

Forest Education Strategy and Action Plan

Final Draft

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Executive Summary

The forestry sector reform which has been launched in 2012 is aimed at the introduction of sustainable management of forests at the national level. To initiate and implement the process, the Ministry of Environment and Natural Resources Protection of Georgia has started the implementation of a number of institutional and legislative reforms. However, for the introduction of mechanisms and practice of sustainable forest management the forest education system has to be improved to ensure that people engaged in forestry sector have adequate knowledge and skills to effectively implement the actions considered by the reform.

Shortage of qualified people in public, private and research institutions, limited access to modern technologies and methods, as well as lack of relevant technical skills in agencies involved in forest management, absence of incentives for attracting and retaining skilled and professional staff in public and scientific sectors, inadequate and insufficient infrastructure, unsatisfactory linkages between scientific research institutions and public sector and inadequate financing for ensuring permanent education are main challenges faced by the agencies involved in the forestry sector.

Most institutions providing high academic and professional forestry education are also facing challenges. Specifically, weak appeal of forestry schools and programs and poor knowledge base of students entering forestry schools, curricula which do not respond fully the existing challenges,, insufficient technical base, lack of a fully-fledged mechanism of permanent education for foresters, lack of specialized education centers and insufficient state funding hamper the development of this field. An unfavorable stereotype of a forester and insufficient information about available learning and employment opportunities in the forestry sector are also worthy to mention.

Lack of awareness of importance of forests as an ecosystem among local communities and general public create additional difficulties for the forestry sector, especially under conditions of high dependence of local communities on forest resources, particularly on timber and firewood. Importance of forests and principles of sustainable forest management are not adequately covered in school and preschool curricula.

To improve the existing situation, the forestry education has to be enhanced through updating available educational programs and development/introduction of vocational education, permanent training of forestry practitioners, international experience sharing, maximum use of scientific capacity and informal education.

Based on the above-mentioned, a strategic vision for forest education is as follows:

Educational institutions provide adequate forestry education, while public and scientific

organizations, involved in forest management, as well as private sector and local population demonstrate a strong sense of responsibility towards forests; all sectors act in a coordinated manner, people engaged in these sectors are qualified and equipped with skills required for sustainable forest management both at administrative and field level.

The following strategic goals are outlined based on the vision:

Goal 1: Establishment of integrated forest education system based on international standards ensuring the supply of demanded human resources

Goal 2: Enhancement of scientific researches and reestablishment of links between the agencies involved in forest management and academia

Goal 3: Promotion of international integration and experience sharing

Goal 4: Public awareness raising

Priority targets are set out under each goal. For each targets sequential actions with timeframes, expected costs, responsibilities and indicators are outlined.

The Forest Education Strategy and Action Plan cover 2017-2020 period and is in line with other national policy documents and international commitments.

1 Introduction

In 2012, Georgia launched a large scale forestry sector reform to introduce mechanisms of sustainable forest management and the best international practices in this sector. Sustainable forest management requires innovative vision as well as new thinking and implementation approaches which in turn greatly depend on availability of qualified personnel and adequate awareness of the importance of forests as an ecosystem and sustainable forest management among the public and other stakeholders. This can be achieved through capacity building of forestry related professionals, reestablishing linkages between research/educational and policy making/enforcing institutions, international experience sharing and enhancing formal and informal forestry education.

The present document outlines 4 year goals, respective targets and specific actions for building human capacity in the forestry sector and enhancing relevant educational and research institutions considering the existing situation/problems.

The document is based on the detailed studies carried out by the World Bank and GIZ in 2014-2015 for the development of forestry education strategy and proposed recommendations. It is in line with the National Forest Concept of Georgia approved in 2013, Georgia's National Biodiversity Strategy and Action Plan (NBSAP), the EU-Georgia Association Agreement and other policy documents.

Chapter 2 of the present document briefly describes the existing situation in the forestry sector. Chapter 3 gives an overview of human resources available in forestry related public, private and research institutions. Chapter 4 provides an analysis of the situation observed in educational institutions and on job training opportunities. Chapter 5 explains the importance of public awareness. Chapter 6 briefly describes main policy documents related to forestry education. Chapter 7 presents strategic vision, goals and targets and their justification. Chapter 8 contains specific actions (Action Plan) with timeframes, responsibilities, estimated costs and indicators that are required to achieve set goals and targets. Chapter 9 explains how the Action Plan will be monitored.

2 Current Status of the Forestry Sector

Forest occupy about 40% of the territory of Georgia – 2.8 million ha, out of which around 600 000 ha are protected areas, 850 000 ha are otherwise protected (e.g., forests growing on slopes that are steeper than 35 degrees) and 1 350 000 ha are so-called usable forests. 98% of forests are classified as mountain forests. Therefore, the functions of forests as an ecosystem include protection from erosion, landslides and avalanches. Forests also have water regulating and other important functions.

Forests have a high social significance also in Georgia. According to LEPL National Forestry Agency under the Ministry of Environment and Natural Resources Protection of Georgia (MENRP), 604,400 m³ of timber is logged every year, 80% of this amount is used to meet the demand of rural households on firewood. Data provided by the State Audit Report (2015) is even higher (about 2.4 Mln m³). These figures indicate at high dependence of rural communities on timber resources. It shall be also noted, that issuing special logging licenses on about 10% of so-called usable forest areas to physical and legal persons in 2006-2012, made managing forests in a sustainable way even more complicated, especially existing conditions of limited human and financial resources required for adequate supervision and law enforcement.

Since the majority of the Georgia's forests are located on steep slopes, special technical requirements to forest infrastructure, timber harvesting and transportation have to be applied. This further complicates sustainable logging activities.

Considering the functions of forest ecosystems, which have vital importance for people, sustainable forestry practices should be widely adopted. With this in mind, in 2012, the new Government of Georgia made a decision to change existing approach and establish sustainable forestry management system. To achieve this objective, in 2013 the MENRP initiated the forestry sector reform. Specifically, forest policy development, management and enforcement functions have been separated, relevant structural entities established and strengthened and the process of the development of a National Forest Program has started. The forestry sector reform is aimed at changing forest management approaches; specifically, it considers the creation of forestry farms and the introduction of an effective model of sustainable forestry management that brings long-term benefits.

3 Overview of Human Capacities in the Forestry Sector

3.1 Public Sector

All forests on the territory of Georgia are presently owned by the state. Institutional set-up of current forest sector administration and management is based on the Forest Code of Georgia (1999). The development of the new Forest Code which will establish legislative norms required for the implementation of the forestry sector reform is underway.

The Ministry of Environment and Natural Resources Protection of Georgia represents the higher national executive institution responsible for the development, implementation and enforcement of national forest policy through its structural units. Specifically, **Forest Policy Division** under the **Biodiversity and Forestry Policy Department** is responsible for the

development of forestry policy at the national level, while implementation functions, including those at regional level, are performed by the following agencies of the MENRP:

- LEPL **National Forestry Agency** and its regional services (9 regional services)
- LEPL **Agency of Protected Areas** and its territorial administrations (20 territorial administrations)

The **Department of Environmental Supervision** of MENRP is responsible for enforcement and control. The Department exercises its duties through territorial bodies (8 territorial bodies including the Black Sea Protection Conventional Inspection) on the whole territory of the country including the Adjara Autonomous Republic.

