



United Nations Development Programme

Uzbekistan

PROJECT DOCUMENT

Project Title: Reducing pressures on natural resources from competing land use in non-irrigated arid mountain, semi-desert and desert landscapes of Uzbekistan

UNDAF Outcomes: Principles of sustainable development integrated into country policies and programs

UNDP Strategic Plan Environment and Sustainable Development Primary Outcome: Strengthen national capacity to manage the environment in a sustainable manner while ensuring adequate protection of the poor

UNDP Strategic Plan Secondary Outcome: Mainstreaming environment and energy

Expected CP Outcome(s): Increased availability of institutional products and services for the conservation and sustainable and equitable use of natural resources

Expected CPAP Output(s):

Concrete interventions on sustainable natural resources use, including water, land, biodiversity resources, and on climate change (mitigation, adaptation and carbon financing) complemented with environment education/ training component; and Strengthened legal and institutional frameworks and enhanced government capacities to meet international commitments and obligations

Executing Entity/Implementing Partner: State Committee on Land Resources, Geodesy, Cartography and State Cadastre (Goskomzem - GKZ)

Brief Description: This 5 year project is designed to support the improved, more sustainable and more resilient land use management of non- irrigated arid desert, steppe and mountain landscapes of Uzbekistan, which constitute the vast majority of its territory, and reduce competitive pressures between different land uses, particularly pasture use and forestry. It will facilitate the up-scaling of existing best practices for land management within two ecologically and socio-economically representative districts (Zaamin and Karakul) and provide a model for undertaking district level integrated land use planning. On the basis of experiences on the ground it will support the updating and refinement of relevant national policy, legislation and institutions and mechanisms for improved national coordination and planning for integrated land use management. It will further support land use capacity development at all levels from national decision makers to farmers in target districts and lay the basis for developing a national cadre capable of effectively and flexible implementing national

land use policy and legislation. Lessons learned from the project target districts in regard to sustainable land use practices will thus have an effective vehicle for wider replication within the target landscapes.

Project Goal, Objective, Outcomes and Outputs/activities

1. The project **goal** is to “reduce competing land use pressures on natural resources of arid non-irrigated landscapes in Uzbekistan”.
2. The project **objective** is “to promote integrated management of rangeland and forests at the landscape level (focus on non-irrigated, arid mountain, semi-desert, and desert landscapes) to reduce pressures on natural resources from competing land uses and improve the socio-economic stability of communities.”
3. In order to achieve the project objective, and address the barriers, the project’s interventions have been organized into **two Components** and **five Outcomes** (this is in line with the components and outcomes presented at the PIF stage):

Component 1:Field level investment to transform the baseline approach -Promising best practices on sustainable rangeland and forestry management and INRM planning up-scaled in target districts of Uzbekistan.

Outcome 1.1: Improvement in the vegetative cover of approximately 6,000 ha of rangeland and 1,000 ha of forestry fund territory due to enhanced land use management using sustainable INRM best practices, accompanied with approximately 50,000 people with secure and sustainable livelihoods (*FA Outcome 3.2*).

Outcome 1.2: Enhanced mechanisms for cross-sector integrated planning of sustainable natural resources management at district level to improve vegetation and forest cover, decrease moving sands and erosion, and reduce dust storms and other such events. (*FA Outcome 3.2*)

Component 2: Policy, legal and institutional mechanisms- An enabling cross-sector environment and in-country capacity (at system, institutional and individual levels) for applying integrated landscape management in arid mountain, semi-desert and desert areas of Uzbekistan.

Outcome 2.1: Enhanced policy, legal, and institutional framework for implementing integrated and sustainable management of rangeland and forests (*FA Outcome 3.1*)

Outcome 2.2: Adequate technical and managerial capacity for INRM at all levels of land use institutions for the development of policies, legislation and field operations (*FA Outcome 3.1*)

Outcome 2.3: Improved access of policy makers to tested INRM best practices and methodologies for improved land management

COMPONENT 1

4. Outcomes under Component 1 are designed to demonstrate within two representative districts how improvements in the sustainability and productivity of land use can be achieved. This will be undertaken through the systematic up-scaling of a set of well-balanced existing experience and know-how tried at a small scale in Uzbekistan in an isolated fashion. This project, by applying them at a larger scale and in a carefully combined manner, will test and demonstrate the larger cumulative benefits the application of sound management can have. Furthermore, the project will support local stakeholders in the development of practical methods for better planning of land use at district level and for maximizing benefits from integrating such land use. In this way the project will provide examples and practical experience from two typical districts of how land use can be improved and competitive pressures reduced through the systematic and combined application of good practices and sound holistic planning. The value of this in terms of facilitating wider replication of improved land use cannot be underestimated because up to this time no such examples have existed.

5. Additionally, the process of applying these good practices in the field will help to highlight and clarify the specific legal and institutional barriers experienced by land users which hamper improved land use and the wider policy implications. This will provide a vital practical grounding for work under the project's 2nd outcome. The outputs necessary to achieve this component are described below.

Outcome 1.1: Improvement in the vegetative cover of approximately 6,000 ha of rangeland and 1,000 ha of forestry fund territory due to enhanced land use management using sustainable INRM best practices, accompanied with approximately 50,000 people with secure and sustainable livelihoods

Output 1.1.1: Carry out an adequate inventory and classification of all types of lands in project sites (pasture, rain-fed arable, dry land forestry, and others)

6. In order to undertake effective planning and make valid decisions on land use, it is first necessary to know what land resources and potentials exist, and what current use is. No comprehensive inventory has been carried out for over 10 years in Karakul and Zaamin Districts. Thus the project will, as a first step, support a detailed inventory and evaluation of land resources in the 2 target districts of Zaamin and Karakul, looking at current and potential use. This will be carried out in collaboration with relevant departments of GKZ and specialists of the district authorities. GKZ has significant capacity in this regard including existing equipment and technical expertise to prepare integrated cartographic and GIS materials.

7. The project will build on this technical expertise and capacity by adding an understanding of key materials needed for land use option analysis and integrated planning. These will differ in some respects from the "business as usual" approach as they will retain an "open-option" perspective to land use in districts rather than being limited to what currently exists (as is normally used). The process of planning and executing the district level land use inventory, and the experience gained by national counterparts, will thus in itself become a vehicle for building improved land use capacity.

Output 1.1.2: Promising good practices on pasture management and livestock husbandry, forestry and biodiversity management from Uzbekistan and the region, replicated and up-scaled in project sites

8. As discussed previously there exist within Uzbekistan, and the region, a variety of land use good practices applicable to desert, semi-deserts and mountain landscapes which have shown promise. Good practices for pasture land use include: long term pasture user rights for local populations; mechanisms for collaborative pasture use such as pasture use commissions; grazing management based on carrying capacity, grazing rates, rotation, etc.); improved fodder distribution and incentive for fodder production; joint state/private veterinary services; mid to long term strategic planning by large quasi-state livestock farms to improve economic viability and ensure investments (such as wells) necessary for sound management; simplified monitoring as a basis for better regulation; more appropriate and applicable normative regulations; improved capacity and institutional clarity of regulatory bodies at district level to enforce land use norms; and appropriate and pragmatic mix of financial and administrative penalties and incentives for regulating pasture land use.

9. In the forestry land use context examples include: provision of secure long term user rights over forestry land and biodiversity resources for the local population and adjusted incentives to ensure interest of local population in their sustained management (i.e. joint forestry management, community-based forest management); legal and administrative adjustments to allow and incentivize private forestry and biodiversity use, formalized systems for fuel wood planning and distribution; community and relevant state authority collaboration to address priority local environmental threats (to control / reduce / avoid economic damage from moving sands, gullying, land/mud slides, water catchment zones, etc.); collaborative planning for local water catchment zones in arid mountains, etc.; collaborative planning to meet fuel wood needs of rural settlements and communities in sustainable ways.

10. However, the limited geographical scope of these practices to date means there is little practical experience or know-how regarding their application. This is a significant practical barrier to their up-scaling and widespread application and this output is aimed at addressing this know-how gap.

11. Based on a review of relevant best practices undertaken during project preparation phase, and following consultation with national and international development partners, it is planned to replicate and further test a set of natural resource best practices within the two demonstration districts (see table below) that are assessed as having the most potential to positively impact sustainability of land use within the target districts of the project. These will not be applied in isolation but as integrated “packages” of interventions in order to ensure compatibility and mutual support or amplification of the benefits.

12. Key to making them work effectively will be the active understanding and participation of local land users themselves. In order to ensure this, the project will make concerted efforts to build awareness of the key stakeholders (state farm managers, district forestry officers, sub-district representatives, village leaders, local household heads) on the interventions being planned and receive their feedback on how they can be best applied in their specific situation. Visits by the relevant stakeholders to other sites in Uzbekistan where the specific best practices have been piloted previously will help build their appreciation of what is possible and hopefully stimulate ideas on practical application in their own conditions. In undertaking the replication of best practices and

testing them for wider application, the project will need to find a balance between: a) supporting their implementation b) allowing local stakeholders to do as much of it as possible themselves. Insufficient support might jeopardize the success, but too much support would fail to demonstrate the true replicability of the practices (the project will not be there to support wider replication in other relevant districts in the future). Thus getting this balance is crucial if meaningful lessons will be learned regarding recommendations and guidelines for national replication. In this context the project needs to establish an effective and strong district level presence with technical support for implementation being ‘on tap’ (see Management Arrangements). This is equally necessary for the development of district level Integrated Land Use Management Plans (see details under Outcome 1.2 below).

Table 1. Provisional List of NRM Best Practices to be applied in the Two Target Districts¹

Proposed natural resource management best practice		Districts where practices are to be applied	
		Zaamin	Karakul
Pasture / Livestock practices			
1	<p>Re-establishment and refining of grazing management, rotation and herd structure practices by shirkats and large private livestock farms</p> <p>Benefit: Improved vegetation cover and pasture productivity as a result of more balanced grazing pressure (i.e. reduced over grazing of some areas and under grazing of others)</p> <p>Piloted: UNDP- GEF SLM Project Achieving Ecosystem Stability in Aral Sea and Kyzylkum Desert</p>	X	X
2	<p>Establishment of household / village collaborative pasture using structures and development of their capacity to apply effective pasture management (calculate carrying capacity, rotation, herd size/composition, etc.).</p> <p>Benefit: Pasture under collaboratively managed use rather than “open-access”, so improved sustainability and resilience</p> <p>Piloted: GIZ (Pasture Project)</p>	X	
3	<p>Rehabilitation / sustainable use of wells using renewable energy or more efficient/reliable methods and establish a mechanism for maintenance</p> <p>Benefit: Allows to expand the area of used pastures reducing livestock unit per 1 hectare of pastures</p> <p>Piloted: UNDP-GEF SLM project (see above)</p>	X	X
4	Establishment of public/private veterinary points: collaborative state	X	X

¹This list will be finalized and developed into integrated intervention packages during the project inception phase.

