BG Pulse Journal USA
ISSN:1947-2536 http://www.bgpulseusa.com/index.php/bg

ЛЕСОРАЗВЕДЕНИЕ И ПЛАНТАЦИОННЫЕ РАБОТЫ В САМАРКАНДСКОМ ЛЕСНОМ ХОЗЯЙСТВЕ В НАЧАЛЕ XX ВЕКА

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Аннотация: В данной статье на основе историко-статистических данных анализируются работы по лесоразведению, выращиванию саженцев и плантационному лесоводству, осуществлявшиеся в 1902 году на территории Самаркандского культурного лесничества. В рамках исследования рассматриваются процессы заготовки семян, всхожесть и сохранность посадочного материала, масштабы посадочных работ, а также динамика освоения лесопосадочных площадей. Отдельное внимание уделяется организационным аспектам деятельности лесного хозяйства, структуре расходов и их распределению. В статье подчеркивается значение развития культурного лесоводства в Самаркандском регионе, формирование опытных участков и становление системы плантационного лесоразведения. На основе статистических данных проведен анализ количества саженцев, уровня их сохранности и эффективности лесоразведения. Результаты исследования раскрывают практические аспекты управления лесными ресурсами и их восстановления в рассматриваемый период.

Ключевые слова: Самаркандское культурное лесничество, лесное хозяйство, лесоразведение, выращивание саженцев, плантационное лесоводство, заготовка семян, историко-статистический анализ, Туркестанский край, экологическое управление.

Abstract: This article analyzes, based on historical and statistical data, the forest management, seed cultivation, and plantation forestry activities carried out in 1902 within the Samarkand cultural forestry district. The study examines seed collection processes, germination and survival rates of seedlings, the scale of planting activities, and the dynamics of afforested areas. Special attention is given to the organizational structure of forestry operations, expenditure distribution, and financial management. The article highlights the importance of the development of cultural forestry in the Samarkand region, the establishment of experimental sites, and the formation of a plantation-based forestry system. Based on statistical data, the number of seedlings, their survival rate, and the efficiency of afforestation activities are analyzed. The findings reveal practical aspects of forest resource management and restoration during the studied period.

Key words: Samarkand cultural forestry, forest management, afforestation, seedling cultivation, plantation forestry, seed collection, historical-statistical analysis, Turkestan region, environmental management.

Introduction. This article examines the formation of the forest management and protection system in Turkestan at the beginning of the twentieth century, focusing on its organizational structure and economic activities through the analysis of statistical data. The study investigates the territorial distribution of forest resources, the operation of forestry units, personnel composition, financial expenditures and revenues, as well as the ecological conditions and dynamics of forestry-related violations. Using a historical-statistical approach, the article explores the administrative model of the forestry system and evaluates its effectiveness during the period under consideration.

In 1902, a specialized state management system was established in Turkestan to ensure the protection of forest resources and to regulate their utilization. Within this framework, responsibility for the effective administration and conservation of forest resources was assigned to local administrative institutions of the Russian Empire in cooperation with specialized forestry service personnel. To facilitate these objectives, state-owned forests were divided into separate forestry districts (lesnichestvo), and responsible officials were appointed to oversee each territorial unit. This organizational model was designed to regulate the use of forest resources, prevent illegal logging activities, and maintain forest assets under state supervision and control.

Literature review and methodology. One of the largest forestry enterprises in Turkestan was the Jizzakh Steppe Forestry, covering a total area of 3,360,000 desyatinas. Management of this extensive territory fell under the jurisdiction of the head of Jizzakh uyezd, indicating that forest protection responsibilities were not only carried out by the specialized forestry service but also involved local administrative authorities. Due to its vast area, this forestry enterprise held particular significance in terms of accounting for forest resources, regulating their utilization, and organizing protective measures [6; 27].

The Zarafshan Forestry covered an area of 178,500 desyatinas and was managed by the head of Samarqand uyezd. Its administration through local authorities illustrates that, during the Russian Empire period, the forest control system was integrated into the general state governance structure. In addition to direct supervision of forestry activities, local authorities were continuously responsible for ensuring compliance with forest utilization regulations [6; 38].

The Samarqand Cultural Forestry was comparatively smaller, encompassing 2,286 desyatinas. However, it was directly managed by a specialized forestry professional, a forester of a designated rank. This indicates that the Samarqand Cultural Forestry system was structured not only for preservation but also for the reproduction of forests, establishment of artificial plantations, and development of cultural forestry practices. Consequently, professional and technical supervision took precedence over administrative oversight in this region [1; 102].

