



Executive summary

Introduction

The Government of Kazakhstan is committed to an ambitious goal of increasing forest cover in the country. On a national level, in 2013, the government approved the policy to initiate and complete the transition to a 'green economy by 2050. In this light, the strategic “*Concept document for conservation and sustainable use of the biological diversity of the Republic of Kazakhstan until 2030*”, is under government discussion and pending approval. The “*Biodiversity concept*” has been formulated by the the United Nations Development Programme (UNDP) and and the Global Environmental Facility (GEF) in accordance with Article 6 of the Convention of Biological Diversity (CBD). It sets the objective to increase forest cover to 5% of the total surface of Kazakhstan by 2030 (compared to 4.7% currently). To achieve this goal, forest cover needs to increase by roughly 700 thousand hectares of forest. On September 1st, 2020, the President of the Republic of Kazakhstan decreed to plant over 2 billion trees in the next 5 years.

To achieve these goals, the forest sector requires a modernization towards innovative models and financing mechanisms, to:

- ensure sufficient financial resources for forest management.
- provide the necessary technological re-equipment for forest management.
- implement modern forest management technologies and advanced training of staff.

Underlying the need for management improvements in the forestry sector, are the lack of a long-term strategy and a sectoral medium-term program for the conservation and sustainable use of forest resources. Forests are managed with short term (3 years’) plans, in which the forest ecosystem services are insufficiently recognized and valued.

To support strategic decision-making in the forestry sector in Kazakhstan, UNDP commissioned Wolfs Company and the VU University Amsterdam to perform a Targeted Scenario Analysis (TSA) for the Ministry of Ecology, Geology and Natural Resources (MEGNR) of the Republic of Kazakhstan. The MEGNR is the core client of the TSA study.

The TSA assesses the impact of two forest management scenarios that have been identified in consultation with stakeholders in Kazakhstan:

1. The Business-As-Usual scenario (BAU), in which current management practices are continued and historical trends in forest cover continue.
2. The Sustainable Ecosystem Management (SEM) scenario, in which investments are made to improve forest management and reach the forest cover target of 5% of the surface of Kazakhstan by 2030.



UNDP developed the TSA methodology (Alpízar and Bovarnick, 2013) to help public and private decision-makers design and implement sustainable sectoral public or private policies that incorporate ecosystem services' value into economic development. TSA comprises five main participatory steps.

- Step 1: Define the Purpose and Scope of the Analysis: In the first step, a broad set of stakeholders helps identify key decision-makers and their objectives to ensure the TSA's political relevance. In this step, decision-makers and stakeholders refine the TSA objective's focus and policy questions to be answered by the TSA.
- Step 2: Define BAU and sustainable ecosystem management (SEM) scenarios. This step seeks to achieve a consensus among stakeholders to define the relevant scenarios for comparison clearly.
- Step 3: Select Criteria and Indicators: In the third step, the analysts work with stakeholders to select the policy-relevant criteria by which the scenarios will be compared.
- Step 4: Build BAU and SEM scenarios: The fourth step is to model the links between policies, scenarios, and indicator values. The TSA results (the different values of the BAU and SEM scenarios) are presented in a preliminary report.
- Step 5: Make informed policy/management recommendations based on stakeholder feedback, results, and TSA recommendations. These are finalized and summarized in a policy brief and a final technical report.

The overall characteristics of the BAU scenario, the SEM intervention and the selected indicators for the BAU and SEM analysis are shown in Figure 1. For both scenarios this TSA provides a systematic assessment of the effectiveness of forest management; whilst at the same time forecasting trends in forest cover, the management costs and benefits in terms of ecosystem services for the timeframe 2020-2030. By comparing these scenarios, this project aims to provide insight in the environmental, socio-economic and financial implications of the target of the Forestry and Wildlife Committee (FWC) to increase the national forest cover from 4.7% to 5% of the territory of Kazakhstan by the year 2030. In quantitative parameters this is about 700 thousand hectares (with an estimated survival rate of 60%) and is considering the existing capacity of forest nurseries.

