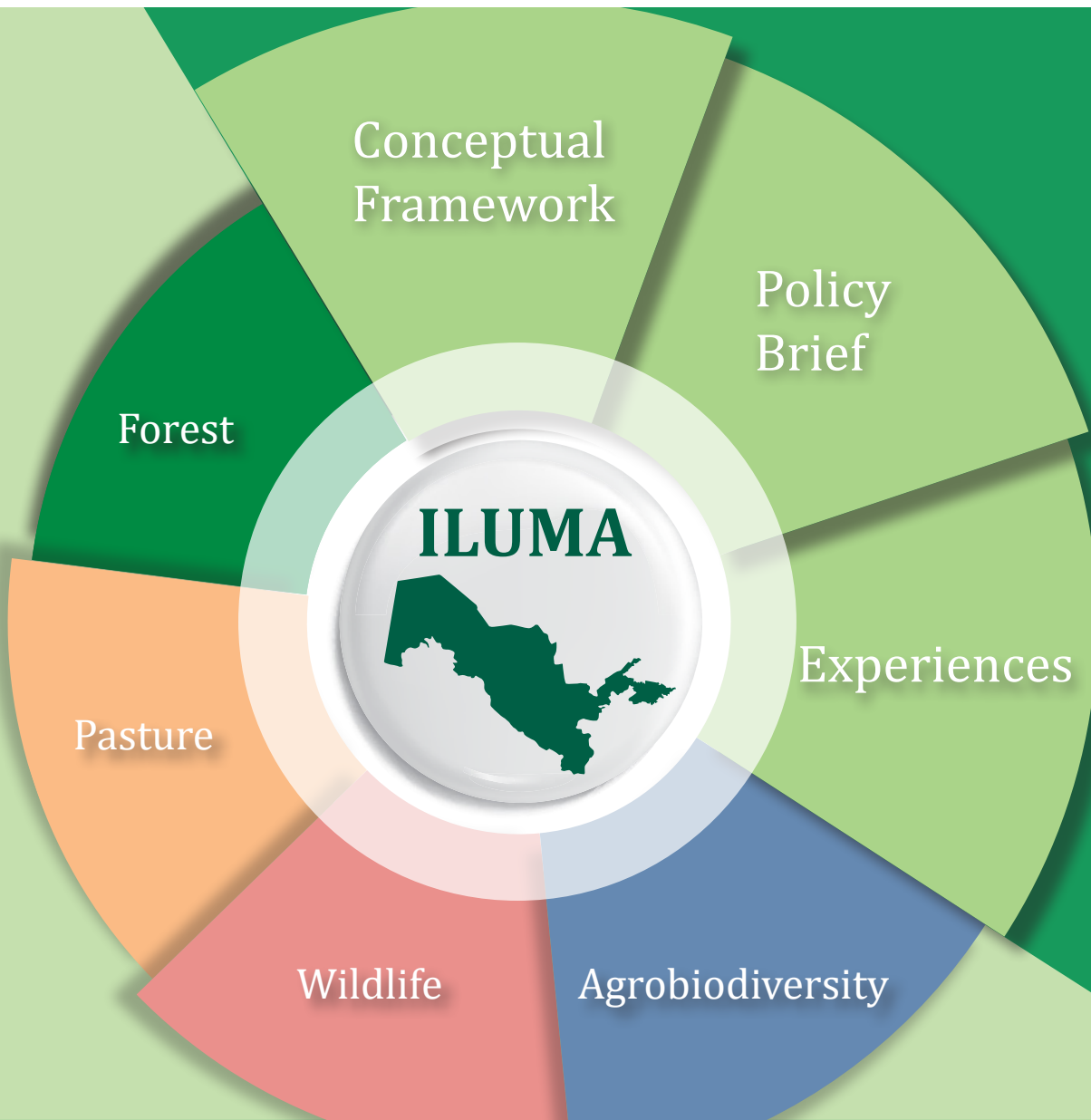


Integrative Forest Management in Uzbekistan for Integrative Land Use Management Approaches (ILUMA)



Integrative Forest Management

for Integrative Land-Use Management
Approaches (ILUMA)

Forest Management

Participatory forest management for rural socio-economic development

1. What is this land use practice about?

Uzbekistan's forests cover more than 3.5 million hectares, of which 12% are mountain forests, 7% mostly riverine forests and 81% comprise woody vegetation in deserts. In Soviet times and after independence, the major threats facing woodland and forests were related to the conversion of forest land into agricultural crop land, in particular in valleys and plains, and resource degradation due to the grazing caused by an ever-increasing number of livestock. Conversion to agricultural crop land is no longer a major issue but grazing remains an important threat, along with an increasing demand for timber and fuelwood by the growing population in rural areas. The impacts of climate change will aggravate these negative trends.

