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Illegal Logging in Bulgaria

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Abbreviations:

MAF – Ministry of agriculture and forestry

NFB – National Forestry Board

RFD – Regional Forest Directorate

SF – State Forestry

SGBS – State Game Breeding Station

Dbh – diameter of trees trunk on breast height (1.3 m)

PA – protected areas

FF – Forest fund – area which main aim is to be a forest

MEW – Ministry of Environment and Water Resources

FA – Forestry Act

RFAI – Rules for Forestry Act Implementation

Summary

This report analyses the aspects and the extent of illegal logging in Bulgaria. In general, illegal logging happens undercover and is difficult to assess. However, WWF was able to prove, that the volume of illegally logged timber amounts to a total of 3.7 million m³ per year corresponding to 45% of the annual harvest. The main part of it is used as firewood, but about 1 million m³ is processed by the timber industry. Illegal logging in Bulgaria is on an alarming high level. The volume of legal and illegal harvest together exceeds the annual allowable cut provided in the forest management plans by 1.5 million m³. It does not reach the total annual increment of all Bulgarian forests, but may exceed it in specific regions and easy accessible forests.

Specific types of illegal forest related activities in Bulgaria are illegal lending of forest area and intentional damage of forest stands during felling and skidding of trees as well as by intentional forest fires in order to obtain extended harvesting volume respectively at a lower price. By cutting slender trees many uneven-aged forest stands are destroyed. In addition tree qualities and volumes are incorrectly registered. It is a usual practice to record smaller diameters to reduce the harvested volume and respectively the costs. Forestry employees mark additional trees for felling without registering them. Many illegal logging activities are carried out after regular working time.

Present legislation is very restrictive regarding activities and rights of forest companies and covers all activities related to forest management and timber harvesting (planning, logging, reporting, control). The state forestry staff is supposed to have full control over logging activities, but almost all of the violations in forests can not be committed without direct cooperation of forest employees or are favoured by lack of governance and weak enforcement of existing regulations and laws. Thus, illegal logging is linked to corruption as well as to lack of capacity. The main reason for corruption among forest employees is their relatively low salaries, compared to the value of resources they are responsible for.

Logging for local communities has a long history in Bulgarian society as it motivates local communities to protect the forest and simultaneously satisfies their needs under control of a forester. However, its implementation in a free market economy prepares the ground for corruption and violation of law.

After reformation of the forest and the industry sector in the past decade, central state regulation of demand and supply were abolished and coordination between forestry and wood-processing industry got lost. Many wood-processing companies focused on the external market. They often produce assortments of valuable timber which do not comply with the requirements of Bulgarian State Standards and treat them as assortments of lower quality.

Based on the findings of this study, it can be concluded that there is an urgent need to improve law enforcement and criminal prosecution of violations in forests, to enhance the motivation of the state forest staff by removing political and economical obstructions in their work and last but not least by increasing the salaries, to assess logging companies and to exclude those violating forest legislation, to involve local communities in the protection of forests and to enhance the interaction between National Forestry Board, revenue and customs authorities.

1. Introduction

Illegal logging is a pervasive problem not being limited to the tropics. Also in some Eastern European countries the level of illegal logging is up to 50% of the total annual harvest. Illegal activities in the forest sector are causing enormous damage to forests, local communities and the economies of producer countries. The World Bank estimates that the loss of revenue to governments is 5 Billion US \$ annually, with a further 10 Billion US \$ being lost to the economies of producing countries. Globally, the problems caused by illegal logging are becoming more and more topical. The European Union is implementing the FLEGT (Forest Law Enforcement, Governance and Trade) action plan in order to control the import of illegal timber. However, with the accession of the new member states illegal logging became already an internal problem within the EU that will probably worsen with the accession of Romania and Bulgaria.

As in most Eastern European countries, also in Bulgaria the transition from central-regulated to trade economy has not been a smooth, controlled process. It came along with increasing illegal activities, based on social-economic reasons and favoured by withdrawal of the state from economic activity. Regarding forests such illegal activities are called “Illegal logging”.

Definition of Illegal logging

Illegal logging activities include the harvest, transportation, purchase or sale of timber in violation of national laws. The harvesting procedure itself may be illegal, including using corrupt means to gain access to forests; extraction without permission or from a protected area; the cutting of protected species; or the extraction of timber in excess of agreed volumes. Illegalities may also occur during transport, such as illegal processing and export; fraudulent declaration to customs; and the avoidance of taxes and other charges.
(FERN, Greenpeace, WWF 2004: Facing reality)

It should be noted, that a major part of destructive logging activities is, however, legal and that legal and illegal logging are often linked. Therefore, addressing only illegally sourced timber may not be sufficient to show the whole scale of the problem.

Activities that precede harvesting, like tree selection and marking, volume estimation and quality ranking can be performed in an irregular and illegal way to prepare the ground for illegal logging. Illegal activities may occur also after transportation of harvested timber and particularly during the trade in order to hide illegally logged timber volumes and to evade taxes and other duties.

The objective of this study is to specify key prerequisites and main mechanisms of illegal forest activities in Bulgaria, with main focus on illegal logging (felling, disposal and transportation) and wood market in order to support adequate preventive measures to be developed. Therefore, the current situation of Bulgarian forestry and the present forest legislation was analysed. Data were collected in order to determine discrepancies between timber production and consumption that might result from illegal logging operations.

An inquiry was carried out in the forest sector regarding the presence of corruption, reasons therefore and necessary provisions to combat it. As just 18 employees from different hierarchical levels in forest administration (National Forestry Board,

Regional Forest Administration and State Forestry Office) were involved, the inquiry is not representative, but serves to assist expert attitudes presented in the conclusion.