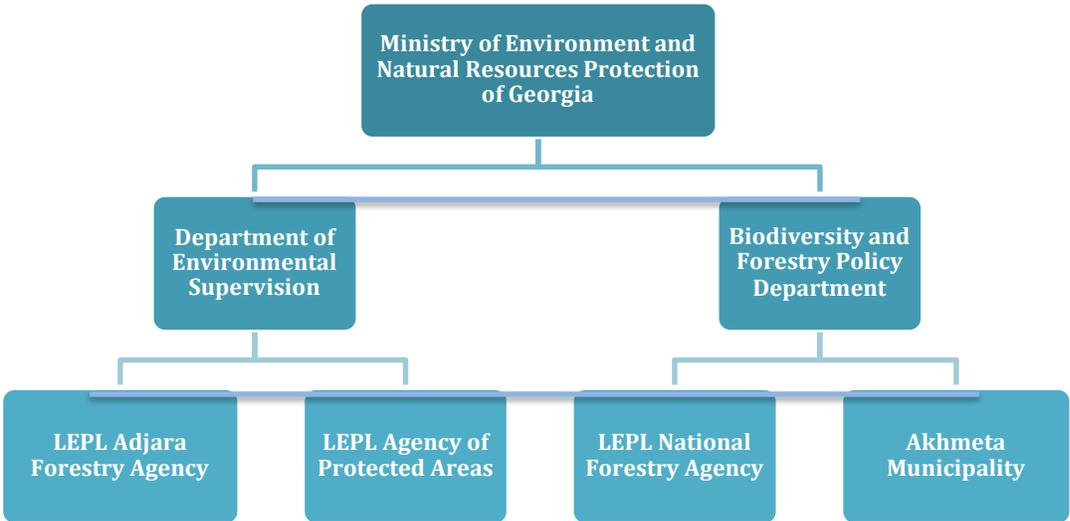
LEPL Adjara Forestry Agency under the Environment and Natural Resources Department of the Adjara Autonomous Republic is responsible for the management of forests on the territory of the Adjara Autonomous Republic (162 104 ha), except for those having the status of protected areas.

Along with the above mentioned governmental bodies, the **Akhmeta Municipality Administration** is also involved in the forest management. The Akhmeta Municipality Administration manages the Tusheti Protected Landscape which includes forest areas also.

Diagram 1 illustrates state agencies involved in forest management. Hierarchy in the Diagram does not reflect the existing subordination system.

Currently forests of the Abkhazia Autonomous Republic and the South Ossetia region are out of the jurisdiction of the Georgian authorities.

Diagram 1. Institutional setup of state forest management



3.1.1 Available Human Resources

Biodiversity and Forestry Policy Department

The staff of the Forest Policy Division (FPD) under the Biodiversity and Forestry Policy Department consists of 5 employees with professional qualification in forestry or adjacent specializations. Although the personnel of the FPD has the forest educational background, there is a need to further develop their capacity and knowledge to cope with the challenges of the on-going forestry sector reform and meet related commitments under the EU-Georgia Association Agreement. Specifically, capacity development measures should focus on the following areas: introduction and application of modern technologies in the forestry sector, project management, development and monitoring of policy and planning documents, carrying out international bilateral and multilateral negotiations. Since the FPD is responsible for examination and approval of forest management plans, technical capacity in taxation should be also improved.

National Forestry Agency

LEPL National Forestry Agency (NFA) is a key forest management body in the country responsible for physical protection of forests and planning and implementation of forest use, inventory and maintenance-restoration activities in the 9 regions of the country except for the Adjara Autonomous Republic.

The staff of NFA consists of 869 employees. 83 positions are at the central office and 786 – at regional forests services (including 569 forest guards). Based to the resolution of the Government of Georgia, 200 people are also employed by NFA in non-payroll positions mainly for forest maintenance-restoration activities and logging.

Around 32 % of employees of NFA central office are the graduates of higher educational institutions with professional qualification in forestry or adjacent specializations. Around 80% of the heads of regional services and foresters have relevant educational background, while only 27% of forest guards have professional forestry qualification. Although, currently more human resources with required qualification are available in the Agency as compared to previous years, lack of expertise related to both professional activities (forest use, inventory, maintenance-restoration, forest fire prevention) and general skills. Therefore, the staff (at all levels) should be provided with regular relevant trainings. High staff turnover, especially among forest guards, makes regular trainings, including short orientation trainings for newcomers, especially important.

The on-going forestry sector reform and legal and policy documents that have been developed for the implementation of the reform, pose additional challenges for the LEPL National Forestry

Agency. Therefore, the introduction of a continuous training program for the staff of the Agency becomes even more important considering the leading role of the Agency in forestry management and in planning and implementation of all forestry activities.

Agency of Protected Areas

LEPL Agency of Protected Areas (APA) manages protected areas through 20 territorial administrations the duties of which include physical protection of protected areas and control over the use of natural resources, including forest resources. APA is also responsible for preventing violations, drawing up protocols and transferring case files to relevant bodies for further proceeding.

The staff of APA consists of 522 employees. 38 people are employed in the central office and 484 people, including 49 senior rangers and 261 rangers – in territorial administrations. In those protected areas, which contain forest areas, the duties and responsibilities of rangers include: selecting cutting areas, drawing up visual examination protocols, marking trees for felling and controlling logging operations. In contrast to the employees of the central office, there is the lack of personnel with relevant educational background in territorial administrations. There are no foresters in some territorial administrations. There is also the lack of experts in ornithology, ichthyology, botany, entomology, etc. The level of knowledge of sustainable forestry (allocation of cutting areas, record keeping, etc.), forest monitoring, forest road monitoring and maintenance is low. No forest fire management specialists are in place. There is insufficient knowledge of modern technologies and methods.

Therefore, it is important to strengthen the existing capacity, and especially in territorial administrations, on the above issues through regular trainings and other qualification-raising activities.

Department of Environmental Supervision

The Department of Environmental Supervision is a subordinated agency in the system of the MENRP which, inter alia, exercises state control over forest resources. Specifically, the functions of the Department include: enforcement of forestry legislation, implementation of state control over the use of forest resources, prevention, identification and elimination of illegal logging on forestlands used on the basis of license agreements, hunting areas and within the boundaries of the state forest fund and protected areas.

Currently the Department has 434 employees -101 people are employed at the central office and 232 – in territorial bodies. The staff of the Forest Resources Control Division of the Central Office consists of 8 employees. The number of forest inspectors in each territorial body varies

within 1 and 3. This number of staff is not enough considering the scope and volume of their tasks which include controlling the logging licenses, identifying illegal wood processing facilities (sawmills) and illegal logging, etc. There is a need of their capacity building also in taxation, use of equipment required for evaluation of forest and timber resources, map reading/use, management of forest fires, use of electric systems, etc.

It shall be also noted, that not only forest inspectors, but also employees of the rapid response service are involved in identification of illegal transportation, wood processing or logging cases. Therefore the staff of the service has to be also empowered with relevant basic knowledge.