As the population of Uzbekistan is constantly growing, also in rural areas, forest resources play an increasingly important role for income generation and providing ecosystem services for the local population.

In the southern regions of the country, namely in Surkhandarya region, vast areas are covered by semi-natural pistachio forests. In the Babatag range, pistachio forests and plantations cover an area of more than 25 thousand hectares. Recently, due to the overgrazing of livestock and cutting trees for firewood, the area of pistachio forests has significantly decreased. In general, pistachio forests in the Babatag range are of low productivity, due to poor health of the trees, predominance of male trees and lack of effective management. Although of appealing taste, the pistachio nuts are small and thus can be sold only at local markets. Nonetheless, pistachio nuts have an established and growing market, and nut production is a viable economic alternative and income source for local population.

The State Committee on Forestry (SCF) is the governmental authority responsible for all forest resources. Apart from the state forest management and protection in Uzbekistan, the SCF is also responsible for the production of medical herbs and plants. Since 2015, demand for medical plants and herbs has increased at both national and international levels and the SCF has been assigned to respond to this trend. Therefore, the organisation has an interest to increase the production of medical plants and expand the area of plantations or species such as sea-buckthorn, which is grown for the production of berries and leaves for medicinal and health-food purposes.

Since 2017, together with scientists, GIZ has been supporting the SCF at the national and local levels (leskhozoes) in improving the productivity of pistachio

forests, actively involving local land users in integrated forest management. Although experiences are still at an early stage, the results so far are promising. Local forest users and state foresters seem to find ways to jointly manage and improve pistachio forests in Surkhandarya region of Uzbekistan.









2. Cornerstones of Forest Management

Sustainably managing forest resources requires economically viable options which also benefit the people living in or nearby forests. Although in the past the SCF had allowed local people to collect pistachio nuts in the Surkhandarya region, the local population did not feel responsible for maintaining the resource base. As the SCF alone does not have the resources to manage forests on State Forest Fund land, the pistachio forests continuously degrade. The first pilots in Bobotog and Gissar show that it is possible for foresters, researchers and local people to jointly manage forests in an integrated way.



The most important 'cornerstones' regarding the land use practice 'forest management' in Uzbekistan are:






- Forest Governance
- Improving Forest Productivity
- Applied Research








The symbols of the different cornerstones used in the below tables refer to different ILUMA dimensions like delineated in the following:





Symbol	ILUMA dimension	Symbol	ILUMA dimension
	Competence Development: strengthening core competencies of key stakeholders for better performance.		Knowledge Management: improve knowledge management and foster ongoing learning so as to better adapt to change.
	Planning and Monitoring: adequate planning, management, and monitoring instruments, structures and processes.		Organisational Development: strengthen and develop effective organisations and performance-based organisational mechanisms.
	Socio-cultural Relations: deploy social relations and culture as strong foundations for integrative land use management.		Institutions and Institutionalisation: build strong institutions and institutionalise core processes.
	Economy and Financing: emphasize economic viability and foster economic development by sustainable investments.		Environmental Conditions: consciously know and integrate environmental conditions and functions in land use management.