Proposed natural resource management best practice		Districts where practices are to be applied	
		Zaamin	Karakul
	<p>and private partnership to ensure delivery of basic veterinary services to livestock owners, and provide technical / advisory services.</p> <p>Benefits: Cost effective and sustainable mechanism for ensuring effective implementation of state programme on livestock disease control and provision of key technical and advisory services (insemination, appropriate technology, pasture and herd management).</p> <p>Piloted: UNDP GEF SLM project, UNDP GEF BD Tugai and Nuratau BR projects</p>		
5	<p>Establishment of a Commission of pasture users at Rural Councils or at the level of khokimiyats (district authorities)</p> <p>Benefit: Creation of a control mechanism over the use and regular monitoring of the condition of pastures</p> <p>Piloted: UNDP GEF SLM, UNDP GEF BD Tugai and Nuratau BR Projects</p>	X	X
6	<p>Cost effective enriching of pastures (fenced quadrants as “seed banks”, and spot / strip artificial seeding in degraded pasture areas)</p> <p>Benefit: Low cost method for accelerating recovery of overgrazed pasture and improves pasture quality/productivity by providing sources for natural (wind) reseeding</p> <p>Piloted: Uzbek Research Institute for Karakul Sheep, UNDP SLM</p>	X	X
Forestry practices			
1	<p>Establish desert protection “forest” strips through collaboration of local Lezhoz and local communities to reduce impact of moving sands on key infrastructure</p> <p>Benefit: Cost effective mechanism for preventing development of moving sands and damage to infrastructure on long term basis.</p> <p>Piloted: UNDP SLM</p>		X
2	<p>Joint forestry management (i.e. between local leshoz and local households) to develop State Forest Fund land requiring afforestation and orchard/nut plantations in mountain foothills</p> <p>Benefit: Additional investments in forestry (beyond that available to the Lezhoz from the state) leveraged from local population and long term sustainable incomes (for Leshoz and households) created. Improved vegetation cover, CO₂ sequestration and reduction in</p>	X	

Proposed natural resource management best practice		Districts where practices are to be applied	
		Zaamin	Karakul
	wind/water erosion. Piloted: UNDP Tugai and Nuratau BR, GIZ in Tajikistan		
3	Sustainable Fuel wood Planning: Collaborative planning between Leshoz and local authorities to ensure sustainable sources of fuel wood supplies from existing and newly planted areas for rural populations Benefit: Fuel wood extracted from sustainable sources, reduced cutting of vegetation in desert, steppe and mountains Piloted: UNDP GEF BD Tugai and Nuratau BR projects	X	X
Rain-fed Arable farming practices			
1	Build dekhani and private farmers' capacity to apply optimal schemes of grain and fallow/fodder rotation based on priorities of rain-fed arable agriculture within the integrated land use context of the district (soil, climate, economic and social parameters) Benefits: Improved sustainability and mid/long term productivity of rain-fed arable lands, increased resilience to poor seasons/climate change, improved contribution to the overall integrated land management needs of district Piloted: Gallaaral Grains Research Institute, ICARDA, Samarkand Agricultural Institute	X	
2	Introduction, demonstration and wider replication of zero / minimum tillage methods in rain-fed arable areas Benefits: Resilience and sustainability of grain and other crop production in rain-fed arable lands improved, reduction in investment needs (fuel, labour, machinery), and reduced CO ₂ emissions Piloted: World Bank, ICARDA, ZEF	X	
3	Use of new or improved varieties of crops better suited to specific environmental conditions and with clear economic and environmental benefits for integrated land use in the district context (fodder crops to help reduce fodder deficits). Benefits: Diversified crop basis with increased resilience and which complement other land use and socio-economic needs in the districts Piloted: Gallaaral Grains Research Institute, ICARDA, Samarkand Agricultural Institute	X	

Proposed natural resource management best practice		Districts where practices are to be applied	
		Zaamin	Karakul
Other			
1	<p>Introduce sound agri-business training for shirkat and private/dekhan farmers</p> <p>Benefit: Improvement in rationality of decision making based on practical resource and economic factors and improve profitability of livestock and arable farming enterprises and thus capacity to make key investments for long term improvement of sustainable management</p> <p>Piloted: UNDP SLM, Nuratau BR</p>	X	X
2	<p>Collaborative planning and coordination of small watershed management with local land users (local communities, forestry and livestock enterprises):</p> <p>Benefits: Protection and maximization of water run-off from streams in mountain and steppe areas, reduction in water erosion and top soil loss.</p> <p>Piloted: GIZ (Farish)</p>	X	
3	<p>Value addition to local agricultural produce and NTFPs: Small scale processing of local production to add value and support with marketing.</p> <p>Benefits: Increase and diversify incomes and socio-economic returns of existing agricultural and non-timber forest products (milk, skins, fruit, nuts, honey, rhubarb, medicinal and aromatic plants, etc.) and reduce pressure for over utilization of natural resources.</p> <p>Piloted: UNDP SLM, Nuratau BR, Tugai, ELS; GIZ, others.</p>	X	X
4	<p>Introduction and local production of appropriate technologies with environmental, economic and sustainability benefits (renewable energy pumping systems, fuel wood efficiency or alternatives, energy efficiency technologies, etc.)</p> <p>Benefits: Availability of locally produced and economically viable technologies with long term environmental and economic value (i.e. reduce cost of developing and using wells, reduce fuel wood demand, provide electricity to remote locations cost effectively, etc.), and diversify local economy (small scale production of equipment / services by district / local entrepreneurs).</p> <p>Piloted: UNDP Nuratau BR, Tugai, GIZ</p>	X	X

Proposed natural resource management best practice		Districts where practices are to be applied	
		Zaamin	Karakul
5	<p>Appropriate Tourism development: support the development of appropriate tourism models (household guesthouses and services, trekking, horse trekking, etc.) as basis for diversifying rural incomes.</p> <p>Benefit: Reduce need for over utilization of natural resources (grazing, forestry etc.) through alternative income sources and provide incentives for protection of natural landscapes.</p> <p>Piloted: UNDP Nuratau BR, Tugai, etc; EU, and others.</p>	X	X

13. The project will continue to seek, during implementation, viable and well placed project partners for development and implementation of good practices, including national and local NGO's, small grant opportunities such as the GEF SGP and bilateral donors, and other interested parties.

Output 1.1.3: New and refined technical extension services at existing and newly developed local institutions or structures

14. Currently there exist no systematic mechanisms for delivering agricultural or rural livelihood extension services to rural populations in Uzbekistan, particularly in the non-irrigated areas. Some unsystematic advice/guidance is provided via academic institutions such as the Uzbek Research Institute on Karakal Sheep Production and Desert Ecology and the Agricultural Institute in Samarkand, but such institutions are not ideally suited for this task because (a) they are academic institutions and not adapted to providing the kind of practical help required by rural populations / land users, (b) they do not have an effective mechanism or on-ground network of staff to effectively deliver the practical land use advise and support required.

15. There have been some successful pilot initiatives by various projects in Uzbekistan to test new approaches to delivering extension services such as the establishment of Zoo-technical (veterinary) points managed on a joint state/commercial basis. These have a mandate and support from the relevant state institutions (Department of Livestock, Poultry, Apiculture and Aquaculture, MAWR) to deliver components of state programmes (vaccination programmes, etc.) but also undertake commercial provision of veterinary and livestock / pasture management services. Such collaborative state/private mechanisms have some potential to sustainably extend the delivery of key services and the project will utilize this approach as appropriate in order to support better livestock and pasture management.

16. Another potential avenue of delivery is via the several new district and sub-district vocational colleges established under an extensive government programme of investment. The project will work with such colleges in the target districts to build their capacity to deliver useful land use technical support. Specifically, the project will support them to prioritize vocational training to better target it for the real needs of the local population and improve capacity to deliver it based on experience gained in the field.

17. There has been some experience in both Uzbekistan and the region with local level establishment of "Farmer Field Schools" based on the FAO model widely practiced across the world.

The project will apply the model within the target districts as found appropriate. In particular this approach is relevant to dekhans and household horticultural land, which, though of relatively small area, are of key import in rural livelihoods.

18. Finally, the project will seek to better harness regional academic institutions such as the Karakul Institute and Samarkhand State Agricultural University in support of the local level structures/stakeholders discussed above. In this way their real strengths can be harnessed and a basis for a useful exchange between local extension mechanisms and regional academic institutions can be established.

Outcome 1.2: Enhanced mechanisms for cross-sector integrated planning of sustainable natural resources management at district level to improve vegetation and forest cover, decrease moving sands and erosion, reduce dust storms, and other such events.

19. This outcome is designed to develop and test a mechanism for holistic, integrated, and participatory planning and development of land use within the two target districts of the project, with the mechanism being effective and viable within Uzbekistan's current land governance system. This will be a first step at the ground level for such planning approaches. Based on experience gained in the target districts, the project will facilitate replication in other districts.

20. Apart from bringing direct benefits to district level land use effectiveness, the experience gained from wide spread application of such planning approaches at district level is intended, in the long term, to build sufficient experience and practical knowledge to allow up-scaling and application at provincial (oblast) level. By that stage, sufficient capacity will exist within the land use management system to allow national level application. Clearly, achieving the adoption of integrated land use approaches at all levels in Uzbekistan is a massive and long term objective and well beyond the scope of the project. However, by putting in place the awareness, skills and experience required at the ground level, and establishing the policy and commitment at national level, the project seeks to create the right conditions for pragmatic, integrated land use management to grow from the bottom up. In pursuit of this strategic approach the project has the following outputs under Outcome 1.2.

Output 1.2.1: Two district level integrated land use plans elaborated by district authorities / local stakeholders, and effectively applied to a landscape of approximately 30,000 ha.

21. Integrated Land Use Planning (ILUP) provides a mechanism for making comprehensive decisions about the use of land and natural resources. It sets the coordinated management direction for future uses of land and resources and allows for the evaluation of the success of management activities over time. ILUP is future-oriented and iterative, allowing plans to be adjusted in response to changing circumstances. Planning is an integral part of the management process for public lands and resources. It provides a means by which decisions are coordinated among responsible agencies and by which land use and resource management conflicts and issues are resolved.

22. The development and initial implementation of 2 district level integrated land use management plans will involve, in brief: identification of the best integrated land use options based on multiple criteria (economic, social and environmental) and the wider Oblast/national planning context; identification of the districts long term planning goal and mid-term objectives; and development of practical plan of actions (including responsibilities, timing, indicators of progress, financing).

23. These plans will incorporate the best practices being replicated in the districts as part of efforts to improve the overall productivity and sustainability of land use. In order to ensure that the

integrated land use planning is a locally driven process, and that these plans have full ownership by all the district level stakeholders, the project will first undertake a process of building understanding about the benefits such planning can bring and the best means and approaches for carrying it out. In particular this will involve the introduction of participatory approaches new to local district authorities that will better ensure full participation of key stakeholders and public. These include bottom-up land use planning processes that directly involve actual land users in the process of defining, within the realistic context of the district and the national planning environment, mid to long term land use options and objectives and ensure that their inputs, agreement and role in implementation is clearly defined and transparent.

24. The project will then provide a mainly facilitator role in the process of the actual plan development in order to ensure it has the required ownership (i.e. that actual land users, local authorities, and local representatives of ministries are the primary drivers of its contents and that all have been fully consulted and have given consensual support). Though this may be a more difficult approach than the project leading the process or undertaking it directly, it is important in terms of building stakeholders consensus and commitment to practical implementation. Finally, the project will provide strategic technical support to the district stakeholders to initiate practical implementation of the plans and to build the experience necessary to bridge the inevitable gaps between planning and reality.

25. An initial methodology for undertaking the district level ILUM planning process was defined during the project preparation phase, based on international best practice, and the practical experience gained by UNDP in Uzbekistan from similar district and community level planning efforts. The latter is extremely important in ensuring that the methodology and goals of the district planning process remain realistic to the very rigid and centralized system still prevalent in Uzbekistan today and that the resulting plans will be implementable. As this will be the first time such district level land use planning has been systematically attempted, it will be important to carefully assess the lessons learned during the process and, on that basis, develop tools and guidelines for facilitating the replication of such planning in other districts.

26. Finally, it should be noted that the 2 districts where ILUMPs are to be developed offer the scope for demonstrating ILUM planning in an area with a transition of irrigated, pastoral, forestry/conservation area. Demonstrating this in transition areas while being an ideal approach from a “lessons learned” perspective, is also more complex. In the Karakul district, land use is comparatively simple with desert pasture (and some desert saxaul forestry areas), plus small area of irrigated/household plot territory. However, in Zaamin there is a much more complex land use situation with transition from irrigated to pasture, from pasture to rain fed arable, pasture to forestry, and forestry/pasture to conservation area/recreational areas. There is therefore scope within the two selected district for different complexities of land use planning from which useful practical lessons can be derived.

Output 1.2.2: One hundred and forty district level stakeholders receive training in the development and implementation of integrated land use planning and have knowledge / experience necessary to continue the application of such planning in the long term.

27. The project will disseminate materials developed on the basis of experience from Output 1.2.1 through regional workshops for representatives of district authorities and land use management agencies from throughout the relevant target landscapes. The workshops will also be attended and supported by key national actors from GKZ. Additionally, study tours for stakeholders from other

selected districts within the project's target landscapes will be organized in order for them to see the results of implementation of ILUM planning, and to talk to those involved in the process. Finally, the guidelines and replication materials will be fed into the long term technical and vocational training reforms which form a key aspect of the project capacity building efforts (see Component2). Conservatively, the project aims to directly build the awareness and practical capacity of 140 key stakeholders from other districts and the provincial (oblast) level to undertake such planning in other districts. However, it is expected that in total some level of improved capacity in this regard will be much further reaching. During the process of disseminating the experience of the 2 districts in regard to ILUM planning, the project will assess level of opportunity to support replication in other districts and will facilitate such replication if feasible.

COMPONENT 2

28. This Component of the project is targeted at addressing the issues and constraints described under Barrier 2. In essence, this component of the project aims to further the re-orientation of the existing land use "mind-set" that is a legacy of the former Soviet Union centralized management approach, towards more strategic, long term, holistic and integrated approaches. Clearly this is a massive undertaking and the project must retain a realistic expectation of how far it can achieve this and the best strategic approach by which to have the maximum long term positive impact.

29. To this end, the project will support the development of an improved and more integrated policy / strategic planning environment, and on that basis initiate and lay the ground for legal and institutional framework changes that will allow the effective translation of land use management policy into practice in arid mountain, desert and semi-desert landscapes of Uzbekistan. If successful, this will create a suitable enabling environment for the land use best practices demonstrated by the project in its two target districts to be replicated in the future in other districts within non-irrigated desert, steppe or mountain landscapes.