Adjara Forestry Agency

Like other public entities, the Adjara Forestry Agency lacks qualified personnel due to the inability of the current education system to supply the forestry sector with professional foresters. This seriously affects the performance of the Agency. The Agency exercises its powers through 5 territorial administration and 16 structural forest units under the territorial administration. The territorial administrations ensure forest maintenance and protection in each municipality of the Adjara Autonomous Republic.

The staff of the Adjara Forestry Agency consists of 182 employees. 38 people are employed at central office and the others - in 5 territorial administrations. There are 106 forest guards in the Agency. The services of the Agency are staffed with qualified personnel having mainly forestry education, while the majority of forest guards are graduates of secondary schools. The level of knowledge of the staff of the Agency about the principles of sustainable forest management, forest inventory, planning, application of modern technologies, etc. are insufficient and therefore capacity building is needed.

The staff of the Agency is not provided with regular trainings. The employees of the Agency, especially forest guards, have never been involved in trainings organized by the LEPL Environmental Information and Education Center (see below). The Agency carries out in-house trainings for the personnel on the cases of specific violations to prevent future occurrences of such violations. However, this is not sufficient and regular trainings delivered by qualified experts are needed to introduce modern approaches and technologies, as well as the practice of sustainable forest management.

Akhmeta Municipality Administration

Currently, the Akhmeta Municipality Administration is the only body of local self-governance that is involved in forestry management. Specifically, N(N)LP Tusheti Protected Landscape

Administration under the Akhmeta Municipality Administration is responsible for managing the Tusheti Protected Landscape which occupies 31,518 ha including 4,905 ha of forestland.

The Tusheti Protected Landscape Administration was established in 2011. As of 2016, the staff of the administration, including its head, consists of 7 employees. Only one employee has a professional forestry education background. The Administration hires additional 4 rangers on a seasonal basis. Duration of their employment does not exceed 4 months. Capacities of the Administration are quite limited. The staff of the Administration has insufficient knowledge of experience in nature conservation and sustainable development, including sustainable forestry. The Administration lacks experts with high academic background in forestry, biodiversity and habitat management. Absence of adequate infrastructure, lack of rangers and seasonal character of their employment, poor coordination with other relevant public entities, especially with the Administration of Tusheti Protected Areas, further aggravate the situation. The staff has to be provided with capacity building trainings and relevant equipment to improve the performance of the Administration.

Below is the summarized information on the number of employees engaged in forestry related activities in the Ministry of Environment and Natural protection of Georgia, Adjara Autonomous Republic and Akhmeta municipality.

Table 1. Number of employees in forestry related public entities

Ministry of Environment and Natural protection of Georgia	Total	Central office	Regions	Forest guard/ranger/inspector
Biodiversity and Forestry Policy Department	-	5	-	-
LEPL National Forestry Agency	869	83	786	569
LEPL Agency of Protected Areas	522	38	484	310
Department of Environmental Supervision	434	101	333	???
Adjara Forestry Agency	182	38	144	106
Akhmeta Municipality Administration	7	7		4 (in addition to permanent 7 members - seasonal)

3.1.2 Working Conditions of Employees

Working conditions of people employed in the forestry related public sector have to be improved. Their wages, especially those of forest guards and rangers who work irregular hours notwithstanding the established standards, are too low. Formal procedures for staff performance appraisal and motivation do not exist and therefore, the current bonus or increment award mechanism is not effective. There is also the lack of career development and promotion mechanisms.

Financial and technical base needed for adequate job performance is insufficient. Forest guards have to control 5 000-7 000 ha and larger areas often lacking means of transportation. Moreover, forest guards and rangers, as well as representatives of the Department of Environmental Supervision are not equipped with modern devices (e.g., ultrasonic distance meter to measure distance, gradient, elevation and the radius of a reference area) that could facilitate their work.

All the above-mentioned create barriers to the development of the sector on one hand, and make it unattractive for qualified workforce due to the absence of motivation mechanisms and the presence of high risks on the other hand.

3.2 Private Sector

Holders of special logging licenses/agreements

Special licenses for logging in Georgia were issued in 2006-2012. License holders, both natural and legal persons, are engaged in forest use and restoration activities in accordance with requirements of licenses/agreements. Around 10% of Georgian forest use rights have been granted to these private companies for the period of 5-20 years. Therefore, this group is one of key stakeholders in the forestry sector.

The information about qualifications of employees of these companies is not available. However, types and scales of violations identified by the Department of Environmental Supervision as a result of examination of forests managed by license holders carried out in 2015, indicate that the level of qualification of employees of license holder companies is not sufficient.

Legal requirements for field operators on professional qualifications are not yet established.

Companies providing forest inventory service

Currently forest inventory services are being provided by three companies where in total only 15-20 taxators are employed. Therefore, carrying out comprehensive forest inventory in a relatively short time is not realistic even in case of availability of financial resources. There is a lack of young professionals among the practitioner taxators and they, despite high qualification, have limited access to modern methodologies, technologies and equipment.

Learning and training opportunities and formal mechanisms for the capacity development of taxators are lacking. LEPL National Forestry Agency managed to organize a short training course for forestry program graduates only once. It should be noted, that companies being contracted for the forest inventory, have expressed their willingness to offer internship for young specialists and engage them in field works, however controlling this process goes beyond the competences of the National Forestry Agency.

Lack of highly qualified practitioner taxators reaffirms the importance of the enhancement of the national education system in this direction.

3.3 Scientific Research Institutions

Frequent disturbances, inadequate priorities, political instability and long-lasting financial and economic crises especially affected the scientific sector, including forestry related research in the country. Despite deep reorganization and optimization of scientific-research facilities of the country, Georgia still lacks smoothly operating effective system of planning, financing and managing research work. Scientific institutes in forest sector declined over the past decades as subsidies shrunk and demand-supply chains did not re-establish themselves in the new setting of market-driven economy.

Vasil Gulisashvili Forestry Institute which was established in 1945 is the scientific-research institution carrying out fundamental theoretical, experimental and applied research in the field of forestry. The Institute also provides consultation and expert services. The Institute has capacities to play an important role in achieving forest conservation and sustainable forest management goals, but it needs further state support.

Almost all employees hold a PhD degree and are highly qualified, however there is a lack of expertise in certain fields, e.g. wood science. Although the staff of the Institute is highly qualified, there is a need of capacity development in the following areas: forest inventory software and modern technologies, forest simulation models, GIS and remote sensing, and timber examination methods.

Another institution conducting theoretical, experimental and applied researches in the forestry sector, is the Technical University of Georgia, which possess various expertise including it in the field of wood science.

Main challenges:

- Lack of qualified staff in public, private and research institutions
- Limited access to modern technologies and methods, as well as insufficient technical skills required for application of these methods at almost all levels of the entities involved in forest management

- Lack of incentives for attracting and retaining qualified staff in public and private sectors
- Improper and insufficient material and technical base
- Insufficient linkages between scientific research institutes and public sector
- Lack of financing for ensuring permanent education and research

4 Current Status of Forestry Education and Training System

Based on the experience of central European countries, the ratio between the different levels of qualifications to ensure effective forest management shall be as follows: PhD:MSc:BSc:VET - 1:5:25:70. Since, the on-going forestry reform in Georgia considers the introduction of the best European practice, the enhancement of all four education levels is crucial.