The study covers only part of the activities defined as illegal logging by WWF. Common illegal activities in the forest, which are not covered by the study, are:

- Illegal land use of forest areas. This is an important problem in some regions, which is driven by the rapid development of tourist, industrial or other infrastructure;
- Intentional forest fires and other activities conducted to destroy standing trees like annulating the bark in order to get additional timber volume for harvesting. This practice is widespread and should be controlled systematically. Conceptions to solve this issue were developed at a National Round Table and donors meetings discussing “Forest protection against fires” (2001, 2002 - National Forestry Board (NFB), BSFP – Sylvica Foundation Intercooperation) and approved by the National Forestry Board. However, implementation of the recommended measures is still weak. The discussion resulted in the finding, that the main part of burned timber is exported at low prices by several harvesting and wood-processing companies. This has been a widespread practice between 1999 and 2001 until the export of burned timber was banned. Information on this issue is presented on internet page: www.sylvica.org.
- Illegal processing of wood, including illegal timber, often combined with the violation of labour rights or environmental regulations. This is a very important social, economic and ecological problem in many mountain areas in the country and connected with other illegal activities in forests. Occasionally, this issue is touched during inspection of the timber market.
- Illegal activities, as treasure-hunting, over harvesting (gathering) of medicinal herbs, extraction of protected plants with commercial purpose. As the forest is not only a tree species community, also significant damages on other elements of the forests ecosystems (soil, rocks, herbs, mushrooms ...) are considered to be illegal forest practices. For example excessive gathering of Mountain Edelweiss (*Leontopodium alpinum*) and other protected plants causes huge ecological damages. This problem is of specific importance for some Protected Areas, because these activities put at risk some of the main purposes of Protected Areas.

2. Forests and forestry in Bulgaria

2.1 Basic information on forests in Bulgaria

2.1.1 Forest land and forests

Forest land covers about 34% of the Bulgarian territory. This includes forests as well as areas designated for afforestation, unproductive forest land and bare lands. Some of the general forest data for Bulgaria is presented in Table 1 (Statistical Yearbook 2002).

Table1. Total forest land and forest area

I. Total forest land in thousand hectares

Year	1997	1998	1999	2000	2001
Total	3879	3877	3894	3914	3980
Coniferous	1281	1276	1274	1282	1295
Deciduous					
High forests	1573	1566	1561	1535	1541
Low forest	1025	1035	1059	1097	1144
Mountain pine	22	22	22	22	22

II. Forest area in thousand hectares

Year	1997	1998	1999	2000	2001
Total	3331	3329	3347	3365	3443
Coniferous	1132	1123	1113	1115	1123
Deciduous					
High forests	1240	1237	1244	1237	1253
Low forest	959	969	990	1023	1067
Mountain pine	22	22	22	22	22

Table 2 shows the development of some main forest indexes in Bulgaria for the last 50 years, according to NFB statistic (so called Report form for forest fund).

2.1.2 Ownership and forest management

Until 1997 all forests in Bulgaria were state property as a result of their nationalization in 1947. Through "The Law for reinstate property rights of forests and areas from forest fund" pluralism in forest property was restored. The process of restitution is not completed yet, mostly in communal forests. Before the Second World War, municipalities managed about 50% of the forests as they had so called eternal rights. Most of the municipalities do not have a document for property, but only for the management rights. At present, this creates conflicts as management rights are not re-established by restitution law.

By the end of 2002 year forests in Bulgaria were classified by property rights as follows:

State property forests	: 85%
Municipal forests	: 6%
Private	: 8%
Others (schools, monasteries)	: 1%

According to NFB data, forests in protected areas in Bulgaria cover 389,500 ha, or 10 % of the total forest area in the year 2000. 120,000 ha of the protected forests, entirely state property, are included in three National Parks – Central Balkan, Rila and Pirin and managed by Ministry of Environment and Water. The rest of the state owned forests, including these in protected areas, are managed by the National Board of Forestry. Municipal and private forests are managed by their owners, but according to The Forest Law 1997 forest management is controlled by the territorial units of the National Board of Forestry.

The functional forest classification creates conflicts in legislation, regarding their use and protection. The parallel or simultaneous implementation of the objectives by several departments of the Ministry of Agriculture and Forests and the Ministry of Environment and Water requires an entire coordination of regulations and documentation, particularly those related to logging and hunting. According to many experts this is not achieved and can create equivocalities.

2.1.3 Annual harvest and increment

During the last 15 years, the annual harvest volume in Bulgarian forests did not exceed the annual increment which was on average about 12 million m³/a in the last decade (Analyze of Bulgarian forest sector - 2003). During the last 40 years, artificial forests were established intensively (Table 2). Industrial logging is concentrated mostly in accessible and mainly mature forests. The average annual harvesting volume according to the forest management plans (AAC) is determined to be 6.8 million m³ per year for 1996-2000. The reported actual harvesting volume was on average 4.6 million m³/a. In other words, the official reported average harvesting volume did not exceed more than 40 % of the annual increment. In the last decade, industrial harvesting represented 73 % of the total amount, and cuttings by local population 23 % (Analyze of Bulgarian forest sector - 2003).

Table 2: Key figures of forests in Bulgaria

INDEXES	Unit	1955 г.	1960 г.	1965 г.	1970 г.	1975 г.	1980 г.	1985 г.	1990 г.	1995 г.	2000 г.
Total area of forest land	ha	3 670 656	3 635 093	3 510 856	3 603 933	3 694 315	3 743 123	3 768 255	3 772 493	3 773 036	3 914 355
Forest area	ha	3 153 290	3 189 741	3 049 397	3 066 594	3 134 258	3 199 936	3 240 997	3 236 758	3 239 501	3 398 307
Coniferous part	%	14,0	16,7	23,5	26,5	29,7	33,1	36,1	37,0	35,4	33,5
Average age	years	36	37	37	37	38	38	38	43	45	47
Average density	1,0	0,66	0,66	0,70	0,72	0,72	0,75	0,77	0,75	0,74	0,73
Share of non-commercial forests (with special, ecological functions)	%	8,4	10,3	12,2	15,6	19,0	25,9	29,2	30,9	35,5	34,1
Total forest stock	thousand m ³	244 682	243 478	248 087	257 638	268 459	296 830	336 669	396 022	456 742	526 063
Stock per ha	m ³	77,6	76,3	81,4	84,0	85,6	92,8	103,9	122,2	141,0	154,8
Average growth	thousand m ³	6 103	6 153	5 898	6 468	6 832	7 620	9 111	10 973	12 347	13 695
Average growth per ha	m ³	1,94	1,93	1,93	2,11	2,18	2,38	2,81	3,39	3,8	4,03
Allowable Annual Cut (AAC) according to Forest management plans (FMP)	thousand m ³	6 820	6 678	6 840	6 918	6 862	6 536	6 452	6 368	6 235	6 812
From which: beech		2 100	2 472	2 438	2 284	1 844	1 446	1 247	1 094	997	1 057
Reported harvested volume		7 448	8 567	8 161	7 141	6 323	5 907	5 534	4 681	4 758	4 630
From which: beech	thousand m ³	2 800	2 990	2 665	2 267	1 615	1 175	1 032	779	545	686
From forest thinning		1 487	2 017	1 635	1 812	1 405	1 365	1 405	1 425	2 383	1 955
Thinning volume compared to total harvested volume	%	20,0	23,5	20,0	25,4	22,2	23,3	25,4	30,4	50,2	42,2
Harvested timber volume as compared to AAC	%	109,2	128,3	119,3	103,2	92,2	90,4	85,8	73,5	76,3	68,0
AAC volume as compared to annual forest growth	%	108,5	108,5	116,0	107,0	100,4	85,8	70,8	58,0	50,5	49,7
Harvested timber volume as compared to annual forest growth	%	122,0	139,2	138,4	110,4	92,5	77,5	60,7	61,1	38,5	33,8
Real use Reported volume harvested per 1 ha	m ³	2,36	2,69	2,67	2,33	2,02	1,85	1,71	1,40	1,47	1,36
Harvested timber volume as compared to total forest stock	%	3,0	3,5	3,3	2,8	2,4	2,2	1,6	1,2	1,0	0,9
Production of saplings for afforestation (incl. artificial regeneration)	million	414,3	1 357,7	598,0	776,7	637,2	385,9	351,0	347,0	157,6	62,2
Afforestation (incl. artificial regeneration)	ha	34 337,1	89 659,6	40 284,2	50 825,2	48 972,3	41 539,8	29 621,2	28 040,4	9 164,5	6 308,3
Percentage of coniferous species	%	x	x	95,5	74,4	82,3	67,0	69,1	59,9	30,8	36,0