30. Implementation of activities and the development of policy, legal and institutional results under this component will benefit significantly from the practical experience gained under component one. The process of applying different approaches to land use management and planning will help identify the concrete issues that need to be addressed and provide a basis for justifying such changes to high level decision makers and policy makers and national institution staff that are often insulated from the ground reality of land use in Uzbekistan. The following three outcomes are envisaged in this component:

Outcome 2.1: Enhanced policy, legal, and institutional framework for implementing integrated and sustainable management of rain-fed arable land, rangeland and forests

Output 2.1.1: Updated or newly developed key sector policies and related strategic national planning documents for arid non-irrigated land use.

31. In terms of policy development, the project will support national government stakeholders in elaborating, or updating and refining existing policy documents and strategic long term plans related to pasture, livestock, forestry, rain-fed arable agriculture and other land use issues with direct relevance to them (for example fodder production in irrigated areas). At this stage, the project has identified the following specific areas for policy support.

32. Strategic national development policy for livestock and pasture use: Currently no real long term strategic planning is in place for the livestock and pasture use sector within the overall

development planning of Uzbekistan. Past planning such as the Department of Livestock's (MAWR) "program on improvement of financial state and economic recovery of the karakul sheep-breeding farms (2007-2012)" and annual "Livestock Sector Development Programs" are operational/administrative in character but not strategic. The absence of strategic planning that looks at the full potential of extensive livestock management and pasture lands in the overall development of the country and the need to sustain this over the long term means there is no unified vision about the direction the sector should be trying to take. Inevitably, the lack of such strategic direction means that practical changes on the ground have been slow (or non-existent) and unsystematic. In order to overcome this reform inertia, facilitate more concerted action to improve pasture use, and to undertake positive legal, institutional and operational steps, the project will support the development of such a strategic policy or plan by the relevant national agencies responsible as a basis for consensual action. This will be implemented by a) elaboration of various long term development scenario options for the sector, b) provision of an opportunity, via workshops and other consultative events, to clarify preferred options and reach general consensus, c) support the drafting of a strategic plan/policy for review and consideration by the government.

33. Strategic national development policy for forestry: Currently there is no strategic long term policy for the forestry sector within the overall development of Uzbekistan. There are, however, five-year "Forestry Development Programs" for each oblast that are approved by MAWR. However, these plans cover only forest fund territory managed by the Main Administration of Forestry (MAWR), are operational rather than strategic in purpose, and not national in organization or scope (focused at individual oblast level). A National Forestry Program which was more strategic and national in character was developed with the support of FAO in 2009 but this was never approved or endorsed by the government. Current policy focuses entirely on forests as having only an environmental security role and being state managed without recognition of the significant socio-economic values it has for both forestry enterprises and rural populations. The role of non-state actors and the importance of economic incentives are not adequately recognized. These limitations in current policy and management are key drivers behind forest degradation and loss and the limited success and scope of reforestation efforts. The project will undertake activities with the Main Administration of Forestry (MAWR) to revisit the National Forestry Program document and support further consultation and analysis of future policy directions. On this basis consensus will be reached within the Main Administration for Forestry, GKZ, The State Committee for Nature Protection, and others regarding the long term strategic development of forestry in Uzbekistan and approaches for achieving it. Subsequently, the project will support the finalization of a revised policy, facilitate its approval by government, and raise awareness about its contents.

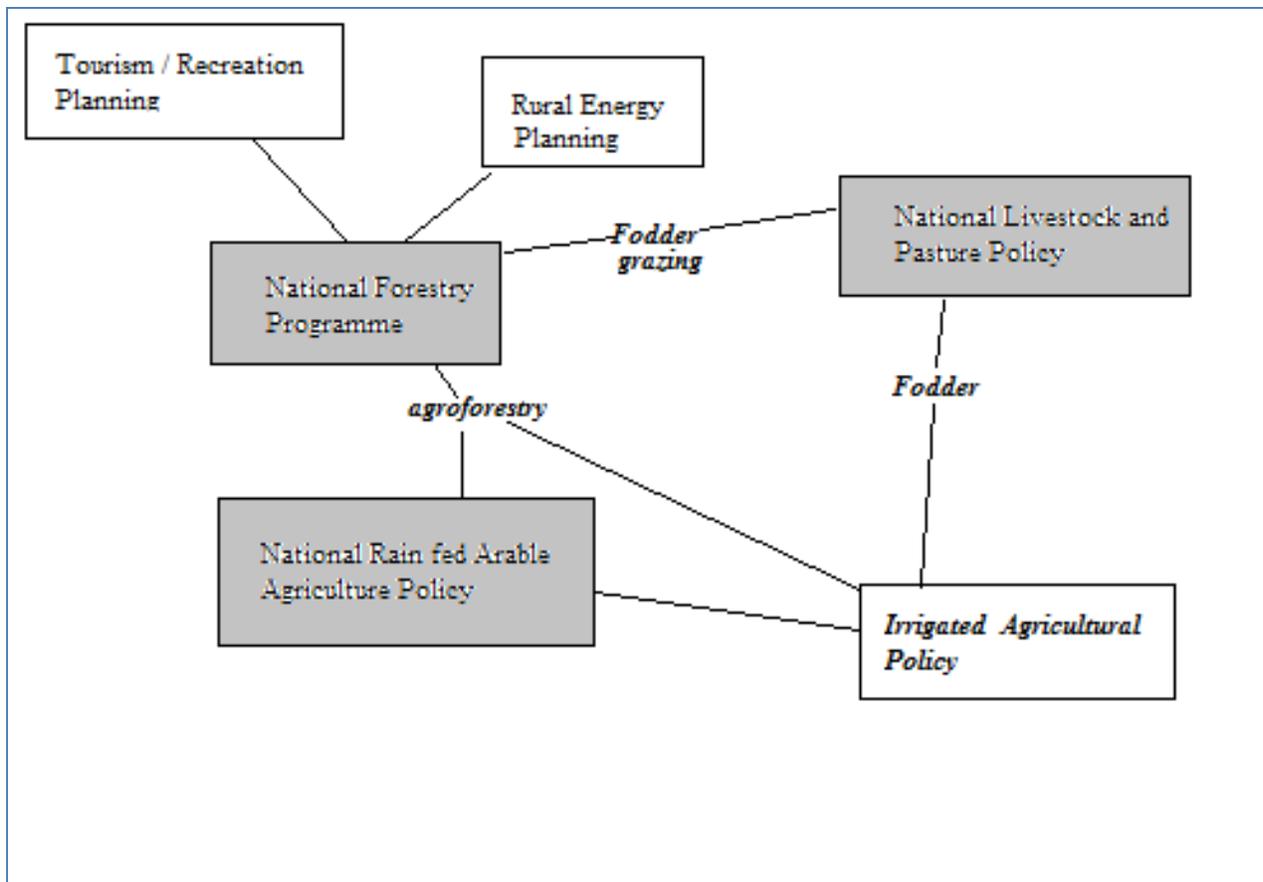
34. Strategic policy for development of sustainable rain-fed arable agriculture: Currently there appears to be no long term strategic planning regarding the development of the rain-fed arable agriculture sector, probably due to its rather limited significance in terms of production compared to the irrigated sector. However, it does make a contribution to agricultural production and, more importantly, failure to take actions to improve sustainability will have very negative environmental results. As noted previously, the fertility of these areas has been constantly declining over the past 20-30 years and there is a growing risk of these areas descending into "dust bowls" with severe wind blow erosion, little vegetation and no land use value. It is important therefore to clarify what development contribution rain-fed arable lands can, and should, make to the Uzbekistan economy on a sustainable basis and what needs to be done to achieve this. The project will again support a process to develop a strategic development plan for rain-fed areas by MAWR through the following means: technical advice on viable options and sustainable approaches (partly based on practical

experience in Zaamin district); workshops and consultations to reach consensus within and between the MAWR and stakeholders in the districts where rain-fed agriculture is practiced; and support to actual elaboration of a policy or strategic planning document.

Output 2.1.2: Linkages and synergies between the above sector policies and strategic planning documents to improve integration of efforts by relevant national institutions.

35. During the process of developing the above sector policy/ strategic planning documents, the project will support GKZ in the identification of important cross-sector considerations and issues. (The figure below captures the expected synergies between different sectors.) The project will instigate a dialogue between the sector stakeholders on a sector to sector basis as well as multi-sector discussions via working meetings and workshops. On the basis of agreement and consensus developed through these dialogues, cross-sector issues and collaborative approaches / mechanisms will be integrated into individual sector policy / strategic planning documents. An over-arching multi-sector briefing paper itemizing these will be developed as an annex to each sector document, and as a guidance document for the inter-ministerial land use coordination commission.

Figure 1. Expected Linkages between Land Use Sector/ Sub-sector Policies/ Strategic Planning Documents



Output 2.1.3: Relevant legislative changes and regulatory instruments developed and enacted on the basis of field experience gained in Component 1.

36. During project development, key areas of legislative change required to bring reforms up-to-date and to remove barriers to effective land use by actual land users in non-irrigated landscapes (shirkats, dekhans, and leshoz) were broadly identified. The task of the project will be to support national stakeholders to reach consensus on what exact form legislative change will take in order to fit policy and strategic planning objectives. Once this is done the project will prioritize those that it supports changing during the project lifetime, those it will help redraft (as a basis for post project enactment), and those it will only further facilitate dialogue and clarification on (as a basis for post project drafting and enactment). Some specific areas that legislation clearly needs upgrading are:

37. Pasture use: Pasture use is currently not covered by any specific law and is managed and regulated under numerous laws and by-laws including the Land Code, Law “On farming entity”, Law on Agricultural Cooperative (shirkat), the Law on Dekhan Farms, various decisions of Cabinet of Ministers, etc. Clearly there is a need to adjust the legal instruments for managing the rational use of pasture, but at present there is no clear consensus on whether this is best done through a specific pasture law or through amendments to existing laws and bylaws, and inclusion of better mechanisms to implement them. The project will facilitate achieving this clear consensus and then implementing it (i.e. development of a pasture law or revisions to existing laws or both).

38. A priority to address is the current legal framework for shirkats and dekhan farms which are clearly deeply flawed. Shirkats were established from former kolkhoz (collective farms) as part of government reforms to transfer land use from direct state control to citizens. Shirkats are theoretically livestock cooperatives (Resolution of the Cabinet of Ministers No. 486 of 2003, “Model agreement on long-term lease of land plot by agricultural cooperative”) but in practice their governance and management differs little from kolkhoz and their success in economic or rational land use terms is extremely poor. They suffer from having few of the advantages of either private or state entities but all the disadvantages of both. There is a need to carry out some fundamental adjustments to their structure to create really viable cooperative farms, or to break them up into private farms (or a combination of both approaches). A very clear legal framework for doing this will be necessary and a clear cut mechanism for oblast and district authorizes to practically enact it worked out. In the case of dekhan farmers, the main issue is their lack of recognition within the way the current legislation is implemented. Given the growth of rural populations, the number of livestock held by them and the ineffectiveness of shirkats, this is a recipe for pasture and socio-economic disaster and must be addressed. A better mechanism for allocating tenure and regulation of dekhan pasture use is required and mechanisms for implementing this (such as pasture user groups etc.) given legal basis. Other priority areas where legislative change is required will be identified during project implementation on the basis of practical field experience and detailed consultation with project stakeholders.

39. The project’s role in the context of new or revised legislative development will be to facilitate the identification of legal options, in the context of any new policy or strategic plans, and to help the building of consensus on what concretely should be done. It will then provide direct technical support to elaborate the chosen options based on practical feedback from field activities under Component 1. In practice this will include: preparations of specific assessments of different legal options for achieving new policy or strategic objectives; workshops to review these options and build consensus; direct support to elaboration of laws and legal instruments; guidelines on how to achieve practical implementation (phasing in) of new legislation, including the institutional

changes/adjustments required; and preparation and dissemination of awareness materials that build commitment, understanding and support for them.

Outcome 2.2: Adequate technical and managerial capacity for INRM at all levels of land use institutions for the development of policies, legislation and field operations (FA Outcome 3.1)

Output 2.2.1: National Coordination Council for Land Monitoring (coordinated by the State Committee for Land Resources and Cadastre) with appropriate set of documents defining institutional responsibilities for ensuring better integration of planning on rain-fed arable land, forestry and rangeland.