4.1 Higher Academic Education

At present academic education in forestry is provided by 7 universities through bachelor and master programs. These are: Agricultural University of Georgia, Technical University of Georgia, Ilia State University, Iakob Gogebashvili Telavi State University, Gori Sukhishvili University, Batumi Shota Rustaveli State University and St.Tbel Abuseridze Educational University of Georgian Patriarchy¹. PhD programs are available in the Technical University of Georgia, Agricultural University of Georgia and Ilia State University.

Data on how many foresters with different educational background enter the labor market is not available. However, if the intensive system of state forest management is introduced in Georgia, the demand for professional foresters is expected to be increased at all levels. Specifically, according to the analysis carried out by GIZ, 20-40 foresters will be required every year. The quality of education in higher academic institutions and the level of proficiency of bachelor's and master's degree holders are also to be considered.

Poor knowledge base of enrolling students

The level of knowledge of students enrolled in forestry faculties frequently is low impacting the level of professionalism. The level of knowledge of students entering forestry educational institutions can be improved through enhancement of general education system. This is a long but promising process as the government of Georgia continues to invest into early childhood development, secondary education, curricular improvements, access to education, etc.

It is also true that the youth with the best learning outcomes from the secondary schools does not apply for forestry programs. Employment and career development opportunities are key to young people's choice of profession and schooling. Lack of prestigious and well-paid jobs in the

¹ Ilia State University offers only Master's program, and the Telavi University – only Bachelor's program.

forestry sector makes this cluster of career paths non-attractive for the youth. This aspect of quality problem goes beyond the forestry education strategy and should be targeted within the context of the national forestry sector reform, however provision of young people with better learning opportunities is the part of the forestry education system.

Employment prospects for forestry school graduates are not highly optimistic, because often the knowledge and skills attained through the learning process do not equip them adequately for undertaking responsibilities in the offered job. Even when the students have good performance results in theoretical courses, the lack of practical training and real-life experience prevents graduates' smooth transfer to the labor market.

Curricula

Georgia's prospects to compete in the global economy will depend on its ability to produce a highly-skilled workforce. This largely depends on the relevance and quality of the education received by the students. To improve relevance of forest education, the system needs to be better aligned with the requirements of labor market, and the quality of teaching and learning needs to be significantly improved.

At present, most undergraduate and graduate training programs in forestry include disproportionately high number of modules on general biology, agriculture, and biotechnology which are not irrelevant but are not specific enough to the specialization in forestry. There is an acute lack of specialized modules that would provide training in forest administration, forest law and enforcement, forest economics, etc. Also, modules carry little if any coverage of forest management and environment. Finally, curricula are rarely suited for converting knowledge acquired by students into practical skills, qualifications and competences, which leads to disconnect between workforce entering the labor market and demand of potential employers.

Technical base

Modern generation of students has high expectation of the learning environment and technical means applied in teaching. Youth of the digital era has its own way of accepting and processing information which means that this information has to be adequately presented and packaged for optimal transfer of knowledge. Methods and technical means of teaching in most of the forestry schools are by large extent lagging behind. Quality of teaching depends primarily on the qualification of teachers and access to high quality training materials and technologies is underestimated. Lack of modern libraries, laboratories, and textbooks hurts learning outcomes. So is inability of teachers to use advanced technologies and deploy them in training process.

Finally, forestry training cannot achieve results without practical exercises in forests, which is not always the case. Lacking access to practical training in natural forest settings, missing training plots equipped adequately for teaching and research is a significant glitch in the system which has to be addressed on priority basis.

Box 1. Higher academic forestry education system in Germany

Resources of higher academic education institutions providing forestry education in Germany are highly optimized. Specifically, there are only 4 universities in Germany that offer higher academic forestry education; while in Bavaria with population exceeding 12 million, the area of which is 70 553 km² and the area of forestlands is 2.5 million ha (very similar to Georgia), only one university offering higher academic forestry education is available.

4.2 Vocational Education

Vocational education should become an important component of forestry education, since the demand for workers with vocational skills will increase. People with vocational qualifications are needed mostly at local (forestry) services, for the management of forests and protected areas and forestry law enforcement, as well as for logging in accordance with the established rule (e.g. license holders).

According to the information of Education Management Information System, currently the Public College “Aisi” and Vocational College “Horizonti”, general educational institution LTD Javakhishvili Borjomi Private School, and Telavi Iakob Gogebashvili State University offer vocational education programs based on professional standards for forester (woodcutter, taxator). To facilitate the improvement of forestry vocational education, in 2015 LEPL National Center for Educational Quality Enhancement, within the framework of the Vocational Qualifications Development Support Program, has developed professional standards for modularization of vocational education in the following fields of specialization: “silviculture foreman”, “logging foreman” and “forest guard”. Relevant curricula and modules have been developed.

Furthermore, in 2016 LEPL National Forestry Agency initiated the process of optimization of professional standards and curricula. As a result a curriculum for vocational education of forestry technicians has been developed. The curriculum will be approved by the sectoral council by the end of 2016. Two vocational education institutions have been already selected to introduce the new curriculum from 2017. To promote the new curriculum, the selected education institutions will be provided with necessary equipment with the assistance of GIZ.

Box 2. Areas controlled by rangers and forest guards in Germany

Local management units for managed forests cover around 3000 ha. In each unit one forester holding a Bachelor's degree and three forest specialists (with vocational educational background) are employed.

One ranger holding a Bachelor's degree is responsible for 5000-6000 ha of forests located within protected areas, or otherwise protected forests. He/she is assisted by three assistant rangers (with vocational educational background) who are responsible for around 2 000 ha of forestland each.

Forest officer, holding a Bachelor's degree, supervises 10 0000 ha of forested land. He/she is assisted by two forest officers (with vocational educational background) who are responsible for 5 000 ha of forestland each.

4.3 On -Job and Mid-Career Training opportunities

Rapid development of science and technologies worldwide as well as intensified natural and anthropogenic transformation of ecosystems in Georgia determine a need for adapting forest management modality and practice to current challenges and demand more regularly than ever in the past. This enhances the role of permanent education in this sector, which has been virtually non-existent for an extended period of time.

LEPL Environmental Information and Education Center operates under the Ministry of Environment and Natural Resources Protection since 2013. The functions of the Center include: development of training and professional development programs for the capacity building of employees of departments and services of the Ministry of Environment and Natural Resources Protection; organizing trainings and professional development courses for different target groups (staff of public agencies, teachers, representatives of private sector, etc.); facilitating the integration of environmental topics into different education and certification programs; etc. The center organizes needs oriented trainings for the staff of the Ministry on a regular basis. The Center hires relevant qualified experts for the development of training modules and carrying out trainings.