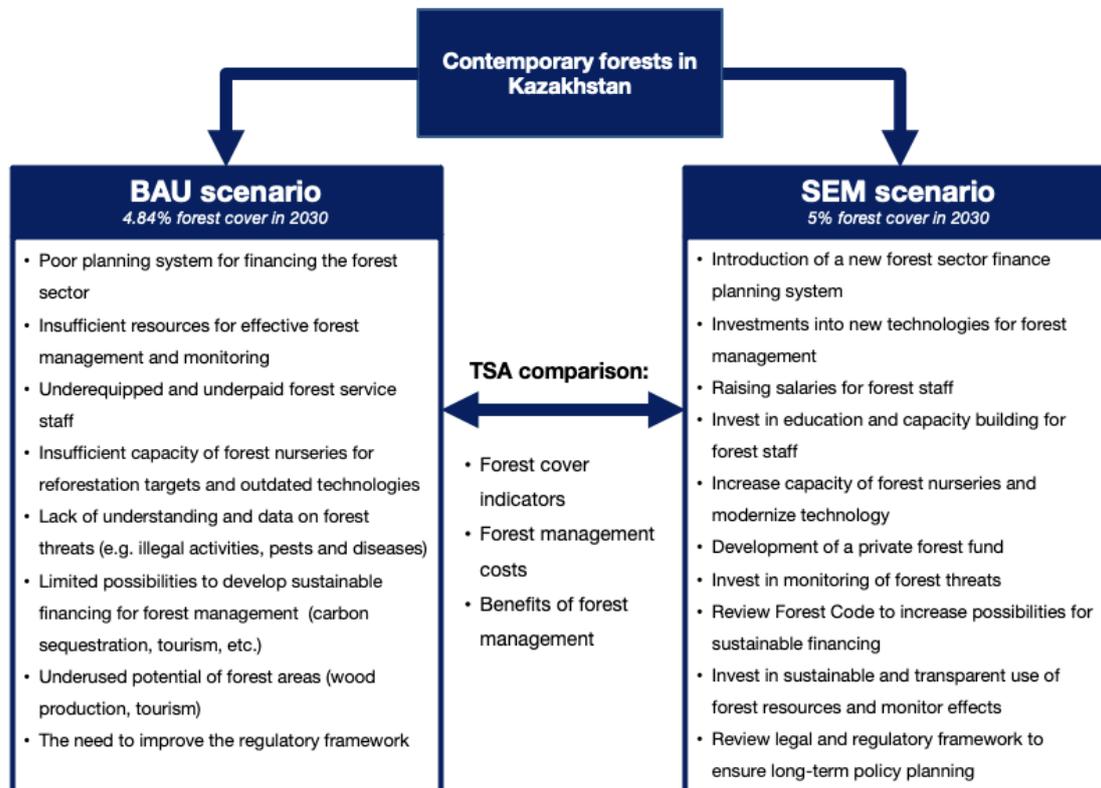


Figure 1. Characteristics of the BAU scenario & the SEM intervention in the overall structure of the TSA

In the Business as Usual (BAU) scenario, this TSA study assumes that the current budgets forest for management are maintained and no significant change in the current forest management approach (figure 1). This implies no significant improvement in the management of key threats to forest ecosystems and a continuation of the current reforestation efforts. As a result, the current trends in forest cover are expected to continue. The Sustainable Ecosystem Management (SEM) scenario encompasses investments to improve forest management, resulting in a reduction of forest threats and increased forest cover.

For both scenarios this TSA will provide a systematic assessment of the effectiveness of forest management, whilst at the same time forecasting trends in forest cover, management costs and benefits in this time frame. By comparing these scenarios, this study aims to provide insight in the environmental, socio-economic and financial implications of the target of the Forestry and Wildlife Committee (FWC) to increase the national forest cover. To provide specific recommendations for improvement, the contemporary structure of forest management in Kazakhstan is also analyzed.

