywords: Forest environmental services, promotion, Central and Eastern European Countries

Introduction

Promotion of forest environmental services represents a very complex theoretical and practical issue because it is influenced by many different factors entering the process. First, we should clarify – if possible – the essence of the so-called environmental services. The question is what the environmental services are, what their meaning is and socio-economic importance for the society on different levels (e.g. globe, continent, region, locality). Which environmental services should be promoted, how, where, to what extent, and at what period?

There is a large set of instruments at our disposal to promote respective forest environmental services. The question is which kinds of instruments are used, where, and at what time in different national economies. Individual nations and societies are situated in different historical, cultural, socio-economic, natural and environmental conditions. They are in different stages of development. Therefore they treat forest environmental services in different ways, they can afford to promote the services to a different extent, and by various instruments. All these main aspects should be taken into account when speaking about problems of promotion of forest environmental services.

1 General socio-economic and forestry differences amongst Central and Eastern European Countries

Central and Eastern European Countries (CEECs) create a relatively large group of countries going through a rather difficult stage of their history. They are in the process of transition to the market economy and plural ownership of means of production. These countries do not form a homogenous group. They are different in economic, social, cultural and historical but also in natural conditions. Therefore great differences are also in socio-economic state of individual countries within the group of CEECs. The importance of main economic branches of rural areas (agriculture, forestry, rural services and small industrial enterprises) varies to a great extent in the frame of rural areas development from country to country.

Differences among the mentioned countries originated from history as social, economic and cultural differences were in the block of former socialist countries. The difference has still been increasing gradually to a certain extent in the process of transition to market economy. At the beginning of the process of transition, the state ownership dominated. After the restitution of real land rights, the farmers could freely choose the way of management of their own land. Some of them started to manage their land individually only by themselves, others decided to create co-operative farms based on democratic principles, part of them formed shareholding companies or limited companies, some of them leased their lands. In some countries, state farms transformed into joint-stock companies or were directly sold to private persons or companies, some of them were leased, and the rest have still remained in hands of the state to the present. Restitution and privatisation processes have been still continuing.

Position of forestry in the CEECs and in their national economies differs from country to country. Nevertheless, generally, the share of forestry in GDP is relatively low in most the CEECs (varying about or less than 1%), level of wages and salaries in forestry is below the national average labour earnings, and the level of investments in forestry is even lower, reaching less than a half the contribution of the forestry sectors to the national economy. On the other hand, forests represent important objects of public interest as they provide the public with many other benefits apart from timber. In particular these benefits include water control, soil protection, climate regulation, recreation, landscape formation and the conservation of the unique character and biodiversity of wildlife, and last but not least forests provide inhabitants with non-wood products.

Forests designated for the primary fulfilment of services other than wood production – such as protective services (soil, water, environmental, ecological and settlements protection), conservation services (nature preserves, parks, sites of biological significance, monuments and cultural heritage sites) and special purposes services (recreation, education, research,

watershed, etc.) – represent about 30% of the total forest area. The proportion exceeds 30% e.g. in Bulgaria, the Czech Republic, Latvia, Poland, Romania and Slovakia, with percentage ranges from 10% to 30% in Estonia, Hungary, Lithuania and Slovenia. But these administrative shares depend on different national conceptions of non-market services and of zonings of the respective areas. Therefore, it is difficult to compare the figures.

In spite of the decreasing level of economic efficiency in forestry in recent years, the overall current economic situation of forestry is still relatively more stable and better than in agriculture in most CEECs. Generally, forestry sector has no such economic problems and losses as agriculture. In some countries, forestry can be considered profitable. Exports of timber prevail imports. In this context forestry can be taken as an important stabilising factor in rural areas in most CEECs. Nevertheless, forestry in the period of transition must be financially supported – especially newly formed private and municipal estates, and all activities connected with non-market forest services – protective, conservative and special purposes.

Area of forests and other wooded lands amounting on average of the CEECs to 32% indicates to a certain extent the importance of forestry for rural areas. There is also difference in quality of forest cover in the group of the CEECs. The natural domination of so-called high forest prevails in all forested areas of Europe but in some CEECs the coppice takes relatively large areas. It has spread mainly as a consequence of uncontrolled harvesting without attention to regeneration of the previous forests. Coppice is considered to be a partially degraded forest resulting from a long-term attitude to forest as a source of fuel, household wood and area of pasture. There have been efforts to convert coppice into high forest with only a partial success but in spite of the fact the proportion of coppice is decreasing in the long-term in the CEECs. Coppice amounts to 37% of forest area in Bulgaria and 30% in Hungary while in the Czech Republic the share is negligible – about 1% (Anonymous, 1999).

