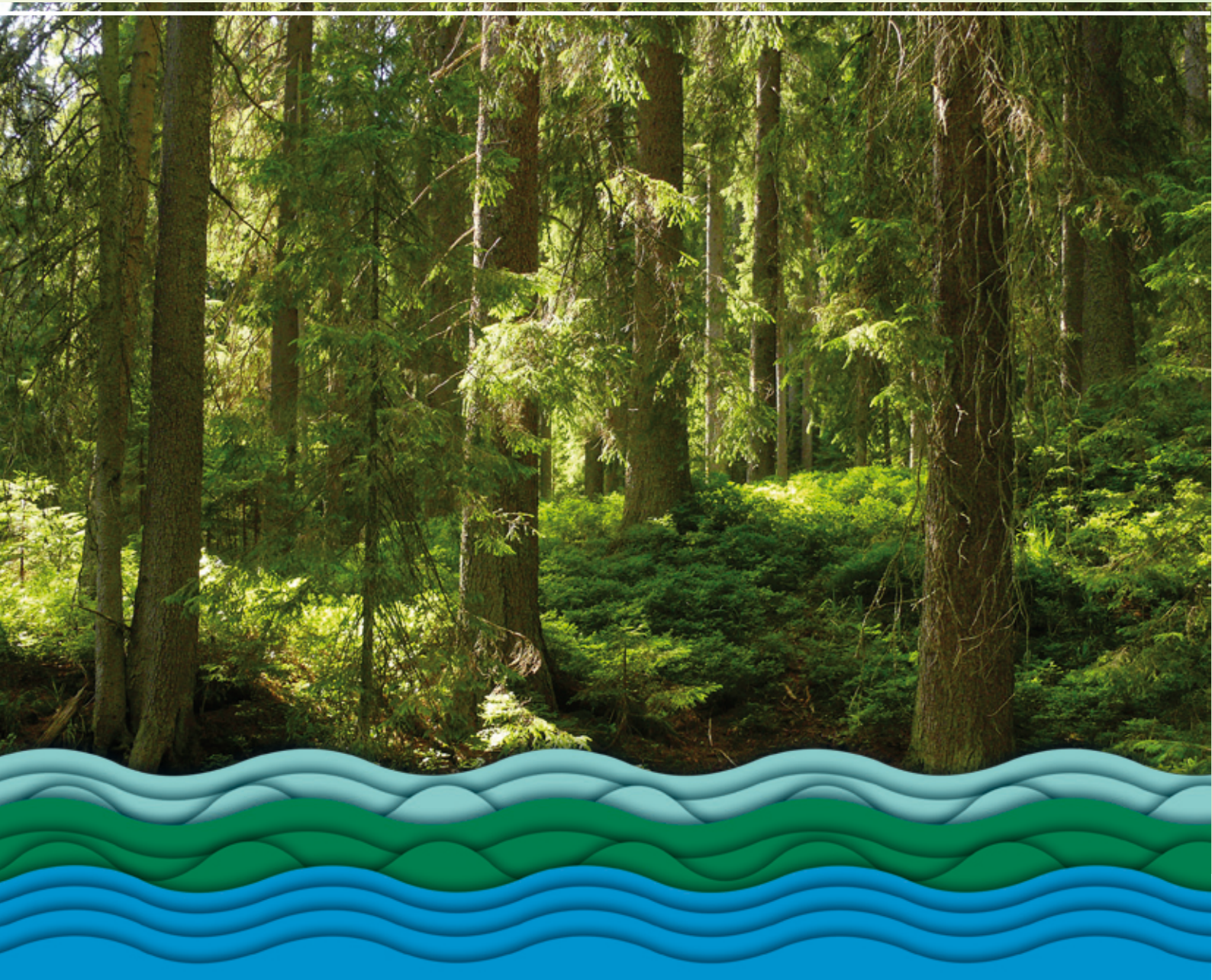




# **FOREST TERRITORIES FOR WILD NATURE: NEW policy of FOREST MANAGEMENT**

**GREEN PAPER**





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This analytic paper (Green paper) is aimed to help in reformation of the management of forest industry. The publication outlines the main problems in forest industry in Ukraine, legislative gaps in this area that limit the development of the branch of economy and preservation of forest ecosystems with necessary conditions for biodiversity and ecological balance maintenance. The document provides environmental and economic arguments for necessity of changes, as well as highlights the possible solution options and positions of stakeholders. In our research, we studied the foreign experience of the leading countries of the world and based our vision on changes in the industry based on the ideas and best practices of forest management in the United States of America and European countries.

# CONTENTS

<b>1. THE LIST OF ABBREVIATIONS</b> .....	5
<b>2. THE LIST OF TERMS</b> .....	6
<b>3. INTRODUCTION</b> .....	7
<b>4. THE GOAL OF NEW POLICY</b> .....	7
<b>5. PROBLEMS TO BE SOLVED IN ORDER TO REACH THE GOAL</b> .....	8
5.1. Problems related to the policy in the forest sector .....	8
5.2. Problems related to procedural issues .....	12
5.3. Problems with control in the forest sector .....	12
5.4. Problems related to certain legal norms .....	13
5.5. Funding related problems .....	14
<b>6. COSTS OF NON-DOING</b> .....	15
<b>7. SOLUTION OPTIONS</b> .....	17
7.1. OPTION 1 — No action .....	17
7.2. OPTION 2.1. — Cosmetic changes — the view of a forester .....	17
OPTION 2.2. — Forest raw materials way. The view of the Government and the Ministry of Agriculture .....	18
7.3. OPTION 3 — New policy of forest industry .....	18
<b>8. POSITIONS OF STAKEHOLDERS</b> .....	19
8.1. Support for implementation of the new policy .....	19
8.2. Opponents of the new policy .....	20
8.3. Social risks .....	20
<b>THE LIST OF SOURCES</b> .....	22
<b>ADDITIONAL SOURCES</b> .....	24