Challenges in the forestry sector under BAU

One of the challenges is that the *akimats* depend on the limited regional budget and current priorities of regional development. Although there has been an annual increase in financing, it is insufficient for the adequate operations of forest institutions, that currently work with 65% of the firefighting equipment needed and insufficient staff capacity. Also, it's recognized that the



equipment is outdated and of poor quality, and that the infrastructure within SFEs is inadequate (V.I. Vernadsky Nongovernmental Ecological Foundation, 2018).

Moreover, it has been identified that there is a lack of expertise within forest practitioners due to the lack of an effective system of advanced training for employees within the forestry and protected area sectors. The lack of adequate technical support and low salaries have resulted in the outflow of skilled forestry staff. The employees who are working for the forestry sector experience a low level of staff skill. Moreover, they have to perform activities that can be life-threatening but do not receive adequate legal and social protection (V.I. Vernadsky Nongovernmental Ecological Foundation, 2018).

This is also linked to the insufficiency of scientific support, a lack of innovative technologies and a missing full-fledged specialized forest management body at the level of each regional *akimat*. As an example, the absence of a sectoral forest health service is noted, which would make it possible to detect and take measures to localize and combat dangerous foci of pests and diseases in a timely manner (V.I. Vernadsky Nongovernmental Ecological Foundation, 2018). Moreover, the World Bank underlines the fact that the forestry sector lacks an overarching vision and goal for the development of forest plantations, which impedes the operationalization of private forestry with participation and buy-in of all stakeholders (World Bank, 2018).

One consequence of these challenges is that reforestation activities are lagging and that objectives are not met. Measures to restore logged and burned areas are not executed sufficiently. Furthermore, literature states that there the activities to improve forest reproduction rates are insufficient, such as the thinning of young stands, which leads to losses of planted forest crops and lower levels of natural regeneration (V.I. Vernadsky Nongovernmental Ecological Foundation, 2018).

The forest sector requires a modernization towards innovative models and financing mechanisms to ensure effective and sustainable forest management within the State Forest Fund, as well as an upgrade of the current equipment for forest management and conservation. This implies that budgets need to be made available for the implementation of advanced technologies and the training of the forestry workforce.

TSA results

Forest cover

This TSA study forecasts that the BAU scenario reaches a total of 13.183,4 thousand ha of national forest cover by the year 2030. This is 447,5 thousand ha short of the national target to increase forest cover to 5% of the national surface. In the SEM scenario, the target of 5% is reached in 2030. To accomplish the SEM targets for increased forest cover, reforestation efforts have to be increased substantially. The total reforestation efforts in BAU are expected to equal 805,2 thousand hectares for the period of 2018-2030, while in SEM 1.254,9 thousand hectares are required to reach the 2030 target of 5% forest cover. Figure 2 describes the annual change in forest cover for Kazakhstan under

both scenarios and the required reforestation efforts to achieve this change. Please note that the areas to be reforested exceed the actual increase in forest cover, due to mortality in the reforested areas.