40. The project will specifically support changes to the National Coordination Council for Land Monitoring (under the State Committee for Land Resources and Geocadastre). The project will help assess the appropriateness of its mandate, how its mandate could be better achieved and on this basis provide specific recommendations and draft a set of documents defining institutional responsibilities for ensuring better integration of planning, particularly on forestry, rangeland and rain-fed arable agriculture. Furthermore, based on work undertaken under Output 2.1.1 the project will provide the commission with a briefing document that concretely details priority areas for better integration of planning and coordination/collaboration of different sectors, and the specific means by which to do this that have been discussed and agreed by the national land use department personnel directly responsible for policy enactment.

Output 2.2.2: Strengthened capacity of key institutions (Department of Livestock, Poultry, Apiculture and Aquaculture, and the Main Administration for Forestry)

41. This output is crucial in order to ensure the long term sustainable application of better land use practices. An improved legal, institutional and policy framework alone will not have any benefits unless there is the technical and managerial capacity to put it into practice. To achieve such an improvement in sustainable land use capacity will require both a short term and a long term approach: firstly, it will be necessary to build adequate immediate capacity to initiate change within the context of the project; and secondly to help establish mechanisms that ensure the longer term development of relevant national capacity to continue to develop the sustainable management of arid desert, semi-desert and mountain landscapes in the long term, post project.

42. Short term capacity development which is the focus of this output will be aimed at enabling project implementation and will be targeted to key stakeholders involved at different levels (from central government decision makers down to local authorities and national agency representatives), with the intention of achieving a shared understanding of the issues, opportunities and intended activities, outputs and objectives of the project. Capacity development will focus on building awareness of the project's objective and rationale, introducing sustainable integrated land use management concepts and approaches and helping stakeholders to apply them within the framework of the project's demonstration activities in order to ground training in reality. Training activities will use a mix of approaches based on existing experience UNDP has in Uzbekistan, ranging from relatively formal training sessions, to practical workshops and field visits.

Output 2.2.3: Long-term vocational and academic training curricula and programmes at professional colleges, lyceums, and universities to enhance national capacity to sustain the application of sound land use management.

43. Support to the longer term development of in-country capacity to plan and effectively apply integrated land use management will be focused at two levels:

44. (a) The building over time of a cadre of central and regional government personnel who have a good conceptual understanding of basic sustainable land use management issues and can apply them in national and regional development. The development of such a cadre to gradually replace those currently in place whose education and understanding is based on the legacy of Soviet era approaches is essential. The project will support the introduction of suitable materials into the curriculums of key educational institutions responsible for producing the majority of such personnel. The project will additionally undertake training of teachers and lecturers of such establishments regarding new concepts and approaches in order to maximize the effective impact of these additions to curriculums.

45. (b) At the district level, the project will support the considerable on-going investments by the government in district vocational and agricultural colleges through “training of teachers” (ToT), curriculum development which directly links local livelihood priorities and effective land use, and links to field activities being undertaken by the project (land use best practices and ILUM planning). Furthermore, the project will work with local schools to ensure that basic concepts of key land use management activities relevant to the daily lives of students (such as carrying capacity and grazing rotation, concept of sustainability, ecosystem services, etc.) are included into existing teaching materials. In these two ways the project aims to raise over time the baseline knowledge of the rural population on such issues to a level where it will positively impact land use decision making at the ground level.

Outcome 2.3: Improved access of policy makers to tested INRM best practices and methodologies for improved land management

46. The project will undertake a compilation, processing, and dissemination of the knowledge gained about integrated natural resources use planning with the aim to systematically bring together the results of the project, and from that develop materials and tools which will provide a solid basis for national replication. Specific outputs include:

Output 2.3.1: Guidelines on good practices for sustainable natural resource management.

47. Guidelines on good practices for sustainable natural resources management will be developed based on the practical experience gained during the implementation within the two target districts and original experience of those who initially piloted them. These guidelines will be designed for the practical use and application of normal farmers and land users, as well as by district authorities and representatives of relevant national institutions at field level, and vocational training colleges. Therefore, great emphasis will be placed on ensuring that these guidelines are readily accessible to the intended audience and will utilize as much as possible simple non-technical language, easily understandable diagrams and pictograms, feasible actions and readily available materials, step-by-step instructions, and “trouble-shooting” guidance. Additionally, efforts will be made to ensure that they are easily re-producible (i.e. do not contain means of presentation, such as colour coding, etc. that will be lost from black and white printing or photocopying). This will greatly increase their potential further dissemination post project.

Output 2.3.2: The methodology for carrying out Integrated Land Use Planning (ILUP) documented, published and disseminated to facilitate replication.

48. The project will undertake an in-depth evaluation of the effectiveness of the methodology used to develop the two target district ILUPs and specifically identify major difficulties, adaption’s required and practical lessons learned that will be of value when trying to replicate the process.

Based on this evaluation, a pragmatic guide for the replication of such planning at district level will be developed. Efforts will be made to ensure that it is designed in a way that is easily utilizable by target users, i.e. other district authorities and stakeholders. In order to validate this, the relevant district personnel of the two target districts will be asked to evaluate the final guidelines and help identify areas in which it can be improved in terms of practicality and accessibility for other district users. Based on their feedback a final version will be developed and published.

Output 2.3.3: Mechanisms for practical dissemination and application of land use best practices and the ILUP methodology, utilizing the experience and methods developed under CACILM.

49. The project will utilize both direct and indirect mechanisms to achieve maximum and targeted dissemination of relevant materials and guides produced by the project to key land use stakeholders and decision makers. Direct mechanisms will include:

50. Direct delivery of relevant guidelines and materials to identified target users: The project will organize the delivery of materials to target stakeholders, for example, copies of sustainable land use best practices and ILUP guides will be delivered directly to district authorities, district vocational colleges, etc. on the basis of a pre-defined list. Likewise, policy documents, new legislation (with explanations of their implications and practical application) will be delivered to national, regional and district state institutions and farmer associations / support groups and education facilities.

51. Workshops and dissemination events: The project will follow up the direct delivery of materials generated by the project with strategically planned workshops and other events in order to highlight their existence and clearly demonstrate their practical “real life” application. This includes sub-provincial workshops (i.e. workshops for a number of similar pre-defined groups of districts), provincial workshops, and a limited number of national workshops and profile raising events to highlight the issues and follow through on building awareness of the materials previously delivered. At a national level, an “open day” exhibition will be organized to present the achievements of the project, with specific focus on the most successful best practices and ILUP which will be presented by representatives of the target district authorities and participating land users. Depending on the success of this event, similar provincial events may be organized.

52. Cross fertilization visits / study tours: Study tours / cross fertilization visits of stakeholders from other selected districts within the projects target landscapes will be organized in order for them to see in practice the way and results of applying land use best practices and ILUM planning, and to talk to those who were practically involved in the process of applying them. Additionally, key provincial and national stakeholders and decision makers will be invited to undertake such visits in order to build a practical awareness of the issues faced on the ground and the means that the project tested for addressing them.

Indirect mechanisms will include:

53. Multiplier / dissemination agents (extension/education institutions): The project will make use of the strengthened technical and vocational training colleges and institutes (see project capacity building efforts under Output 2.2.3) to act as multipliers and dissemination agents for the projects materials. The project will support such agents to integrate materials provided by the project results into their training curriculums and in this way ensure practical use and long term application.

54. Media and Web based dissemination: The project will utilize the media, particularly local newspaper, radio and TV, to build awareness of the main issue and solutions to priority land use in the target landscapes. UNDP’s previous experience in effectively undertaking such activities will be

put into practice including use of short films and radio programmes that focus on the very practical field level aspects and utilize actual land users and authorities that were involved in the project. Emphasis will be place on the real life interests and concerns of rural populations and land use managers and the thus the need to prompt a “farmer-to-farmer” type of approach rather than “technical/academic to farmer” one. Additionally the project will utilized web based platforms but materials and the target audience will be different. Web-based materials will focus on providing useful source materials for national and provincial state personnel, NGO’s and development actors.

55. National Development Agency networks and regional initiatives: The project will further aim to take advantage of existing networks within UNDP and partner development agencies and initiatives to achieve dissemination and practical application of project practical guides and materials. The project will work with the UNDP CO to identify existing projects that can make use of or effectively access key land use players and integrate into their activities the project materials. This would include, for example, rural development/poverty reduction orientated and governance related projects. A similar approach will be utilized with other UN agencies and relevant partner agencies such as GIZ, ICARDA, FAO, UNEP, etc. Finally, as a project under the umbrella of the GEF financed CACILM initiative, the project will take full advantage of the opportunities it provides to disseminate and share experience within the region and with relevant stakeholders.

Incremental Cost Justification and Global Benefits

56. In the alternative scenario enabled by the GEF the previously described barriers to sustainable and integrated pasture and forest management in the desert, semi-desert and mountain landscapes of Uzbekistan will be addressed. The GEF will invest in on-the-ground activities at selected districts to change the baseline course of actions, and support the institutional, policy and methodological mechanisms needed to sustain the new approach after the project end. The overall development goal towards which the project will contribute is a reduction in competing land use pressures on natural resources of arid landscapes in Uzbekistan. The more specific project objective is to improve the sustainability of the two major forms of land use in these areas – rangeland and forestry – and to better integrate their development. Such integration is imperative for the sustainability of both land uses, and for the long term environmental and socio-economic stability of communities inhabiting these landscapes.

Table 2. Comparison of the baseline scenario with the GEF alternative scenario

Current Practice	Alternative to be put in place by the project	Selected Benefits
<p>Overgrazing</p> <ul style="list-style-type: none"> – exceeding carrying capacity by 5 times resulting in increased erosion. – erosion resulting in formation of moving sands 	<p>Improved pasture management:</p> <ul style="list-style-type: none"> Rotational grazing to maintain pasture quality practiced by both shirkats and dekhans/ households; Decrease grazing rate of moderately degraded pastures ; Increased fodder availability allows reduced use of autumn and winter pastures 	<p>Pasture restoration and sustained use:</p> <p>Improved vegetation cover and productivity of rangelands.</p> <p><u>Baseline- Karakul</u>: out of total of 338,101 rangeland 55% (185,000) is degraded with yield at or below 0.17 t /ha of dry matter.</p> <p><u>Zaamin</u>: out of 127,000 ha rangelands 75% is degraded (95,000 ha) with yields at or below 0.3 t/ha of dry matter.</p>

Current Practice	Alternative to be put in place by the project	Selected Benefits
<p>and dust storms in desert and semi-deserts, topsoil loss and mudslides in mountains causing large damages</p>	<p>Increased investments in repair and maintenance of key pasture use infrastructure (wells) allows greater flock mobility</p> <p>Positive economic incentives for sound pasture management by shirkats.</p> <p>Improved land tenure arrangements for both shirkat and dekhans / households encourages long term sustainable pasture management</p> <p>Restoration: Set asides and sowing with more productive species</p>	<p>Reduced Carbon emissions from above and below ground.</p> <p><u>Baseline - Karakul</u>: the nearest studies conducted to Karakul are from Karrykul (Turkmenistan) with similar vegetation cover. Total CO₂ sink capacity reported is close to 151±121 g CO₂ m⁻²/season during the growing season.</p> <p><u>Zaamin</u>: study conducted for the ecosystem nearest to Zaamin is from Karnap (Uzbekistan) with vegetation cover slightly different. Maximum and mean daily sinks reported are 11.7 and 6.5 g CO₂ m⁻²d⁻¹, respectively. Total CO₂ sink capacity of the rangeland vegetation is estimated 347±178 g CO₂ m⁻² during 111 days of growing season in a year (data from actual project sites to be determined during project inception phase)</p> <p>Prevention of increase in moving sand and / or other erosion impacts: <u>Baseline</u>: Area of moving sands in Karakul district: Tbd in inception phase. <u>Zamin</u>: there are 10-12 ha of area under gully erosion, annually in April-May there are 2-3 mudflow events resulting in 1-2 ha of new gullies, also flood events result in top soil removal on area of up to 100 ha of rain fed wheat areas. Sheet erosion reaches 75% of the rain fed areas (levels - 22% low, 36% moderate, 17% strong).</p>
<p>Felling for fuel wood; overgrazing in forest territories; limited and inefficient investments in forestry</p>	<p>Sustainable forest management practices:</p> <p>Improved restoration and erosion control techniques widely applied</p> <p>Increased investment through widespread cooperative (joint) management best practices</p>	<p>Forest territories restored and sustainably used:</p> <p>Improvement in forest cover by 5-10%: (<u>Baseline</u> for Karakul: 62,000 ha of forest administration “fund” land is without forest cover; <u>Baseline for Zaamin</u>: 20,000 ha of forest fund land not covered with trees)</p>

Current Practice	Alternative to be put in place by the project	Selected Benefits
	<p>with local communities and private sector</p> <p>Better regulated and managed grazing in forest territories</p> <p>Wood collecting pressures reduced</p>	<p>Avoided emissions from forest degradation and carbon sequestration through forest restoration (<u>estimates for Karakul</u>: about 31,500 t/year is used as fuel wood which approximates to the release of 15,750 t/C/year; <u>estimates for Zaamin</u>: approximately 19,800 t/year is used as fuel wood (“changol”) which approximates to the release of 9,900 t/C/year)</p>
<p>Little systematic integration of land use planning at district level leads to pressures from competing resource use and missed opportunity for synergies.</p>	<p>Improved integration of District level land use planning.</p> <p>District authorities undertake systematic and integrated long term resource use planning</p> <p>Land use best practices are applied across sectors</p> <p>Synergies and integrated management approaches are applied across different land use sectors</p>	<p>Competitive pressures between land uses in desert, semi-deserts and mountain landscapes reduced:</p> <ul style="list-style-type: none"> • Decrease in grazing pressure in forestry territories • Improved forest restoration in non-forest territories • Reduced fuel wood collecting pressure in forest and pasture • Increased economic productivity of natural resource users

57. The primary global benefits will be generated in terms of reduction and reversal in land degradation of arid areas in Uzbekistan (particularly pasture land and forestry), thereby increasing soil carbon stocks and soil organic matter; carbon sequestration; decreasing soil erosion, landslides incidence and soil loss; reduction of sediment loads to rivers and streams, as well as siltation and damage to downstream water reservoirs. Secondary global benefits will be generated for biodiversity conservation through improved conservation prospects of globally important species and habitats harboured in arid mountain, desert and semi-desert areas affected by land degradation.