# 1. THE LIST OF ABBREVIATIONS

- FSC — Forest Stewardship Council
- VRU — the Verkhovna Rada of Ukraine
- SSF — selective sanitary felling
- SAFRU — the State Agency of Forest Resources of Ukraine
- CMU — the Cabinet of Ministers of Ukraine
- RC — regeneration cutting
- MAPFU — the Ministry of Agrarian Policy and Food of Ukraine
- MDU — the Ministry of Defence of Ukraine
- MENRU — the Ministry of Environment and Natural Resources of Ukraine
- NASU — the National Academy of Sciences of Ukraine
- UNFU — the Ukrainian National Forestry University
- NNP — national nature park
- NUBNRU — the National University of Bioresources and Natural Resources Use
- RAFH — regional administrations of forestry and hunting
- NPF — nature protected fund
- CC — clear-cutting
- SEA — strategic environmental assessment
- SRA — sanitary and recreational activities
- SF — sanitary felling
- CSF — clear sanitary felling

## 2. THE LIST OF TERMS

**Invasive species** are non-native for a certain territory species that are to a large extent capable of uncontrolled distribution and, as a result, endanger the native flora or fauna by competing with them for their ecological niches.

**Alien (non-native) species** are any species brought from other countries (on purpose or accidentally) that are not local on a new territory.

**Regeneration cutting** is complex logging that combines elements of clear-cutting and forest thinning to restore protective, water protection and other useful properties of forests, preservation of biodiversity, maintenance and formation of complex rock, tiered and age structure of forest stands. It is conducted in ripe and overripe multi-tiered tree-stands of various age and tree-stands of a simple structure for the restoration of valuable tree species in forests where clear-cutting is not allowed<sup>1</sup>. Selective regeneration cutting when planned and carried out wisely is admissible. At the same time, total regeneration cutting is permissible only in certain types of plantations formed from alien species. In fact, because of imperfect procedure of the allocation of regeneration cutting, total sanitary felling and total clear-cuttings are carried out under the guise of total regeneration cutting.

**Forest inventory and planning** (project of organization and development of forestry) is a document that defines and justifies the main directions of organization and development of forestry of a particular object. The materials of forest inventory and planning provide qualitative and quantitative characteristics of each forest area, a complex assessment of forest management<sup>2</sup>. Materials of forest inventory and planning contain all cutting plans for the coming years.

**Second-growth forests** are forest-stands that were formed on the sites of indigenous forests after their cutting.

**Clear-cutting** — this is the harvesting of wood during special use of forest resources<sup>3</sup>. For each species, the maturity age is determined, after which the further growth of the tree is unprofitable from the economic point of view of foresters, and therefore it must be cut. For pine, this age is 80–100 years, for oak — 100–130 years (depending on the category of forests) etc.

**Forest thinning** — is carried out as periodic cutting of trees, the further preservation of which in the composition of plantations is not feasible. Forest thinning can be of the following types: lighting, cleaning, thinning, accretion cutting<sup>4</sup>. Forest thinning plays an important role in young and middle-aged plantings. Untimely and inadequate forest thinning in artificial forests can lead to the death of a forest or the change of tree species. At the same time, accretion cuttings in protected forests are inappropriate.

<sup>1</sup> <http://zakon2.rada.gov.ua/laws/show/724-2007-n>

<sup>2</sup> <http://www.lisproekt.gov.ua/diyalnist/lisovporyadkuvannya>

<sup>3</sup> <http://zakon5.rada.gov.ua/laws/show/z0085-10>

<sup>4</sup> <http://zakon2.rada.gov.ua/laws/show/724-2007-n>

**Sanitary felling** is aimed at the improvement and strengthening of biological stability of forests, prevention of their diseases and damage<sup>5</sup>. In Ukraine, sanitary felling is widely used for harvesting wood in protected forests and, in fact, does not fulfill its function of improving the quality of forests.

**Forest inventory** is an assessment of forest in the course of forest planning: determination of age, types of species, density, sanitary condition, wood stock and other characteristics.

### 3. INTRODUCTION

Forests are home to many rare plants and animals. Every fifth species of animals and the eighth species of plants of the Red Data Book of Ukraine disappears as a result of deforestation. At the same time, forest is a renewable natural resource, and even highly developed countries of the EU and North America use it and carry out large-scale felling in their forests. That is why EPL's position in this study is a clear balance between the conservation of wildlife areas and the use of natural resources.

Ukraine is a European country and we share the European principles of equality, transparency, openness and participation in the development of a country with a safe environment. Therefore, we protect the right of the population to a safe and healthy environment, which is impossible without healthy forest areas, and we protect the nature from the thoughtless and irresponsible interference of the industrial sector.

### 4. THE GOAL OF NEW POLICY

The introduce new management in the forestry, aimed at biodiversity conservation and improvement of forest ecosystem services, along with the non-exhaustive use of natural resources.

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<sup>5</sup> <http://zakon2.rada.gov.ua/laws/show/724-2007-п>



## 5. PROBLEMS TO BE SOLVED IN ORDER TO REACH THE GOAL

Forests in Ukraine occupy about 15.9 % of the total area of the country<sup>6</sup>. While in the leading countries people have already understood the need for sustainable forestry, management of state and communal forests in Ukraine is still focused primarily on timber harvesting. Ukraine has no comprehensive strategic planning of forestry development. Forest legislation is still not harmonized with the land and nature protection legislation, and most of forestry regulations and instructions are outdated, do not take into account modern approaches and requirements and often contradict each other and environmental legislation.

The lack of procedural regulations for ensuring implementation of certain legislative norms leads to actual negligence of legislative norms while vague and unclear formulation of legislation norms and by-laws allow for different interpretation of these norms by forestry enterprises and controlling bodies, which in the long run results in the lack of unified law application practice in the forest industry.

Ecosystem services of forest — pure water, air, carbon dissolution, biodiversity preservation, tourism — are not taken into account in the course of planning managerial measures. All this leads to adverse environmental consequences, namely deterioration of environmental conditions and life quality, and therefore to economic expenses for solution of these problems.