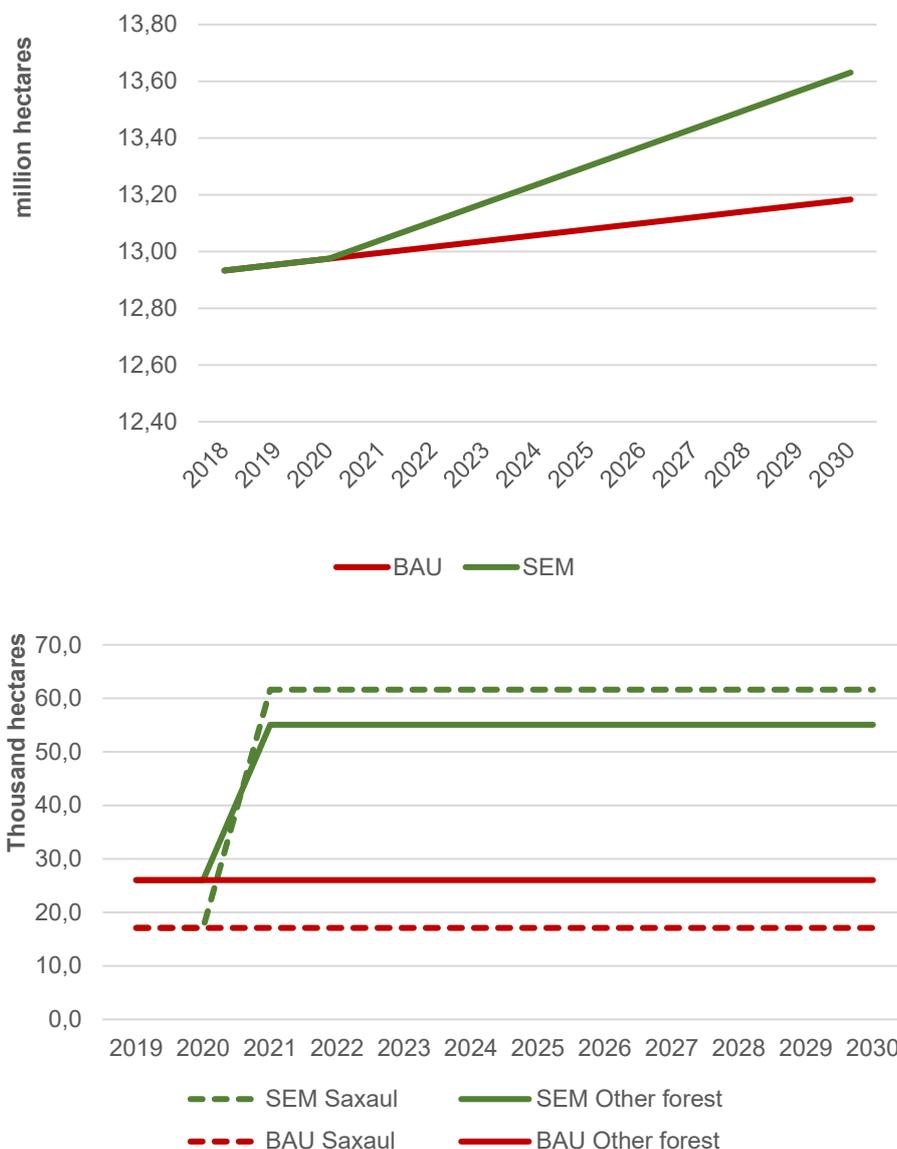


Figure 2. Change in forest cover on the national scale of Kazakhstan (left); area annually reforested for saxaul and other forest types (right)

Costs of forest management

The increase in forest cover also leads to higher budget requirements for effective forest management. The increased reforestation efforts require an estimated 5.4% increase in the capacity of forest nurseries. Larger forest surface also implies a larger area to manage and therefore requires increased capacity. Compared to the baseline, the annual forest management budgets are required to increase with 34,5% in total in the SEM scenario, to over 12 billion KZT per year for all State Forest Enterprises (Figure 3). These costs are required to fund the management of the additional forest

areas, to increase the supply the necessary equipment for forest management, as well as to increase the currently low wages of foresters. Increasing the wages of foresters and investing in education will also improve the socioeconomic conditions of people active in the forestry sector.