Cost-effectiveness

58. GEF funding in the proposed sustainable land management project for Uzbekistan is designed to be catalytic for achieving more sustainable and better integrated land management. The UNDP/GEF proposal will build upon both existing government efforts to improve the effectiveness and integration of land use, and past international development efforts to pilot more sustainable practices. This approach will maximize the cost-effectiveness of the overall project.

59. The project’s focus on up-scaling of existing best practices will streamline the process of demonstrating such practices at a wider scale as it will be building upon existing practical experience of their application in the field. Furthermore, as in most cases the adoption of the selected best practices will meet the immediate interests of land users, the project will apply a cost sharing

requirement whenever this is feasible. Project inputs towards the replication of such practice will be limited to technical advice through development of appropriate technical extension mechanism. As a result, the project will encourage private (land user) investments in sustainable land use and only need to cover a limited proportion of direct investments required to demonstrate and propagate the selected best practices. This will lead to better allocation of GEF and non-GEF resources and more focused interventions and investments. Regular communication and coordination with the other donor agencies working on similar interventions will be established via a project Technical Coordination group (see Project Management Arrangements) and will ensure that there are no overlaps of activities and full advantage of beneficial synergies are taken.

60. The project approach, with its emphasis on utilizing practical on-ground experience in order to “feed” into national policy planning, and legislative/ institutional reform efforts will help ensure a more efficient and cost effective process for such efforts. An alternative approach could have been to first address the policy and legal/institutional framework and then pilot its implementation in the field. This is considered to be highly inappropriate, on the basis that the policy, legal and institutional changes would not be “grounded” in the pragmatic realities of land use in the field. Furthermore, without a practical demonstration of what is possible in practice, there is a high risk of opposition and inertia at a national level to introducing new practices due to lack of faith in their viability.

Stakeholder analysis

61. Stakeholders in the project include relevant institutions and individuals at all levels from national ministries, regional and district governments, down to pastoralist farmers and rural communities. Key stakeholders and their roles differ in accordance with the different components of the project as they focus on addressing different barriers and issues within the planning and landscape management hierarchy. Component 1 of the project (“the wider adoption of relevant best practices on integrated rangeland and forestry sectors and preparation of district level integrated land use planning within a representative sample of arid mountain, semi-desert and desert landscapes in Uzbekistan”) mainly involves district stakeholders directly involved in land use i.e. forestry enterprises, shirkats, private farmers, local self-governing structures, and, most important of all, local communities and individual households/ dekhan farms. Local representatives of key national institutions such as the Ministry of Agriculture, State Committee on Land Resources, Geodesy, Cartography and State Cadastre, State Committee for Nature Protection and the District Authorities will also be important players. It is critical that national institutions are fully supportive, if district level planning is to work and best practices are to become common practice.

62. Component 2 of the project (“enabling cross-sector environment and knowledge management for integrated landscape management in arid mountain, semi-desert and desert areas of Uzbekistan”) involves mainly stakeholders at the higher national level, including MAWR (specifically departments dealing with livestock, pasture and forestry), the State Committee on Land Resources, Geodesy, Cartography and State Cadastre, and the Uzbek Karakul Sheep Company. Key stakeholders involved in the development of national policy such as the Ministry of Economics, Ministry of Finance and relevant departments of Cabinet of Ministers will also be important. Additionally, the inputs and feedback of practical management realities experienced by stakeholders in the field, such as the oblast and district authorities and the land users themselves (shirkats, forestry enterprises, farmers, communities, households) need to feed into the development of the national legal, policy and institutional environment. The table below summarizes the role of different stakeholders in the project.

Table 3. Stakeholders and their role in the project

Stakeholder	Stakeholder's interest and influence	Role/ responsibility in the project
National		
State Committee on Land Resources, Geodesy, Cartography and State Cadastre (Goskomzem, GKZ)	<p><u>Interest:</u> Primary, Lead Implementing Agency</p> <p><u>Influence:</u> Responsible for regulatory framework related to land use, land tenure and technical aspects of land use planning.</p>	<p>Project coordination from the side of the government as well as carrying out the following functions of direct relevance and importance for this project: systematic research on the demand for quality and variety of land cadastre information, publish it and make it available to stakeholders; the operation of an automated land information system; the maintenance of the state land cadastre in districts; the provision of aerial photos, land use plans and cartographic products; and topography data required for keeping land cadastre. GKZ will participate in the project in its capacity of land use planner and repository for land use information.</p>
Ministry of Agriculture and Water Resources of the Republic of Uzbekistan (MAWR)	<p><u>Interest:</u> Primary, direct interest</p> <p><u>Influence:</u> Responsible for policy development, planning, coordination and implementation of all activity related to productive land use, agricultural productivity and protection of natural resources.</p>	<p>Will participate in the project mainly through its Main Forestry Department and Main Livestock Department.</p>
Main Administration for Forestry of the MAWR	<p><u>Interest:</u> Primary, key participant</p> <p><u>Influence:</u> Responsible for overall development and planning, policy, and management of forest lands, open pastures and other lands under its jurisdiction, including protected areas and hunting reserves.</p>	<p>The Forestry Department brings a broad land use/water use perspective to the project with experience in afforestation, stock management, irrigation, and other technologies for land and water management. In both Zaamin and Karakul districts, branches of the Forestry Department will work closely with the project providing the experience it has gained over the years of planting saxaul as a means of consolidating mobile sand. In both Bukhara and Djizak Oblasts, the Forestry Department will provide its tree nursery facilities and other support as</p>

Stakeholder	Stakeholder's interest and influence	Role/ responsibility in the project required by the project.
Main Livestock, Poultry, Apiculture and Aquaculture Department of the MAWR	<p><u>Interest:</u> Primary, key participant</p> <p><u>Influence:</u> Responsible for overall development and planning, policy, and management of pasture lands, livestock sector development.</p>	The Main Livestock Department brings a broad pasture use/water use perspective to the project with experience in pasture enrichment, stock management, pasture watering, and other technologies for livestock management. In both Zaamin and Karakul districts, enterprises of the Main Livestock Department will work closely with the project providing the experience it has gained over the years of pasture rotation and animal breeding practices. In both Bukhara and Djizak Oblasts, the Main Livestock Department will provide support through the National Company "Uzbekkarakul" and other support as required by the project
Uzbek Karakul Sheep company (Uzbekkarakul)	<p><u>Interest:</u> Primary, key participant</p> <p><u>Influence:</u> authorized national company to oversee development of karakul livestock farming in Uzbekistan, increase livestock population, improvement of its productivity.</p>	The project will work closely with territorial enterprises of Uzbekkarakul and perform sector-specific, mid-level vertical management in all processes related to the utilization and improvement of pastures.
Uzbek Agricultural Research and Production Center	<p><u>Interest:</u> Primary, key participant</p> <p><u>Influence:</u> the Center unites agricultural research institutions, their branches, and experimental stations in all regions of the country. The Center is responsible for agricultural research.</p>	The project will work closely with representatives of major sectoral research institutions such as Grain Research Institute, Livestock Research Institute, Karakul Farming and Desert Ecosystem Research Institute, etc. functioning under the Center, to benefit from their knowledge and approaches, and disseminate project results.
State Committee for Nature Protection (Goskompriroda)	<p><u>Interest:</u> Direct interest as focal point for CBD; Primary, key participant</p> <p><u>Influence:</u> Responsible for overall environmental policy and regulatory framework. Advisory role on environment in general</p>	Providing oversight for the project, particularly on Biodiversity matters. It will play a mainly technical advisory role.

Stakeholder	Stakeholder's interest and influence	Role/ responsibility in the project
	and technical matters related to biodiversity conservation.	
Uzbek Tourism National Company	<p><u>Interest</u>: Tertiary</p> <p><u>Influence</u>: Responsible for overall development of tourism in Uzbekistan.</p>	Technical advisory role: Eco-tourism is a possible alternative income generation activity which may be identified during land use inventory of target districts as being a viable option. The Ministry will be consulted if this activity appears to have potential.
Ministry of Economy	<p><u>Interest</u>: Secondary</p> <p><u>Influence</u>: Responsible for overall national development and macro-level strategic planning, policy, integration of sectorial development inputs from other government agencies.</p>	Technical advisory role: Engaged in project implementation through membership in PEB.
Ministry of Higher Education	<p><u>Interest</u>: Primary, key participant</p> <p><u>Influence</u>: Responsible for education policy formulation and delivery of education services, including to remote local communities.</p>	Technical advisory role: The project will seek the advice of the Ministry in its development of special teaching and learning material for colleges and universities.
Uzbekistan Hydro meteorological Administration (Uzgidromet)	<p><u>Interest</u>: Primary, direct interest as focal point for UNCCD and UNFCCC, key participant</p> <p><u>Influence</u>: Uzgidromet is the Government agency in charge of providing the Government and other agencies with information on actual and expected hydro meteorological conditions and climate change, the level of environmental pollution, and the centralized compilation of associated information.</p>	Technical advisory role: Uzgidromet will participate in the project through its Hydro meteorological Institute (NIGMI), which is responsible for the implementation of the UN Convention on Climate Change and the UN Convention to Combat Desertification.
The Farmers' Council of Uzbekistan	<p><u>Interest</u>: Primary, key participant.</p> <p><u>Influence</u>: association of farmers, protecting and representing their interests in the</p>	Technical advisory role: The project will seek their advice on interests of farmers, systematic review of effectiveness of the land use in the farms, support in the supply of seeds, fertilizers, seedlings,

Stakeholder	Stakeholder's interest and influence	Role/ responsibility in the project
	government and other organizations.	pedigree livestock, and other resources as well as support for production, technological, transportation, legal, information, marketing, and other services.
The State Committee on Geology and Mineral Resources	<u>Interest</u> : Secondary <u>Influence</u> : authorized government agency for utilization and protection of underground waters. Uzbekhydrogeology is the stakeholder body in implementation of UN CBD and FCCC.	Technical advisory role: The project will seek their advice on forecasting location and depth of ground waters used for irrigation of lands and watering livestock on pasture lands.
Regional		
Regional governments of Bukhara and Djizzak oblasts.	<u>Interest</u> : Secondary, important participant. <u>Influence</u> : Responsible for meeting the direct needs of communities, and providing the regulatory guidance on resource management, etc. Aim to maximize social and economic benefit of communities through the optimum use of natural resources.	There will be an opportunity for the Oblast Offices to become connected with the project's electronic network thus accessing a vast amount of information
District authorities of Zaamin and Karakul districts.	<u>Interest</u> : Primary, important participant. <u>Influence</u> : Responsible for meeting the direct needs of communities, and providing the regulatory guidance on resource management, etc. Aim to maximize social and economic benefit of communities through the optimum use of natural resources within the district.	Coordination, implementation and support to all district level activities being supported by the project. Specifically, support via provision of office space and relevant land use staff; identification and selection of locations and participants for best practice implementation; development of ILUMP and implementation (with project technical support); comments and input to national policy, legislation and institutional changes.
Research Institute for	<u>Interest</u> : Primary, important	There will be an opportunity to use