### 5.1. Problems related to the policy in the forest sector

- 1) Industrial focus of the strategy of reforming the forest sector. “The 2022 Strategy of the forest sector reformation”<sup>7</sup> is aimed at natural resources potential of the sector and has no biodiversity preservation aspects in its strategic goals.
- 2) Biodiversity preservation function of forests is not fixed in the legislation. The notion of forest in the legislation is based on natural resource interpretation and does not take into account the value of forests as natural ecosystems that are important for biodiversity preservation. Art. 1 of the Forest Code of Ukraine<sup>8</sup> states that forests of Ukraine are the source of satisfying needs of the society for forest resources but the list of forest functions mentions neither the nature protection function nor its value for preservation of landscape diversity, genetical funds of flora and fauna, maintenance of general environmental balance.
- 3) Lack of the policy aimed at fighting invasive species and their purposeful inclusion into tree-stands. In Ukraine many protected areas and forestries have no sufficient information on problems, and therefore do not undertake any measures to fight invasive species. Many

<sup>6</sup> Overall characteristics of Ukrainian forests [http://dklg.kmu.gov.ua/forest/control/uk/publish/article?art\\_id=62921](http://dklg.kmu.gov.ua/forest/control/uk/publish/article?art_id=62921)

<sup>7</sup> [http://lesovod.blogspot.com/2017/11/blog-post\\_187.html](http://lesovod.blogspot.com/2017/11/blog-post_187.html)

<sup>8</sup> Forest Code of Ukraine, approved by the Decree of the VRU No. 3853-XII of 21.01.94 <http://zakon3.rada.gov.ua/laws/show/3852-12>

territories that are supposed to protect the natural environment and biodiversity, instead give possibility for invasive species to spread or using the old practice, alien trees, bushes and grass are planted there in order to artificially raise productivity or ripeness of forests etc. No measures are taken to stop intensive uncontrolled dissemination of invasive species. For example, our own research shows that the National Nature Park “Nothorn Podillia” faces invasion of red oak where it fully forms the second layer in pine and beech forests and will soon crowd out natural species. There are also territories where it also forms the first layer on whole territories covering several dozens of hectares. If no measures are undertaken to stop dissemination of this species, the National Nature Park will lose the natural complexes for protection of which it was created and thus will lose its purpose and value.

- 4) Lack of state policy on self-seeding forests. Degraded lands and lands that are excluded from agricultural use are often places where forests self-seed from adjacent forests. With the flow of time full-fledged forests grow here. According to the statute, lands covered by self-seeding forests have agricultural purpose and thus there are many cases when farmers<sup>9</sup> start using such lands for agriculture, cutting valuable forests that are 20–25 years old and this is legal. Also, because of the lack of control, de facto wood is harvested avoiding the legislation and state budget. Self-seeding forests are not registered, whereas transfer of degraded lands to the state forest fund is suppressed by the existing bureaucratic procedure requiring significant time and resources.
- 5) Lack of the state policy of forest management reform towards close to nature forestry. The Soviet approach has deeply rooted in the manner forestry is operated in Ukraine. Formation of even-aged single-species forest stands (so called monocultures), use of species from other climate zones and altitudinal zonation for this purpose, and non-use of selective CC systems leads not only to impoverishment of forest biodiversity and exhaustion of the ecosystem as a whole, but also to soil erosion and greater vulnerability of the forest to unfavourable conditions: mass distribution of insects, drying out, windfalls, windbreakages. In addition, the current approaches to forest regeneration do not prohibit creation of second-growth forests out of tree species, not characteristic to the given natural zone. For example, artificially created monocultural spruce forests in place of indigenous beech forest stands nowadays dry out intensively and require large-scale cutting. Such forests lose their economic value rapidly and require substantial resources to care for them.
- 6) Lack of economic assessment of ecosystem services and mechanisms of taking it into account in decision making. Forest ecosystems fulfil a number of functions vitally important for humans, which value is often unthought, as these functions do not possess a market price. To assess the real value of the forest, apart from the value of timber itself, one should also add the cost of services of climate regulation, air cleaning, assimilation of other waste, food production, contribution to streamflow, recreation services, soil stabilization, etc. With these estimates we come to the conclusion that preservation of forest for future generation is more profitable than trying to cut everything at once to gain profit. The lack of economic assessment of ecosystem services leads to ultimately resource-based attitude towards forest and as a result — the lack of motivation of the forestries’ employees to preserve it.

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<sup>9</sup> [epl.org.ua/environment/derzhlisahentstvo-v-cherhovyi-raz-ihnoruie-problematyku-samosiinykh-lisiv-nanelisovykh-zemliakh/](http://epl.org.ua/environment/derzhlisahentstvo-v-cherhovyi-raz-ihnoruie-problematyku-samosiinykh-lisiv-nanelisovykh-zemliakh/)

- 7) Lack of logical distribution of forest management between various bodies. Forest lands do not belong to a single body: the majority of forests belong to the SAFRU, subordinated to the MAPFU and the MENRU. In addition, there are forests within the structure of the MDU, and also so called “agroforests” (municipal enterprises subordinated to local self-government bodies). As a result, it leads to the situation that the single legal base does not warrant single approaches to forestry operation, as different users may apply the legislative provisions in a different way. For example, forestry operation is of less quality in forests belonging to the MDU and in agroforests, if compared to forests belonging to the MENRU and the SAFRU, which is manifested in larger scale of unauthorized cutting and worse organization of forest protection, in ignoring of the nature protection legislation and in massive clearcuts.
- 8) Voluntary character of forestry agencies’ certification. Unlike a number of other countries, Ukraine lacks obligation to certify forestry according to the FSC international standards. Forestry agencies obtain such certificates on one-to-one basis to trade timber and wood derivatives in the world markets. During the certification procedure, independent auditors assess all aspects of forestry operation, including preservation of biodiversity. Certified forestry agencies make less violations of the nature protection legislation, than non-certified ones, as they risk losing their certificate.
- 9) Lack of a single document to regulate all types of cutting in forests and a separate one for cutting within the nature protected fund. At present, there are separate Rules for clear-cutting<sup>10</sup>, Rules for clear-cutting in mountainous forests of the Carpathians<sup>11</sup>, Rules for improvement of forest quality composition<sup>12</sup> and the Sanitary rules in forests of Ukraine<sup>13</sup>, approved by by-laws of various level. As for some types of cutting (regeneration cutting, reconstruction cutting, etc.), separate by-laws are totally absent, there is only a mention about the general principles of their purpose and letters of recommendations of the SAFRU. This allows manipulating with names of cutting types, as one and the same cutting may be referred to by different terms. Unscrupulous forestry agencies take advantage of this and designate those types of cutting, which are the simplest in terms of the procedure of obtaining a permit. All the above listed documents contain contradicting norms, do not take into account peculiarities of the natural climate zones, and introduce equal rules for cutting in ordinary forests and forests protected within the nature protected fund areas, which may be complicated as not all protected areas are retrieved from land users. This also leads to the lack of single usage of the cutting system Ukraine-wide. For example, some regions harvest 10-15%<sup>14</sup> of timber scopes due to RC, whereas other regions do not perform such cutting altogether.
- 10) The same approaches to forest inventory and planning within the NPF and outside, as well as the aspect of biodiversity preservation being absent in the instructions for forest inventory and