2. 2 Forest legislation and governance

2.2.1 State Administration of Forestry

The overall administrative responsibility for forest-related matters is assigned to the Ministry of Agriculture and Forestry (MAF), which – among other tasks - is responsible for formulation and implementation of forest policy. The Ministry of Agriculture and Forestry is also charged with the restitution of agricultural and forest lands. Another relevant body is the Ministry of Economy responsible for the administration of the wood processing industries through the formulation of policies and strategies as well as by monitoring the activities of the industries for compliance with laws and regulations. The responsibility for management of protected areas is divided between the National Board of Forestry and the Ministry of Environment (see below).

The main operative body of state forest administration is the National Board of Forestry (NFB) subordinated to the Ministry of Agriculture and Forestry. The National Forestry Board has public authority (formulation of legislation, forest protection, law enforcement, research and development etc.) as well as management functions in the state forest. The National Forestry Board is organised in three levels consisting of central body, 16 Regional Forest Directorates/Administration (RFD/RFA) and offices at district level comprising 144 State Forest Offices (SF) and 37 State Game Breeding Stations (SGBS). In addition there are several special departments responsible for specific functions such as seed control, forest protection, management of Nature Parks etc.

The most recent reform of the state forest administration was launched in 1997. Supervision and control functions were administratively separated from implementation of forest operations. Supervision and control functions were assigned to the National Board of Forestry. To carry out forest operations 82 joint stock Trade Companies were established. They were provided with the productive assets previously held by state forest administration. Initially, the state held a 100 % share of these companies, but by now all of them have been privatised. Until their privatisation all long-term assets of these companies were held by the Ministry of Agriculture and Forestry.

The National Board of Forestry has been applying competitive bidding as a new mechanism of timber sales since the year 2000. Trade Companies and a few newly established firms carry out almost all forest operations; the staff of the National Forestry Board has only a supervisory function. Harvesting rights are sold to these companies by auction, negotiation or at a fixed price. The same mechanism (except the use of a fixed price) is used when licenses are issued to undertake silvicultural activities.

The commencement of the Law for the State Budget (2000) brought another major change as a new funding mechanism was introduced. Previously, the central body of the National Forestry Board as well as State Forest Offices were able to retain their operating profit and to allocate funds to various adequate activities. With the new funding mechanism, the National Forestry Board and the State Forest Offices became dependent on budget allocations as any surplus has to be transferred to the national budget.

Only the State Game-breeding Stations are able to carry out commercial forest management activities like harvesting operations, as they were incorporated according to the Trade Act and have own independent bank accounts.

The new funding mechanism is considered to be a major regression regarding efficiency and rational use of resources. Without a direct link between their performance and benefits e.g. in the form of increased investment, the staff may have limited interest to save costs and increase efficiency. The inflexible use of funds is also a strong disadvantage for a commercially oriented organisation.

The budget procedures are causing major operational problems. As field activities are carried out mainly in the first half-year, there is a great need for cash in the beginning of the year. However, the National Forestry Board generates the main part of its revenue in the second quarter of the year, until when it is dependent on budget funding. In practice, the release of funds from the budget has been slow, and – as a consequence - the National Forestry Board has lacked funds at the most critical moment.

2.2.2 Wood harvesting

The usage and logging of forest timber is regulated by Forestry Act (FA), Rules for Forestry Act Implementation (RFAI) and Regulation № 30 for usage of forest timber.

According to article 53, paragraph 2 from Forestry Act “The felling of wood from forest and land from state forests” is possible by one of the following ways:

- by paying a stumpage fee for each harvested standing tree;
- by delegating logging operations to subcontractors, while disposition of harvested timber is carried out by State Forestry timber-yard;
- by auction, competition or negotiation for logging;
- by auction, competition or negotiation for implementing activities, according to the Forest Management Plan for whole forest units or part of it (but up to now, the National Forestry Board has not applied such scheme);
- by concession (concession agreements to follow up the logging activities in the contracted area);
- by State Forest Office (SF), which independently organizes and implements activities related to logging (felling and transportation).

Timber harvesting from communal forest land is carried out according to the same rules, but based on the decision of the municipal council.

Private forests are managed by the respective owners who might be individuals or companies. The forest management has to be in compliance with the regulations of forest legislation and has to follow forest management plans. The forest management plan has to ensure regeneration and maintenance of forest functions. Reducing the forest cover is permitted.

Generally all forest trees have to be marked by a forester prior felling. Usually, this procedure is carried out in the state-owned forests by the local State Forest Office and in the other ownership structures by the State Forest Office or free-lance foresters.

2.2.3 Industrial harvesting

To carry out harvesting operations in state forests operators and companies have to comply with specific requirements and have to be entered in public register of the National Board of Forestry. The possibility to exclude entities from the register under certain circumstances is provided.