Since beginning of the 1990s, the CEECs Forestry Sectors experienced many substantial changes basically influencing the process of multifunctional forestry and forest services promotion. Completely new state forest administrations were formed, private sectors developed in forestry, new structures of forest owners came into being, new structures of state forest establishments administering state forest lands occurred, quite new systems of forestry financing were gradually formed.

Forestry sectors have different structures in individual countries. There are rather wide differences in types of forest ownership. State forest estates have different management structures. The majority of private owners possess very small pieces of forestland. This presents many problems for the surveying of the boundaries and woodlands, and places great demands on the professional and state administration and the governments' financial situation. Further problems arise in connection with the quality of forest management, as the private owners with small pieces of forestland generally have little understanding of forestry. New forest owners with returned (restored) small pieces of forestlands generally have a weak claim to the ownership of the land, a lack of financial means, and often live very far from their forestland and work in other sectors of economy. Therefore, the forest policy, and the state administrations and authorities are trying to support them by finance, education and advisory networks.

Finally, it can be said that more economic advanced countries have been relatively more successful in performing the transition to market economy with lower socio-economic losses than the less developed countries.

2 Essence and structure of forest environmental services

Forest environmental services form complex societal (socio-economic) systems. Declared systems of non-market forest environmental services are diversified both in theory and practice in individual countries. Forest services' systems, their structures, forms and contents are always purpose-built from the respective societies' points of view. Environmental forest services in managed forests, often called positive forest externalities, act in the frame of society through the relationship "the environment – the man". Although they are of non-market nature, a part of the services is of tangible, mediated market (economic) character and a part of them the intangible, non-market (social) nature.

In observing the character of many forest services' systems, it is obvious their structure is not and cannot be stabilised because it is formed considering different objectives and purposes on different places and times, and in different social conditions. Forest environmental services reflect different environmental needs and demands of respective societies, nations and states. They are dynamic, all the time developing, different in locality and time. It means that in different countries, forest environmental services can be and are handled by quite different ways, and (of course) they are promoted with different intensity by different instruments.

Basically, we can speak about blocks of protective environmental forest services consisting of the hydric (hydrology) services, soil protection forest services and air protection forest services. The services are of mediated market character.

As for the hydric ones, they comprise namely protection of landscape from fluctuating water runoff, protection of water quality in water streams and reservoirs, protection of abundance and quality of water sources. Soil protection services represent protection of the soil from water and wind erosion, bank erosion, landslides and avalanches. Air protection covers the impact of the forest on the air quality and pollution by solid and gaseous matters (e.g. CO₂, NO_x, etc.) influencing also climatic change.

The services in the form of final material impacts participate in the tangible, material, reproduction processes in the landscape. Infrastructures in the landscape have been built using the services, be the society (or its individual components) aware of this or not. They influence market processes. So they have mediated and potentially market character. If the services stopped acting, then socio-economic losses in the society would occur or would have to be eliminated by extra measures and costs, which would influence the real market. This is the base for real expression of the socio-economic importance of the discussed group of forest services.

Socio-economic efficiency of promotion of such services could be based on evaluated outputs of the services (based on their socio-economic importance) and inputs (spent costs for their preservation or even intensification).

On the other hand, so called health-hygienic forest services (recreational, health) and cultural-educational forest services (nature conservational, educational, scientific, institutional) can be considered as intangible, social, blocks of forest environmental services. They do not enter directly and measurably the material reproduction process.

Health-hygienic forest services reflect the fact people use forest environment for recreational relaxation and health improvement. Cultural and educational environmental forest services manifest the fact the forest environment represents one of the least changed environmental components by human activities. The forest environment is an irreplaceable source of

knowledge of the nature and its evolution, relationships of natural environment and society. The services of a non-market essence are important for science, research, education, they represent objects of activities pursued by various scientific, educational and cultural institutions.

Socio-economic efficiency of promotion of such services could be based on evaluated outputs of the services (based on consumer surplus approach, use and/or non-use values, or on so called expert approaches) and inputs (spent costs for their preservation or intensification).