<sup>10</sup> Approved by the Order of the State Committee for Forestry Agencies of December 23, 2009 No. 364 “On approval of the Rules for clear-cutting” <http://zakon3.rada.gov.ua/laws/show/z0085-10>

<sup>11</sup> Approved by the Decree of the Cabinet of Ministers of Ukraine of October 22, 2008 No. 929 “On approval of the Rules for clear-cutting in mountainous forests of the Carpathians” <http://zakon3.rada.gov.ua/laws/show/929-2008-%D0%BF>

<sup>12</sup> Approved by the Decree of the Cabinet of Ministers of Ukraine of May 12, 2007 No. 724 “On approval of the Rules for improvement of forest quality composition” <http://zakon2.rada.gov.ua/laws/show/724-2007-%D0%BF>

<sup>13</sup> Approved by the Decree of the Cabinet of Ministers of Ukraine of July 27, 1995 No. 555 “On approval of the Sanitary rules in the forests of Ukraine” <http://zakon2.rada.gov.ua/laws/show/555-95-%D0%BF>

<sup>14</sup> <http://epl.org.ua/environment/lisovidnovni-rubky-iak-cherhova-skhema-lehalnoi-vyrubky-pryrodookhoronnykh-lisiv/>

planning. As a result, a complex of actions (sanitary felling, accretion cutting, regeneration cutting, etc.) is designated in the NPF areas, based on economic feasibility rather than ideas of biodiversity preservation. Correspondingly, some forestry agencies and NPF entities on purpose do not perform cutting as planned by forest inventory specialists, to preserve biodiversity. In addition, p. 9 art. 46 of the Forest Code of Ukraine mentions that forest inventory and planning stipulates identification of typical and unique natural complexes, sites of growth and habitation of rare and endangered species of animal and plant world subject to protection and inclusion into the ecologic network. Alas, this norm is a declarative one, no one in forestry agencies deals with such identification due to the lack of a procedure for such identification and, correspondingly, the lack of forestry agencies' initiative to protect forests.

- 11) On-going forest inventory and planning activities as a source of corruption. Separate types of cutting (like regeneration cutting or reconstruction logging) do not require observations on site or several approvals and are designated by forest inventory specialists alone during forest inventory and planning activities. At present a forestry agency is entitled to apply to forest inventory and planning experts to review the existing plans at the end of the year and designate additional cutting. In fact, under conditions of the lack of state funding, forest inventory specialists are ready to approve any cutting.
- 12) Lack of the Methodical guidelines for insect ("pest") management. Artificial forest plantations are unstable and largely non-resistant to the impact of unfavourable factors, including excessive reproduction of insects. Timber beetles, sawflies and other insects may damage dozens of hectares of forest for a relatively short period. Weakening of forest cultures, caused by environmental pollution, changes in usual climate conditions, as well as mono-cultural character of plantations, contribute to that factor. If in protected forests succession processes are natural and do not usually require human interference, in commercial and recreational forests, such approach is not always right. In Ukraine, artificial plantations occupy large enough areas; nonetheless methodical recommendations for insect management therein have not been approved yet. Forestry agencies, at their own discretion, use various chemicals causing death of not only insects, but also the whole forest ecosystem, as chemicals affect all groups of animals in the same way. Entry of pesticides into the soil leads to death of soil fauna and microflora necessary for formation of soil and top humus, and also leads to absorption of pesticides by fungi. Depending on the type of plant protection means, approach to their usage and type of top humus, chemicals may enter into soil and contaminate ground waters. In addition, treatment of forests with pesticides does not take into account location of areas and facilities of the NPF and sites of occurrence of populations of rare animals, first and foremost, insects, bats, and birds. There is an acute lack of awareness about alternative, biological methods of effective pest control that are safe for the forest. At the same time, the choice of chemical products rather than viral ones is caused by indirect factors, such as cost, as well as a need to dilute products in gasoline which allows writing off fuel under the guise of pest control.
- 13) Lack of management plans for the NPF areas. A number of the NPF categories (reserves, reserved stows, nature monuments) are large in space and contain various forests. However, the documents determining the mode of natural resource management (regulations) introduce single limitations for the whole area, not taking into account peculiarities of this or that site. As a result, in some NPF areas, there is a loss of biodiversity in forests due to failure to perform felling of a specific type, whereas in others — vice versa — due to its performance<sup>15</sup>.