The Ura-Tyube Reserve Forestry covered 169,000 desyatinas and was managed by a forest conductor. At the time, forest conductors were tasked with regularly monitoring the condition of forest estates, detecting illegal logging, organizing protective measures, and safeguarding state forest property. The existence of reserve forestry units highlights that certain areas were placed under special protection regimes and that preserving forest resources was given priority [6; 61].

In 1902, the forest protection and control system in Turkestan operated as a complex governance mechanism based on the activities of territorial forestry units, local administrative authorities, and specialized forestry experts. This system was designed to account for forest resources, regulate their use, and protect state interests, serving as a foundational organizational framework for the subsequent development of forestry activities.

The effectiveness of the system largely depended on the composition and territorial distribution of personnel within each forestry unit. Accordingly, a fixed number of staff members were assigned to each forestry enterprise, and their responsibilities were clearly regulated. Reports provide detailed information on the number and composition of personnel in the Jizzakh, Zarafshan, Samarqand, Ura-Tyube, and Khodjand forestry units.

Data indicate that regions with larger forest estates employed more personnel. For example, the Ura-Tyube Forestry had 22 staff members, one of the highest numbers among all regions. The Jizzakh Forestry employed 20 staff members, the Zarafshan Forestry 13, while the Samarqand and Khodjand forestry units had relatively fewer personnel, reflecting the size of forested areas and the specific operational characteristics of each unit [2; 47].

Functionally, personnel in the forestry units were divided into several categories. The first category included senior officials responsible for administration, supervision, and reporting, while the second consisted of lower-level staff directly involved in forest protection, monitoring, and operational control. This structure ensured continuous oversight of forest resources and compliance with established regulations.

Results and discussion. Across all forestry units in Turkestan, a total of 66 forestry service personnel were employed. Of these, 8 held senior management and supervisory positions, while 58 served in lower-level operational roles. In addition, 18 forest guards (lesnaya straja) were assigned to directly protect forest areas. Their duties included regular monitoring of forest estates, detecting illegal logging, preventing fires, and ensuring compliance with forestry regulations [2; 74].

The forest protection and control system in Turkestan was structured not merely as an administrative mechanism but as a multi-tiered management model relying on professionally trained forestry personnel and guards. The distribution of staff across regions was determined by the size of forested areas, operational workload, and monitoring requirements. This approach played a critical role in the effective administration and safeguarding of forest resources.

Aggregated data on staffing and financial operations of the Turkestan forestry system indicate that the 66 personnel were distributed across all regional forestry units. The eight senior officials were responsible for management, supervision, and reporting, whereas the remaining 58 personnel, as lower-level staff, were engaged in forest protection, monitoring, and practical forestry operations. In certain regions, an additional 18 forest guards were employed to ensure direct security and oversight of forest areas.

Reports also indicate that some personnel received in-kind benefits or housing allowances in addition to salaries. Specifically, certain employees were allocated an annual payment of 18 rubles to cover apartment expenses [6; 54].

Funding for forest protection and management in 1902 was substantial and divided into several main categories. The first category encompassed personnel maintenance and administrative costs, with allocations as follows: Jizzakh Forestry – 31,610 rubles; Zarafshan Forestry – 26,486 rubles; Samarqand Forestry – 9,149 rubles; Ura-Tyube Forestry – 5,470 rubles; and Khodjand Forestry – 6,209 rubles. The total expenditure for this category amounted to 62,947 rubles, primarily covering salaries, maintenance of the administrative apparatus, and operational needs [3; 14].

The largest portion of expenditures was allocated to forest preservation and protection activities. Specifically, Jizzakh Forestry received 36,396 rubles; Zarafshan – 24,206 rubles; Samarqand – 4,858 rubles; Ura-Tyube – 981 rubles; Khodjand – 14,047 rubles; and the Orol area in Khodjand uyezd – 13,511 rubles. Consequently, the total expenditure on forest protection amounted to 135,111 rubles, reflecting the state's prioritization of guarding forests, preventing fires, curbing illegal logging, and conserving forest estates [6; 108].

Maintenance expenditures were also recorded as a separate financial category. Allocations for building and infrastructure upkeep were: Jizzakh – 1,578 rubles; Zarafshan – 113 rubles; Samarqand – 89 rubles; Ura-Tyube – 45 rubles, while Khodjand Forestry reported no such expenses. In contrast, 7,083 rubles were allocated for maintenance in the Orol area. These funds were primarily directed toward the upkeep of forestry buildings, guard facilities, and service infrastructure [3; 54].