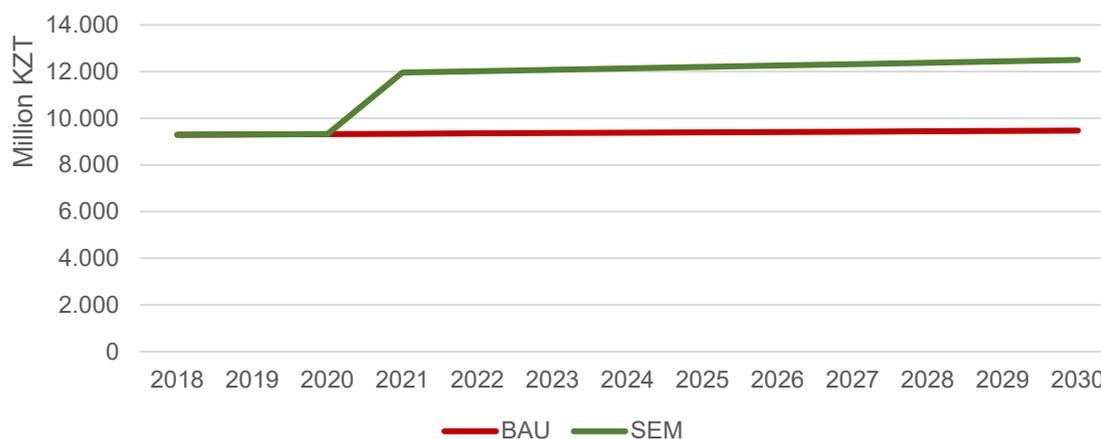


Figure 3. Required annual budget for forest management by the SFEs in BAU and SEM scenario

Benefits of forest management

All benefits provided by Kazakh forests are expected to increase as a result of the investments made in the SEM scenario. Timber production has the potential to grow with over 12% compared to BAU, as current harvesting rates are still well within sustainable limits. The stock of sequestered carbon is expected to be 1.5% larger in SEM in 2030. As a result, the value of sequestered carbon equals 1.7 billion KZT on average per year. Furthermore, the areas with a high potential for the harvesting of NTFPs and with a high tourism potential are all expected to increase with around 3% in SEM. In the southern regions of Kazakhstan, the increase in saxaul cover will reduce the risk of desertification, thereby reducing costs to local communities and governments to protect infrastructure and properties with an estimated 5.5 billion KZT per year. Finally, the increase in forest cover will improve the habitats for endangered species in Kazakhstan with 3-6%, thereby contributing to national biodiversity targets.

If we compare the additional costs for forest management and the economic benefits in the BAU and SEM scenario, the results indicate that the transition to Sustainable Ecosystem Management is desirable from a societal perspective. The increase in the economic value of sequestered carbon and the avoided costs of desertification alone already outweigh the additional costs for forest management in the SEM scenario (Figure 4). Carbon sequestration and desertification were the only ecosystem services that could be expressed in monetary values in this study. If we consider that also the other ecosystem services provided by Kazakh forests increase in the SEM scenario, it becomes clear that investing in sustainable forest management is a sound strategy to enhance

wellbeing in the Republic of Kazakhstan. The benefits provided by ecosystem services create opportunities for the Government of Kazakhstan to improve revenue streams.

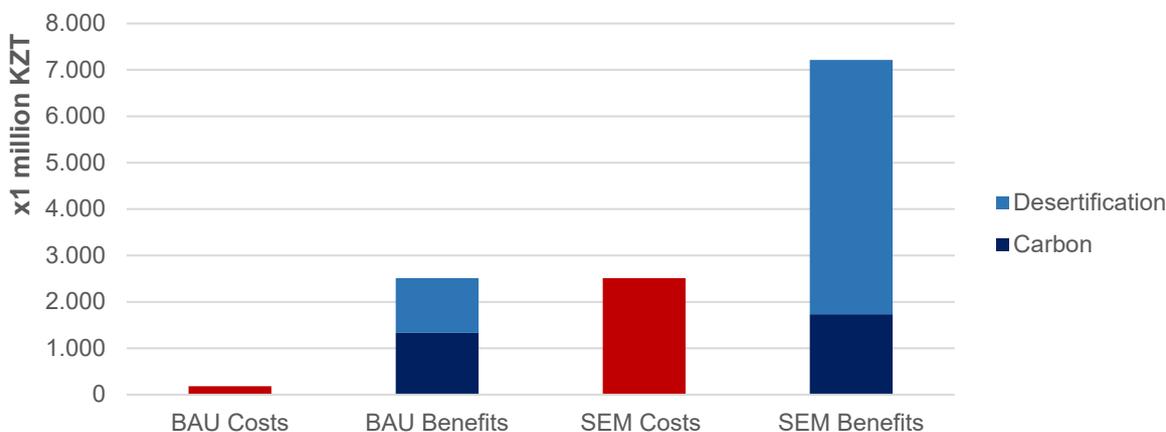


Figure 4. Additional costs and monetary benefits (carbon sequestration and avoided desertification) in BAU & SEM compared to the baseline in the year 2030 (mln KZT)