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<sup>15</sup> <http://www.fleg.org.ua/konkurs-2015/978>

## 5.2. Problems related to procedural issues

- 1) Non-transparent and long-lasting procedure of forestry activities in the NPF areas. In order to obtain a permit for cutting within the NPF area, a forestry agency has to receive 5–6 approvals from various institutions and bodies. This procedure may last for up to half a year. As a result, commercial quality of wood deteriorates, whereas SF is not conducted timely where it is justified scientifically. At that, such system does not ensure avoiding cutting, that is harmful for biodiversity, as the majority of institutions issue approval based on the documents alone, without visiting a cutting site. In addition, this is a potentially corruption mechanism, as some representatives of the state bodies may demand bribes for formal approvals.
- 2) Lack of the approved procedure for revision and cancellation of the annual allowable cut. The annual allowable cut is the maximum annual volume of wood, which a forestry agency may cut. In cases when a part of the forestry agency is declared an area of the nature protected fund, the forest management mode is changed to a softer one pursuant to the Law of Ukraine “About the nature protected fund of Ukraine”<sup>16</sup> (hereinafter referred to as the LU “On the NPF”), therefore the annual allowable cut needs to be revised in accordance with new conditions and reduced, which is evident. Alas, analysis of data as for the annual allowable cut revision for 2010–2016<sup>17</sup> shows that this norm is practically neglected, and revision of the annual allowable cut is made mainly routinely during regular forest inventory and planning activities, as there is no procedure for revision, or liability for failure to perform such revision either, whereas the MENRU and the SAFRU shift the responsibility on each other. The current “Instruction for procedure of agreeing upon and approval of the annual allowable cuts”<sup>18</sup> does not establish any procedure for revision.
- 3) Lack of public discussion of the materials of forest inventory and planning. The materials of forest inventory and planning which are in fact management plans for forestry enterprises do not undergo any public discussion, while their text is only partially accessible for the public. This leads to the fact that the public can not learn in time which actions are planned to make any comments or proposals to change them.

## 5.3. Problems with control in the forest sector

- 1) The specialized forest protection service being controlled by the SAFRU. State specialized forest protection enterprises are within the structure of the SAFRU, similarly to forestry agencies. Taking into account the interest of the SAFRU in maximum scope of cutting, forest protection services can not be independent and objectively assess all cutting proposed for their assessment. As a result, situations often occur, when the actions of a forest pathologist on the survey site are conventional, and conclusions about the forest stand condition are not objective.

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<sup>16</sup> The Law of Ukraine “On the nature protected fund of Ukraine” of 16.06.1992 No. 2456-XII <http://zakon0.rada.gov.ua/laws/show/2456-12>

<sup>17</sup> <http://epl.org.ua/environment/chomu-ministerstvo-ekologiyi-nese-vidpovidalnist-za-obsyagy-rubok-lisu-iyak-tsomu-zapobigty/>

<sup>18</sup> The order of the Minister of Environmental Protection of 05.02.2007 No. 38 “On approval of the Instruction for procedure of agreeing upon and approval of the annual allowable cuts”. <http://zakon2.rada.gov.ua/laws/show/z0160-07>

- 2) The Ukrainian State Forest Inventory and Planning Industrial Association being controlled by the SAFRU. AUA “Ukrstateforestdesign” which should perform assessment of the status of forest resources and propose maximum scopes of allowable cutting for 10 years in advance, is also within the structure of the SAFRU, while development of a project for organization of forestry operation is not independent either. As a result, there are not infrequent cases when wrong data is included to the materials of forest inventory and planning on purpose, which allows increasing the legal scope of felling.
- 3) Lack of a single geoinformational system of Ukraine forest sector management. Pursuant to art. 53 of the Forest Code of Ukraine, the central body of the executive authorities, implementing the state policy in the forest sector, should maintain the state forest cadastre which should include both record of qualitative and quantitative composition of forests, division into categories, economic assessment of the value of the ecosystem services of forests, as well as all the documentation necessary for the state and public control, including both the materials of forest inventory and planning, survey reports, and resolution on transfer into possession. Nevertheless, such cadastre is not maintained. The data on species composition, age, volume in Ukraine’s forests are kept by AUA “Ukrstateforestdesign”. The data base of designated cutting is maintained separately by each RAFH. These data are not interconnected into a single geoinformational system, while a control body or the public needs to file requests and spend time to receive access to these data.

#### **5.4. Problems related to certain legal norms**

- 1) Clear regeneration cutting in place. The legislation lacks a strict division between the notions “regeneration cutting” and “clear sanitary felling”, there are no strict criteria for differentiating, which is made at own discretion. Selective RC, if used correctly, is similar to natural forestry operation. At present, for RC to be designated, a relevant instruction for cutting in the materials of forest inventory and planning is needed only. Therefore, RC often turns into the scheme of legal cutting of non-commercial forests<sup>19</sup>.
- 2) Lack of the norm obligating, during cutting, to leave trees, significant for maintaining biodiversity. During total cutting absolutely all woody plants are removed from the area: both young trees, shrubs, dead standing trees, very old single specimens of trees having absolutely no economic value, but being especially significant for nature preservation.
- 3) Outdated maturity age tables. At present, forest inventory and planning uses in its operation the age of clear-cutting (maturity age) in accordance with “The optimal ages of cutting in forests of the Ukrainian SSR” as amended in 1992 (as for larch), 1999 (as for beech in plain forests) and 2009 (as for second-growth spruce). These tables contain outdated and unjustified figures leading to younger age for some species, and older age for the others. In addition, not for all species the maturity age differs in terms of commercial and non-commercial forests.
- 4) Availability of the norm of the minimum density of 0.1 that may be left after SSF. Pursuant to cl. 27 of the Sanitary Rules in Forests of Ukraine, it is stated that SSF may be performed in forest stands, where SSF performance will lead to decrease of the stand density below 0.1. Such density in some types of forest does not provide for stable functioning of the site and

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<sup>19</sup> <http://epl.org.ua/environment/lisovidnovni-rubky-abo-navishho-lisova-galuz-povtoryuye-svoyi-stari-pomylky/>

maintenance of biodiversity, increases vulnerability to external factors, including windfalls and excessive reproduction of insects. In fact, in separate cases forestry agencies abuse such density, de facto performing clear-cutting in the guise of selective one and later on save costs on culture creation.

