

Terms of Reference

for the provision of services for the development of a prototype model of seed-sowing machine for sowing saxaul seeds, with testing for subsequent implementation in forestry production

Project title and number:	Conservation and sustainable management of key globally significant ecosystems for multiple benefits, 00101043
Type of contract:	Contract for the provision of services in the UNDP format
Duty station:	Kazakhstan, with trip to the Almaty region (one trip)
Duration:	7 months from the date of signing the contract (approximately August 2021 - February, 2022)

PROJECT DESCRIPTION:

Since 2018, a 5-year project of UNDP-GEF and the Government of the Republic of Kazakhstan "Conservation and sustainable management of key globally significant ecosystems for obtaining various benefits" (hereinafter referred to as the Project) is being implemented on the territory of the republic, aimed at the conservation and sustainable management of forest ecosystems in three regions of Kazakhstan with different types of landscapes. The project strategy is to holistically address the conservation and sustainable use of forest ecosystems in Kazakhstan, through management approaches including both protected areas and sustainable use of associated HCVF landscapes.

The project consists of three main components:

Component 1: Enhancing the representativeness of globally important biodiversity of forest ecosystems in the PAs network and improving the efficiency of PAs management.

Component 2: Stimulating the integration of forest PAs into the landscape context by creating conditions for effective regulation and management of globally significant ecosystems.

Component 3: International cooperation and knowledge management

The project will operate both nationally and locally, with many pilot and demonstration activities planned. As a cross-cutting issue, sustainable forest management is represented in all Project Components.

FEASIBILITY DEMONSTRATION:

Process mechanization of silvicultural work is of particular importance for the high-quality creation of forest cultures, especially the planting and sowing processes since silvicultural periods are very tight in desert zones. Within the Project framework, in 2020, an analysis was carried out of the existing methods of growing saxaul forest crops in forestry institutions of Almaty, Zhambyl and Turkestan regions, which showed that the sowing of saxaul forest crops is carried out mainly manually, or many institutions use improvised machinery.

This is due to poor material and technical furnishing and the lack of specialized machinery for sowing saxaul in the institutions, which is absent on the market since not a single design has been developed over the past 30 years.

To carry out silvicultural work, there is a need to develop a prototype model of seed sowing machine for sowing saxaul seeds, as well as its approbation for subsequent introduction into forestry production. This activity is included into 2021 AWP.

PURPOSE OF WORK:

Development of a prototype model of seed sowing machine for sowing saxaul seeds with testing for subsequent implementation in forestry production.

SCOPE OF WORK:

1. Development of a technical proposal (includes a description of the principle of operation, seed sowing machine design, placement of functional components, safety requirements, technical characteristics, operational features);
2. Outline development plan (production of a model and testing to verify the principles of operation of the product and its components, clarification of the requirements for the product (technical characteristics, agrotechnical indicators, etc.), the study of the main issues of manufacturing technology);
3. Full-scale development (includes an explanatory note, calculations confirming technical and economic indicators, including productivity; description of the necessary schematic diagrams, connection diagrams, etc.; description of the processes of transportation, storage, operation (interchangeability, ease of maintenance, maintainability, resistance against the negative impact of the external environment, fast elimination of failures, product quality);
4. Presentation (online) of working design documentation (technical proposal, draft design, technical design) to interested parties. Submission to the Project of an interim report with the attachment of design documentation;
5. Manufacturing of a prototype model of seed sowing machine for sowing saxaul seeds;
6. Carrying out preliminary tests of a prototype model of seed sowing machine prior to field testing. Elimination (if identified) of deficiencies during the test.
7. Field testing of a prototype model of model of seeder. The test is carried out in the Mezhdurechensk forest nursery of the Republican state budget-supported enterprise "Republican Forest Selection and Seed Center" (hereinafter - RSBSE "RFSSC"), located 40 km from Almaty. During testing, present and demonstrate seed sowing machine to stakeholders;
8. If necessary, adjust the working design documentation and finalizing the seed sowing machine based on the results of the field tests of the prototype model;
9. Obtaining a certificate for a developed model of a seed sowing machine for sowing saxaul seeds. Together with the certificate for the seed sowing machine, a passport, operating manual, technical conditions for indicators in accordance with standards must be submitted;
10. The manufactured prototype model of the seed sowing machine must be handed over to the Mezhdurechensk forest nursery of RSBSE "RFSSC"(upon transfer act);
11. Presentation of the final report on the work done with the attachment of all materials.

