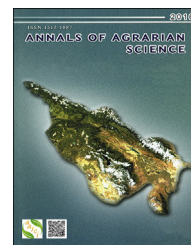


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## Some problems of forest management of Georgia



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### ABSTRACT

Forests are the most important resource of our planet. The usefulness of forests is spread from commercial exploitation of them for timber and other products to maintenance of wildlife, ecological balance, prevention of soil erosion, etc. In achieving these goals the essential factor is the proper forest management. Forest management is a system of actions for supplying different products and services for society. In developed countries forest management tends to be elaborated and planned in order to achieve the objectives that are considered desirable for environment and economy. Forests are the most biologically diverse land ecosystems that can supply different products and services. The working of this system is influenced by the natural environment, climate, topography, soil, etc., and also by human action. Forests have been and are managed to obtain the traditional forest products: fire wood, fiber for paper, building timber etc. with little thinking for other products and services. Nevertheless, as a result from the development of ecology science and environmental awareness, management of forests for multiple use is becoming more common. Public concern regarding forest management have shifted from the extraction of timber for earning money for the economy, to the preservation of additional forest resources, including wildlife, soil and water conservation, recreation etc. Forests are the repositories of aesthetic, ethical cultural and religious values.

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### Introduction

Forests are an extremely important natural resource that can potentially be sustainably harvested and managed to yield a diversity of commodities of economic importance. Unfortunately, in most cases forests are unsustainably overharvested, resulting in the “mining” of the forest resource and widespread ecological degradation. It is critical that in future all forest harvesting is conducted in a manner that is more responsible in terms of sustaining the resource.

Sustainable forest management is the use of forest resources in a way and at rate that maintains their biodiversity, productivity, regeneration capacity and their potential to fulfill now and in future the relevant ecological, economical and social functions. The present forest management in Georgia is far from this conception.

Georgia is a mountainous country. The great part of forests (98%) are located in mountains, 78% from them on steep and very steep slopes (36° and more). Such disposition of forests complicates their exploitation from technical and ecological points of view.

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Forests in the country are spread uneven. Along with rich forest regions, such as Abkhazeti, Swaneti, Racha, there are comparatively poor regions. The main reason of it In the first place is the different soil-climatic conditions of the regions, as well as numerous foreign invasions in early and middle centuries when great part of forests have been destroyed. The process of forest destruction also continued in next periods of country's development. Today, only 38.2% of Georgia's territory is covered with forests. Since 2003 the forested area decreased on 2.5%. It is one of many results of poor forest management for last 25 years, along with: absence of technical facilities and modern harvesting technologies, shortage of forest roads with hard cover, unused non-wood forest resources (fruits, berries, medicine and technical resources), extremely low level of works on reforestation, restoration, reconstruction of degraded forests, sowing, promotion for natural regeneration, uncertified forests, etc.

To improve the existed situation in forest management of the country we need such system of forest management that will be oriented on the internationally acknowledged principles of sustainable forestry.

## Results and analysis

According to the historical documents [1] Georgia's territory was covered with thick forests in early centuries, but in process of numerous foreign invasions great part of them have been destroyed. The process of destruction continued in later centuries too, as well as, in the early decades of the Soviet period. For improving of the existing situation established in the forest management of the country we must implement such system of forest management that will be oriented on the principles of sustainable forestry.

Georgia is quite rich by forest resources, 38.2% of its territory is covered with forests. The most part of the forests (98%) are located in mountains, 78% from them on steep and very steep slopes (36° and more). The rest of the forests (2%) grow on flood-lands of the rivers Mtkvari, Iori, and Alazani and on Kolkhety depression [2–4]. Georgia's forests are notable for biodiversity, about 400 trees and bushes grow there, among them such relicts and endemic species as: *Pinus pithyusa* Stev., *Pinus eldarica* Medw., *Buxus colchica* Poiark., *Quercus pontica* C. Koch., *Staphylea colchica* Stev., *Rhamnus imeretina* Koene, *Rhododendron ponticum* L. and so on [5–7].

The most part of productive forests of the country grows above 1000 m. of elevation. Such disposition of forests complicates their exploitation from technical and ecological points of view. Forests grow unevenly in the country. Along with rich forest regions such as Abkhazeti, Swaneti, Racha, there are comparatively poor regions such as Samtskhe-Djavakheti, Kvemo kartli, kakheti. The main reason of it is the soil-climatic conditions of the regions, as well as numerous foreign invasions, as we have already mentioned above, in early and middle centuries in Georgia's history, when great part of forests have been destroyed, especially in those regions where invasions took place more frequently.

The massive destruction of forests continued at the end of 19th and beginning of 20th century when Georgia's forests were exploited by local and foreign capitalists who never

troubled to keep to the reasonable principles of forest exploitation. During early Soviet period in Georgia many forest areas have been deforested for arable lands, pastures, haying, citrus and fruit gardens, vineyards etc. The most part of deforestation took place on rather steep slopes of mountains and after several years has been washed down in process of erosion.

The next stage of forest destruction in Georgia took place after world war II when country's economy needed great amount of timber. To satisfy this demand, very extensive loggings have been practiced in our forests [8]. Many mistakes have been done in forest management of the country after breaking down of the Soviet Union when Georgia was transmitting from command to market economy. It resulted in deterioration of forests' condition and caused degradation of part of them.

The dynamics of annual final loggings in 1960–2010 (Fig. 1) show that annual loggings in 1960–1975 were more than million cubic meter [2,3,9]. In 1975 the general scheme of forestry development of Georgia was drawn up which revealed the fact that about 55% of Georgia's forests were of 0.5 density and lower. High density forests (0.8 and more) occupied only 6.1% of all forests of the country [10]. After such alarming information annual loggings have been decreased to 432 ths. m<sup>3</sup> and remained on that level until the end of 1990 [2,3].

After breaking down of the Soviet Union the situation worsened again in forest management of the country. Unlawful loggings of great amount took place in this period. According to unofficial information about 5–6 m. m<sup>3</sup> round wood was illegally getting out of the country annually. In last 10 years the amount of unlawful loggings decreased a little but still remain at the high level (Fig. 2) [9]. The annual amount of final loggings in the country increased from 321 m. m<sup>3</sup> in 1946 to 455 m. m<sup>3</sup> in 2012 (Fig. 3) [2,3]. But by theoretical calculations it should increased much more because the annual average increment in Georgia's forests is 4.6–4.8 m. m<sup>3</sup> [4].

The amount of works on restoration and reforestation in the country decreased in last 20 years unprecedentedly, as well as works on sowing, planting and promoting natural regeneration of forests (Table 1) [9]. It influenced adversely on the percentage of forest coverage of the country (Fig. 4) [9]. Since 1956 the forested area of Georgia has been increasing permanently until 2003 when it was 40.7%, but from that period it decreased on 2.5% and it is a very alarming factor.

After independence of Georgia only round wood was exporting from the country and as we know it is much cheaper than timber products. But if we want to sell our wood products in the European and North American markets in future, our forests must be certified and as soon as we begin this process it will be as better.

The process of forest certification has begun in late 1980s [11]. Now, about 10% of forests are certified worldwide [12]. Europe and the North America are leading in this process. By 2014 the North America certified 36% of world's forests. The U.S. certified about 19% of their forests. Since it emerged in the 1990s, forest management certification has been adopted quickly across Canada and now more than 46% of the country's forests are certified [13]. By deferent world regions we have the following picture on 2014: Western Europe-63.4%,

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