Conclusions and recommendations

The TSA study and results build on extensive consultation work in the forestry sector and the ongoing Project activities. For example, in the project framework, work is underway to increase workers' capacity to manage forestry institutions by developing training programs and thematic technical training modules. Besides, for the first time in Kazakhstan, the project supports the development of the Forest Management Plan so that forest protection institutions will review and update the standards and regulations for forest management, monitoring, reproduction, and protection from fires, pests, and diseases. The TSA's results were discussed with stakeholders to validate the following recommendations for sustainable forestry management in Kazakhstan.

A. Invest in the transition to Sustainable Ecosystem Management (SEM) to maximize forest benefits

As indicated by the TSA results, the transition towards SEM provides substantial net benefits for Kazakhstan. To make the transition and maximize the benefits of forest management, the study recommends to:

1. Increase the annual forest management budgets to strengthen the operational capacity (human resources and equipment) and to improve the infrastructure for forest management¹. On the one hand, this can be done by improving opportunities for sustainable financing

¹ Currently, the equipment level of forest protection institutions with machinery and equipment is about 65 % of the standard needed, while some of them exceed their service life and wear and tear (W&T) on average is 60-70 %, and in some it W&T reaches 100%.



(recommendation F), while on the other hand, a direct increase in forest management budgets for the State Forest Enterprises is required.

2. Pursue strategic spatial planning of forest conservation, protection and reproduction to maximize forest benefits and create resilient forests. This implies that areas with high benefits in terms of ecosystem services and a high suitability to support a forest landscape (e.g. water, soil) should be selected for reforestation.
3. Development of a multi-purpose nursery to provide planting material for the SFF and landscaping activities.

B. Improve the management structure in the forestry sector

Under the current management structure, natural reserves, national natural parks and natural sanctuaries are under the jurisdiction of the FWC, whilst the regional akimats are responsible for the State Forest Enterprises (SFEs). Because of this, the responsibilities for funding and planning of forest management are currently not aligned. In some regions, this works better than in others, but the level of funding clearly differs substantially from region to region, leaving SFEs in some regions substantially underfunded. As a result, it is difficult to develop strategic plans for forest management. To improve the management structure, this TSA study recommends that the investments in the forestry sector contribute to:

1. Align forest management planning and budgeting. Based on the results of the TSA study, it cannot be concluded whether a decentralized management framework (i.e. SFEs under the jurisdiction of akimats) performs better or worse compared to a centralized management framework (SFEs directly under the jurisdiction of the FWC). However, it can be concluded that the tasks for planning and budgeting do currently not fall under the same responsibility. To enable more effective management, planning and the allocation of budgets should fall under the responsibility of one and the same organization.
2. Implement management plans for SFEs, as there is currently a lack of a strategic and integrated vision for forest management. In these management plans, targets for forest management as laid out by the FWC should be complemented with organizational plans that specify the human resources, budgets and equipment that are required for the implementation.
3. Audit and monitor forest conservation, protection and reproduction efforts, in order to ensure commitment to forest management targets. There is a considerable need for more monitoring of the activities within the SFF.

C. Improve the capacity of human resources in the forestry sector

According to the Kazakhstan's National Chamber of Entrepreneurs, the average wage in the forest industry has been among the lowest in the country for multiple years. Because of this, the sector is unattractive for people that have followed advanced training and education. As a result, the forestry



sector suffers from understaffing and a lack of trained personnel. To invest in human resources, this TSA study recommends to:

1. Increase wage standards in the forestry sector. This will improve the attractiveness of the forestry sector for educated staff and provides perspective for people already working in the forestry sector.
2. Invest in education and professional development of the forestry staff. Investments should be targeted at educational institutions for forestry personnel that focus on professional and vocational training for the current forestry staff, as well as provide education for future employees.
3. Improve the social position of family members of foresters. As many foresters live in remote outposts with their families, the job opportunities for spouses are generally limited. In addition, the women often contribute to the forest management activities of their husbands, but are not compensated for their work and do not have access to health insurance.