Due to the last changes in Forestry Act and Rules for Forestry Act Implementation (RFAI) it is possible to assign logging activities to operators under the provisions of Public Procurement Act.

The procedures are described more precisely in RFAI. The general rules related to logging activities are as following: the proper type of activities is chosen according to characteristic of the vegetation, type of timber, its volume and other factors. The State Forestry sets the sites and initial prices, but they have to be approved by the Regional Forest Directorate and the National Forestry Board. Selling procedures are organized and implemented mostly by the local State Forestry. Companies harvesting an annual volume above 50 000 m³ technological timber, are attended directly by the National Forestry Board. For that purpose, the companies have to meet some requirements as employee obligations, technical ability, etc. The forester of the company, winning the contract, submits a so called technological plan for the harvest for approval. After its approval, the company receives permission for harvest as well as for transportation to a temporary timber yard. The logging permission schedules the period for felling and transportation and determines the timber volumes by categories as well as the way of cleaning the felling area. In a temporary timber yard, a state forestry employee measures the timber and stamps it with a control label. He issues a permission form for transportation up to the value agreed by contract. State foresters deliver a book with transport-permission and dispatch forest label to the users. An employee of the company marks the logs before their transportation. He issues a transport-permission form for each vehicle. Such a ticket is issued again if timber is reloaded from one vehicle to another.

Here is another weak point related to organization and non-commercial statute of the State Forestry. Any user is able to create temporal timber yard, but the state forester is not able to control all activities going on in different places. Therefore, forest companies should employ a private forester who is responsible for the silvicultural consequences of harvesting and for the transportation tickets. The state foresters only have to monitor and control these activities.

After harvesting and transportation, an employee of the State Forest Office prepares a verification statement for the cutting area together with the forester of the company. The revealed violations are entered in it. If such violations were committed by the harvesting company, the contract advance payment is not restored and the company does not receive a trade certificate. This bureaucratic procedure prepares the ground for corruption and violations of law.

When timber is bought at the SF/SGBS temporary timber deposit (the State Forestry not able to do commercial activities), the buyer receives a book with transport-permission forms. A copy of the used transport-permissions is submitted to the forestry as account.

2.2.4 Harvesting for private needs

Private individuals can acquire harvesting rights, based on stumpage fee taxes, if the timber is used for own needs. The harvesting right is limited to the forests of the municipality, where his last address is registered, or, if this is not possible, to corresponding state forests. Monasteries, churches, mosques and other religious institutions, state and municipality schools and departments related to them, social homes, prisons, military units, cultural institutes on budget funding and the staff of National Forestry Board have similar rights. As the timber is harvested for personal needs, the costs for this timber are much lower than the market price, but it can not be sold. Such social oriented policy by state or municipality has a long tradition.

Local communities harvest standing timber from state or municipality forests according to lists prepared by the municipality or mayor in compliance with restricted limit. For each household only one person can be registered by name and personal ID № in these lists. Each citizen included in the list receives permission by the local State Forestry for logging and transport to the temporal timber yard. The permission limits the timber volume, usually up to 5 stacked m³ of firewood per year for one household. The limit for other timber assortments (i.e. construction wood) is much smaller. A forester marks the trees and inspects the cutting area in the same manner as described above. A forestry employee measures the timber after felling and stamps it with control forest label. When the harvested timber is paid, the employee issues transport permission. Harvesting by local communities is restricted to public commercial forests. It is not allowed in forests with special functions.

2.2.5 Forest concessions

Logging under concession has not been realized until now. According to the Concession Act, forest concessions are proposed by the minister of agriculture and forestry.

Forest concessions are limited to state and communal forests, where forest management plans provide restorative cutting systems with succeeding artificial or tiller regeneration. The term of the concession can not exceed the operational time period of the Forest Management Plan.

Other ways of utilisation like collecting herbs, which are not covered by the concession, are carried out according to the respective legal requirements.

2.2.6 Conclusion

Legal provisions regarding timber harvest may be summarised as follows:

- All stumpage fees and other taxes paid for wood harvested in state forests are transferred into the state budget.
- Harvesting permissions for all type of forests, regardless of their property, are issued by the State Forestry and State Game Breeding Station.
- State forest administration employees as well as free-lance foresters are authorised to use a control forest label. The latter are frequently commissioned to mark municipal or private forest stands.
- Timber harvested from communal or private forests is marked and transported according to the same rules and with the same documentation as timber from state forests.
- Wood-processing companies are registered at the State Forestry as well as the National Forestry Board. Each enterprise has to create a producer label in order to mark the production. State Forestry delivers a book with transport-permission for the processed timber. Each enterprise has to register the purchased and processed timber but is at present not obliged to report these data to anyone.

3. Illegal logging

Illegal logging in forest is an important part of illegal forest activities. Two types of illegal logging have to be distinguished:

- 1) Harvesting without permission (timber robbery) occurs in forest stands, where the Forest Management Plan does not provide harvesting operations or trees are not marked for felling, or in stands, where the trees are already marked but the harvester has not received harvesting permission yet.
- 2) Irregular logging happens in forest stands where the harvesting operation is approved, but carried out in violation of provisions:
 - Un-marked trees are cut;
 - Qualitative assortments are wasted as a result of incorrect cutting:
 - unintentionally, if the forest worker has not the qualification needed
 - intentionally in case of low timber demand or certain market conjuncture.
 - Natural regeneration or retention trees are damage during harvesting;
 - Some of the near standing good quality trees are also cut down;
 - Logging is performed in a time period which is beyond the season determined by the Forestry Act;
 - Logging is performed in irregular marked forest stands.

The Bulgarian law differentiates between logging for local communities and for industrial use. As in both types illegal logging is carried out with own specifics, they have to be explicated separately.

3.1 Logging for local community needs

Every year a certain volume of firewood is given to the local community at a preferential price. Under particular conditions (for example when constructions are announced), a harvesting license is given for firewood as well as for other assortments like construction timber. In both cases, the buyer pays only a stumpage fee. This type of logging has a long history in Bulgarian society as it motivates local communities to protect the forest and simultaneously satisfies their needs under control of a forester. This non-market orientated, social practice is wide spread in Bulgaria, but its implementation in a free market economy prepares the ground for corruption and violation of law.