Stakeholder	Stakeholder's interest and influence	Role/ responsibility in the project
Karakul Sheep Breeding and Desert Ecology	<p>participant.</p> <p><u>Influence:</u> Responsible for development of scientific approaches and practical implementation of innovative technologies in the field of pasture management and livestock breeding in the desert regions.</p>	<p>scientific and practical experience of institute staff in the project implementation activities related to improvement of the pasture management and livestock keeping in pilot areas of the project.</p>
Universities related to the project thematic focus (Tashkent State Agricultural University, Samarkand State University, Samarkand Agricultural Institute.	<p><u>Interest:</u> Secondary, key participant.</p> <p><u>Influence:</u> Responsible for development of methodology of study processes in the field of agriculture, biology, forestry and livestock.</p>	<p>The project will work with the universities to develop and improve the study materials for students and teachers in order to enhance study process for agricultural and environmental sciences. The goal is to further develop capacity of specialists and decision makers in the field of land use management.</p>
Local		
Community Administrations (Rural Citizens Council)	<p><u>Interest:</u> Primary, important participant and key beneficiaries.</p> <p><u>Influence:</u> Responsible for meeting the direct needs of communities, and providing the regulatory guidance on resource management, etc. Aim to maximize social and economic benefit of communities through the optimum use of natural resources within community.</p>	<p>Officials have a personal interest since they form part of the community. The communities are the prime beneficiaries of the project. The trials of innovative sustainable land management techniques will take place in the communities and they will inherit the outcomes and other products of the project. The communities have been involved in project development and they will continue to be involved in project implementation. The design of the project and the electronic connectivity that it will provide, will make them true partners in project implementation in many aspects of the project</p>
Local enterprises of sheep breeding (karakul shirkats) and forestry.	<p><u>Interest:</u> Primary, important participant and key beneficiaries.</p> <p><u>Influence:</u> maximizing social and economic benefit of business activity through the optimum use of natural</p>	<p>Implementation of the project approaches directly on territories of these enterprises. Joint analysis and evaluation of the project's practical results. Carrying out the study and learning seminars demonstrating advances of new agricultural and</p>

Stakeholder	Stakeholder's interest and influence	Role/ responsibility in the project
	resources within community.	forestry technique.
Local professional colleges related to the project theme	<p><u>Interest:</u> Primary, key participant.</p> <p><u>Influence:</u> Responsible for development of methodology of study processes in the field of agriculture, biology, forestry and livestock.</p>	The project will develop and improve the study materials for students and teachers at these colleges in order to enhance study process for agricultural and environmental directions. The goal is to further develop capacity of specialists in the field of land use management.
International		
International Centre for Bio saline Agriculture (ICBA)	<p><u>Interest:</u> Primary, key participant.</p> <p><u>Influence:</u> to demonstrate the value of marginal and saline water resources for the production of economically and environmentally useful plants, and to transfer the results of our research to national research services and communities.</p>	Carrying out joint actions on increasing fertility of the land and enriching pastures in the project areas. Joint publications and implementation of joint training seminars.
ICARDA	<p><u>Interest:</u> Primary, key participant.</p> <p><u>Influence:</u> the founding mandate is to promote agricultural development in the dry areas of developing countries. In cooperation with the Ministry of Agriculture and Water Resources and the Research Production Centre of Agriculture, it is implementing a number of projects on the improvement of farming systems in rain-fed lands by testing new varieties of leguminous and grain crops.</p>	In the framework of the project, providing test and dissemination of new varieties of leguminous crops in rain-fed lands. Joint publications and implementation of joint training seminars.
GIZ	<p><u>Interest:</u> Primary, important participant.</p> <p><u>Influence:</u> wide range of instruments and networks that</p>	Experience and information exchange in the field of pasture rehabilitation and use, income diversification of the population in the arid regions of

Stakeholder	Stakeholder's interest and influence	Role/ responsibility in the project
	flexibly and innovatively create values and empower people to shape their own development processes. Promote a market-oriented, ecological and social economic order and observe the principles of corporate responsibility. Ministry of Agriculture and Water Resources of Uzbekistan and GIZ are implementing a project "Sustainable management of pasture with participation of local community".	Uzbekistan.
MASHAW – Israel Centre for International Cooperation	<p><u>Interest</u>: Secondary, key participant.</p> <p><u>Influence</u>: agricultural programs deal with the introduction of modern technologies and agro-technical methods designed to increase the levels, sustainability and quality of agricultural production to ensure food security. It also concentrates on introducing effective support systems to enhance the economic viability of agriculture in areas such as marketing, storage and transport, the supply of agricultural inputs, granting of credit and finance to the agricultural sector and upgrading the work of extension services. In Uzbekistan, MASHAV supported the project on Sustainable Livestock Development. A range of projects on the seed zoning of food and fodder plant species.</p>	Training and intensive courses in different areas of the project. A study tour to raise awareness on the issues of agriculture in rain-fed and arid lands in Israel. Joint publications.
OSCE – Organization for Security and Co-operation in Europe	<p><u>Interest</u>: Secondary, key participant.</p> <p><u>Influence</u>: In cooperation with</p>	Improvement of the normative-legal documents in the field of land use relating to the project theme. Joint publications and implementation of joint

Stakeholder	Stakeholder's interest and influence	Role/ responsibility in the project
	the Ministry of Agriculture and Water Resources and the Council of Farmers, it implements a number of projects on improvement of legislative documents in the field of agriculture and water resources.	training seminars.
CACILM	<p><u>Interest:</u> Primary, key participant.</p> <p><u>Influence:</u> CACILM's goal is to restore, maintain, and enhance the productive functions of land in Central Asia, leading to improved economic and social well-being of those who depend on these resources while preserving the ecological functions of the land. CACILM implements a comprehensive and integrated approach to sustainable land management that would produce benefits at the local, national, and global levels. The SLM projects in Uzbekistan are under the umbrella of CACILM.</p>	Joint training efforts in the field of sustainable land use, and participation in regional programs for improvement of land use in Central Asia.

Country Ownership: Country Eligibility and Country Driven-ness

63. In 1995 the Oliy Majlis (Parliament) of the Republic of Uzbekistan ratified the United Nations Convention to Combat Desertification. As a party to the CCD, Uzbekistan is committed to implement the 10-year strategic plan and framework to enhance the implementation of the Convention (2008–2018) which was adopted at COP8, Decision 3 (Madrid in September 2007). The project will specifically contribute to addressing the following operational objectives and expected outputs of the Strategy:

Objective 1 - Advocacy, awareness raising and education:

- Outcome 1.1 Desertification/ land degradation and drought issues and the synergies with climate change adaptation/mitigation and biodiversity conservation are effectively communicated among key constituencies at the international, national and local levels.

Objective 2: Policy framework

- Outcomes 2.1: Policy, institutional, financial and socio-economic drivers of desertification/land degradation and barriers to sustainable land management are assessed, and appropriate measures to remove these barriers are recommended,
- Outcome 2.2: Policy, institutional, financial and socio-economic drivers of desertification/land degradation and barriers to sustainable land management are assessed, and appropriate measures to remove these barriers are recommended.
- Outcome 2.3; Developed country Parties mainstream UNCCD objectives and sustainable land management interventions into their development cooperation programmes/projects in line with their support to national sectoral and investment plans.

Objective 3: Capacity Building

- Outcomes 3.1: Countries which have carried out the national capacity self-assessment (NCSA) implement the resulting action plans to develop the necessary capacity at the individual, institutional and systemic levels to tackle desertification/land degradation and drought issues at the national and local levels.

Project consistency with national priorities and plans

64. The project responds to the priority actions identified in the National Action Program to Combat Desertification (NAPCD, 2002). The NAPCD lists a number of key priorities, and the project will directly contribute to realizing some of these priorities. In particular, the project will address the following NAPCD general recommendations:

- Improving land organization in order to prevent its degradation and secure environmentally and economically productive patterns based on landscape and environmental norms
- Improving degraded rangelands and hayfields
- Restoring forests and growing them on lands of the state reserve and other territories suitable for it
- Fixing sands to protect rangelands, populated areas and economic facilities
- Developing economic mechanisms for ensuring more sustainable use of natural resources
- Establishing a legislative framework for securing the introduction of standards and norms of land use

65. The project objective is also a key priority identified by the National Biodiversity Strategy and Action Plan (BSAP, 1998) which emphasizes the protection of all biological resources including forests and pastures, as well as the restoration of structures and functions of degraded ecosystems. The project is also directly in-line with the proposed actions contained in the later unapproved BSAP revision. The project will also directly contribute to a number of other endorsed policy documents. The Government, in coordination with international organizations, is promoting a deeper understanding of the problems of living standards, and, in 2003, there were two initiatives on this topic namely, the World Bank's "Living Standard Assessment" and a UN research study on the "Connection between microeconomic policy and decreasing the levels of poverty in Uzbekistan". In

2003-2004, the Asian Development Bank provided technical support to develop “Strategies for improving living standards among the population of Uzbekistan” (also known as Living Standard Strategies, or LSS). On the basis of these documents the full Welfare Improvement Strategy (WIS) was developed. Within the WIS there is much emphasis on the need to transform the agricultural sector and achieve better livelihoods through improved and sustainable natural resource use. With the support of FAO, Uzbekistan has also prepared an initial National Forestry Plan (2010) which includes emphasis on the need to re-orientate and better integrate the forestry sector into rural community livelihoods.

Sustainability and Replicability

66. **Institutional and financial sustainability:** The project will instigate institutional change with the true understanding and support of the institutions themselves for the change to be effective and sustainable. The major aim of the project is to build the experience, know-how and technical capacity of key national, regional and district level institutions so that they themselves are better able to understand and deliver change that responds to the evolving land use situation in Uzbekistan. This is the most significant factor in making such institutions sustainable and continuing to be sustainable despite inevitable climate and economic “shocks” that may occur in the future.

67. As was highlighted previously, the current approaches to land use management in the non-irrigated landscapes are, at this time, largely unprofitable and are significantly subsidized by the state in various indirect ways. The project seeks to bring about adjustments and reforms to the current land use system and introduction of land use management practices that increase sustainability but also improve mid to long term productivity and profitability. Intrinsically, this will build the improved financial sustainability of land use systems. A reduction in the direct management role of the state and an increased role of the private sector will help drive forward on-ground adoption of better practices and investments in land use. As a result the financial viability and sustainability of land use in non-irrigated landscapes will be improved.

68. **Replication:** The Project Manager will ensure the collation of all the project experiences and information. This knowledge database will then be made accessible to different stakeholder groups in order to support better decision-making processes in the project target landscapes. The project will identify important best practices and lessons learned which can be of value to all key stakeholders, specifically national decision makers in GKZ, MAWR (Livestock department and Main administration for Forestry), Ministry of Economy, Education and Finance, relevant oblast and district authorities, important development actors in the country. These best practices and lessons learned will be documented, and guidelines for facilitating their wider replication and “up-scaling” will be prepared. Subsequently, the project will make systematic efforts for their dissemination including publishing in written and digital format, dissemination workshops and cross-fertilization study tours and film. Adequate budget for this purpose has been included.

Criteria and Process for Selection of Target Districts

Criteria and Process

Step 1: Consultations and expert opinions were sought from specialists with extensive experience in the agricultural sector as a whole and from those who specialized in specific areas (such as rain-fed agriculture, forestry, animal husbandry, etc.). For this purpose, multiple consultations about suitable pilot areas were held with specialists of the national partner State Committee for Land Resources,

Geodesy, Cartography and State Cadastre (Land Use Design Institute, State Research Institute for Soil Science and Agro-chemistry), Ministry of Agriculture and its organizations (Horticulture Research Institute named after Shreder, Scientific Production Centre, Main Forestry Department, other institutions).

Based on the advice from the specialists of the national partner Goskomzemgeodezcadestr (GKZ), and Ministry of Agriculture, the following districts were visited Romitan, Jondar, Shofirkon and Karakul districts of Bukhara region; Farish, Bakhmal, and Zaamin districts of Jizzakh region; and Mubarek district of Kashkadarya region, to collect preliminary data and to discuss the problems in non-irrigated areas.

Region	Districts Visited	Districts Selected
Jizzak	Bakhmal, Zaamin, Farish	Zaamin
Bukhara	Karakul, Jondor, Romitan, Shofirkon	Karakul
Kashkadarya	Mubarek	

In parallel, consultations were held with teams of other UNDP projects implemented in the areas of interest as a pilot site for this project, in particular, "Local Governance Support Project" in Zaamin district of Jizzakh region, and "Climate risk management in Uzbekistan" which is carried out in Kashkadarya region.

Step 2: Selection based on quantitative indicators. For the selection based on quantitative indicators the criteria were defined, which can be divided into the following categories: areal (land types such as irrigated land, pasture, forestry and land area), demographic, environmental, and socio-economic. To determine the categories, the group considered that criteria should reflect current situation, correspond to the goals of the project, and more importantly, have available data that is either already collected by different organizations or easy to collect and be easily accessible.

Criteria in areal category (i.e. land area) were used as a priority in the selection of pilot districts. This category has helped to reduce the number of regions under consideration from the initial 157 districts to 28 districts, and to focus on the collection of information for the more detailed criteria (percent of the rural population, pasture per livestock head, pasture degradation, gross domestic product).