Furthermore, additional categories of expenditure were recorded within the forestry system. Expenditures of 6,189 rubles were reported in the Zarafshan Forestry and 546 rubles in the Samarqand Forestry, while the Orol area accounted for a substantially higher amount of 62,399

rubles. No expenditures of this type were documented in the Jizzakh, Ura-Tyube, or Khodjand forestry units. Consequently, the total amount allocated under the category of miscellaneous expenditures reached 62,399 rubles [3; 55].

In 1902, the total expenditure incurred for the maintenance and administration of the forestry system in Turkestan amounted to 264,694 rubles. Given the economic conditions of the period, this figure was considerable and reflects the significant attention devoted by the state to the protection and regulation of forest resources [6; 57].

The forestry system functioned not only as a sector requiring substantial expenditures but also as an economic activity capable of generating revenue. According to the revenue reports, the principal source of income was the sale of forest products. Revenues from this source amounted to 41,780 rubles in the Jizzakh Forestry, 60,665 rubles in the Zarafshan Forestry, 6,381 rubles in the Samarqand Forestry, 3,859 rubles in the Ura-Tyube Forestry, and 33,559 rubles in the Khodjand Forestry. As a result, the total revenue generated from the sale of forest products reached 159,842 rubles, primarily derived from timber, construction materials, and other forest resources [4; 56].

Fines constituted the second major source of income. In this category, 170 rubles were collected in the Zarafshan Forestry, while the Khodjand Forestry generated 18,601 rubles from penalties. The total amount of revenue obtained through fines reached 18,911 rubles, indicating the existence of an active system for monitoring and penalizing violations related to forest resource utilization.

Additional or incidental revenues were recorded only in the Ura-Tyube Forestry, where they amounted to 5 rubles. No such revenues were reported in the other forestry districts.

The total revenue generated by all forestry enterprises in Turkestan amounted to 260,550 rubles. When compared with total expenditures, this figure demonstrates that the forestry system operated in a nearly balanced economic condition [6; 86–89].

According to the final financial results, total expenditures in 1902 amounted to 264,694 rubles, whereas total revenues reached 260,550 rubles. Consequently, a negative balance (deficit) of 4,144 rubles was recorded. However, given the relatively small scale of this deficit in relation to the overall budget, the forestry system may be considered economically stable. Moreover, its primary objective was not profit generation but rather the protection, regulation, and conservation of forest resources [6; 91–94].

A comparative analysis of revenues, expenditures, and their ratios across individual forestry districts reveals notable regional differences in financial performance. In the Jizzakh (Steppe) Forestry, revenues amounted to 24,693 rubles, and after accounting for losses of 461 rubles, the net profit reached 24,232 rubles. In the Zarafshan Forestry, revenues totaled 60,667 rubles, while losses amounted to only 4 rubles, resulting in a net profit of 60,663 rubles [6].

In the Samarqand (cultural forestry) area, revenues of 6,381 rubles and losses of 13 rubles were recorded, resulting in a net profit of 6,368 rubles. The Ura-Tyube Forestry generated 1,992 rubles in revenue and 32 rubles in losses, yielding a net profit of 1,960 rubles. In the Khodjand district, revenues of 33,559 rubles and losses of 2 rubles were reported, leading to a net profit of 33,557 rubles. Overall, across all regions, total profits amounted to 48,461 rubles and total losses to 66 rubles, indicating that the forestry system operated under a generally positive economic balance.

Additional revenues not directly related to core forestry operations were also documented. In the Samarqand area, these supplementary revenues were relatively high, including income from the sale of timber and other forest products: 3,511 units generated 11,700 rubles and 50 kopecks. Additionally, freely provided resources numbered 11,111 units, with a total assessed value of 477

rubles and 65 kopecks. In contrast, the Khodjand district recorded minimal supplementary revenues, totaling only 18 rubles [6; 104–111].

Overall financial outcomes show that the highest profits were recorded in Zarafshan (60,663 rubles) and Khodjand (33,557 rubles), while the lowest profit occurred in Ura-Tyube (1,960 rubles). Collectively, the system concluded with a net profit of 48,461 rubles. These results indicate that the forestry system maintained economic stability, and supplementary income sources—particularly in Samarqand—had a significant impact on the overall financial performance. These data are derived from historical Russian-language forestry reports, which also documented violations of forestry regulations and associated losses.