Finally, it can be said that results, outputs in the both physical and pecuniary forms going from the promotion of non-market forest environmental services can be identified and expressed with great difficulties. Up to now, there does not exist any widely adopted methodology of valuation of such results. Also inputs (costs) into the process of forest environmental services promotion are in some cases identifiable with great problems. Therefore, it is still very questionable to express total socio-economic efficiency of promotion of forest environmental services.

3 Relationships between forest market services and forest environmental services

When the importance of non-market forest environmental services is discussed, we can often hear about many times higher importance of such services compared to the forest market services. It is often presented that the non-market services of natural resources (including the forest) are inevitable for the man, they have vital importance, and the mankind cannot survive without them. In this context, market services of natural resources are very often spoken of as non-essential.

Nevertheless, in assessing and comparing the socio-economic value (importance) of market and non-market services, it is often neglected that the mankind is existentially dependent on tangible, material, market production. Man cannot live both without market (production) services and non-market (environmental) services. Production itself can be considered as a unity of the matter and energy transformation – production relationships (services) as they are, and of exchange of the matter and energy between the man and the nature – i.e. environmental relationships (services). Principally, there is a unity and conflict between the two contrasts – two sides – production (market) services and environmental (non-market) services, while both sides are obviously generally socio-economic equal in their importance as both are of vital significance for the society.

Apart from this, forest market services, e.g. timber production, are of very high environmental importance as timber is a material produced in the renewable and sustainable way compared to non-renewable raw materials. In addition, timber as an output of forest market services is a significant environment friendly material in production, consumption, elaboration and disintegration after use, compared to other, especially non-renewable materials.

So, evidently, it can be said that also timber production (market) service can be ranked amongst significant forest environmental services and should be promoted in this sense. Close connection of forest timber market service with forest non-market environmental services can be documented by timber consumption for reduction of greenhouse gasses (considering timber as both source of energy and construction material).

But forest market services (process of production of forest market commodities) become gradually limited and affected more and more by public requirements for forest environmental non-market services. Nevertheless, the overall current economic effectiveness of forestry is still relatively higher and more stable than the economic effectiveness of agriculture in most CEECs. Forestry Sector and closely connected Timber Processing Sector have in many CEECs great importance for socio-economic stability of rural areas. They have not such economic problems and losses as agriculture. In some countries, forestry as a timber production activity can be still considered profitable.

Nevertheless, because of certain recession in timber market, declining of timber prices and raising of price of working forces it becomes more and more evident that forest market production (especially timber production) and all forest market services will not be able to finance increasing demand of societies (public) in individual countries for non-market forest services. The supplying of such services usually enhances costs of production and reduces incomes from timber supplies. Therefore, timber as an environment friendly and sustainable material becomes less competitive or even uncompetitive with other, less environment friendly and unsustainable materials on the market.

If we consider forestry as a part of market economy based on different types of ownerships and not budget economy based on the state ownership only, then we must identify all factors increasing market (timber) production costs and income losses caused by catering of society (public) with non-market forest services. We will have to set up effective systems of promotion (of them especially economic instruments) of such services tailored to individual socio-economic and nature conditions of respective countries in a short time. Otherwise, we take the risk of disappearing of many producers (forest owners and entrepreneurs) or even total sectors based on timber production service from market and from respective national economies with all negative impacts on socio-economic state of rural areas. But also the respective manufacturing sectors elaborating timber could be affected by this situation in the primary production sector to a great extent in the respective countries.

4 Instruments promoting forest environmental services

4.1 Types of instruments

Sets of instruments promoting rational use of forest resources in individual CEECs differ in used instrument structures, instrument types and their importance. Generally, there are ethical, normative, economic, and institutional tools (both of stimulating and sanction essence) used in the field of forest resources management. The economic tools include fees for deforestation, sanction payments (penalties), tax allowances, subsidies, appropriations, gifts, free services by the state, soft loans and guarantees. Financial means come to forestry from different sources, ministries and establishments on national, regional and local levels but newly also from the EU programmes.