Establishment of the Environmental Information and Education Center under the Ministry of Environment and Natural Resources Protection created space for on-the-job and mid-career training for professionals involved in the environment sector, including staff and personnel engaged in forest management. However, currently only 3 persons work in the Department of Environmental Education of the Center out of 21 people employed. It shall be also noted, that trainings organized by the Center are financially supported by international donors within frameworks of different projects and not by public allocations. Topics of trainings are determined by specifics and needs of individual projects and their timing depends on projects'

life cycle. Therefore, a fully-fledged mechanism of permanent education for foresters is yet to be established and operationalized.

Main challenges:

- Weak appeal of forestry schools and training programs and poor knowledge base of enrolling students
- Curricula which do not respond fully the existing challenges
- Insufficient financial and technical base for teaching
- Lack of a fully-fledged mechanism of permanent education for foresters
- Lack of professional colleges and vocational education centers
- Insufficient state funding and dependency on donors' assistance

5 Public Awareness

According to the National Forest Concept for Georgia the level of public awareness on the importance of forests and principles of sustainable management is low. Pressures from rural households mainly for fire wood and access to grazing land are having serious negative impacts on forests considering the scales of this activities and specifics of Georgian forests. High dependence of local communities on timber and non-timber forest products can be explained mainly by their socio-economic conditions and restricted access to alternative sources of energy. However, the situation is further aggravated by the low level of awareness of principles of sustainable forest management and risks posed to their households by improper practices.

Wildfires, causing serious damages to forests, is mainly the result of a negligent and irresponsible behaviour of forest visitors as well as spreading of fires from agricultural areas into forests. Therefore, negotiations with the Ministry of Agriculture to forbid burning of agricultural residuals or introduce procedures strictly regulating the burning as well as informing and farmers and people, in general about fire prevention and fire safety is important.

During the last decade, wildfires affected around 400 ha of forest land. In 2012, 11 forest fires resulted in the destruction of 199 ha of forest land; 35 fires occurred in 2013 and 88 ha of forests were damaged. In 2014, 69 forest fires damaged 705 ha of forested land.

It should also be noted, that neither forest users nor decision makers who interact with forests are sufficiently aware of the importance of forests and the impacts of their actions and decisions on forests. Therefore, they do not take into account the consequences which may cause degradation of forest ecosystems and eventually lead to human induced natural disasters (National Forest Concept for Georgia).

The low level of public awareness determines the low level of public involvement in decision-making processes. At present there are no effective mechanisms for involvement of the public in forest related decision-making. With regard to specific aspects these mechanisms are either inaccurate or are not being enforced.

Enhancement of relevant formal and informal education for preschool and school children and youth is one of the most effective mechanisms for public awareness rising. Forestry related issues are not adequately covered in school and preschool curricula and teachers' training programs.

Motivation of the population is important for the development of human capacity and the forestry sector in general. Specific studies on public awareness on available learning and employment opportunities in the forestry sector have not been carried out, however, based on the level of knowledge of students which have enrolled in forestry related educational institutions during the last decades, it can be assumed that the level of awareness on the importance of this field is rather low. This can be explained by previous inadequate forestry policy that resulted in the development of a forester stereotype which is often associated with incompetence and corruption.

Forestry related issues are not adequately covered by media. Media does not show interest towards forestry issues because it lacks relevant knowledge and experience. Fast growing communication media such as internet and social media are not fully utilized for informing wider audience.

Main challenges:

- Low level of awareness of forest as an ecosystem and of its protective functions among local communities and public in general
- Insufficient information on importance of forests and principles of sustainable forest management in preschool and school curricula (in terms of both formal and informal education)
- High dependency of local communities on forest resources, especially on timber and firewood
- Lack of information and access to alternative sources of energy
- Insufficient/inefficient coverage of forestry related issues in media
- Unfavorable stereotype of a forester and insufficient information about available learning and employment opportunities in the forestry sector

6 Relevant Policy Documents

National Forestry Concept for Georgia

National Forestry Concept for Georgia, approved by the Parliament of Georgia in December 2103, is the main policy document for the development of forestry sector in the country. With

this policy paper Georgia declared its will to replace improper forest management practices with sustainable forest management.

National Forestry Concept puts a special emphasis on forestry education and public awareness rising. The document also outlines relevant strategic goals. Namely, strengthening professional education at universities, schools and colleges and supporting scientific researches are among the priority directions. Other priority directions include: awareness raising of the population and decision-makers on sustainable forest management principles, facilitation of provision of rural population with alternative sources of energy, broadening the range of livelihood opportunities for rural households, increasing communities' involvement in forest related decision-making and their sense of responsibility for their local forest resources.

EU-Georgia Association Agreement

The EU-Georgia Association Agreement was ratified by the Parliament of Georgia in July 2014. The process of ratification of the Agreement by the EU member states was completed in May 2016. The Association Agreement covers, inter alia, environment and climate related actions. The document also covers sustainable forestry related issues arising out of the Deep and Comprehensive Free Trade Area (DCFTA) section of the Association Agreement. Development of DCFTA related legislation, as well as elaboration and implementation of plans and guidelines will require highly qualified human resources which will be ensured through strengthening existing capacities and training additional personnel

The EU-Georgia Association Agreement calls for cooperation to modernise education and training systems, enhance quality, introduce mechanisms for career development, as well as to facilitate mobility and international cooperation, partnerships between research and business, etc. (specifically, use of university research outcomes and innovations for the development of entrepreneurial, innovative skills).

To ensure timely implementation of the Agreement, the MENRP has developed a so-called Roadmap for the implementation of the EU-Georgia Association Agreement. The development of Forestry Education Strategy and Action Plan is among priority actions proposed by the document. Capacity building of the National Forestry Agency, Forestry Policy Department and other relevant entities, as well as the introduction of an in-house mechanism of permanent training and education at the Ministry to ensure the consistency of the capacity building process are identified as necessary supplementary actions. The document also focuses on raising public awareness in this area.

A long-term implementation Policy Paper of the EU-Georgia Association Agreement was prepared by the National Center for Educational Quality Enhancement, which provides for the

implementation of Recommendations and Decisions of the European Parliament and of the Council referred to Annex XXXII and their implementation in Higher and Vocational Education for 2015-2017.

Social-Economic Development Strategy of Georgia – 2020

Social-Economic Development Strategy of Georgia was approved in June 2014 by the resolution of the Government of Georgia. The document outlines main directions for economic development by 2020 and sets out three principles. One of the principles is based on rational use of natural resources, ensuring environmental safety and sustainability and avoiding natural disasters during the process of economic development.

Protection of forests and introduction of rational practices for their use are identified as strategic directions in the process of infrastructure development. The document considers the introduction of modern forest management methods and innovative technologies as a means of reducing negative consequences of forest degradation and increasing economic benefits.

Education is given due attention in the document and considered as a fundamental factor for the development. Formation of quality and accessible education system at all levels of education (general, vocational and academic) is set as a priority by the Government of Georgia.

Enhancing entrepreneurial skills, especially among students of vocational educational institutions, strengthening linkages among private sector and educational, scientific and technical systems, integrating research into academic education, developing a fully-fledged training and professional development system, etc. are identified by the document among key actions ensuring stable development of the country.