Cornerstone 1: Forest Governance





<p>GIZ Experience for Implementation</p>	<p>Participatory Forest Management (PFM)</p> <p>The PFM of the semi-natural pistachio forests of Surkhandarya region involves the SCF, local authorities and local land users. The most important issue is that foresters and local people develop a trustful relationship. Trust is the basis for all stakeholders to successfully manage and subsequently benefit from pistachio forest management. Local governmental authorities act as intermediaries between the SCF and local population. Transparency through clear written agreements (see below) ensures trust and contributes to local population's willingness to invest (labour, resources) in forest management on the State Forest Fund's land. GIZ supported SCF in building trust between local land users and local SCF foresters (leskhoz), develop innovative templates for leasing contracts and forest management plans and monitoring instruments for the leased land plot level.</p> <p>Reference material:</p> <ul style="list-style-type: none"> - Templates of the leasing contract - Templates of the forest management plan - PPTX presentations on the PFM approach and long-term land leasing contract - Training modules on socializing the PFM approach - Evaluation of the role of gender in different economic activities related to the land use management in Babatag forestry area - Flyer on the pistachio tree management: EN, RU 	
<p>Key Elements of the Experience</p>	<p>Guiding principles and the way how they are related to ILU-MA dimensions</p>	
<p>Trust-Building Measures</p> <p>As there was little trust between local people and SCF foresters at the beginning, it was crucial to build up the trust between stakeholders and highlight the benefits of working together.</p>	<p>1</p> 	<ul style="list-style-type: none"> • Guide and teach local population and foresters to understand the concept of PFM. • Facilitate the collaboration between foresters and local land users (e.g. grafting of pistachio trees). Foresters and local land users closely work together on a subject of common interest. This strengthens the communication skills of foresters and their understanding of the interests and needs of other actors.
	<p>5</p> 	<ul style="list-style-type: none"> • Clarify the roles of local land users and foresters in the context of the PFM approach. • Demonstrate the benefits for both foresters and local land users from jointly managing the forest resources. • Demonstrate the challenges that faced by this 'new' relation between local land users and foresters. • Actively involve local governmental authorities or other local stakeholders (e.g. mahalla women committees) as intermediaries in the trust-building process between foresters and local land users.







<p>Leasing Contract</p> <p>Contracts between local land users and the SCF over a period of 5 years with the possibility for prolongation.</p>		<ul style="list-style-type: none"> • Raise awareness of the local population on the need for sustainable forest management. • Ensure that forest users and staff of the forest enterprise understand their roles and responsibilities described in the contract. • Take measures to make sure that all involved stakeholders (forest users, leskhoz staff) understand the details of the leasing contract (e.g. through workshops, allowing questions for clarification). • Train SCF staff on contract design including: steps of contract development; contract conclusion; and use of computer packages for formatting. • Train the tenants so that they know and understand the commitments and obligations they enter into by signing the leasing contract.
		<ul style="list-style-type: none"> • The format of the leasing contract shall be clear, simple and accessible for all involved parties. • There must be a map attached to the leasing contract, identifying the land plot leased.
		<ul style="list-style-type: none"> • Ensure that tenants and foresters of the SCF leskhoz know their roles and responsibilities. • Ensure that women and youth are not disadvantaged by the leasing contracts, but also benefit from them.
		<ul style="list-style-type: none"> • The format and procedures for applying for a leasing contract must be legally approved by the SCF. • There must be a clear and transparent procedure for leasehold applications and for evaluation of requests and proposals. • Establish a committee for the evaluation of proposals and assignation of tenants for leasing contracts, composed of representatives of the SCF, local land users and local governmental authorities. • Establish clear criteria for evaluation of tenant performance regarding plot management and for consequences of low performance or non-compliance.
		<ul style="list-style-type: none"> • The leasing contract should outline the economic benefits obtained by leasing the land plot (e.g. nuts and medical herbs harvested) and how these benefits are shared between the SCF leskhoz and tenant. • The leasing contract should clearly identify the obligations of the tenant in order to fulfil the contract (e.g. pruning, grafting, tree planting).

<p>Forest Management Planning</p> <p>The forest management plan defines all activities that will be carried out over the course of 5 years.</p>		<ul style="list-style-type: none"> • Train SCF foresters on how to elaborate the forest management plan and all respective annexes: understand all steps of the planning and monitoring process, computer management (hardware, software), using the format of the plan and its respective annexes. • Train the tenants, so that they know and understand the commitments and obligations they enter into by signing the leasing contract.
		<ul style="list-style-type: none"> • A mid-term (5-year) plan for forest management activities on each land plot leased to local land users should be elaborated (e.g. planting trees, pruning, grafting, harvesting nuts, sowing and harvesting medical herbs, etc.). • An annual operational plan defines all activities to be carried out by the respective tenant per calendar year. • In a monitoring matrix (paper-based and digital) all activities that have been carried out, including harvesting of products, are documented.
		<ul style="list-style-type: none"> • Adapt the SCF leskhoz facilities and equipment (e.g. procure computers, hardware and software, forest inventory and management equipment, etc.), so that foresters can fulfil their assigned functions related to land plot leasing and management by local land users. • Organise joint committees including both tenants and SCF staff, to accompany the implementation of forest management plans (monitoring, evaluation, training).
		<ul style="list-style-type: none"> • The format of the forest management plan for leased land plots and all respective annexes must be standardized and approved by the SCF.
		<ul style="list-style-type: none"> • Consider the site conditions of the land plot when identifying management goals: soil, altitude, water availability, accessibility. • Consider the condition of the forest resource (density and health of trees, ratio of male to female pistachio trees, etc.). • Determine which are the most efficient measures to protect trees and medical plants from damage by livestock.
<p>Improvement and Development of Bylaws</p> <p>Based on the need of practice-oriented forest management, existing bylaws have to be improved and new ones developed to enable sound forest management</p>		<ul style="list-style-type: none"> • Organise and facilitate working groups to develop or improve bylaws, guidelines and regulations. • Train all relevant stakeholders (SCF staff, local land users, tenants, local governmental authorities) to understand adapted or new bylaws, guidelines and regulations in the right way (agreed interpretation/understanding).
		<ul style="list-style-type: none"> • Integrate knowledge of the local population in developing practice-oriented bylaws, regulations and guidelines. • Make use of the experience of local SCF foresters on managing forest resources. • Integrate the knowledge of external experts.