Table 3: Timber harvested by local communities in the State forests of Bulgaria between 2000 and 2002

Year	Forest management plan	Total yield		Coniferous		Broadleaves	
		m ³	%	m ³	%	m ³	%
2000	5,105,421	983,868	19	174,599	18	809,269	82
2001	4,910,880	809,241	16	136,505	17	672,735	83
2002	4,896,651	961,279	20	156,151	16	805,128	84
average	4,970,984	918,129	18	155,752	17	762,377	83

The main weak points are:

- Assorting the main part of the harvested timber as firewood regardless of the quality. If the timber is harvested by local community it will be registered mainly as firewood even though it may be high quality timber. If the same timber is harvested for industrial use, different assortments will be registered. Incomes from stumpage fees increase as well as high quality timber are registered.
- Low standards of technical equipment as well as of qualification. Local communities often carry out harvesting and transportation with improper tools or in a technical irregular way, which damages not only the remaining trees and natural regeneration, but also favours labour accidents. For similar reasons harvesting is usually not completed in parts of the forest stands which are difficult to access or far away from the forest roads. If local population is not provided with more convenient, i.e. easily accessible sites, tensions and irregularities in logging are predictable.
- Difficulties in creating and following a clear organization for timber harvest make control by the State Forestry difficult. A large number of people use such a logging scheme. Normally they harvest and transport the permitted timber volume in portions, usually as whole logs and often during the weekends. If timber is transported over long distances by carts, only good quality or trimmed stems are loaded, in order to transport more timber at once. In the final reckoning the actual transported timber volume is more than the volume determined in the transport permission.
- Irregularities during forest operations without material yields. Liberation and lightening (thinning in very young stands) is mainly done by local community in order to get struts and stakes. Often the trees of highest quality are cut down, which dramatically decreases the possibilities to form good quality forest stands.
- Charging contractors with the logging operation. In most cases, the beneficiary does not carry out the logging by himself but pays someone else to do the felling. Unregistered brigades are established which in practice perform alternative industrial logging. As they do not pay taxes and gain unregulated profits by speculative deals, they beat down the prices and crowd out legal companies.
- Fixed preferential prices for each timber assortment regardless of the type of wood-cutting area, the distance to transport roads or settlements and specifics of

the forest type. This way of value estimation is in contradiction to market economy and creates conditions for corruption.

- Subjectivity of the decision of the local forest administration regarding the beneficiaries, the felling area and the time.
- Shortcomings in regulations regarding selection of the rightful people, who can be entitled to use “timber for local population”, and determination of the timber volume. This creates opportunities for local political intervention and distorts the social functions of this practice. By re-selling this “cheaper” timber to processing enterprises, market timber prices are pushed down. Regular companies are forced to diminish their expenses by using low cost harvesting technologies or to enlarge their incomes by increasing the harvesting volume.

3.1.1 Production of firewood

The wood given to local communities is mainly used as fuel. The total volume of firewood harvested in Bulgaria is reported to be 2.1 million m³ per year. About 0.4 million m³ of brushwood, small-size technological wood and partially medium-sized construction timber, which are also used as firewood, have to be added to this volume. Thus, the reported production of firewood amounts to a total of 2.5 million m³. During the last 10 years, the official Bulgarian export of firewood did not exceed 75,000 m³. Commonly, it ranged between 26,000 and 46,000 m³ (Table 4). According to the statistic year book (2002), the volume of imported firewood is negligible for the following calculation.

Hence, the official firewood consumption in Bulgaria calculated from production minus export is about 2.4 million m³. This figure already includes an annual volume of 0.9 - 1.0 million m³, corresponding to 40% of the total firewood harvest, that is given to local communities for a preference price (Report forms FF (forest fund) 1-7 2000 - NFB).

3.1.2 Consumption of firewood

According to data from official census in Bulgaria for 2002, the number of households using wood for heating purpose is 1.899.226 out of a total number of 2,921,887 households in the country. 1,244,068 households do not use other fuels than wood for heating (group I), while the other 655,158 households (group II) combine firewood with another energy source. The firewood consumption of a household of the first group is assumed to be 8 stacked m³ or 4.5 solid m³ for one heating season, and for the second group 3 stacked m³ firewood or 1.6 solid m³. This means that in total about 6.6 million solid m³ of wood are consumed for heating purpose. The figure exceeds the total annual harvest of all timber assortments by 2 million m³ and is by more than 2.5 times higher than the official figure of harvested firewood. It should be noticed that fuel wood is not obtained exclusively from forests. According to an assessment (World Bank Project Forestry: Fuel Switch Pilot Project PHRD TF 051713; 2004) in areas around the towns Ardino and Teteven, up to 25% of the needed firewood derives from trees on agricultural fund (abandoned orchards,

hollows and boundaries overgrown with shrubs and trees, single trees on restituted agricultural land, in private yards, along rivers, or in dry riverbeds, etc.) or as waste wood from wood-processing companies (cuttings, sawdust and etc.). Roughly, the volume of these substitutes does not exceed 1.5 million m³. Hence, an annual firewood volume of 2.7 million m³ is harvested in Bulgarian forests without being registered. Also the "Forest sector analyze" (2003) refers to an assessment carried out by Mediana in 2001 that evidences an annual fuelwood consumption of more than 6 million m³.

Table 4: Export of fuelwood and raw timber from Bulgaria between 2000 and 2002

Product	2000		2001		2002		Average for the period	
	Quantity (m ³)	Value (lev)	Quantity (m ³)	Value (lev)	Quantity (m ³)	Value (lev)	Quantity (m ³)	Value (lev)
Fuelwood								
in the form of log, billets, twigs, faggots or similar	74,524	3,883,880	26,799	1,595,905	38,146	2,007,728	46,490	2,495,838
coniferous	72,820	3,742,897	24,675	1,303,742	27,793	1,326,107	41,763	2,124,249
other species	252	16,290	96	25,301	737	18,837	362	20,143
sawdust	78	60,401	793	32,340	3,058	82,135	1,310	58,292
chips, particles, cuttings and others	416	21,864	326	32,340	303	11,503	348	21,902
	958	42,428	909	202,182	6,255	569,146	2,707	271,252
Industrial wood in the rough								
treated with paint, creazot and others	286,954	16,959,021	281,878	16,309,472	177,378	10,472,982	248,737	14,580,492
spruce and fir	22	7,418	33	14,400	1	620	19	7,479
white pine	2,295	271,272	3,421	517,114	9,110	811,794	4,942	533,393
other coniferous species	74,899	4,205,170	147,663	8,101,389	26,972	1,554,151	83,178	4,620,237
lime and gledicia triacantus	33,902	1,627,211	31,060	1,818,602	66,049	3,779,255	43,670	2,408,356
oak, tehnological wood, logs	7	1,627					2	542
beech	46,891	2,631,956	36,882	1,955,292	19,346	832,404	34,373	1,806,551
poplar	103,021	5,979,739	47,296	2,752,829	46,740	2,849,912	65,686	3,860,827
ash, bitter oak, black locust	11,985	718,819	8,125	552,395	9,160	644,846	9,757	638,687
	13,934	1,515,809	7,398	597,451			7,111	704,420
Total	361,478	20,842,901	308,677	17,905,377	215,524	12,480,710	295,226	17,076,329