- 5) Existence of the obligation to get SRA lists approved by the specialized forest protection service. Pursuant to cl. 5 of the Sanitary Rules in Forests of Ukraine, the list of forest sanitary status improvement activities need to be approved by the state specialized forest protection agency. Such approval is formal and has elements of corruption, as physically it is not possible to thoroughly check, with a site visit, the whole list of activities a year in advance. As a result, SF is performed not always where<sup>20</sup> it is needed and expedient from the forestry point of view.
- 6) Lack of fire management. The lack of fire management has negative impact on biodiversity in forests. Aside from the fact that there is danger of ignition from a carelessly flicked cigarette, abandoned campfire or other human factor, fires in dry summer period are often natural phenomena. Therefore, fire management needs a special approach. Extinguishing of absolutely all fires, with no exclusion, leads to negative consequences for biodiversity, as for some types of forests, fires are necessary.
- 7) Cutting performance according to the compartment-subcompartment system. The compartment-subcompartment principle, according to which cutting is performed, does not provide for the best conditions for biodiversity in forests. Often, subcompartments are located along water courses and are subject to total cutting, which makes banks and slopes vulnerable to erosion. Also, random cutting, scattered all over the forestry agency, leads to increased disturbance factor for biodiversity, which has especially negative impact in the breeding season.

## 5.5. Funding related problems

- 1) Lack of the state funding for some forestry agencies. Forests of Ukraine are very diverse, there are forestry agencies with highly productive and healthy forests, whereas there are forestry agencies with weak and dried-up forests; in southern regions the forest cover of the forest fund lands and quality of these forests is generally very low. Moreover, there are forestry agencies which have no commercial forests at all, and there are such, the majority of which was included to the nature protected fund areas, so clear-cutting is not performed there. For instance, at present 90 % of the territory of Kutya Forestry Agency is now a part of NNP “Hutsulshchyna”, as a result, the forestry agency is obligated to guard the whole territory, whereas cutting may be performed on a limited area only. Due to these different conditions, revenues received by forestry agencies from forest resources vary from adequate to extremely low. Before 2016 the budget programme KPKVK [*Code of Programme Classification of Expenditure and Crediting*] 2805060 “Operation of the forest and hunting sector, protection and preservation of forests in the forest fund” funded, including but not limited to, forest inventory and planning activities, forest fire protection, ensuring operation of the state forest guard, general economic and administrative expenses related to forestry and hunting, establishment of shelterbelts and filed-protective belts, etc. That means there was budgetary funding for non-profitable forestry agencies. The supplements to the Law of Ukraine “On the State Budget of Ukraine for

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<sup>20</sup> [http://texty.org.ua/pg/article/textynewseditor/read/59871/Chvert\\_zakaznykiv\\_Kyjivskoj\\_i\\_oblasti\\_pidpala\\_pid\\_sucilni](http://texty.org.ua/pg/article/textynewseditor/read/59871/Chvert_zakaznykiv_Kyjivskoj_i_oblasti_pidpala_pid_sucilni)

2016<sup>21</sup> and 2017<sup>22</sup> such budget programme was also available, however only two directions were funded from it: “Conducting measures to ensure operation of budgetary institutions of the forest and hunting sector belonging to the area of administration of the State Forest Agency” and “Conducting measures to ensure operation of budgetary institutions of the nature protected fund belonging to the area of administration of the State Forest Agency”. That means all forestry agencies were fully transferred to self-sustained operation with no subsidies at all, which resulted in catastrophic decline in the level of forest protection from unauthorized cutting in non-profitable forestry agencies, whereas forestry agencies themselves look for every legal opportunity to perform any cutting whatsoever to get some funds for their operation.

- 2) Irrational distribution of fee for cutting. According to the Budget Code of Ukraine<sup>23</sup> rental payment for special use of forest resources (so called stumpage) and for cutting with the purpose of forest hygiene and formation (sanitary felling, regeneration cutting, etc.) is assigned in full to the budgets of local self-government by location (position) of the forest site where cutting was performed. In case of CC performance, 50 % is assigned to the regional budget, and 50 % — to the state budget. Correspondingly, local self-government bodies are objectively interested in performance of SF to replenish their budgets.

## 6. COSTS OF NON-DOING

Significance of natural forest ecosystems for human life can not be underrated. Forests are not only the source of raw materials used in construction, as a fuel, in furniture and paper industries, and also a source of “secondary forest resources” (hay, mushrooms, berries, nuts, dip) and ecosystem services (fresh air, favourable climate conditions, water content of rivers, recharge of aquifer, medium for biodiversity existence and ensuring cycle of matter, waste assimilation, etc.), which spectrum is extremely huge and still not fully understood by the majority of people.

Economy based on exploitation of the natural resources leads to ecological and social problems related to market failures<sup>24</sup>. One of the reasons for market failures is the lack of assessments of the real value of natural goods and services, which makes impossible to take into account their value in decision-making. Correspondingly, necessity arises to conduct monetary evaluation (monetization) of the natural resources and services, which often do not possess the market value. For this purpose, a number of methodologies for evaluation of the non-market value of ecosystem

<sup>21</sup> The Law of Ukraine “On the State Budget of Ukraine for 2016” of 25.12.2015 No. 928-VIII. <http://zakon5.rada.gov.ua/laws/show/928-19>

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<sup>23</sup> Budget Code of Ukraine of 08.07.2010 No. 2456-17 <http://zakon3.rada.gov.ua/laws/show/2456-17>

<sup>24</sup> Market failures are circumstances under which the market tools are unable to ensure efficient use of the natural resources, and therefore require the state intervention.



services<sup>25</sup> was developed and numerous research studies were conducted for different types of ecosystems all over the world<sup>26</sup>.

According to the researches by American scientists<sup>27</sup>, the full overall value of forest ecosystem products and services makes up USD 4.7 trillion per annum, out of these the full overall value of boreal forests (of the temperate zone) makes up USD 894 billion per annum. If one adds to these services climate regulation, waste assimilation (including airborne emission) and food production, this value will be even higher.