Requirements for the developed model of the seed sowing machine:

- feed mechanisms should not damage seeds;
- with line and spread sowing, it is necessary to uniformly distribute seeds along the depth and length of the line;
- the coulters should not be clogged with weeds and moist soil;
- ensuring straightness with a constant row spacing;
- must be aggregated with all types of tractors;
- the possibility of using different seeding patterns;
- a significant range of settings for seeding rates;
- be able to carry out sowing on various soil;
- have a certificate of conformity;
- in the development of the seed sowing machine (to take into account the technical characteristics), the applied schemes for sowing saxaul seeds must be taken into account (Annex 1 - Schemes for sowing saxaul seeds).

EXPECTED RESULTS, TERMS AND CONDITIONS OF PAYMENTS:

No.	Results	Period	Accountability and coordination of work	Payment in%

1.	The design documentation (Technical Proposal, Draft Design, Technical Design) of a prototype model of seed sowing machine has been developed and presented. Interim report with documentation attached.	7 weeks after signing the contract	Project manager	35 %
2.	Manufacturing of a prototype model of seeder. Field testing of a prototype model of seed sowing machine on the territory of the RSBSE RFSSC Mezhdurechensk nursery forest garden. Interim report on the work done with the application of photo and video material.	16 weeks after signing the contract	Project manager	35 %
3	Provision of the final working design documentation, a prototype model of seed sowing machine with a certificate, passport and operation manual. Final report on the work done with the documentation attachment.	25 weeks after signing the contract	Project manager	30 %
	Total:			100%

REPORTING REQUIREMENTS FOR THE CONTRACTOR:

Interim reports are submitted in Russian in electronic form in MS Word format for Windows files, font: Times New Roman 12 within the terms indicated above.

The final report is submitted in Russian in electronic form and hard copy (2 copies) in MS Word format for Windows files, font: Times New Roman 12 within the terms indicated above.

Without fail, the reports must be accompanied by Photos, working drawings, sketch designs, design documentation and other documentation received in the course of the work, in good quality in electronic form.

TERMS OF PAYMENT

Payment is a fixed amount that includes the costs of services provided within the framework of this Terms of Reference.

Payment is made in three tranches after satisfactory completion of the scope of work of the Terms of Reference and authorization of the results by the Project Manager to provide the Certificate of Completion and Invoice. The cost of services must include VAT if the Supplier is a VAT payer.

The Contractor's proposal must be submitted indicating a lump sum payment in accordance with the tranches specified in the "Expected Results".

DURATION OF WORK:

The total duration of work is 7 months from the date of signing the contract (August 2021 – February 2022).

RESPONSIBILITY AND COORDINATION:

- The contractor ensures timely and rational planning, performance of the scope of work and achievement of results in accordance with the ToR;
- The Contractor ensures full compliance with the requirements of the contract, bears full responsibility for the accuracy and legality of the information provided and for the timely provision of reports;
- In the course of its work, the Contractor reports to the Project Manager, an expert on sustainable forest management. The contractor also closely interacts with the territorial expert of the UNDP

project in the Almaty region. All actions related to the performance of this work without fail must be coordinated with the specified Project expert;