3.2 Industrial harvesting

After reformation of the forest and the industry sector in the past decade, central state regulation of demand and supply were abolished and coordination between forestry and wood-processing industry got lost. Due to the reduced wood consumption on domestic market, many wood-processing companies were closed, while others focused on the external market. The producers and round wood exporters customised their assortments to meet the foreign demands. As those assortments do not comply with requirements of Bulgarian State Standards (BSS – technical quality standards), the national standard lost its generality for Bulgaria. Thus, only valuable timber was logged in the majority of cases.

The most frequent violations are:

- Valuable wood is cut in assortments which do not comply with the requirements of Bulgarian State Standards and is treated as assortments of lower quality class. For example thick coniferous stems are cut in 1.2 m long segments for broad board production.
- Slender trees smaller than 14 cm dbh are cut, even they are not marked. According to law, only trees larger than 14 cm dbh have to be marked on two places: on the stem at the height of 1.3 m from the ground and on the future stump. Trees smaller than 14 cm dbh are only marked on the stem at the height 1.3 m. As the stump of these trees does not have to be marked, any evidence is missing once the trees are cut. Due to the fact that this tricky issue is often used, many uneven-aged forest stands are destroyed.
- Neither firewood nor small and medium-sized wood for pulp and cellulose production is transported to a temporary timber yard. The diameter of these timber assortments is not measured, but estimated. It is a usual practice to record smaller diameters to reduce the harvested volume and respectively the costs.
- Forest stands are damaged intentionally in order to obtain extended harvesting volume respectively at a lower price. This can be done during felling and skidding of trees as well as by intentional forest fires.
- Volumes of quality timber are hidden in trade documentation by intentional incorrect registration of tree qualities and volumes in the assortment lists. The fraud is already prepared during the tree-marking procedures: either when trees are qualified as “fit”, “semi-fit” and “unfit” or by reduction of the age class of the stands. Thus, the comparison of logging permission and assortment lists will show no differences.
- Forestry employees mark additional trees for felling without registering them. It is obvious that more of the described violations can not be carried out without cognisance of state foresters. This means that many illegal activities are strongly related to corruption as described below.
- Valuable timber is logged in good quality forest stands but registered as a low value assortment harvested in neighbouring low quality stands.

- Many illegal logging activities are carried out after regular working time – for example after 18h or during weekends and holidays. As in this period control by forestry authorities is lower, irregular activities increase.

3.2.1 Level of illegal logging for industrial use

In order to assess the possible quantities of illegally logged timber according to the definition of the WWF, harvesting of industrial timber cannot be surveyed alone, but violations during transport and trade have to be included.

According to the report “Forest sector analysis in Bulgaria” (2003), prepared during The Project for Development of National Forest Strategy and Policy, being part of the “Forest Development Project in Bulgaria” financed by the World Bank, “reported illegal logged timber volume is 41 600 m³ in 2001 - ¾ burned wood. Its volume is doubled during the 90s and it is reported as 1.4% of total annual harvested volume (average planned annual harvested volume 5.5 million m³)”. This figure only includes the uncovered and recorded cases of illegal logging. The lion’s share of illegal activities in forests is not recorded.

According to press reports (Economic life 40/2003) timber thefts averaged 1 million m³ annually amounting to 20-30 million levs or 10-15 million Euro (2 levs = 1 Euro) between 1997 and 2001.

During a press conference in Smolian (October 2003), vice-minister Plugchieva affirmed that a timber volume of 0.8 million m³ annually is logged illegally in state forests. This confirms the figure published in the press and indicates that 0.2 million m³ of the illegal wood derives from non state forests.

Also expert statements confirm that the average annual volume of illegally logged timber for industrial use (so called industrial logging) is about 1.0 million m³.

3.2.2 The role of corruption

Under the conditions of market economy and open competition in the timber industry, companies try to hide incomes in order to avoid taxes and duties. Present legislation is very restrictive regarding activities and rights of forest companies. The state forestry staff is supposed to have full control over logging activities. Therefore, almost all of the violations listed above can not be committed without direct cooperation of these employees or are favoured by lack of governance and weak enforcement of existing regulations and laws. Thus, illegal logging is related to corruption as well as to lack of capacity of the controlling bodies. A representative sample from research implemented during the “Forest sector analysis in Bulgaria” (2003), points the following reasons out for “forestry problems”:

Corruption:	28%
Low control:	39%
Poverty:	15%
Insufficient funding:	10%
Can not judge:	7%
Other:	1%

Corruption is widely present as the results of the representative social research prepared within the “Forest Development Project in Bulgaria”, by the Ministry of Agriculture and Forestry (S. Kostadinova 2003) show. This phenomenon has its regional specifics resulting from a multitude of social, demographic, economy, natural, political and other factors.

Our research shows that the main reason for corruption among forest employees is their relatively low salaries, compared to the value of resources they are responsible for. The usual salary of a forester ranges between 125 and 200 Euro (250-400 levs), but the value of the resources controlled by one forester is estimated to be about 2.5 million Euro (5 million levs). All people interviewed for this study responded positive to the question “Are the violations going to decrease if salaries are doubled?”

3.2.3 Conclusion

In order to reduce illegal logging and corruption the following measures should be taken:

- Establishment of an open market mechanism to satisfy the needs of local community for wood;
- Objective assessment of logging companies combined with mechanisms to exclude companies and persons violating forest legislation as well as new entities linked to them from commissioning harvesting operations.
- Involvement of local communities to enforce active support for the protection of forests. This includes instruments like material stimulus and so called “Multifunctional forests planning” which involves people and society into the management practice of forest stands.
- Forest Certification (FM, CoC, non-timber-forest-products);
- Enhancing the motivation of the state forest staff by removing political and economical obstructions in their work and not least by increasing the salaries. Forest employees should spend more time in the forest, the source of the valuable raw material wood, instead of doing administrative work in office like it is common practice.