This approach allowed to compare and to mutually substantiate (i) specialists recommendations, and (ii) selection based on quantitative indicators for the selection of a pilot districts. The final list consisted of 9 districts out of which 2 districts were selected based on factors such as logistics (distance or proximity of the project areas, infrastructure, etc.), the representativeness of the landscape in accordance with the project topic, level of interest and readiness to support project initiatives at various levels (local, district, regional and national partners).



Figure 2: Contextual map of Uzbekistan showing location of project sites

Land and Livestock Resources in the Karakul District

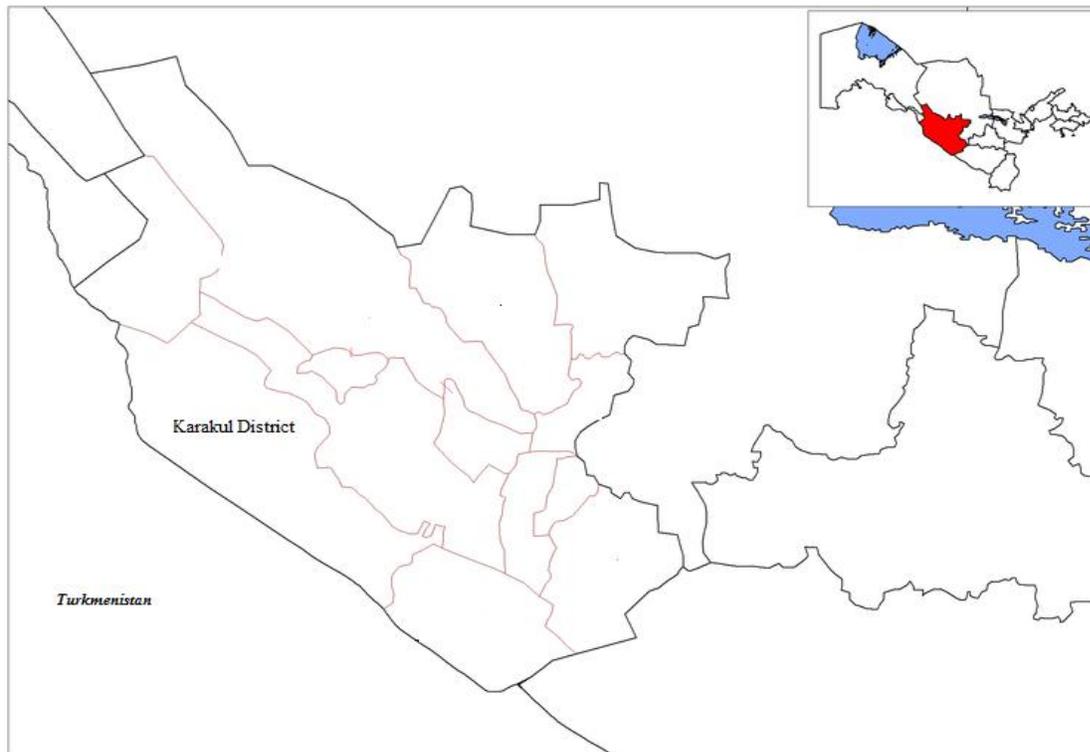
The Karakul district is located in the western part of Bukhara oblast. Most of it is covered by Kyzylkum desert. It borders with Turkmenistan in the west, and lies on the Amudaryya River. The total area of the district is 695,400 ha, including 26,600 ha of irrigated land (3.8%), 355,700 ha rangelands and hayfields (51.2%), 86,200 ha of forestry lands (12.4%). The area of agricultural lands totals 495,000 ha, including 24,800 ha of irrigated lands, 17,700 ha of irrigated arable land, 1,500 ha of perennial plantations of irrigated lands, 300 ha of irrigated fallow lands, 277,600 ha pastures and hayfields, 5,300 ha forestry lands, 185,500 ha of other land unused in agriculture.

There are 24,374 dekhan farms (individual farms, usually small household plots, operated by families), 269 commercial farms, including 4 karakul and 3 meat and dairy producers, and one karakul shirkat in the district. Main crops cultivated on irrigated land are cotton and grain. There are specialized horticulture and viniculture farms, vegetable growing farms, poultry, fish- and beekeeping farms. The area of Karakul forestry comprises 113,765 ha, game forestry 8,275 ha, and farms for medicinal herbs 26,423 ha.

In the last 10-12 years the surface area of irrigated lands remains stable, but the yield is relatively low and further decreasing. There is practically no crop rotation and hardly any fodder crop (alfalfa) is produced on irrigated land. This fact together with the increasing number of livestock negatively

affected the fodder base of livestock farming, and is one of the reasons for the increasing pressure on rangeland.

Figure 3: Map of Bukhara Oblast, Karakul District



Soil degradation is evident in many parts of the district, and the reasons for it include inadequate land improvement activities without appropriate machinery, a lack of essential funds, application of inadequate amounts of organic fertilizers, and a lack of biological methods for maintaining and restoring soil fertility. There is no rainfed arable land, neither in the district nor in the oblast.

The area of rangeland in the district decreased in the last 10-12 years by 80,000 ha, and the area of forests increased by that much through transfer of degraded pastures to the category of forestry lands. The area of the pastures belonging to agricultural entities decreased by 13,100 ha, whereas the areas of these farms remained the same. This trend in the area of pastures indicates a quite high degree of degradation. Main causes for the degradation of pasture lands are:

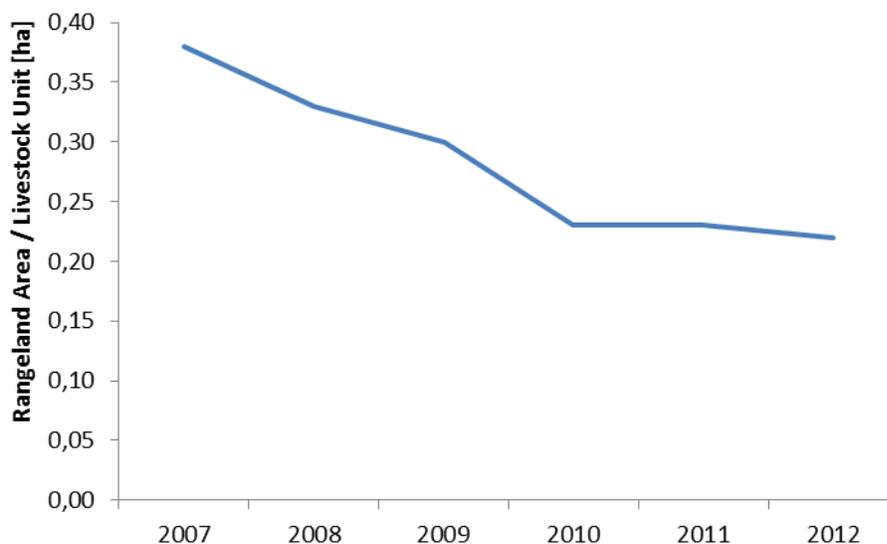
- Non-systemic grazing of cattle, continuous growth of cattle population (dekhan farms) and overgrazing (exceeding permissible number of livestock in certain areas);
- Dysfunctional wells and boreholes, and lack of funds for their rehabilitation;
- Absence of a mechanism to regulate livestock of households;
- More frequent droughts and less precipitation due to climate change;
- Decreasing yield of natural fodder crops;
- Lack of land improvement works to restore productivity of pasture vegetation;
- Worsening fodder base in the livestock sector;
- Lower cattle productivity, and

- Decreasing income of local households and growing dependence on livestock farming.

Livestock population in the district totals (as of 2012): cattle: 127,700 heads, goats and sheep: 225,100 heads, poultry: 244,100 heads. In recent years both the number of cattle and sheep/goats grew significantly. Most cattle are owned by dekhan farms (97.7%). The sheep/goats owned by dekhan farms also constitute high percentage (82.9%).

Forests in the district (haloxylon, tamarisk, and other bushes) have primarily the function to protect the soil from erosion. Inadequate gas and electricity supply to rural households forces local people in winter to cut down trees as firewood. This negatively affects the environment of forestry lands and natural landscapes, causes sand mobility and expansion thereof onto arable lands, and causes wind erosion of soil.

Figure 4. Grazing pressure by livestock in natural rangeland²



The area of the Karakul shirkat totals 425,900 ha (61% of the area of district) and includes 277 ha of irrigated lands (of which 203 ha are irrigated arable land and irrigated perennial plantations), and 266,400 ha of rangeland and hayfields (56.1% of total area of shirkat), with no forests on the land of the shirkat. 363 families live on dekhan farms. There are no major human settlements. Land not used for agriculture totals 159,200 ha. Approximately 20% of pasture lands are degraded gypsum soils, about 50% of the area is desert sandstones with fairly good vegetation (300-400 kg/hectare), and 30% of the area is covered by mobile sands moving from the north towards Amudarya River.

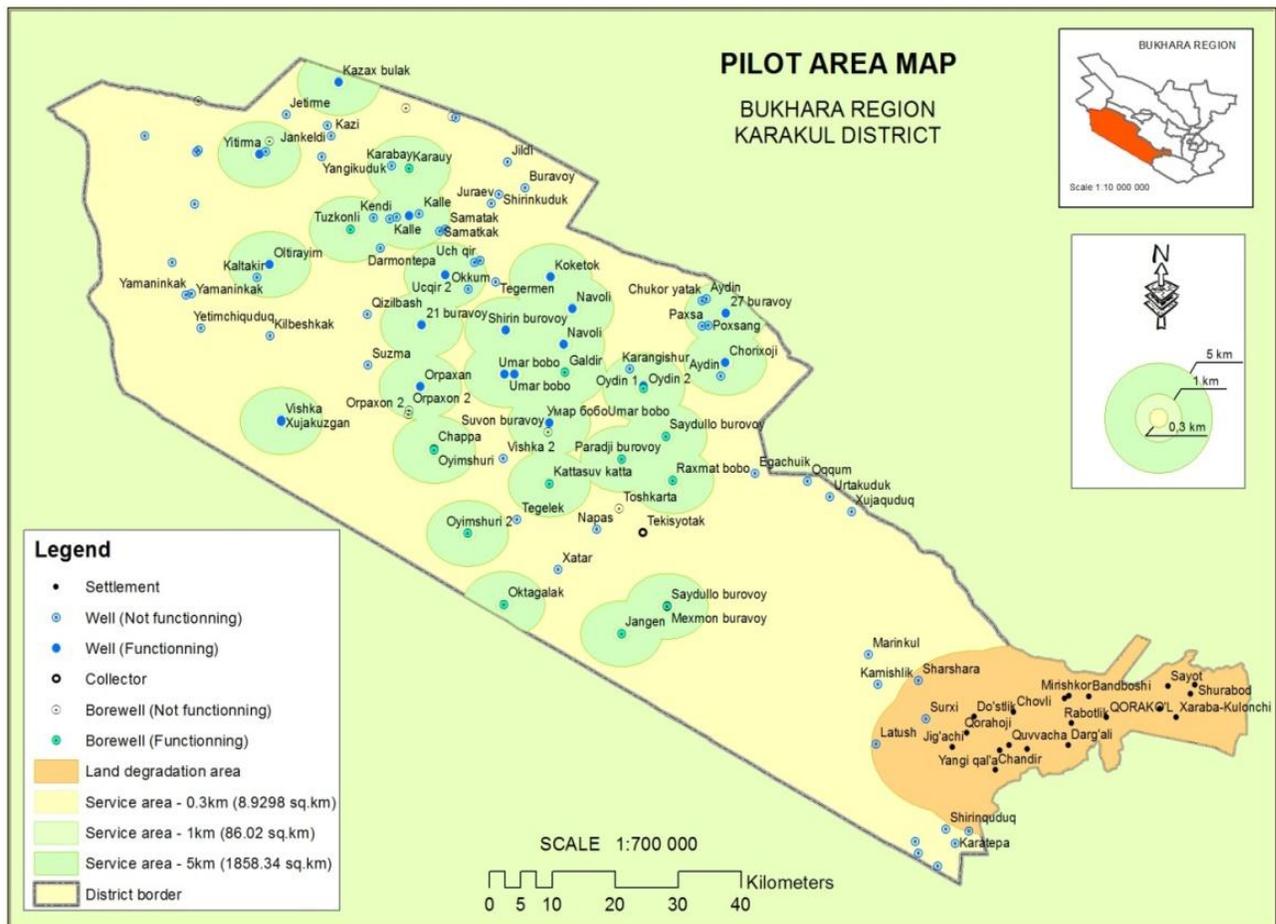
The farm has approximately 2,300 heads of sheep and goats, and 700-800 livestock of dekhan farms graze on its pastures annually. Shepherds manage the grazing of private cattle of dekhan farms by making contracts with shirkats on temporary use of shirkat pastures.