Some financial means are obligatory by the respective legislation (acts and regulations of different levels), some of them are not obligatory. Very often, there is weak compatibility amongst different programmes in practice in the frame of individual countries. As an example, we can speak about the following structure of the instruments:

- Normative, administrative instruments (acts, regulations: limits, standards, permissions, licences)
- Economic instruments (a large set of financial and other economic measures)
- Information instruments (education, extension, information campaigns)
- Voluntary approaches (unilateral engagements, obligations, public voluntary systems, negotiated agreements, contracts)
- Management and planning (environmental management systems, determining and zoning of protected areas with important environmental services, landscape use and planning)
- Institutional instruments (establishment of state, regional, district or local organs engaged in protection and promotion of environmental forest services)

The presented structure of instruments promoting non-market forest services can be different in practice of individual countries. Nevertheless, generally, all the instruments can be found in the CEECs but have different forms, importance, intensity and efficiency. The mentioned kinds of instruments are not independent on one another but in general they are mutually linked, interrelated. Very often, the greatest attention is focused above all to economic instruments and of them especially to financial instruments.

4.2 Financial instruments

4.2.1 Grants

This type of programmes describes the most straightforward implementation of the idea of financial assistance to different types of actors such as private, municipal, church, association, corporation, regional and state forest owners and entrepreneurs. Typically, programmes within this category list a specific type of measures (e.g.: afforestation of non-forest lands, reforestation, forest protection, forest tending, investments influencing environment quality like torrent control, forest roads reconstructions enhancing environmental services, etc.). Grants are linked to specific time-frame applications and deadlines, based very often on individual projects that must be approved by respective state or regional offices. Partially, the grants are allotted at large without individual projects.

Without grants (subsidies) the forest owners would not secure a proper state of forests from the public point of view, and they would not protect them sufficiently against pests in respective areas. Non-market forest services would not be performed in demanded quality. Grants ensure proper forest management and desirable state of forest stands and forestlands, and proper providing public (non-market, environmental) forest services.

The funds for these programmes stem either from the general national budgets or from specific funds. The latter may be the case, in the context of programmes linked to specific events (e.g.: catastrophes like forest fires or calamities of various kinds) or funding “environmentally friendly activities”.

4.2.2 Compensations

This category of programmes includes public spending on the production of specific goods and services, which are considered to be of public interest (e.g.: water-supply, soil protection, nature conservation, recreation) and are handed out as “compensations” rather than “grants”. The main concept still is that there is a money transfer from the government or region to respective actors – forest owners, tenants and administrators. The direct supply of goods (e.g.: plant-material) to forest owners for determined purposes can be is also specified in this category. Compensations can be considered a purchase of respective non-market forest services in demand and consumption by the public, by the state or regional establishments.

Compensations can cover both the costs of special operations or the losses of income of forest owners, tenants and administrators in resulting from intensification or catering respective forest services to the public. In many countries, usually, there is no market demand for such operations improving non-market public services in forests. State or public organs, organisations and authorities demand such activities. Without compensations the forest owners and managers would not secure performing the public forest services in proper quality and quantity. The problem is that in many countries grants and compensations are treated as one group of subsidies, they are not differentiated into these two groups of financial instruments of quite different essence. Therefore, it can mean a relatively great distortion when dealing with amount of “subsidies” going into forestry.

4.2.3 Tax concessions

Concessions on taxes in forestry reflect peculiarities of forests and forestry management in respective countries embracing an extremely long-term process of forest stands growing, and the economic restrictions of the respective actors in forestry by the different public, state and regional establishments due to performing of non-market forest services. Efficiency of these measures can be expressed even harder than the effectiveness of grants and compensations because both inputs and outputs can be identified with great difficulties.

4.2.3.1 Concessions on direct taxes

This category refers to direct taxation, aimed at the actors’ income or property. Taxation systems can be quite different in detail, and therefore, tax concessions in forestry are very difficult to compare. There can be differences in income tax systems between natural persons and legal persons (entities) considering forestry sector.

As for taxation on property, especially the land tax can be presented. For example, in the CR, the land-tax on the forestland is differentiated by respective forest zones (commercial forests, protective forests and forests of special purpose). But also taxation on property transfer (hereditary tax, taxes on property sales, donations etc.) can be mentioned. There can be differences in the road tax (tax concessions or exemptions for wheeled tractors and their trailers in forestry and agriculture).

