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ECONOMIC CONSIDERATIONS OF SUSTAINABILITY IN FORESTRY

Debates around sustainability in general and sustainability in forestry in particular have a long history and are not finished yet. However, until recently, the issue of sustainable forestry was hardly given due attention on the policy level. This topic was discussed at the First Ministerial Conference on the Protection of Forestry in Europe in 1990. Sustainable forestry was defined as a balanced management of forests, which takes into account their role as a life supporting system and their role in meeting human needs of present and future generations without threatening forest capacity for renewal.

Економічні підходи щодо сталості у лісовому господарстві

Дебати навколо сталого розвитку в загальному і сталості у лісовому господарстві зокрема мають довгу історію і ще не завершені. Однак, дотепер питання сталого лісового господарства важко сприймається на політичному рівні. Ця тема обговорювалась на Першій урядовій конференції з захисту лісового господарства у Європі у 1990 р. Стале лісове господарство було визначено як збалансований менеджмент лісів, що враховує їх функцію підтримуючої життя системи і роль задоволення потреб теперішніх і майбутніх поколінь без загрози здатності лісу щодо відновлення.

Definitions and strategic directions of sustainability have emerged on the grounds of continuous debates of various theoretical thoughts, starting from those of A. Smith, T. Malthus, D. Ricardo, J. Mill and other economists of the 18th – early 19th centuries. Economic growth after 1950s meant an expansion in use of natural resources. Their expanding consumption that was privately often rational appeared to be socially damaging and compromising the interests of present and future generations. Negative consequences of economic growth (soil erosion, deforestation, loss of biological diversity, water and air pollution) of the 1960s provoked environmental awareness among scientists and policy makers. The concept of "limits to growth" as it was presented in the book of the Meadow's team and in the Report to the Club of Rome (1972) was an outcome of a deep concern over environmental and resource problems that have become increasingly international.

Debates around sustainability in forestry also have a long history and are not finished yet. However, apart from scientific debates, until recently, the issue of sustainable forestry was hardly given due attention on a policy level. At the First Ministerial Conference on the Protection of Forests in Europe held in Strasbourg in 1990, this topic was finally discussed. Sustainable forestry was defined as a balanced management of forests, which takes into account their role as a life supporting system and their role in meeting the human needs of present and future generations without threatening forest capacity for renewal. The conference prepared six resolutions dealing with the issues that required increased international co-operation to promote the protection of forest resources world-wide.

In 1991, the IUCN, WWF and UNEP jointly published the first concrete document on joint actions in environmental field. It was the Caring for the Earth (1991) report, according to which the principles for sustainability include to "halt net deforestation, protect large areas of old forest and maintain a permanent state of modified forest". The document dedicates a chapter to the actions for development of sustainability on forested lands. Internationally, the creation and maintenance of markets for products of sustainable managed forests together with the assistance to lower income countries, were identified as priority actions. The activities to enhance sustainable forestry include the expansion of wooded area, increase of the national capacity to manage forests sustainably, the creation of a market for forest products from sustainable managed sources and more efficient use of timber (Hardashuk, Kopylova, Nizhnik et al., 1995).

By the time the UNCED conference in Brazil was held (1992), several countries including the Ukraine had developed principles for sustainable forest use. In the Ukraine, the principles are called "the principles of wise use of forest resources and forest protection". The principles were discussed over at the Rio conference, and the debates resulted in a document, which reflected the first global consensus towards the problems with the forests. An agreement was reached on a set of principles for sustain-

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able forest management. The Statement of Principles of Forests has become a guiding document aiming to contribute to the beneficial management, conservation and sustainable development of all types of forests.