		<ul style="list-style-type: none"> Local governments and land users shall participate in the development and adjustment of the bylaws, regulations and guidelines. Locally developed and practice-oriented bylaws, regulations and guidelines shall be mutually agreed between SCF foresters at the local level (leskhoz) and local land users. Organise and facilitate conflict resolution activities associated with following rules. Use periods of political momentum and windows of opportunity for adapting or developing bylaws. There must be an interest or need by the government.
<p>Organisational Arrangements</p> <p>The interaction between all relevant stakeholders in the context of participatory forest management has to be well-structured in order to achieve forest management goals.</p>		<ul style="list-style-type: none"> There must be clear procedures for development and monitoring of forest management plans, internally approved by the SCF. There must be clear technical guidelines on how forest management measures should be carried out with high quality requirements (e.g. for pruning, grafting and planting of pistachio trees). Procedures for the long-term lease of the State Forest Fund's land, should be formally adopted by an SCF Resolution.
		<ul style="list-style-type: none"> Train organised groups of land users/tenants on leadership, roles of members of the organisation, rights and obligations, etc. Enhance competence of SCF staff in communication and negotiation with local population, management of forest resources, monitoring of forest management, and information management at the leskhoz level.
		<ul style="list-style-type: none"> Forest users and/or tenants of land plots shall be formally organised to better present and negotiate their interests. Where possible, base forest management organisations on existing or traditional institutions. Establish a formalized committee comprised of representatives of the SCF leskhoz, tenants and local governmental authorities where all parties can negotiate their interests, solve conflicts, etc. Develop an appropriate organisational structure within SCF leskhoz to adequately support forest land plots tenants (e.g. position of a PFM forester, administrative procedures responding to leasing land plots, etc.).
		<ul style="list-style-type: none"> Identify existing land use conflicts in the community and, if so, develop appropriate conflict resolution mechanisms. Consider local traditions when organising local land user groups (for instance, no mixed groups of men and women).
		<ul style="list-style-type: none"> extend participation of local communities in forest management and support their initiatives; improve planning of forest management activities and their financing; ensure integrated management of natural resources by facilitating cross-sectoral cooperation at the local level. A participatory annual operational plan shall define all activities to be carried out during a calendar year in a leskhoz's territory.






Cornerstone 2: Improving Forest Productivity

<p>GIZ Experience for Implementation</p>	<p>Pistachio Forest Management</p> <p>The focus is on managing the State Forest Fund’s land covered by semi-natural pistachio forests in an integrated manner with the aim to improve productivity. Currently the pistachio forests are extensively managed. Pistachio nuts are harvested without managing the trees and livestock graze on the same plots.</p> <p>GIZ has supported the SCF in improving health and productivity of pistachio trees by introducing management measures, combined with cultivating medical herbs on the State Forest Fund’s land. Pistachio nuts have a well-established market and are a significant income source for the local population.</p> <p>Cost-benefit analyses and market research supported decision making on land use options.</p>	
<p>Key Elements of the Experience</p>	<p>Guiding Principles and the Way How They Are Related to ILUMA Dimensions</p>	
<p>Pistachio Management</p> <p>Improving the productivity of pistachio trees.</p>		<ul style="list-style-type: none"> • Promote the concept of Sustainable Forest Management to the local population and foresters. • Train local land users and SCF foresters in pistachio tree management techniques: pruning, grafting, harvesting nuts, planting, tree protection. • Develop and hand over accessible training materials.
		<ul style="list-style-type: none"> • Make use of local people’s knowledge, for instance with respect to the best harvesting time and techniques, tree planting time and techniques, organisation of work tasks, acquisition of (local) materials for protecting trees, etc. • Make use of the knowledge of local SCF foresters (leskhoz) on nursery techniques, pistachio seed treatment and storing, best harvesting time and techniques, tree planting time and techniques.
		<ul style="list-style-type: none"> • Continuously monitor the production and productivity (quantity, quality) of pistachio trees (nuts). • Monitor the establishment and improvement of pistachio trees (planting, pruning, grafting).
		<ul style="list-style-type: none"> • Calculate and organise labour requirements: how many man-days are required for each activity; is the labour force available? • Define and organise management tasks for men and women. • Develop a work plan (calendar) for each leased land plot; joint work of local foresters and tenants.