4.2.3.2 Concessions on indirect taxes

This category contains tax concessions (including complete exemptions) on indirect taxes, e.g.: value-added tax (VAT). In its essence these exemptions are a “subsidy” for timber as a raw-material (and reduce the cost for the end-consumer). A typical type of tax-exemption to be looked into in this context is for example the reduction on gasoline-tax for the use of diesel-fuel for forestry and/or agricultural machinery. But there can be different VAT tax rates also for wood (environment friendly and sustainable material) and forest operations (silvicultural, etc.), or in the frame of wood commodities (different rates for roundwood and fuelwood).

4.2.4 Soft loans

Also soft loans can be considered as an instrument promoting indirectly non-market, environmental, forest services. Financial support consists in support for capital acquisition – recent years connected with innovations and innovating activities in sectors operating in rural areas. Financial support can consist e.g. in subsidised interest rates on credit-capital and/or in credit guaranty which enables to gain credit for respective entrepreneurs. In the CR, the Promoting and Guarantee Farmers’ and Forestry Fund (stock holding company in hands of the State) performs such programme helping to a certain extent e.g. purchase of modern environment friendly technologies for forestry operations.

4.2.5 Purchase of forestlands

In case forests are of extremely great importance for environmental services (declared by respective public and state authorities), the management of such forests becomes restricted. Then the respective forestlands are very often zoned according to their importance for public environmental services (national parks, forest national preserves of different levels, especially protected landscape areas for different purposes). The forest management in such forests is limited to a great extent. Production activities are restricted, technologies are limited, cutting operations are reduced. There are also needs for leaving of parts of such forests only to so-called spontaneous processes, i.e. without any production, market, economic activities.

All this means on one hand worse economic results for forest owners and tenants (higher costs and lower incomes). On the other hand it needs higher administrative, organisational and checking burden for both the owners and state authorities. The purchase of such forest estates by respective state or regional establishments can become the most effective way to secure the needed, desirable, performing of forest environmental services. Such purchase can be done at both the market and/or approved official prices of respective forest estate.

4.2.6 Fees for deforestation

Fees for deforestation can also be considered as economic instrument protecting and promoting forest environmental services. The fees express loss of non-market environmental services for public in case the respective forestland area is deforested for other purposes of landscape use. The fees can be differentiated by zones expressing different grades of

importance of respective forestland area for providing environmental services. The higher forest environmental services importance, the higher fee for contemporary or perpetual deforestation. In the CR, such fees are employed directly in the Forest Act (No.289/1995) and their level is from 1.4 to 5 times higher than the level of timber production service value.

4.2.7 Ecolabelling

Different systems of timber or forest management certification (e.g. international systems like “Forest Stewardship Council” (FSC), “Pan European Forest Certification” (PEFC), newly “Programme for the Endorsement of Forest Certification Schemes”, etc., or different national systems) could and should be ranked amongst instruments promoting forest environmental services. The certification systems are one of instruments securing that marketed timber went from forests managed by a sustainable and environment friendly way. The sustainability should be connected not only with timber and timber (market) production services but also with forest non-market environmental services. It stems from the fact that if the timber (as a raw material) is produced by a sustainable way, then also non-market services are provided to the public in a sustainable way.

4.2.8 Sanction payments

As a sanction measure, the payments penalize those actors that perform activities in forests and manage forests in conflict with the legislation (acts and regulations) securing sustainable providing of forest services in respective localities. Such an instrument should benefit to reduction of illegal forest operations and should protect forests and their services in given natural and socio-economic conditions. Sanction payments can be of a very high deterrent level, expressing even so called “existence value” of individual forest services. In the CR, such values were employed in the methodical instruction of the Nature Protection Section of the Ministry of Environment for assessment of ecological detriment on forest ecosystems caused by illegal activities in forests.

Nevertheless, such extreme values do not reflect real socio-economic importance of forests and their services for the respective society. Therefore, it is questionable to use such sanction values for other purposes e.g. for calculations of effectiveness of measures promoting non-market environmental services, or for decision making about rational use of individual landscape components.

4.2.9 Indirect economic instruments

This category describes services, which are offered by public or semi-public institutions to actors in forestry (owners or tenants of different types) for free or at below-market prices. The best-known examples are extension, advisory and consultant services provided for free (or at a relatively modest fee). Other commonly encountered examples are management planning by public institutions for forest-owners, or airborne fire control service. Also grants for research activities to different institutions whose results are used by the actors can be considered.