National Biodiversity Strategy and Action Plan (NBSAP)

Sustainable forestry and environmental education/public awareness are among priority areas of the Georgia's National Biodiversity Strategy and Action Plan. The document was approved in 2014 and covers 2014-2020 period. Increasing educational capacity in the forestry discipline and ensuring the training of future specialists is one of the strategic directions outlined in the document. Specific actions include carrying out trainings for biodiversity related specialists, including foresters and updating curricula of appropriate educational institutions.

7 Strategic Vision and Goals

The principles of the Forest Education Strategy are in line with the relevant statements and commitments of the National Forest Concept for Georgia and other policy documents. Therefore, strategic vision for forest education and the goals of the strategy can be summarized as follows:

Vision: Educational institutions provide adequate forestry education, while public and scientific organizations, involved in forest management, as well as private sector and local population demonstrate a strong sense of responsibility towards forests; all sectors act in a coordinated manner, people engaged in these sectors are qualified and equipped with skills required for sustainable forest management both at administrative and field level.

Strategic goals:

Goal 1: Establishment of integrated forest education system based on international standards ensuring the supply of demanded human resources

Goal 2: Enhancement of scientific researches and reestablishment of links between the agencies involved in forest management and academia

Goal 3: Promotion of international integration and experience sharing

Goal 4: Public awareness raising

Goal 1: Establishment of integrated forest education system based on international standards ensuring the supply of demanded human resources

In the context of market-driven economy, the national system of forest education must be serving current real needs for the professionals of this sector, and supplying work force equipped with knowledge and skills sought by employers. Participation of private businesses and other stakeholders in forest management increases demand for human resources within the sector. More than in many other fields of public administration and commercial activity, forest management related actions create job opportunities.

Georgia is obliged to meet all commitments undertaken under the AA in different fields, including the forestry sector. For the implementation of these commitments the relevant expertise that involves not only adequate knowledge in the field of forestry, but also in management, administration, international law, etc. will be needed. Therefore, educational programs provided by universities, colleges and vocational education institutions to their students should supply the market with human resources that will be able to take up forestry management positions in public, private and academic institutions.

Special attention should be given to the development/improvement of vocational education system since vocational program graduates will become most demanded in sustainable forest

management. The development of two- or three-year vocational education programs will be needed to prepare qualified professionals able to efficiently fulfil their obligations.

The availability of mid-career training opportunities at educational institutions or specialized training centers is important for building the capacity of structures involved in forestry management in a relatively short period of time. Practice oriented on-the-job trainings provide good opportunity for continuous education.

The forest sector is under competition in the labor market with other branches of economy. Availability of human resources for forest administration and management greatly depends on the wages, social benefits and security. Therefore, adequate financial resources and mechanisms for career or personal/social development are required to increase motivation of young professionals to work in the forestry sector.

Finally, for planning and implementation of management concepts, adequate knowledge and skills are required to use tools, equipment and machinery in forest landscapes. Forestry operations are often carried out with machinery requiring high technical skills not only to ensure physical safety of personnel, but also to prevent the damage of forest ecosystems. Therefore, there is a need of infrastructure that would be able to provide such practical education.

Based on the above-mentioned, the following targets have been outlined under Goal 1:

Target 1.1: Ensure continuous education of professionals engaged in forest science and forestry

Target 1.2: Develop and launch vocational education programs

Target 1.3: Develop a system of on- job and mid-career training to improve knowledge and skills of professionals engaged in forestry related activities in public and other institutions

Target 1.4: Establish incentive mechanisms for attracting and retaining professional staff in the forestry sector

Target 1.5: Develop adequate infrastructure for effective implementation of educational programs and field works

Goal 2: Enhancement of scientific researches and reestablishment of links between the agencies involved in forest management and academia

Re-vitalization of forestry science in Georgia is one of the priority directions of the country. Implementation of scientific research will enrich the country's human capital and ensure transforming research outcomes into forest practices. Another pillar for building viable scientific capacity is the linkage between research and university education. Involving students in scientific work will guarantee smooth engagement of graduates into research jobs and will allow reducing costs by optimizing the use of research facilities, laboratory equipment, and staff time.

To achieve the goals of sustainable forest management, the linkages between the academic sector and the bodies involved in forestry management have to be reestablished. Reestablishing these linkages will promote targeted researches adapted to the needs of the decision making bodies and deliver applicable and useful research outputs. This will also help adapt curricula to current requirements, new approaches and technologies. On the other hand, close linkages will facilitate updating vocational programs and implementing applied researches in forestry and adjoining fields. For example, due to the introduction of mandatory certification of all employees in the forestry sector, additional need for specialized training courses may arise. To achieve the high effectiveness of such decisions, close cooperation and coordination is needed.

Therefore, to achieve Goal 2, the following target has been indentified:

Target 2.1: Facilitate collaboration and close cooperation among public bodies engaged in forestry management, forestry related scientific-research and educational institutions for information exchange and conducting targeted studies

Goal 3: Promotion of international integration and experience sharing

Forest education and research in Georgia will succeed through tapping into international resources and knowledge which is essential for retaining relevance under rapid globalization. Inviting foreign professors for teaching over short to medium term in Georgian schools, promoting online training opportunities, and supporting participation of Georgian students and young scholars in international conferences are viable ways of improving quality of training and the teaching outcomes.

It shall be noted, that the EU-Georgia Association Agreement calls for enhancing people-to-people contacts, including through cooperation and exchanges in the fields of science and technology, business, youth, education and culture. The cooperation, inter alia, considers cooperation within the frameworks of relevant institutions.

Facilitation of scholarships and other programs that take Georgian youth to foreign schools should go in parallel with the provision of adequate incentives for well-trained young professionals to return to Georgia and enter labor market in the home country (Objective 1.4).

To achieve Goal 3, the following targets have been indentified:

Target 3.1: Enhance cooperation with international organizations and forestry related agencies as well as educational and scientific research institutions of partner countries

Target 3.2: Cooperate with relevant institutions of partner countries with the best experience in forestry sector and facilitate internship opportunities for relevant Georgian specialists in these institutions

Goal 4: Public awareness raising

Public awareness raising on direct and indirect benefits provided by forests and sustainable forest management principles is the main issue of the international debate on forest policy. Public awareness raising on importance of forests is considered to be an integral part of sustainable forest management, since the low awareness is one of the underlying reasons for a number of problems faced by sustainable management of forests. Awareness and interest of decision-makers towards forest related issues is of paramount importance.

Different target groups should be identified and divided into relevant segments. Knowledge of social characteristics of identified target groups is essential for the success of awareness raising activities. With regard to forestry related issues the following target groups require special attention:

- **Decision makers and opinion makers**
- **General public:** local population, communities, entrepreneurs, etc.
- **Persons involved in educational activity:** teachers, preschool children and their parents, schoolchildren, students, youth, etc.
- **Civil society,** including NGOs, environmental initiative groups
- **Local and national media** (journalists, bloggers).

Raising public awareness about forests and forestry issues is very important for establishing and maintaining social linkages between people and forests. Therefore, an effective public dialogue and participation mechanisms will be required. Raising levels of awareness and knowledge of

forest ecosystem services, forest care/protection and prevention of their damage (e.g., illegal use, forest fires), the role of population in these issues will help to efficiently manage forests and earn maximum social benefits. This is a first step towards understanding the issue and those benefits that can be derived if forests are managed in a sustainable way.