4. Illegal activities during transport, trade and export of wood

4.1 Transport

The volume and weight is an essential disadvantage of illegally logged timber, when it has to be transported from cutting areas or temporary timber yards to processors or other consumers.

Possible violations occurring during transport are:

- Registering a timber volume in transport documents, that is smaller than the real load. Usually this is done by reducing the dimension of all transported assortments by one level, as the timber volume is calculated by length (usually fixed) and diameters which are registered in levels with a gradation of 4 cm. Once the timber is loaded on a truck, it is impossible to check the diameters of all logs.
- Registering lower quality for certain trees or assortments in transport documents;
- Using several times the same document for repeated transports. The actual date is only entered into the transport permission if the transport vehicle is stopped by foresters or police.
- Transporting wood from several felling areas at the same time in order to complicate effective control by foresters;
- Using carts conducted by children, who are not of the age of criminal responsibility, to transport stolen timber from easy accessible forests. The promoters of these timber thefts and transport are usually members of ethnical minorities with low social status. This practice happens mostly in regions with a high level of unemployment like Samokov, Pazardjik and Blagoevgrad. Experts estimate the annual volume of timber stolen in this way ranging between 500.000 m³ and 800.000 m³ between 1998 and 2001.

4.2 Trade

Wood transportation is directly connected to its trade and processing. Some connections between timber trade and illegal harvesting and transportation of wood are described below.

4.2.1 Timber from state forests

The government as well as the business sector declared their clear and unequivocal willingness to develop big trade centres for the timber market like bourses, stock-exchanges and market centres. But in reverse, the same producers, processors and retailers do not want to trade wood or timber products on such official trade centres. Statistical data shows that quite a small volume of processed wood is quoted and sold on stock-exchanges. Actually, it looks not realistic to sale round timber on these bourses, although they would make trade easier and guarantee stable prices. These

facts show that the timber market players do not like so much transparency, maybe due to unclear intentions and presence of illegal activities.

The wood users and processors call for equal rights, conditions and rules for all purchasers of wood from state forests. This is a strong antagonism to their own behaviour as they misrepresent or refuse information about their own wood supply. This is justified as trade secret. So, on the one hand, everybody asks for more information and transparency about wood bargains of state forests, but, on the other hand, nobody wants to inform about own bargains. Information is even scanty if the transaction is long time ago. The most treasured secrets are data about prices, clients and brokers. This behaviour does also not correspond to ambitions for direct work with clients, especially abroad. Under these circumstances it is explicable that registered export timber volumes do not comply with real exported volumes reported in bills of the entries (see below). In addition, there are usually discrepancies between the export data and the data of the importing countries;

Another obstacle for the development of a transparent timber market desired by the responsible business and society is the expansion of timber trade at new private timber-yards and small trade places. In the last few years they were established continuously in large number along roads and ring-roads near big towns. Wood, sawn timber and finished products in these timber-deposits are sold cheaper than the same assortments at stock-exchanges. The difference between prices is usually explained with a lot of formality and rules which have to be fulfilled at exchanges and other market centres. The private enterprises established the small wood-trade places with their "power of the personal initiative" which allows reducing the costs by small investments and a small number of employees. But this "power" also enables some employers to pay salaries not in time or to force their employees to work for low salaries, in bad or in no compliance with legal working conditions. This issue is related to labour market but links also indirectly to wood market. Mostly such wood-trade places do not have a correct documentation for all products to guarantee legal and sustainable origin.

The sanctions for violations of forest legislation are usually accepted by the violators without any objections, especially by bigger companies. Often their explanation is that logging is a very difficult and complicated activity where mistakes during work can happen. Two possible reasons for this reaction have to be presumed. The sanctions are too low in comparison to the incomes from illegal activities or a lot of the violations made in forests are not discovered. It has to be mentioned that about 2000 violations committed by forest users (logging companies, forest operators and individuals) are sanctioned per year according to the Forestry Report 2002 and 2003. There are just a few sanctioned violations of the Labour Act and Administrative Violations Act committed by the wood-processing industry. This leads to the conclusion that the control of the wood-processing sector is missing or ineffective although the inspections of sawmills increased from 1000 in 2002 up to 3000 in 2003.

Changes in legislation which should address thefts and illegal processing of wood are delayed, despite the results of the detailed social research made by the "Forest Development Project" (2003). The number of articles in press during the last few years as well as the tragedy, when a helicopter crashed during an intentional forest fire near Razlog (2002), confirms the necessity of these changes. It has to be suggested that this foot-dragging exercise is probably not due to lack of information but due to political protection of certain economic interests.

4.2.2 Timber from non state forests

Selling wood from non-state forests does not have clear procedures. No measures are taken to solve this situation. Non state owners are willing to manage their forests in the long-term, but due to shortage of funding they are often forced to sell a part of the already available resources (timber, etc.) in order to finance forest management. Furthermore, they often have a lack of experience and technical capacity to carry out management and harvesting activities by themselves. Therefore, they ask State Forestry/State Game Breeding Station for support, but often the number of these forest owners is so high that it is practically impossible to help them all. In such cases, the State Forestry/State Game Breeding Station recommends to the owners “new entrepreneurs”, who have the capacity and machinery to provide such services. When such entrepreneurs receive permission for logging on one property they often trespass to neighbouring properties, although they are not hired. The owners may even not know that their forests are logged. This wood is sold, sometimes to people from the same settlement, at very low prices in comparison to the price of legally logged wood. This explains that even sawn or edged timber can be bought in the private timber-deposits in villages and areas around Sofia at prices lower than the harvesting costs, not to mention the transportation costs.

4.3 Export of timber

During the last two years more than 95% of the exported roundwood was technological timber used for the production of pulp or particle boards. Most of it was exported to Greece, partly to Turkey and Macedonia (Table 5). There are both political and economic trends to reduce the export of raw timber.

One way to restrict illegal logging is increasing the effectiveness of custom control.

The total volume of the average annual export of roundwood, sawn wood and charcoal (both calculated in roundwood equivalents) is 1/5 (20%) of the total annual harvest in Bulgaria (Trichkov and Petrov 2003). At the moment the customs regime for timber export requires registration. However, the export of burned wood is forbidden. When registering, the exporter receives a certificate for import-export of a specified timber volume in m³. This volume has to be proved with documents like contracts, logging permissions, etc. The certificate is valid for three months. If part of the timber volume is not exported during the term, the exporter receives another certificate for which documents are not needed. In the customs documents the exported volume is stated in m³.