The USDA report contains the economic evaluation of the value of services of water resources protection provided by forests<sup>28</sup>. Thus, each hectare of forest contributes to surface streamflow, provides electricity production and irrigation services (increase of deposits of soil moisture, being close to plant roots). Forest also has some value in terms of the opportunity to provide recreation on its territory. Forest vegetation stabilizes soil and reduces erosion and weathering. Depending on the region, the value of services of forest hectare of soil stabilization varies from USD 1.94 to 5.5 million per ton. For air purification from fine solid substance (silt, carbon black) and deleterious gases, each tree in average costs USD 4.16 per annum. For biological diversity, forest is the source of existence, hectare of forest costs USD 17.5 thousand, if participation of birds in pest control is taken into account. The value of pollination services makes up from USD 19.23 thousand to 33.65 thousand per annum. In addition, apart from timber, forest also produces numerous commercially important products, including mushrooms, medicinal plants, berries, wild animals, which may also be taken into account for full economic evaluation of the value of goods and services provided by forest.

Alas, no such comprehensive research to evaluate ecosystem services of forests has ever been conducted for Ukraine. However, it would be interesting to track the following. For instance, for 2015 all forestry agencies of Chernivtsi region paid to the budget UAH 147.5 million of mandatory payments and received UAH 34.6 million of net profit<sup>29</sup>. Expressed in hectares, it means that in average 1 hectare of forest in Chernivtsi region, under operation as in 2015, has yielded profit from direct forest use of UAH 702. Thus, profits received (including, those paid to the budget) total from 0.04 % to 0.11 % of the full value of ecosystem services. Correspondingly, the value of 1 hectare of forest is considerably higher for the society than the market value of cut timber.

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<sup>25</sup> For instance, review of approaches and methods is provided in "TEEB — The Economics of Ecosystems and Biodiversity for Local and Regional Policy Makers (2010)", [http://www.teebweb.org/media/2010/09/TEEB\\_D2\\_Local\\_Policy-Makers\\_Report-Eng.pdf](http://www.teebweb.org/media/2010/09/TEEB_D2_Local_Policy-Makers_Report-Eng.pdf)

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<sup>27</sup> Constanza R., d'Arge R., de Groot R., Farber S., Grasso M., Hannon B., Limburg K., Naeem S., O'Neil R.V., Paruelo J., Raskin R.G., Sutton P., van den Belt M. The Value of the World's Ecosystem Services and Natural Capital. — *Nature*, 1997. — 387: 253-60.

<sup>28</sup> Sedell J., Sharpe M., Dravnieks Apple D., Copenhagen M., Furniss M. Water and the Forest Service. FS-660. — United States Department of Agriculture, Forest Service, Washington, DC. — 2000.

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## **7. SOLUTION OPTIONS**

### **7.1. OPTION 1 — No action**

Conservation of the current conditions in the forest sector can cause severe economic and environmental consequences.

In particular:

- deterioration of quality of the total forest area (decrease of forest resistance and timber quality, distortion of species and age balance);
- further catastrophic increase in quantity of unauthorized cutting;
- loss of recreational and protective forest;
- loss of valuable natural forests, which are recognized as biodiversity hot spots;
- increase in corruption of the forest sector;
- dropoff of professionals from the forest sector;
- deterioration of air and water quality as a result of forest ecosystem services degradation.

### **7.2. OPTION 2.1. — Cosmetic changes — the view of a forester**

The State Agency of Forest Resources of Ukraine also has its vision for changes. Basing on it, the forest sector should have its own development strategy — the basic principles of the state policy. The document should define the legal, economic, social, environmental, and organizational principles of the state policy in forestry as an integral part of the environmental policy of Ukraine.

Other legislative changes will also include the turnover of unprocessed timber, forest melioration, forest cultivation in plantations, forest monitoring, forest protection service, and hunting. A separate document will be created containing uniform rules for logging in Ukrainian forests. At the same time, there are provisioned no rules for felling in forests within protected areas on the territories without exemption.

It is also planned to introduce public control on forest logging, but more for demonstration than for real participation. In particular, public participation in forest inventory is not comprised.

A separate forest fund will be created to manage the finances that will be filled with rent for special use of forest resources, income from timber sale, hunting services, fines, compensations for land exemption. The fund will continue to remain under the control of SAFRU, without any external supervision.

This option does not comprise any institutional changes in SAFRU to strengthen the supervision function for strengthening its independence and objectivity. In particular, the Ukrainian State Forest Inventory and Planning Industrial Association and specialized forest protection service will remain under the control of SAFRU.

## **OPTION 2.2. — Forest raw materials way. The view of the Government and the Ministry of Agriculture**

The Government of Ukraine, represented by the Ministry of Agriculture and Forestry and the Ministry of Economic Development, consider forest industry, first of all, as economic resource. Therefore, there are several options for changing the forest management system. The first one is related to the transfer of integral property complexes of forest enterprises to concession. The second one means unification of all forestry enterprises in Ukraine into a centralized vertically integrated corporation. The Government does not offer any changes aimed at biodiversity preservation or improve of forest ecosystems services.

### **7.3. OPTION 3 — New policy of forest industry**

The new policy will be based on a new paradigm for forest's interpretation as not only a wood resource but also as an ecosystem important for biodiversity conservation. The approach to forest management will be represented by understanding of integrity and vulnerability of forest as a habitat for species populations, the interconnectedness of natural processes, and the inevitability of negative effects from overconsumption.

Legislative changes will be gradual, consistent, and logical. They will cover the full range of regulatory documents that contain gaps. A unified document will be developed to regulate all types of forest logging in order to systematize current four documents and to eliminate contradictions and rules that can be misinterpreted. A separate document for regulation of logging in protected areas will form a single regulatory framework for forestry in protected land which is not exempt from land owners. This will help to eliminate the effect of “two users” — a protected area's administration and a forest enterprise. In order to avoid uncertainty about the selection of a forest management measure for a specific territory, all protected areas will develop their management plans with detailed description of activities for each site.

Forest management should be based on such principles as openness, transparency, and publicity. SEA procedure will be introduced for evaluation of forest management plans of protected areas and forest enterprises. This will allow to involve the public in discussion of these plans before approval, to expose each step of the discussion process, and to make all documents available for the public. SEA is an effective tool for ensuring proper environmental protection that complies with European standards.