- The Contractor provides materials of the work performed to the Project (addressed to the Project Manager) for comments and approval;
- The Contractor transfers the developed model of the seed sowing machine to Mezhdurechensk forest nursery of RSBSE "RFSSC" upon transfer act: Almaty region, Ili region, Mezhdurechensk village; Transportation costs for delivery of a prototype model of seed-sowing machine are included in the value;
- The Contractor will provide a minimum of 12 months warranty on the seed-sowing machine from the time the goods are handed over to the end-user at the address specified;
- In the event of a warranty, the Supplier undertakes to carry out repairs at its own expense;
- The Contractor will provide information of availability of a service centers or a technical support service if maintenance/repair is required, providing the address and contact details of the responsible person;
- The work must be done with high quality and on time, in accordance with the requirements of the contract and technical specifications. In case of poor quality of work by the Contractor, UNDP reserves the right to terminate the contract unilaterally;
- The Contractor submits copies of all developed documents to UNDP;
- The Contractor undertakes to comply with the legislation of the Republic of Kazakhstan in the field of copyright and related rights in the course of the work;
- The Contractor undertakes to comply with the legislation of the Republic of Kazakhstan in the course of work;
- The project reserves the right to make changes to the terms of reference no more than 25% of the volume, which do not affect the general nature of the work and the cost of services under the contract.

IMPORTANT!!! In connection with the COVID-19 pandemic, the Contractor undertakes to provide all the necessary protective equipment for its employees and comply with all WHO standards and recommendations for performing work during the epidemic. The service provider is responsible for the proper and timely provision of its employees involved in this Terms of Reference with all necessary personal protective equipment in accordance with the current WHO recommendations (masks, gloves, sanitisers, passing the COVID-19 test (if necessary)), for the entire term of the contract.

COPYRIGHT:

Upon completion of the work, the UN Development Program will receive all direct and related copyrights for the use of products that will be manufactured within the framework of the ToR. The supplier undertakes to carry out the scope of work stipulated by this technical task, without violating the legislation of the Republic of Kazakhstan in the field of copyright and related rights.

INTERACTION / COOPERATION:

The work should be carried out under the constant supervision of the Project manager.

The list of organizations with which the Service Provider is supposed to work / interact / cooperate / meet in the course of the work:

- ✓ Department of Natural Resources and Environmental Management of Almaty, Turkestan and Zhambyl Regions;
- ✓ Forest protection institutions of Almaty, Turkestan and Zhambyl regions;
- ✓ RSBSE Kazakh forest management enterprise;
- ✓ RSBSE Republican forest selection and seed production center;
- ✓ Kazakh Research Institute of Forestry and Agroforestry LLP.

INTENDED TRIPS :

Within the framework of the Terms of Reference, 1 trip to the Almaty region, Mezhdurechensky nursery forest garden (40 m from Almaty) are envisaged to conduct field tests of a prototype model of seed sowing machine. A detailed work schedule and departure date are preliminarily agreed upon with the project manager and project expert on sustainable forest management. Travel expenses must be included in the financial proposal.

No.	Itinerary	Purpose of the trip	Duration
1.	Almaty region, Mezhdurechensk nursery forest garden RSBSE "RFSSC"	Field testing of a prototype model of model of seed sowing machine for sowing saxaul seeds	November, 2021 2 days
	Total:		2 days

The planned number of travel days must include travel days.

QUALIFICATION REQUIREMENTS:

The service provider can be a duly registered company / organization that meets the following requirements:

1. Possess the civil legal capacity to conclude contracts (certificate of registration / re-registration, constituent documents indicating the legal address, telephone and e-mail);
2. Be solvent, not subject to liquidation, his property should not be seized, his financial and economic activities should not be suspended in accordance with the law (certificates confirming the absence of debts in serviced banks and tax authorities, balance sheets for the last 2 years);
3. The company should have at least 3 years of experience in the design and manufacture of technical means, mechanisms and equipment;
4. Availability of a patent for an invention;
5. Availability of its own production base, workshop, design bureau;
6. A list of services rendered over the past three years, including the contact details of customers
7. At least 3 reviews and references from previous customers;
8. Availability of specialists with the necessary qualifications and work experience as indicated below (you must attach a detailed resume and documents confirming the qualifications of experts - diplomas, certificates, etc.).