Strengthened communication with local communities and targeted informational-educational campaigns will contribute to awareness raising among the public, especially youth. Provision of schoolchildren and preschool children with basic forestry related knowledge is very important. Therefore, strengthening a school textbooks quality assurance system, development of teaching and educational materials for schools and kindergartens, as well as awareness raising and capacity building of teachers and parents are required.

Popularization of the forestry sector and its importance among the population is equally important.

Based on the above-mentioned, the following targets have been outlined under the Goal 4:

Target 4.1: Raise public awareness on importance of sustainable forest management and associated social and economic benefits as well as inform public about implications of illegal forest use and forest fires

Target 4.2: Enhance formal and informal education at school and preschool level

Target 4.3: Inform public about available learning and employment opportunities in the forestry sector

8 Goals, Targets and Actions (Action Plan)

Goal 1: Establishment of integrated forest education system based on international standards ensuring the supply of demanded human resources					
Target 1.1: Ensure permanent education of professionals engaged in forest science and forestry					
Actions		Timeframe	Responsibility	Expected costs (in GEL)	Indicator
1	Enhancement of linkages between relevant universities (creation of a working group) within the National Forest Program to assess current situation and create a common view on future needs	2017	MENRP MoES Relevant universities providing forestry education	-	Recommmendations for the concept of main directions of Bachelor, MSc and PhD programs education modules (non-binding document)
2	Development of recomedantions by the working group for improvement of Bachelor program curricula to meet modern requirements	2017-2018	MENRP MoES Relevant universities providing forestry education	20 000	Updated Bachelor program education modules/curricula
3	Development of recomedations by the working group for improvement of MSc and PhD programs curricula based on modern requirements	2017-2018	MENRP MoES Relevant universities providing forestry education	20 000	Updated MSc and PhD programs education modules/curricula
4	Submission of recomedations to relevant universities with the purpose to improve education	2018-2019	MoES MENRP Universities	-	Updated modules/curricula are introduced in relevant universities

	modules/curricula				
5	Creation of mechanisms for regular internships for Bachelor program students in the National Forestry Agency, research institutions and other relevant entities	2017-2018		-	Every year 20 Bachelor program students undergo internship in relevant agencies and institutions (including regional services)
Target 1.2: Develop and launch vocational education programs					
	Actions	Timeframe	Responsibility	Expected costs (in GEL)	Indicator
1	Assesment of demand for vocational forestry education considering the future demands for qualified personnel	2017	MENRP	30 000	Assessment report
2	Development/review and authorization/approval of professional standards and curricula for different specializations involved in the forestry management system (industrial and silvicultural operations)	2017-2018	MENRP MoES	100 000	Approved standards
3	Introduction of developed curricula/standards in selected vocational education institutions	2018-2020	MENRP MoES	-	Standards/curricula are introduced in selected vocational education institutions
4	Retraining of teachers of vocational education institutions in specific fields	2018-2020	MENRP MoES Vocational education institutions	120 000	Number of retrained teachers
5	Provision of selected vocational education institutions with material and technical resources	2018-2020	MENRP MoES The Ministry of	To be defined case by case	List of provided material and technical resources

			Finance Donors		
6	Creation of internship opportunities for students in the National Forestry Agency	2019-2020	MENRP MoES Vocational education institutions	-	Number of interns per year
Target 1.3: Develop a system of on-the-job and mid-career training to improve knowledge and skills of professional engaged in forestry related activities in public and other institutions					
1	Assessment of the needs of all relevant institutions and identification of capacity building priorities	2017	MENRP	40 000	Detailed needs assessment with identified training priorities
2	Development of training modules on priority issues and a regular training schedule	2017-2018	MENRP	10 000 (each module)	Training schedule and training modules on priority issues are available
3	Development of an orientation training module for newly recruited staff of the National Forestry Agency, the Agency of Protected Areas and the Department of Environmental Supervision; development of an orientation training schedule	2017	MENRP	20 000	Orientation training module is available All newly recruited employees (including forest guards) receive training at the initial stage of their employment
Target 1.4: Establish incentive mechanisms for attracting and retaining professional staff in the forestry sector					
1	Assessment of potential work places in the forestry sector considering the requirements of the forestry sector reform	2017	MENRP	50 000	Assessment report
2	Study of patterns of education financing and experience of other countries, including private financing initiatives	2017-2018	MENRP	70 000	Report, recommendations

3	Development of human capacity building, financing and promotion system considering the experience of other countries and submission of relevant proposals to the top management for consideration/approval	2018	MENRP	70 000	Proposals on mechanisms of the development and introduction of the system
4	Introduction and implementation of transparent nomination process for the “best forester” award	2017	MENRP	-	Nomination criteria and procedures are determined
Target 1.5: Develop adequate infrastructure for effective implementation of educational programs and field works					
1	Analysis and assessment of learning infrastructure of universities and vocational/training centers and development of proposals on their improvement	2017-2018	MENRP Universities	50 000	The report describing the existing material and technical base in detail and proposing recommendations for their enhancement/optimization.
2	Analysis of infrastructure available in Tbilisi and other convenient locations for the establishment of a specialized forestry training center	2018	MENRP	20 000	Report
3	Feasibility study for the establishment of the specialized forestry training center through either improvement of existing infrastructure or construction of a new facility	2018-2019	MENRP	40 000	Feasibility study/justification
4	Development of a model management plan of the forestry training center based on the best practice and experience of the European forestry training centers	2019	MENRP	50 000	Model management plan

Goal 2: Enhancement of scientific researches and reestablishment of links between the agencies involved in forest management and academia					
Target 2.1: Facilitate collaboration and close cooperation among public bodies engaged in forestry management, forestry related scientific research and educational institutions for information exchange and conducting targeted studies					
Actions		Timeframe	Responsibility	Expected costs (in GEL)	Indicator
1	Development of memorandums on student internship opportunities and other aspects of cooperation between Forestry Institute and other relevant universities	2017-2019	Forestry Institute (Agricultural University) Other universities	-	Memorandums Joint projects/initiatives
2	Involvement of MSc and PhD program students in planned/on-going projects of the National Forestry Agency and the Agency of Protected Areas	2018-2020	MENRP Universities	-	Number of MSc and PhD program students involved in projects
3	Development of a mechanism for involvement of the National Forestry Agency and other relevant entities in the process of selection of MSc and PhD theses to facilitate needs oriented research	2019-2020	MENRP Universities	-	Mecanism is established and MSc and PhD theses are oriented at needs of the forestry sector
4	Planning and organization of joint events (e.g., conferences)	2017-2020	MENRP Universities		Joint events
5	Provision of students with intership opportunities on the territories of state forests and protected areas	2018-2020	MENRP Universities	-	Number of interned students
6	Development of curricula for additional specialized training courses related to mandatory certification and their introduction in selected universities	2017-2020	MENRP MoES Universities	30 000 (curricula) 10 000 (one month course for 20 people)	Curricula are developed Number of people who have completed specialized courses