It is mandatory to hire shepherds if the number of privately-owned cattle exceeds 150 heads. Seasonal rangeland rotation is not observed. There are 14 wells in the territory of the farm, but none

² For the purpose of this graph, the number of livestock was transferred to “livestock units” (1 cattle = 6.6 sheep units), and then the grazing land available divided by the number of livestock units. The graph clearly shows that the land available per animal for grazing is significantly decreasing in the last 6 years.

of them is functioning. The soil around wells is overgrazed. There is virtually no construction of new wells and maintenance of existing wells, as Obi-hayot, the oblast-level self-financing enterprise, requires 30-40 million soums per unit for these works, which is not affordable for the farm.

Figure 5: Map of Wells, Pasture Use and Degradation in Karakul



In recent years, the shirkat has been expanding its sheep herds, which led to a reduction of production of karakul hides and meat. 70% of the offspring is used for expanding the herd, and only 30% is slaughtered for hides. Karakul hides are procured by the buyers at a price of 1,500-2,000 soums per unit depending on its size and quality, and 1 kg of wool for 100 soums. The farm is self-financing, and pursues a 5-year development plan approved by the shirkat board, but it does not envisage development of production infrastructure. The number of staff is 43 and wages are paid on a regular basis.

Pastures – the main land of shirkats – are significantly affected by degradation. The causes of degradation are practically the same as in Karakul district in general. The yield of the pastures and cattle productivity is declining. Droughts recur periodically (once in 6-7 years) and in these years herds are moved to Navoi oblast, where the fodder situation is better. Degradation of pastures negatively affects the effectiveness of the farm and income of its workers.

Currently there are 225,000 heads of sheep in Karakul district, including the only Karakul shirkat with 23,000 sheep. The remaining 202,000 livestock is privately owned; 8,000 of which grazes on the pastures of the shirkat based on contracts. The pasture land available for one sheep is excessive in the shirkat (10 ha), which indicates that the shirkat currently has redundant area of lands, which causes extensive management of farms and degradation of pastures. Therefore, a logical question arises: where do the remaining 194,000 sheep graze? According to the data of Karakul forestry administration, approximately 5,000 sheep graze on its pastures per season (April – October) based on fees. In this case, where do the remaining 189,000 privately owned sheep graze, if the area of shirkat pastures (266,000 ha) occupies 75% of the entire pasture area of the district? So it leads to the conclusion that some 95,000 heads of privately-owned sheep/goats and cattle are kept using feed, partly produced in the irrigated zone and partly purchased. Thus, one can assume that a significant part of sheep and goats graze on pastures of the shirkat without records. If this is true, then the unrecorded private livestock grazing on pastures of the shirkat becomes the main factor of overgrazing. Certainly, this hypothesis must still be verified.

As a result of degradation, 80,000 ha of pastures in the district were transferred from agricultural use to forestry, which indicates significant extent of degradation. In recent years no inventory of forestry pastures was conducted and their environmental state has not been assessed. Rangeland rotation is not practiced on the lands of the forestry authority, which gives rise to degradation. Unauthorized felling of trees for household needs continues on forestry land, which is causing wind erosion and intensification of sand mobility. There are no protective forest lines in the area without forest cover. The forestry authority does not repair dysfunctional wells.

Land and Livestock Resources in the Zaamin District

Zaamin District is located on south-eastern part of Jizzakh oblast. The total area of the district is 286,600 ha. The area of forests comprises 56-57,000 ha. Forests protect the soil and consist of tree plantations such as haloxylon, elm, almonds, and pistachios. Forestry area includes Zamin forestry entity with 38,200 ha in total, and 15,300 ha forest area, Zaamin protected area with 26,800 ha in total and 22,200 ha forest area, Zaamin National Park with 23,900 ha total and 12,270 ha forest area, and other forest area of the households, shirkat etc.

Irrigated lands of district constitute 37,200 ha and include 34,100 ha of irrigated arable land, 500 ha of irrigated perennial plantations, 2,200 ha of irrigated lands of dekhkan farms, 400 ha of irrigated forestry plantations³. In recent years land inventory was conducted only on irrigated lands. There are no updated maps showing non-irrigated lands (pastures, rainfed arable lands and forestry), and the borders of the farms are not clearly delineated. Parts of the irrigated lands developed by commercial farms are currently not used for cultivation because of a deficit in irrigation water resources. Irrigated lands in the district are slightly salinized. Irrigation and wind erosion is underway on light loamy clay soils. There is practically no protective forest cover on irrigated zone. Irrigated soils are significantly depleted, and average soil fertility rate in the district totals 51.

³ Land Inventory of Uzbekistan. Goskomgeodezcadastre. 2012

Figure 6: Map of Djizak Oblast, Zaamin District



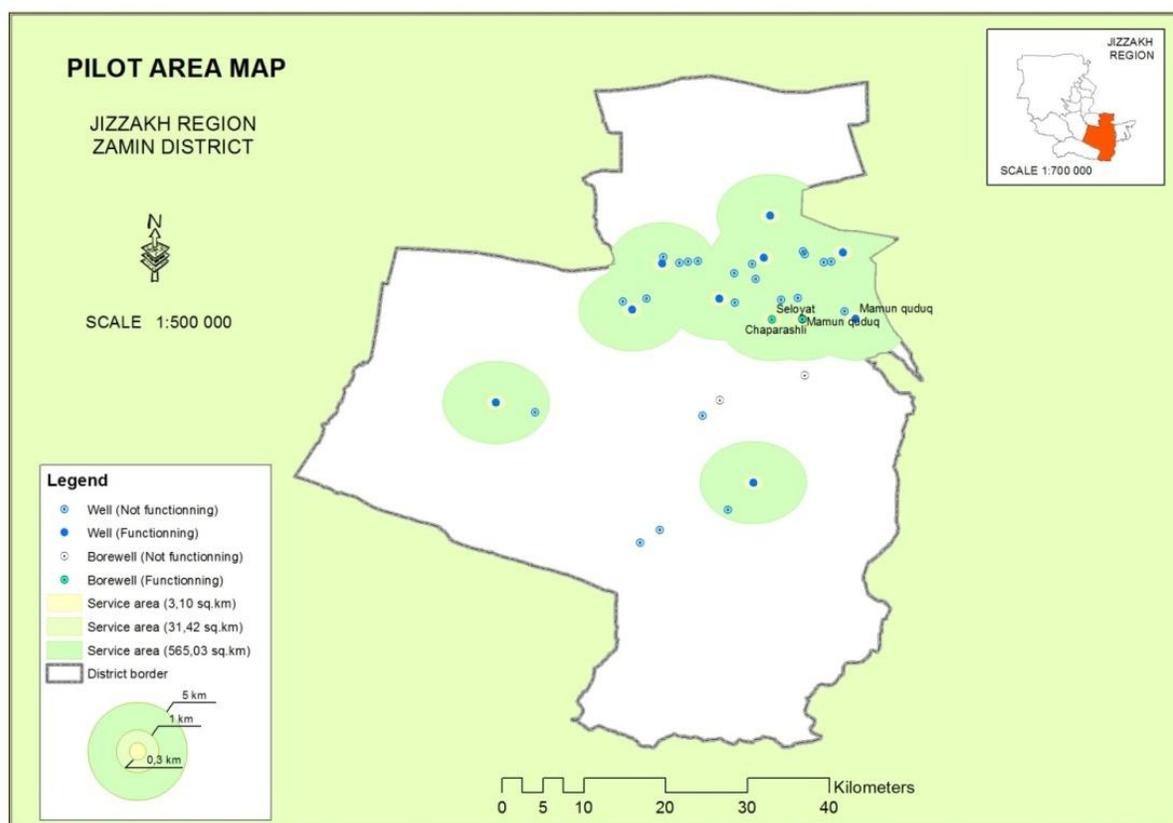
The area of rainfed arable land in the district totals 35,100 ha including those in agricultural entities (34,800 ha). Notably since 2005 the area of rainfed arable land in the district expanded by 1,700 ha.² About 30-35% of rainfed arable land is not cultivated (approximately 1200 ha, according to the data of the experts of the district khokimiat), remains as rainfed fallow land due to the less precipitation and ineffective cultivation because of low yield. But these unused rainfed lands are not fully recorded in land inventory (only 400 ha are recorded). Yield of grains on rainfed arable land stands at as less as 400-500 kg per hectare because of degradation and low precipitation. Grain cultivation is thus not economically viable, and the income of farmers is declining. Main forms of degradation of rainfed arable land are water and wind erosion, weeds and bush vegetation, low soil productivity, drying of soil layer, and its degradation, and missing protection of the agricultural land by a forest cover.

Pasture lands in the district constitute 12700 ha, including 115,100 ha of agricultural entities.⁴ Significant area of the pastures degraded. Complete degradation of pasture lands around settlements and functioning wells within 500-1000 metres is observed. In the last 10-15 years there was no inventory of pastures, and no land improvement activities were implemented to rehabilitate the

⁴ Land Inventory of Uzbekistan. Goskomgeodezcadastre. 2012

productivity of rangelands. Substantial growth of privately owned livestock in the district in the absence of systemic approach to the use of these lands worsens degradation of pastures. In recent years the number of cattle significantly increased on district level and now totals 87,800 heads, plus 161,400 heads of sheep and goats⁵. The area of pasture land per 1 sheep/goat is 0.8 hectare. With the growth of livestock, the productivity of the rangeland declines.

Figure 7: Map of Zaamin – Wells and Pasture Use



There are 12,645 dekhan farms (private households) in the district, which is quite a high number compared to other districts of the oblast. There are also two karakul shirkats (Yangi chorvador and Zaamin) and 595 commercial farms – producers of grains on rainfed arable land as well as cotton, grapes, and vegetables. The Shirin Karakul Shirkat was reorganised into a commercial rainfed grain farm in 2011. Pasture land was transferred to Yangi chorvador livestock shirkat. Grain farmers with cattle were provided to respective area of pasture lands.

In the structure of population in project areas the percentage of women is 51.3%, who are mainly occupied in the household, in addition to this, the main source of employment is agriculture. Also an important aspect of gender development are issues related to improvement of living conditions of rural families, organization of social infrastructure and improvement of forms and methods of services.

⁵ Passport of the district in 2012

So in 2012, in the whole project areas, the number of gasified houses were accounted for 56.1% of all homes. However, in rural areas the figure is much smaller and the population, both for domestic needs and for cooking, uses firewood. Because most of the work concerning preparation of food and communal household works performed women and teenagers, and labour costs for these needs is the large share in the structure of expenditures of labour of women and adolescents (in dependence of the period of the year this indicator can be up to 70% of working time spent in daylight). The use of trees for these purposes a negative impact on the landscape of the territory, accelerating the degradation as pastures in mountain and foothill zones (quantitative estimates used firewood for household and construction needs, we have said in the report of the first phase).

On the other hand, the use of alternative energy sources, training of women in the methods of use of alternative energy sources, or use of energy-efficient boilers in meal preparing, details, accessories and innovative organizational solutions promotes the efficient use of natural resources and development of gender aspects in the area. In this respect, in the framework of the project it is recommended organization of training courses for women on the following topics: «Organization of the use of electricity in rural areas», «Use of alternative energy sources and its impact on the economic status of the family and labour activity of women», «Gender approach in the use of alternative energy sources». Therefore, the improvement of gas and energy supply and water availability in the project area is the important direction in the development of gender aspects in the project areas.

Feature of employment in project areas is that the ability of women to generate income is much lower than in comparison with men, with great potential for this (especially in the foothill areas). Thus, the share of women in the highest-paying sectors of the economy like industry, construction, transport and communications relatively lower than medium oblast average. However, the highest rate is in the areas of health (especially among the younger medical personnel) and education (especially primary education).

Another peculiarity is the fact that, in recent years increasing the share of women employed in the service sector. The same feature is that the involvement of women in entrepreneurial activity remains low. In General, one of the project areas (Zamin) in all sectors of the economy employs 17.8 thousand women, which is 39.5% of all employed. For 2009-2012 in the structure of employment and the percentage of women increased by 7.3%. This growth is the result of increasing the number of women employed in the sectors of agriculture and forestry, including employment growth in dehqan farms.

The underdevelopment of the social infrastructure and housing and communal services, as well as the limitations of types of services force women in desert pasture and forest areas spend many hours on the delivery and carrying water and firewood, cooking and other household responsibilities and childcare. The role of women, both in the formal and in the informal sector forestry is great. They formally and informally engaged in agroforestry, water-related activities on the watershed, forest reclamation and the protection and preservation of forests. Therefore, forest areas serve as a primary or secondary source of employment and self-employment of women.