In addition, institutional changes will be made in order to establish a transparent and effective European supervision system. There is no state authorities' structure in any civilized country where the supervision authority is subordinate to the other authority which should be controlled by the first one. That is why the Ukrainian State Forest Inventory and Planning Industrial Association and specialized forest protection service will be moved out of the subordination of SAFRU for the objectivity of their decisions and independence of their actions. Without these changes the reform of forest management would be incomplete and ineffective to overcome the current problems.

Finally, no change is effective without state funding for non-profit forestry, where foresters would be always interested in “shadow” income. Commercial forests are not spread everywhere, and foresters are hostages of their territory. The income of such a forest enterprise from the use of forest resources varies from adequate to insignificantly low. That is why the state funding is an integral part of the new policy of forest management.

The new policy will allow the sector to develop and simultaneously care of biodiversity conservation, being open to public supervision.

## 8. POSITIONS OF STAKEHOLDERS

### 8.1. Support for implementation of the new policy

*Higher state authorities* — do not understand the importance of preserving forest as an ecosystem and as a source of invaluable services for the society. *Actions:* informing through round tables and involvement to the implementation of new forest management within the NPF of Ukraine, to the development and approval of normative and legal changes in the forestry sector in the NPF. Advocacy of introducing economic evaluation of biodiversity for decision-making in the forestry sector.

*Environmental NGOs* — understand the necessity of forest preservation as the natural landscape, interested in active actions to protect forests, organize events, raise awareness on forest topics in mass media, ready to cooperate. *Actions:* to involve to joint actions in advocacy of changes, lobbying of approval of the new rules for forestry, joint information campaigns; to provide explanations in order to reduce a number of cases of active actions of the public against forestry activities that are not illegal.

*The NPF employees (conscious)* — aware of the rules for sustainable forestry in foreign countries, possess experience of relevant administration, interested in preservation of the environment for future generations. *Actions:* to involve to the development and advocacy of the new rules, to round tables.

*Foresters (conscious)* — will support reforms, as they are not satisfied with the current imperfect legislation and low institutional capacity for normal forestry activities. Are aware of all aspects of forestry in foreign countries and interested in implementing such approaches in Ukraine. *Actions:* to involve to the development and advocacy of the new rules for forestry, to round tables.

*The MENRU (conscious employees)* — support the goal of the environmental protection, rather than exploitation. *Actions:* to involve to the development and advocacy of the new rules, to round tables.

*Local authorities (conscious employees)* — interested in preservation of forest resources and biodiversity and increase of unique areas of the NPF within the boundaries of their region, which would preserve forest ecosystems for future generations. *Actions:* to involve to stimulating of re-channelling of the NPF operation towards green tourism, research activity, awareness raising, involve to advocacy of the new rules for forestry, to round tables.

*Tourists* — outraged by degradation of landscapes in recreation sites and decrease of tourist appeal of the natural sites of Ukraine due to massive cutting in Ukrainian forests, including within the NPF. *Actions:* to involve to joint informational and advocacy pressure on the state bodies to get

the new rules for forestry approved; and also to popularization of the new paradigm of forest protection outside the priorities of the resource-based economy.

*The public (active)* — outraged by a large number of trucks carrying round timber, cutting of large areas at the slopes of the Carpathian Mountains. The majority is convinced that absolutely all cutting within the NPF areas are illegal. *Actions:* awareness raising and informing about legal possibility of performing cutting within the NPF, involving to round tables discussion in order to channel the activists' energy into a meaningful activity: to involve to joint informational pressure on the state bodies to get the new rules for forestry approved.

*Local mass media (conscious)* — support the public and researches in aspirations in forest protection, advance public interests of the community, interested in materials that would earn the readers' approval. *Actions:* to involve to dissemination of the information on importance of invaluable resources and ecosystem services of forest, attracting tourists to visit their region; to disseminate the information on the campaign.

*National mass media (conscious)* — interested in top-rated materials, scandalous topics related to corruption schemes, politicians, as well as people's true life stories. *Actions:* to involve to raids, raise awareness, that most cutting is legal and that it worth publicizing thoroughly checked and researched information only.

## 8.2. Opponents of the new policy

*Local authorities (unconscious employees)* — interested in receiving more taxes, therefore will oppose the new rules aimed at reducing cutting scopes. *Actions:* awareness raising, raising ecological consciousness, involvement to round tables, dialogues, discussions.

*The NPF employees (unconscious)* — interested in forestry operation according to the old scheme to make more profits out of sale of timber, not complicating their life with the new rules. *Actions:* awareness raising, raising ecological consciousness using examples of forestry operation in the NPF areas in foreign countries, stimulating re-channelling of the NPF areas operation from exploitation of natural resources to green tourism, science, awareness raising.

*Forest ranges (unconscious)* — will be against reforms, as they are interested in the old rules for forestry, in the old system of forestry, which allowed, through corruption schemes, plundering natural resources and receiving illegal incomes. *Actions:* to conduct outreach campaigns, raise ecological consciousness, explain the advantages and prospects of the new system and new legislative changes, involve to round tables, dialogues, and discussions.

*The MENRU (unconscious employees)* — may be unsatisfied with the changes, because they would have to adapt to and learn new rules of approval, and approve limits using the new procedure. They will also have to participate in the development of the new rules for forestry, which would cause extra workload. *Actions:* raising ecological awareness, involving to round tables, explanation of the importance of forest protection for future generations through the prism of the economic value of ecosystem services, involving to the development of the new rules.

## 8.3. Social risks

*Local residents*, receiving firewood from the nature protected fund, would have to suffer from the lack of fuel and re-focus on other suppliers. *Actions:* provision in the local programmes of

financial allowance for firewood transportation from other possible places of harvesting. To encourage installation of solid fuel boilers using waste of woodworking industry and agricultural production as a fuel.

### New policy in the forest sector

Pro	Require explanation	Contra
Environmental NGOs Conscious foresters Conscious employees of the NPF Conscious representatives of the local authorities Conscious representatives of the central executive authorities Tourists	Local mass media National mass media Wide public Members of parliament Members of local councils Local self-government bodies	Woodworkers Unconscious foresters Unconscious representatives of the central executive authorities Unconscious representatives of the local authorities Unconscious employees of the NPF

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