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Goal 3: Promotion of international integration and experience sharing					
Target 3.1: Enhance cooperation with international organizations and forestry related agencies as well as educational and scientific research institutions of partner countries					
Actions		Timeframe	Responsibility	Expected costs (in GEL)	Indicator
1	Identification of potential partner institutions and signing memorandums of cooperation				Memorandums of cooperation
2	Facilitate the engagement of Georgian scientists in researches carried out by relevant institutions of partner countries	2018-2020	MoES MENRP	-	Number of Georgian scientists invited/engaged in projects being implemented together with scientists from other countries in Georgia and abroad
Target 3.2: Cooperate with relevant institutions of partner countries with the best experience in forestry sector and facilitate internship opportunities for relevant Georgian specialists in these institutions					
Actions		Timeframe	Responsibility	Expected costs (in GEL)	Indicator
1	Identification of the forms of cooperation with relevant institutions of different partner countries and initiation of the process	2017-2018	MENRP	-	Study/report
2	Development/signing memorandums on cooperation with relevant institutions of partner countries	2017-2019	MENRP	-	Memorandum(s) are signed
3	Planning and organization of study tours	2019-2020	MENRP	1 500 EUR (per person per	Number of people participating in study tours

				week)	
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Goal 4: Public awareness raising					
Target 4.1: Raise public awareness on importance of sustainable forest management and associated social and economic benefits as well as inform public about implications of illegal forest use and forest fires					
Actions		Timeframe	Responsibility	Expected costs (in GEL)	Indicator
1	Elaboration of key messages on the following issues for different target groups: - characteristics of Georgian forests (mountain forests, virgin forests, species diversity, etc.); - protection function and other social and economic benefits of forests; - sanctions imposed for illegal forest use; - forest fires; - forest as an important ecosystem; - other.	2017	MENRP	15 000	Elaborated messages
2	Development/printing of brochures on illegal logging and relevant legal liability on the basis of elaborated messages to be distributed by the regional services of the Department of Environmental Supervision and bodies of local self-governance among local communities	2017 -2020	MENRP	1 200 (2000 copies)	Quantity of disseminated brochures
3	Development of thematic information posters on the basis of elaborated messages and their distribution in schools, educational institutions, regional public centers, regional offices of the National Forestry Service and the Department of Environmental Supervision	2017 -2020	MoES MENRP	2 200 (1 500 copies)	Quantity of distributed posters

4	Development of short video and audio clips on illegal use of forest and other resources and relevant legal liability on the basis of elaborated messages	2017 -2020	MENRP	8 000 (average production cost of 1 video and audio clip)	Quantity of video and audio clips broadcasted via national and regional TV and radio channels
5	Development and deployment of a virtual interactive information map containing the information on types and location of forests, forest species, etc.	2017 -2018	MENRP	25 000	Deployed virtual interactive map, number of visitors
6	Organization of regular events/initiation and implementation of campaigns considering international forestry and biodiversity related dates	2017 -2020	MENRP	45 000	Number of events, number of participants
7	Carrying out information campaigns on forest fires during fire danger periods (warning statements, video clips, briefings and information dissemination through internet and media)	2017 -2020	MENRP	40 000	Number of warning statements, video clips, briefings, media coverage (number of stories)
8	Carrying out information campaign during New Year's Eve period against Christmas tree cutting (warning statements, video clips, briefings and information dissemination through internet and media)	2017 -2020	MENRP	40 000	Number of warning statements, video clips, briefings, media coverage (number of stories)
9	Organization of information meetings for journalists (preferably on the territory of the National Forestry Agency or the Agency of Protected Areas)	2017 -2020	MENRP	7000 (estimated cost of 1 meeting)	Number of meetings and participants

Target 4.2: Enhance formal and informal education at school and preschool level

Actions	Timeframe	Responsibility	Expected costs (in GEL)	Indicator
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1	Revision/enhancement of school curricula and development of recommendations for integration of issues related to the importance of forests into textbooks	2017 -2018	MoES MENRP	15 000	Updated curricula; recommendations
2	Develop training modules for teachers of school and preschool education institutions	2017	MoES MENRP	10 000	Training modules are developed
3	Integration of training modules into teachers' retraining programs	2017 -2018	MoES MENRP	-	Number of retrained teachers
4	Development of learning materials for preschool children (posters, coloring books, etc.)	2017 -2018	MoES MENRP	3 000 (1 000 copies)	Quantity of learning materials
5	Organization of outdoor lessons with participation of representatives of the National Forestry Agency and/or Agency of Protected Areas on the territory of the nearest forest	2017 -2020	MoES MENRP	2 000 (estimated cost of 1 outdoor lesson)	Number of schools with at least one outdoor lesson
6	Engagement of schoolchildren in forestry related activities, e.g., organization and participation in the neighbouring forests cleanup campaign	2017 -2020	MoES MENRP	10 000	Number of involved schoolchildren
Target 4.3: Inform public about available learning and employment opportunities in the forestry sector					
	Actions	Timeframe	Responsibility	Expected costs (in GEL)	Indicator
1	Development of an information brochure on learning and employment opportunities available in the forestry sector; dissemination of brochures through schools	2017	MoES MENRP Relevant universities, vocational education institutions providing forestry education	2 500 (1000 copies)	Number of disseminated brochures
2	Development of an information portal containing	2017 -2018	MoES	15 000	Information portal,

	information on higher academic institutions offering forestry education and opportunities available in the forestry sector; presentation of the portal		MENRP Relevant universities, vocational education institutions providing forestry education		number of visitors
3	Development of internet banners and infographics and their publishing in social media	2017 -2020	MoES MENRP Relevant universities, vocational education institutions providing forestry education	7 000	Quantity of published internet banners and infographics
4	Promotion of existing education programs and institutions through participation in education fairs	2017 -2020	MoES MENRP Relevant universities, vocational education institutions providing forestry education	35 000	Number of cases of participation in education fairs
5	Informing public about employment opportunities available in the forestry sector through participation in and organization of employment forums	2017 -2020	MoES MENRP Relevant universities, vocational	30 000	Number of organized forums; number of participants

			education institutions providing forestry education		
6	Production and broadcasting of 40 sec video and audio clips for the promotion of forestry professions as one of the most important occupations	2017 -2018	MoES MENRP	7 000 (average production cost of 1 video and audio clip	Quantity of audio and video clips broadcasted via national and regional TV and Radio channels

9 Monitoring of the Implementation of the Action Plan

The Action Plan is aimed at achieving its targets within the four year period (2017-2020). The implementation of the Action Plan will be monitored against performance indicators set for each action. Monitoring will be undertaken by the Biodiversity and Forestry Policy Department. Specifically, by the end of each year, the Department in coordination with all entities involved in the implementation of the Forestry Education Action Plan, will prepare an annual report on implementation of the Forestry Education Action Plan and present it to the Government and public.

The report shall contain information on the status of planned and on-going actions. The report shall also describe the factors affecting timely commencement/ implementation of actions and recommend further steps to overcome these factors and/or propose alternative actions.

Besides annual reports, by the end of 2020 the Biodiversity and Forestry Policy Department will prepare a final report on implementation of the Forestry Education Action Plan which along with the information on status of planned actions shall contain a gap analysis to enhance future planning process.