Today there are over 60 definitions of sustainability, but the idea contains at least one of the following important components: concern with the long-term health of the environment; apprehension about the welfare of future generations; condemnation of rapid population growth and awareness over the possibility to maintain economic growth in the face of resource scarcity (Van Kooten and Bulte, 2000). Despite the variety of ideas on sustainability and broad discussions on the perspectives of economic growth, general meaning of sustainable development supposes economic development to be within certain ecological limits. Though basic principle for sustainable development that focuses on non-declining per-capita human well being over time and presumes the ability of the society to live within the limits of the Earth has become dominant, the following separate sustainability concepts can be distinguished (Perman, Ma and Mc Gilvray, 1996):

- sustainable state is one, in which utility or consumption is non-declining through time. The approach considers a Rawlsian ethical framework (equal utility allocation on each generation of people over time) as an appropriate one for developing principles of intertemporal distributive justice. The Hartwick and Solow Rule considers the conditions to achieve this target.
- sustainable state is one, in which resources are managed so as to maintain production opportunities for the future. This means that composite capital stock is non-declining over time. Substitution possibilities between natural and human-made capital are important in this respect.
- sustainable state is one, in which the natural capital stock is non-declining through time. This approach presumes that natural capital is essential to production and is not substitutable.
- sustainable state is one in which resources are managed so as to maintain a sustainable yield of resource services. That means that natural stock is held constant and delivers a constant flow of resource services over time. It is often used in biological models of renewable resource stocks.
- sustainable state is one that satisfies minimum conditions of ecosystem stability and resilience through time. Humans are regarded as a part of the ecological system, sustainability of which is assessed in terms of the extent to which ecosystems' structure and properties can be maintained.

In view of a diversity of concepts on sustainability, I share the opinion that the answer on the question if the forestry is sustainable depends on whether the total stock of capital is non-declining in time and is sufficient to meet the needs of present and future generations. The stock of capital in forestry includes natural capital (land, forest resources and the environment), human produced capital (as machinery), human capital (as technical and managerial expertise) and social capital (as institutions). Regarding natural capital that is in focus of this paper, a basic prerequisite of sustainability is obtaining a constant or an increased flow of wood from a forest which natural structure and species composition are maintained. To ensure sustainable forestry it is wise to postpone harvesting as long as the rate of return on investments exceeds the opportunity cost rate. Sustainable forestry can exist only if the returns to forestry exceed those of alternative uses of the land and exceed the costs of forest management. In such a way, sustainable forest management is embodied in practice of sustainable timber manage-

ment, where timber harvesting, reforestation and extended forest regeneration are main forestry activities.

The performance of the forest economy remained unsustainable under communism, because the forest resources were undervalued. In order to meet output targets, managers of state forest and wood-processing enterprises substituted the undervalued natural resources (soil and wood fibre) for other, harder-to-obtain inputs. Thus, forests were degraded and/or converted to agriculture, while agricultural soils were depleted. If enterprises in the primary sectors are privatized and land market and other markets are allowed to operate without interference, so that owners can collect the economic rents, then forest resources (fibre) will become more valuable to users and the substitution of natural resources for other inputs (capital) will become dearer. As a result, some land that is currently in agriculture could revert to forest, because forestry could become more competitive as a land use than agriculture. If privatized enterprises continue to be regulated so that they provide what the politician desires, then inefficiencies are likely to continue (Shleifer and Vishny, 1998). Empirical evidence supporting this contention is the existence of nearly 2 million ha of abandoned land in the Ukraine, land that had been used in a wasteful manner and is now no longer capable of producing adequate returns. It lies unused, because there were no property rights that protected individuals from investing in its improvement (e.g. planting trees). Thus the necessity to alter the situation with property rights in Ukrainian forestry is evident. Economic theory would predict more sustainable management of the natural resources under a market economy with a well-functioning market (Nijnik and Van Kooten 2000). A well-functioning market is to take into account all social and environmental costs and benefits of the production. It sets the prices to guide the use of the resources in a sustainable way. The failure of markets to integrate the externalities causes distortions and environmental degradation.

In the Ukraine, the markets are scarce, the production continues to be heavily subsidised and natural capital, as forest resources, remains under-priced. There is no competition for wood, no market prices on it, and the existing prices do not cover the costs, leading to non-profitability of tree-growing activity. Moreover, without profit maximizing objectives and production-oriented goals, the forest enterprises have no incentives to growing trees and to producing valuable stands. The existing practice of forest management hampers the implementation of the afforestation strategy and continues threatening sustainable forest management. If in the forestry, there is a closed timber production chain with costs of the production covered on the market, and the production financed mainly by the capture from timber and non-timber forest benefits, the process of extended forest renewal would be economically justified. With absence of the market, legitimate stumpage fees remain low (Nilsson and Shvidenko, 1999). They do not cover the production costs and do not stimulate forest renewal. In order to motivate tree-planting process within the total system of timber production, the stumpage fees are to become higher, and proper share of earnings from timber selling has to reside within the forest enterprises. In the Ukraine, that is not the case nowadays (Krott, Tikkanen, Tynytsya et. al., 2000).