		<ul style="list-style-type: none"> Analyse the economic viability of the pistachio tree management. Analyse the market demand for pistachio nuts: size, taste, quantities, seasonality. Conduct a cost-benefit analysis of well-managed pistachio forests versus forests, which are not managed actively. Conduct a study on the contribution of forest products to the economy of the rural area. Monetize all benefits generated by forests, including environmental services that do not have a market yet. Agree on fair-share of the harvest between the SCF leskhoz and tenants.
		<ul style="list-style-type: none"> Ensure correct spacing between pistachio trees, depending on the altitude, rainfall pattern, soil types, etc. Prune and graft pistachio trees according to the local environmental conditions (e.g. climate patterns). Select the most appropriate and, at the same time, most productive pistachio varieties for the given site conditions; use as far as possible local varieties.
<p>Medical Herbs Management</p> <p>Utilizing the ground of pistachio forests for generating additional value added.</p>		<ul style="list-style-type: none"> Inform local land users and SCF foresters of leskhoz about the possibilities to produce medical herbs/plants on the ground between pistachio trees. Train tenants on cultivation, harvest and storage techniques of medical herbs/plants. Develop and hand over training materials.
		<ul style="list-style-type: none"> Make use of local people's and SCF foresters' knowledge on the most suitable medical plants/herbs in the area. Monitor, document and analyse results of planting different medical plants/herbs on different sites.
		<ul style="list-style-type: none"> Conduct market studies before promoting certain medical herbs/plants to local land users. Only those medical herbs/plants shall be recommended for planting, which have a secure and well-paying market, and are easy to access. Carry out cost-benefit calculations for the cultivation of medical herbs/plants. Support local land users in accessing the market and negotiating prices. Agree on a fair share of the harvest between SCF leskhoz and tenants.
		<ul style="list-style-type: none"> Select medicinal plants/herbs which are site-adapted and/or native to the region. Preferably select medical plants/herbs which do not require irrigation. Select medical plants/herbs that could be planted in early spring, when sufficient rainfed water is still available. Choose sites which have a relatively good accessibility, water supply and soil fertility.

Cornerstone 3: Applied Research

<p>GIZ Experience for Implementation</p>	<p>Research on Pistachio Tree Improvement</p> <p>In order to improve the productivity of semi-natural pistachio forests in Surkhandarya region, there was a need to analyse the current problems pistachio trees face and to identify viable options to solve these problems.</p> <p>GIZ and the SCF involved renowned experts of the State Scientific-Research Institute of Forestry to identify the most suitable pistachio varieties, test these varieties on demonstration plots and establish a system for proliferation of the most promising pistachio varieties.</p> <p>Research was mainly carried out on the State Forest Fund's land plots leased to local land users whose objective was to test pistachio improvement and production at the same time. Research activities were also combined with competence development activities, improving skills of land users and SCF foresters.</p> <p>Reference material:</p> <ul style="list-style-type: none"> - Report on the establishment of pistachio tree management demonstration plots in Bobotog SFE (07.2017) and Gissar SFE (05.2019) - Report on the plus tree identification and establishment of demonstration plots (11.2017) - Report on research and management of pistachio trees in demonstration plots and establishment of a mother-tree plantation (07.2018) 	
<p>Key Elements of the Experience</p>	<p>Guiding principles and the way how they are related to ILUMA dimensions</p>	
<p>On-site Research</p> <p>Research on established and managed demonstration plots in semi-natural pistachio forests.</p>	<p>1</p> 	<ul style="list-style-type: none"> • Explain the aims and objectives of the research to SCF staff, so that they understand and support it. • Improve SCF foresters' skills related to the empirical research by ensuring their participation in all steps. • Improve researchers' skills related to practice-relevant and result-oriented research design.
	<p>2</p> 	<ul style="list-style-type: none"> • Sound documentation of all research steps and results. • Embed documented research results into the SCF knowledge management system. • Communicate research results to the SCF and publish them. • Communicate research results to local land users in an understandable way. • Use research results to adapt forest management plans. • Make research data openly accessible.
	<p>3</p> 	<ul style="list-style-type: none"> • Design the demonstration plots while considering issues relevant for managing pistachio forests with an economic focus and responding to research criteria. • Accurately monitor all activities and results on the demonstration plots. • Identify, register (by GPS) and describe all trees identified in the area. • Define the pruning scheme according to economic and research criteria. • Mark all grafted trees in the field and register them in the monitoring system in order to assess research results later (e.g. survival rate, productivity, pests, etc.).