The comparison of the real exported volumes and those documented by customs officers shows important weak points:

- In customs declarations the main measure unit is tonne. However, there is a possibility to specify another measure unit as well. Sometimes this leads to incorrect entries of the measure unit, which is cubic meter in the import-export certificate and tonne in the customs declaration. Respectively, the related amounts are also wrong. For example 1 m³ coniferous round timber weighs 0.7 tonnes, but is stated to be 2 to 3 tonnes in the customs declaration.

- The exported wood is another, more valuable timber species than stated in customs declaration and import-export certificate, as the customs officers do not have the qualification to recognize it;
- The exported assortments are of better quality than stated in customs declaration by the same reason as above.

In order to solve these weak points the following measures should be implemented:

- Establishment of pre-custom controls for the export of wood products;
- Enhancement of the interaction between National Forestry Board, revenue and customs authorities including the development of computer software for quick assessment of volumes and real value of exported or imported wood products;
- Ban on export of non-certified forest products;

Table 5: Roundwood export by destination country

Import country	Final export				Re-export		
	Weight (kg)	Value (lev)	Quantity (m ³)	%	Weight (kg)	Value (lev)	Quantity (m ³)
Greece	125.936.308	15.642.265	264.036	79,25	138.028	52.757	654
Turkey	31.438.821	2.428.024	42.774	12,84	0	0	0
Macedonia	9.670.915	582.225	11.314	3,40	0	0	0
Italy	1.116.295	549.160	5.409	1,62	466.256	255.439	2.731
Germany	587.553	359.040	3.308	0,99	178.460	101.636	1.045
Cyprus	287.256	105.259	1.576	0,47	0	0	0
Israel	238.552	124.912	1.400	0,42	0	0	0
Austria	177.065	92.321	1.062	0,32	0	0	0
Yugoslavia	266.870	23.273	865	0,26	112.380	75.310	567
Lebanon	377.266	74.503	522	0,16	0	0	0
Belgium	39.429	19.239	237	0,07	0	0	0
USA	32.950	16.290	193	0,06	0	0	0
France	36.850	10.401	122	0,04	0	0	0
Norway	18.625	16.028	112	0,03	0	0	0
Kazakhstan	14.875	9.601	87	0,03	0	0	0
Malta	10.770	6.320	65	0,02	0	0	0
Hungary	20.000	8.201	32	0,01	0	0	0
Catar	22.480	2.281	28	0,01	0	0	0
Poland	15 745	7 929	24	0,01	0	0	0
Great Britain	4.210	15.795	7	0,00	0	0	0
Mauritania	0	0	0	0,00	2 120	1 150	3
Panama	0	0	0	0,00	60	172	0
Tunisia	0	0	0	0,00	18.274	5.718	17
Total	170.312.835	20.093.067	333.175		915.578	492.182	5.018

5. Conclusion

The volume of illegally logged timber can be estimated, even roughly, to be about 3.7 million m³. Thereof 2.7 million m³ (73%) are used as firewood and about 1 million m³ (27%) is processed in the timber industry. The real volume might even be higher as these figures do not include roundwood used for other purposes than processing or heating (i.e. pales for fences, mining timber etc.). Adding the illegal harvest to the recorded legal harvesting volume, a total of 8.3 million m³ of raw wood is harvested in Bulgaria's forests per year. Following this about 45% of the total harvest (legal and illegal) is illegal.

Illegal logging in Bulgaria is on an alarming high level. It's volume of 3.7 million m³ annually corresponds to 80% of the reported annual harvest. The volume of legal and illegal harvest together exceeds the annual allowable cut provided in the forest management plans by 1.5 million m³. It does not reach the total annual increment of all Bulgarian forests, but may exceed it in specific regions and easy accessible forests. Therefore, a forest assessment should be carried out to identify the areas most affected, where measures to combat illegal logging have to be implemented immediately in order to avoid an unsustainable overharvest.

Illegal logging is linked to many violations of current legislation, above all to corruption. Some recommendations to restrict illegal logging are presented in the following, but first of all it is necessary to increase the motivation of the forest staff and the backing by government, legislation and judiciary. If illegal harvesting is reduced, the violations in transportation, processing and trade of wood will also decrease. For that purpose the control in the forest has to be enforced. However, the government does not seem to accept these facts fully as the current policy allows the definition of so called "acceptable violations in the forests", even if this is never admitted officially.

This report can not answer all of the upcoming questions it provoked, but the authors are convinced that it will be helpful during a necessary public debate about illegal activities in forestry. This kind of illegal activities has complex harmful effects:

It has negative impact on sustainable development of forestry and forest sector as a whole. This contravenes the "National forest strategy and policy" (2004) according to which forests in Bulgaria shall be managed sustainable.

It carries the risk of an enduring violation of the ecological equilibrium in some regions where such activities happen more frequently. It has a harmful impact on biodiversity, protection of rare and valuable species as well as on local communities.

It prepares the ground for a "grey" economy sector in the country, beats down the prices of wood products and labour costs in forest sector;

It damages the prestige of the forestry employees and state forest administration as a whole at long-term and carries the risk that forest experts are replaced by others – economists, environmentalists and etc.

Recommendations:

- Improving law enforcement and criminal prosecution of violations in forests
- Enhancing the motivation of the state forest staff by removing political and economical obstructions in their work and last but not least by increasing the salaries. Forest employees should spend more time in the forest, the source of the valuable raw material wood, instead of doing administrative work in office like it is today's practice.
- Objective assessment of logging companies combined with mechanisms to exclude companies and persons violating forest legislation as well as new entities linked to them from commissioning harvesting operations.
- Establishment of an open market mechanism to satisfy the needs of local community for wood;
- Involvement of local communities to enforce active support for the protection of forests. This includes instruments like material stimulus and so called "Multifunctional forests planning", that involves people and society into the management practice of forest stands.
- Forest Certification (FM, CoC, non-timber-forest-products);
- Establishment of pre-custom controls for the export of wood products;
- Enhancement of the interaction between National Forestry Board, revenue and customs authorities including the development of computer software for quick assessment of volumes and real value of exported or imported wood products;
- Ban on export of non-certified forest products;

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