The weaknesses of command-and-control mechanism in the forestry include the lack of diversity and experimentation, and the absence of flexibility and economic incentives for providing tree planting. However, control mechanism is justified on efficiency grounds, if savings in transaction costs exceed the gains from using another co-ordination mechanisms, or if there are economies of scale and scope that would not be

realized otherwise (Van Kooten, Shaikh and Suchanek, 2001). In view of that, to promote sustainability in forestry in the country in transition, it is the monopoly of the state that has to be abolished, rather than the governmental structure of forest management. The authorities, together with using the production capacities of the state forest enterprises, have to consider the option to give certain lands suitable for tree planting to the farmers and to cooperatives. Concurrently with the lands, the farmers are to be given subsidies, which enable them to initiate and carry out tree planting activities. This will intensify the process of afforestation, in conditions of appropriate level of subsidies, which provide economic incentives to the farmers to plant trees on their lands.

Furthermore, often, environmental issues stay out of the process of market reforms in the forest sector of transitional economies. This practice causes concern in connection with superficial attitude toward natural resources and the environment. To improve the situation in the forest sector it is important to ensure that the financial returns from forest management are adjusted to shadow values to reflect true opportunity costs of the forest resources and to account for environmental and social externalities. The land has to be allocated to those users and be used for those purposes, which maximize as much as possible its aggregate social value. It is important to realise that ecological functions of forest are also economic functions and non-market forest goods and services are essential considerations of sustainable forestry.

Forests do not provide only timber, but also various non-timber outputs. Non-timber forest products, to which people have an open access in the Ukraine, are an important source of their consumption and additional income. Non-timber forest production is a consistent part of the forest economy. Ukrainian forests are also used for recreation. While the economy improves as a result of a successful transition to a market, there will be greater demand also for the non-timber outputs and amenities provided by forest ecosystems. There will be increased demand for forest recreation, as well as the environmental services of forests, such as provision of biodiversity. Supply of some non-timber outputs/amenities is complementary with normal commercial forest operations, or at least is not negatively impacted by them. Some others can easily be provided by modifying forest management slightly, and it is only necessary to provide the needed incentives (e.g., allow forestland owners to collect hunting and other recreation fees), or are addressed as part of forest certification.

Forest certification is to become an important factor that will prevent degradation of forest ecosystems. If the Ukraine is to continue exporting wood products into Germany and other developed countries, it will in the future have to guarantee that such products come from forests that are sustainable managed. Certification will involve inspection by international agents who are less likely to be affected by the desires of local politicians (Nijnik and Van Kooten, 2000).

Very important is to realise that for the forest sector to become sustainable it has to incorporate not only sustainable management of marketable forest products, but also sustainable management of non-marketable goods of the forest environment, as for instance, landscape and biodiversity. There are three types of non-use forest benefits: option, existence and bequest values of forests (Krutilla, 1967) that individuals attach to biodiversity. These forest values are becoming priorities in the Ukraine's forest policy. Non-marketable public goods possess properties of non-rivalry and non-excludability that cause market failure. Therefore, even under conditions of a market economy, it is

reasonable and necessary that management, financing and production of public goods are in the hands of the government (Slangen 2001). There will always remain some environmental benefits that can only be provided by setting aside certain forest ecosystems, and doing so is a legitimate role for state. Decisions concerning protected areas should be made as part of a political process and, once made, should be modified as little as possible to avoid both uncertainty for the forest industry and/or the eventual demise of protected forests (Sinclair 2000). Extant Ukrainian economic and political institutions cannot guarantee that encroachment of protected areas will not occur. Thus, further efforts are to be aimed at elaboration of incentive mechanism for regulation of the relations pertaining to the activities that threaten the environment. Environmental dimensions of the reform in the forestry in transition have to be oriented toward extended forest regeneration, the improvement of quality of forest stands and nature protection. Sustainable forest policy needs to be complemented with well-target measures to preserve forest environment, conserve biodiversity and landscape values, and to ensure sustainable and multifunctional development of rural areas.

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