Within the Turkestan forestry system, a number of regulatory violations were recorded in several regions. These infractions primarily involved illegal timber harvesting, fire incidents, and breaches of administrative discipline. Official reports were prepared for these cases, and fines were imposed accordingly.

In the Jizzakh (steppe) forestry area, a total of 41 official reports were issued, resulting in fines amounting to 46 rubles and 12 kopecks. Additionally, 45 cubic units of illegally cut timber were recorded, with an estimated economic value of 45 rubles.

In Zarafshan, the scope of violations was relatively high, with 169 official reports issued. Corresponding fines totaled 169 rubles and 22 kopecks, and 81 cubic units of illegally harvested timber were recorded, valued at 81 rubles [5; 28–32].

In the Samarqand cultural forestry, 177 official reports were registered, with fines totaling 177 rubles and 41 kopecks. Furthermore, 205 cubic units of timber were illegally cut, assessed at 205 rubles. The region also experienced five fire incidents, resulting in damages estimated at 62 rubles and 73 kopecks.

In the Ura-Tyube Forestry, 44 official reports were filed, resulting in fines totaling 44 rubles and 64 kopecks. Additionally, 77 cubic units of timber were illegally harvested, with an estimated value of 77 rubles. Eight fire incidents were recorded in the region, causing damages amounting to 54 rubles and 46 kopecks.

The Khodjand Forestry reported a comparatively lower number of violations, with only two official reports registered. The total amount of fines imposed reached 2 rubles and 4 kopecks. Furthermore, 6 cubic units of timber were illegally cut, valued at 6 rubles. The region also experienced six fire incidents, which resulted in damages estimated at 56 rubles [4; 36].

Overall, across all forestry districts, a total of 433 official reports were recorded, and the sum of collected fines amounted to 439 rubles and 43 kopecks. The volume of illegally harvested timber reached 414 cubic units, with an estimated economic value of 414 rubles. In addition, 19 fire incidents were documented, causing losses amounting to 173 rubles and 19 kopecks. Altogether, the combined value of damages and recovered funds totaled 2,686 rubles and 4 kopecks [4; 45].

The forestry system of Turkestan also experienced significant environmental and economic losses resulting from illegal logging and the destruction of biological resources in various regions. These losses were primarily associated with the unauthorized harvesting of unmarked and construction-grade timber, as well as the destruction of fuelwood resources and standing trees.

In the Jizzakh (Steppe) Forestry, 86 cubic units of timber were illegally harvested, while 15,408 units of fuelwood and 440 trees were destroyed. In the Zarafshan Forestry, 24 cubic units of timber were illegally cut, resulting in the destruction of 983 units of fuelwood and 166 trees.

The Samarqand Cultural Forestry experienced relatively high levels of damage. A total of 300.6 cubic units of unmarked timber and 61.92 cubic units of construction timber were illegally

harvested. In addition, 1,682 units of fuelwood and 95 trees were destroyed. These activities resulted in estimated economic losses of 56 rubles and 30 kopecks.

In the Ura-Tyube Forestry, 115.71 cubic units of unmarked timber and 42.31 cubic units of construction timber were illegally harvested. Furthermore, 939 units of fuelwood and 140 trees were destroyed. The total losses recorded in this district amounted to 14 rubles and 2 kopecks [5; 21].

According to the aggregated statistics, a total of 426.31 cubic units of unmarked timber and 104.23 cubic units of construction-grade timber were illegally harvested across all forestry districts. In addition, 1,639 units of fuelwood and 2,686 trees were destroyed.

In monetary terms, these losses were assessed at 56 rubles and 30 kopecks, with an additional 14 rubles and 2 kopecks in recorded damages. These figures clearly illustrate the scale of the environmental and economic impacts inflicted upon the forest resources of Turkestan.

Jizzax (Steppe) Forestry undertook planting activities, with 305 seedlings cultivated or planted, costing 19 rubles 23 kopecks, although the exact area was not specified. In the Zarafshan Forestry, 62 seedlings were planted or maintained at a cost of 10 rubles 57 kopecks. In the Samarqand Cultural Forestry, reforestation and maintenance covered 0.1 desyatina, with no specific count of seedlings, and expenditures totaled 90 kopecks.