Requirements for the main staff and qualifications of specialists involved in the implementation of work on this technical assignment:

No.	Group members	Proposed term of participation in the project, months	Minimum acceptable educational level and specialization	Experience / Special Skills
1.	Group leader	7 months	Higher education in the field of technical or engineering sciences	At least 5 years of experience or participation in the development and design of technical means, mechanisms, equipment. Availability of a patents for inventions, utility models, etc. would be advantage
2.	Design engineer	7 months	Higher education in the field of technical or engineering sciences	At least 5 years of experience in the design of technical means, mechanisms, equipment Skills of working with modern software (Autodesk Inventor, Ansys, Autodesk AutoCAD) in the field of design

3.	Process engineer (2 persons)	3 months	Higher education in the field of technical or engineering sciences	At least 3 years of experience in organizing the production process in the manufacture of mechanisms, equipment, technical means
4.	Assembler	3 months	Secondary specialized (professional) education in the field of technical or engineering sciences	At least 2 years of work experience in the field of installation, assembly of equipment and mechanisms

EVALUATION CRITERIA:

- Highest aggregate score (based on the following specific distribution of score significance: technical proposal (70%) and financial proposal (30%):

➤ **Technical proposal (70%, 1000 points)**

- ✓ Firm experience (30%)
- ✓ Methods, compliance with terms and conditions Implementation Schedule [30%]
- ✓ Management structure and qualifications of key personnel [40%]

Summary of Technical Proposal Evaluation Forms		Evaluation share	Points earned
1.	Expert evaluation of the Firm / Organization	30%	300
2.	Proposed methodology, strategy and implementation plan	30%	300
3.	Organizational structure and key personnel	40%	400
Total:			1000

Technical Proposal Evaluation			Points earned
Expert evaluation of the Firm / Organization			
1.1.	At least 3 years of experience in the design and manufacture of technical means, mechanisms, and equipment. Having a patent for an invention will be an advantage: <i>Less than 3 years – 0 points</i> <i>3 years - 70 points</i> <i>+ 10 points for each additional year</i> <i>maximum - 100 points</i>		100
1.2.	Availability of a patent for an invention <i>Availability of a patent – 100 points</i> <i>If absent - 0 points</i>		100
1.3.	Availability of its own production base, workshop, design bureau: <i>Subject to availability - 100 points</i> <i>If absent - 0 points</i>		100
Total:			300
Proposed methodology, strategy and implementation plan			
2.1.	Understanding of the essence, methodology and expected results of the project corresponds to the terms of reference and is reflected in the proposal		150