D. Modernize equipment and infrastructure in state forests

During the TSA study, it became clear that most forestry institutions cope with poor infrastructure in the forest-covered areas and are undersupplied with equipment. To modernize forest management activities, the TSA study recommends to:

1. Revise forest management standards and regulations and to modernize forest management methods.
2. Increase budgets to invest in infrastructure and equipment and modernize the equipment and technology used. Investing in roads and appropriate means of transportation increases accessibility to remote areas, and investing in monitoring equipment (e.g. fire towers, drones, aviation) improves the monitoring of forest fires and other threats. In addition, foresters need to have sufficient access to the basic equipment for forest management.
3. International cooperation to increase standards and modernize forest management techniques. In addition to providing more equipment to SFEs, it is worthwhile to review the type of equipment and technology used. In modernizing the forestry sector, international standards can be applied to improve techniques for early identification of forest fires, effective reforestation and treatments against forest pests and diseases.

E. Review long-term forest user system

Currently, long-term forest users have a contract for a period of 10 to 49 years, based on participation in a tender and a following contract between the state as a forest owner and the forest user. Due to the long-term concessions, the competitiveness of the forest sector has been marginalized. To improve the ability of the FWC to manage forest-user concessions and increase competition, the study recommends to:



1. Improving the forest accounting, monitoring and cadaster system. This will improve the understanding of the dynamics in the SFF lands and within the forest user concessions.
2. Revise the tendering system and shorten lease contracts with forest users. This can be done by implementing a market-based vending system for lease concessions and an independent institution to monitor the logging activities of these forest users.
3. Increase the capacity to monitor hunting concessions. To ensure biodiversity targets in hunting concessions, it is advisable to invest in the capacity of the FWC to audit the monitoring of population dynamics within hunting concessions.

F. Increase opportunities for sustainable financing of forest management

Currently, there are insufficient opportunities to generate funds for within State Forest Enterprises. All revenues generated by forestry enterprises flow back directly to the regional budgets of the akimats, and the Forest Code limits income generating activities that can be used to finance forest management directly. The TSA study recommends to:

1. Review regulations to increase possibilities for revenue generating activities. Many stakeholders indicated the need to review the forest management regulations to allow for revenue generating activities by the SFEs. The regulations can be adapted to allow for similar activities compared to protected areas, which are able to generate increased revenues by developing, for example, tourism operations.
2. Support the transition to SEM by developing the components and transfer mechanisms involving the use of carbon offsets and other financial options under the new Environmental Code. Over 12 billion KZT are required, annually, to shift from BAU to SEM. Under the new Environmental Code, the Ministry of Ecology, Geology and Natural Resources (MEGNR) is in the process of approving the methodology to calculate greenhouse gas emissions. It includes three new mechanisms (1) on carbon offsets, (2) on green investments, and (3) on the validation and verification of carbon projects. Further, the Ministry of MEGNR recently launched a pilot project worth \$ 1.5 million. The pilot project is the first of its kind in the post-Soviet era to compensate for CO₂ emissions linked to forest.

G. Improve information systems for transparency and policy evaluation

The extensive data collection process within this TSA provided some insight in the current functioning of the information systems within the forestry sector. Here lie opportunities, as a lot of information is not collected in a harmonized manner and data is not always processed and stored centrally, which makes it difficult to access and compare information. To improve knowledge systems, the study recommends to:

1. Implementation of centralized and harmonized data collection processes. By making national datasets easily accessible, forest managers can keep track of the progress towards management targets. By harmonizing efforts across regions, data can be easily compared between forest management areas and aggregated on the national scale. By following



international standards for data collection, data on forest management can furthermore be compared with best practices across the globe.

2. Implementation of a monitoring strategy for ecosystem benefits to enable policymakers to keep track of statistics on the value of forests. Access to such information, will support strategic planning that maximizes the value of forest for the people of Kazakhstan and beyond.