5 Comparison of the four CEECs – Czech Republic, Estonia, Poland and Slovenia

It is very difficult to compare rather different promotion systems of forest environment services in individual CEECs. In recent years, there has been performed a relatively large research project “Evaluating Financing of Forestry in Europe”, No: QLKL5-2000-01228, in the 5th Framework programme of the EU. The project analysed in detail financial support of forestry in some European Countries during the 1990s, among them four countries of the CEECs: Czech Republic, Estonia, Poland and Slovenia. The results, based on so called “National Reports”, show problems with gathering and comparing data from individual countries.

From the summarising article by Kaliszewski (2003) it results that in all the countries, except Slovenia, the financial support in the decade of the 1990’s was unstable and variable. In terms of forest area unit, the highest support was provided to the Slovenian forestry (Euro 14.72 annually per 1 ha of forest area, taking into account only those years in which the support was granted). The budget of the Czech Republic allocated just slightly less on supporting the forestry programs, i.e. Euro 13.55 /ha/year. A significantly lower financing of forestry was observed in Poland (Euro 1.68 /ha/year) and in Estonia (Euro 0.13 /ha/year).

Subsidies were the most important amongst the instruments of support. Polish forestry is an exception here, where the value of tax exemptions and concessions in the forests not generating the income (young tree stands, protective forests, nature reserves) was significantly higher than the value of financial means allocated from the state budget and other public funds.

The supported activities reflected main problems and challenges facing the forestry management in individual countries. In the Czech Republic, due to the bad health state of forests, the substantial support was designated for protection of forests against air and soil pollution, and for restitution of damaged tree stands. In Poland, the increase of forest area and utilization of agricultural areas of poorest quality and – as in the case of neighboring Czech Republic – restitution of tree stands damaged by air-pollution were the priority.

The most important measures financed in Slovenia included improvement of the road infrastructure, management planning and silviculture planning as well as supporting the economically sustainable forestry management through marking of trees for cutting. The forestry in Estonia, which as a rule was supposed to generate income and ensure self-financing, received relatively the lowest subsidies allocated mainly to the support in running the forestry management for private forest owners, through management planning and professional consulting.

6 Conclusions

- CEECs form a relatively extent group of countries in different stages of the transition process to market economy. The countries differ in economic, social, cultural and natural conditions. The importance of main economic branches of rural areas (agriculture,

forestry, rural services and small industrial enterprises) varies to a great extent in the frame of rural areas from country to country.

- Differences between the countries have still been increasing gradually in the process of transition to market economy because the more economic advanced countries have managed the process more successfully than the less developed countries.
- Position of forestry in the countries and in their national economies is different but generally, the share of forestry in GDP is relatively low in most the CEECs. Nevertheless, forests and forestry are of great public interest as they provide the public with many important non-market environmental services.
- Forest services reflect changing different environmental needs and demands of respective societies, nations and states. Therefore, forest environmental services can be and are treated in different countries by different ways considering their structure, importance and different intensity of their promotion.
- Forestry in the period of transition should be financially supported – especially newly formed private and municipal estates, innovations and all activities connected with non-market forest services – protective, conservative and special purposes.
- There are quite different sets of instruments promoting non-market forest services between individual CEECs, which causes very questionable comparisons. Nevertheless, there are ethical, normative, economic, and institutional tools. The economic tools include grants, compensations, tax allowances, fees, payments, ecolabelling, appropriations, soft loans, purchases, gifts, and guarantees. Financial means come from different sources, and there is usually weak coordination between them.
- Efficiency of promotion of non-market environment forest services can be expressed only partially and with great difficulties as outputs of such promotion are observed and statistically listed rather insufficiently both in physical and pecuniary units. Up to now, there does not exist any widely adopted methodology of valuation of such results. Also inputs (costs) into the process of forest environmental services promotion are in some cases identifiable with great difficulties.
- Economics of forest market services (production of forest market commodities) is more and more affected by increasing of public requirements for forest environmental non-market services. Therefore, timber as environment friendly and sustainable material becomes less competitive or even uncompetitive compared to other less environment friendly materials on the market.
- If we consider forestry as a part of market economy based on different types of ownerships and not budget economy based on the state ownership only, then we must identify all factors worsening economics of timber production service caused by catering of society (public) with non-market forest services.
- We will have to set up effective systems of promotion non-market environmental services adapted to individual socio-economic and nature conditions of respective countries. Otherwise, we take the risk of disappearing of many subjects from the market and from national economies with all negative socio-economic impacts.

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