Ura-Tyube Forestry carried out the largest-scale reforestation and maintenance work, covering 216.6 desyatina and costing 89 rubles 8 kopecks. In Khodjand Forestry, planting and maintenance were conducted over 33.2 desyatina, with the highest expenditure of 237 rubles 25 kopecks recorded among the regions. Overall, across all districts, 249.9 desyatina were reforested or maintained, 367 seedlings were cultivated, and total expenditures for these agrotechnical measures amounted to 356 rubles 43 kopecks.

The report also included statistics on permits (tickets) for forest resource use, primarily for timber preparation and fulfilling economic needs. In Jizzax, 123 permits were issued, all for timber harvesting. Zarafshan issued 229 permits: 203 for timber, 26 for other economic purposes. Samarqand issued 18 permits (16 for timber, 2 for other purposes). Ura-Tyube had the highest number, with 1,133 permits (1,131 for timber, 2 for other uses). Khodjand issued 142 permits (129 for timber, 13 for other purposes). Altogether, 1,708 permits were issued across all regions: 1,491 for timber and 217 for other purposes [6].

Analysis shows that Ura-Tyube Forestry had the highest level of resource utilization while also covering the largest area for reforestation and maintenance. These data provide important statistical insights into forest management, resource use, and protection in late 19th – early 20th century Turkestan.

In the foothills of Samarqand, particularly near the village of Shimr (Shir), experimental plantations of Caucasian oaks were established. In spring 1902, 1,062 pud 43 funt of seeds were collected at a cost of 580 rubles 4 kopecks. Seedlings germinated on 2,183 desyatina, yielding 44,179 seedlings. By October 1, 1902, 82,849 seedlings had survived. Additional planting of 19,768 seedlings increased the total to 207,431. Expenditures for these works totaled 109,907 rubles 10 kopecks, with further annual costs of 72,866 rubles 74 kopecks, bringing total reforestation expenses to 182,773 rubles 84 kopecks [6; 82].

Final figures show that 1,432 pud 48 funt 5 zolotnik of seeds were prepared at a cost of 1,062 rubles 43 kopecks. The total area covered by seedlings was 3,995 desyatina, with 87,967 seedlings produced. As of October 1, 1902, 101,990 seedlings survived, 110,728 seedlings were planted that year, bringing the total to 212,668. Overall expenditures amounted to 341,276 rubles 20 kopecks [6; 98].

The report highlights plantation-style forestry in Samarqand's Cultural Forestry, including Aman-Kutanskaya and Balpirikenskaya plantations, key for intensive afforestation. These plantations produced 6,156 seedlings and allocated 12,300 for planting, covering 2,210 desyatina 3 square sajyens. Initially, 3,147 seedlings survived, and six new plantings were conducted that year. By October 1, 1902, plantations had 12,752 seedlings, with an additional 1,983 seedlings introduced, raising the total to 14,736 seedlings 20 units [6].

Conclusion. The findings of this study demonstrate that, by the beginning of the twentieth century, a centralized and multi-level system for forest management and protection had been established in Turkestan. In 1902, state-owned forest resources were divided into territorial forestry units, the administration of which involved local governmental authorities, professional forestry specialists, and forest protection personnel. The cases of the Jizzakh, Zarafshan, Samarkand, Ura-Tyube, and Khujand forestry districts illustrate the practical implementation of administrative mechanisms aimed at controlling forest resources, regulating their utilization, and ensuring their protection.

The study reveals an evident attempt to maintain a balance between the exploitation of forest resources and their conservation. On the one hand, forest resources were utilized for economic purposes through the issuance of 1,708 official permits; on the other hand, administrative measures were undertaken to monitor and prevent illegal logging, forest fires, and other violations. Although the registration of 433 documented offenses indicates considerable pressure on forest resources, the existence of a system of fines and forest protection measures demonstrates the state's commitment to environmental security and the preservation of forest assets.

The analysis of the ecological situation indicates that significant environmental and economic losses occurred in several regions as a result of illegal logging and the destruction of forest vegetation. At the same time, substantial efforts were undertaken to restore and expand forest resources. Afforestation activities, seedling cultivation, and the establishment of forest plantations in the Ura-Tyube, Khujand, and particularly the Samarkand cultural forestry districts constituted an important component of the regional forest restoration policy. Furthermore, the operation of experimental forestry plots and plantation projects in Samarkand suggests the emergence of scientifically based approaches to silviculture and cultural forestry in Turkestan during the early twentieth century.

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