		<ul style="list-style-type: none"> Analyse the economic viability of the pistachio tree management. Analyse the market demand for pistachio nuts: size, taste, quantities, seasonality.
<p>Off-site Research</p> <p>Some aspects of the research were related to testing pistachio nuts in a laboratory and establishing a mother-tree plot in a nursery, outside the pistachio forests.</p>		<ul style="list-style-type: none"> Select the most appropriate and, at the same time, most productive pistachio varieties from outside the region for the given site conditions. Develop the seasonal calendar of research activities according to the local climate variability.
		<ul style="list-style-type: none"> Researchers train SCF staff to manage all relevant activities on the pistachio mother plantation while maintaining it in good condition. Researchers train SCF staff to conduct monitoring activities and analyse monitoring results.
		<ul style="list-style-type: none"> Document the design and results of pistachio nut analysis. Communicate the results of pistachio nut analysis to the SCF and discuss conclusions. Disseminate the essential outcomes of pistachio nut analysis to the interested public (e.g. universities, companies managing pistachio plantations, land users managing pistachio plots). Document and monitor all activities and results related to the management of the pistachio tree mother plantation.
	<ul style="list-style-type: none"> Analyse and register different types of pistachio nuts, foreseen for multiplication, with respect to size, taste, appearance and other criteria. Design the pistachio mother plantation as a nursery for producing material that will be used for grafting pistachio trees in the forests/ plantations. Develop a clear management plan, including activities, responsibilities and costings for the mother-tree plantation maintenance. 	

Future Outlook

As mentioned in the introduction to this ILUMA experience, after 3 years (end of 2019) and a very modest budget, the initiative on participatory forest management in Uzbekistan is still at the very beginning. Achieving sustainable forest management involving all relevant stakeholders requires the long-term commitment of all parties.

Thus, there are several issues that must be tackled for further developing the approach. These are topics that will most likely have to be worked on at some point. We would like to mention the most significant ones from a current (March 2020) perspective:

Livestock Management

Although it is legally forbidden to keep livestock on the State Forest Fund's land in Uzbekistan, it is a fact that livestock is grazing in the entire area of the pistachio plantations. As there are few economic alternatives in rural areas, livestock breeding is the most important income source of the local population living on the slopes of mountainous areas.

Keeping people and their livestock out of the State Forest Fund's land would cause serious socio-economic problems, followed by social conflicts. The state also does not have the human and other resources to keep livestock out of the Forest Fund's land.

Therefore, the only viable alternative to the current practice is the development and implementation of sustainable livestock management schemes, together with the livestock owners and herders. In this way, Grazing could be integrated into pistachio forest management as part of the production system.

Up- and Outscaling

Currently the initiative engaging GIZ, SCF and local population is at the testing phase for sustainable pistachio forest management. To have a significant economic and environmental impact, more local land users must be involved and manage large areas of the Forest Fund's land.

The opportunity for land leasing contracts with a term of up to 50 years, presented by the Uzbek government recently, seems to be a 'window of opportunity' for local people to manage and invest in pistachio forest management.

Working at a bigger scale in the province of Surkhandarya and other regions with pistachio forests requires different mechanisms for managing the approach.

Business Plan for Pistachio Improvement

Up to now, the initiative mainly focused on technical aspects of improving pistachio tree management. To apply it at a larger scale, there must be a 'business plan' indicating all costs and benefits related to the pistachio forest management. The development of the business plan can be used to assess possibilities to make pistachio production economically more viable.

The business plan can be used by tenants to search for investment opportunities (e.g. investors or bank loans) or also by the SCF looking for bigger, even external investments.

Imprint

Published by

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices

Bonn and Eschborn, Germany

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As at

March, 2021

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GIZ is responsible for the content of this publication.

On behalf of

Federal Ministry for Economic Cooperation and Development (BMZ)

The publication is distributed free of charge.