	<p><i>A general understanding of the essence of the work is presented, the methodology and expected results are presented in accordance with the terms of reference - 100 points.</i></p> <p><i>A clear understanding of the essence of the work is presented, the methodology and expected results are consistent, disclosed in detail and reflect the description of all stages of work in accordance with the terms of reference, and also contains additional presentation or other material - 150 points.</i></p>	
2.2.	<p>Work schedule (must include the composition of the team and the distribution of responsibilities)</p> <p><i>Work schedule is not provided – 0 points.</i></p> <p><i>Work schedule with composition of the team and the distribution of responsibilities is provided – 150 points</i></p>	150
	Total:	300
Organizational structure and key personnel		
3.1.	Group leader	
	<p>Higher education in the field in the field of technical or engineering sciences:</p> <p><i>Bachelor's degree - 21 points,</i></p> <p><i>Master's degree – 25 points,</i></p> <p><i>the highest qualification - 30 points.</i></p>	30
	<p>At least 5 years of experience or participation in the development and design of technical means, mechanisms, equipment</p> <p><i>Less than 5 years – 0 points;</i></p> <p><i>5 years - 49 points</i></p> <p><i>+ 7 points for each additional year, maximum - 70 points</i></p>	70
	<p>Availability of patents for inventions, utility models, etc. would be an advantage:</p> <p><i>Availability of a patent – 30 points</i></p> <p><i>If absent - 0 points</i></p>	30
	Total:	130
3.2.	Design engineer	
	<p>Higher education in the field of technical or engineering sciences:</p> <p><i>Bachelor's degree - 21 points,</i></p> <p><i>Master's degree – 25 points,</i></p> <p><i>the highest qualification - 30 points.</i></p>	30
	<p>At least 5 years of experience in the design of technical means, mechanisms, equipment :</p> <p><i>Less than 5 years – 0 points;</i></p> <p><i>5 years - 49 points</i></p> <p><i>+ 7 points for each additional year, maximum - 70 points</i></p>	70
	<p>Skills of working with modern software (Autodesk Inventor, Ansys, Autodesk AutoCAD) in the field of design:</p> <p><i>Subject to availability - 30 points</i></p> <p><i>If absent - 0 points</i></p>	30
	Total:	130
3.3.	Process engineer № 1	
	<p>Higher education in the field of technical or engineering sciences:</p> <p><i>Bachelor's degree - 10 points,</i></p> <p><i>Master's degree – 15 points,</i></p>	20

	<i>the highest qualification - 20 points</i>	
	At least 3 years of experience in organizing the production process in the manufacture of mechanisms, equipment, technical means: <i>Less than 3 years – 0 points; 3 years - 21 points +3 points for each additional year, maximum - 30 points</i>	30
	Total:	50
3.4.	Process engineer № 2	
	Higher education in the field of technical or engineering sciences: <i>Bachelor's degree - 10 points, Master's degree – 15 points, the highest qualification - 20 points</i>	20
	At least 3 years of experience in organizing the production process in the manufacture of mechanisms, equipment, technical means: <i>Less than 3 years – 0 points; 3 years - 21 points +3 points for each additional year, maximum - 30 points</i>	30
	Total:	50
3.5.	Assembler	
	Secondary specialized (professional) in the field of technical or engineering sciences: <i>Secondary specialized (professional) – 14 points Bachelor's degree - 16 points Master's degree – 18 points, the highest qualification - 20 points.</i>	20
	At least 2 years of experience in the field of installation, assembly of equipment and mechanisms for: <i>Less than 2 years – 0 points 2 years - 14 points +2 points for each additional year, maximum - 20 points</i>	20
	Total:	40
	TOTAL:	400

Financial proposal (30%)

Calculated as the ratio of the Bid price to the lowest price among all bids received by UNDP.

REQUIRED DOCUMENTS (see RFP-2021-037 for a completed list):

- Completed and signed Service Provider application form (Appendix 2);
- Legal documents for the conduct of activities - constituent, registration documents, taxpayer certificate, etc.;
- Financial report for the last 2 years, certificates of the absence of debts in serviced banks, tax and other authorities;
- Own written declaration that the company is not on the UN Security Council 1267/1989 list, UN Procurement Division list or other UN Ineligibility List;
- Methodology and plan for the implementation of the required services;
- Detailed CVs and documents confirming the qualifications of key experts - diplomas, certificates, etc.
- Reference letters from previous customers.

ANNEXES TO THE TERMS OF REFERENCE:

- Schemes of sowing saxaul seeds (Annex 1);
- Sample contract and General Terms and Conditions (Annex2);
- Service Provider Application Form (Annex3).

COA (MUST BE IN NUMBERS)							
Project ID	Activity	Score	Amount	Fund	Dep ID	Impl. Agency	Donor
101043	Activity 2	72100		62000	55205	001981	10003
Total:							

Talgat Kerteshev
Project manager

Talgat Kerteshev

16-Jun-2021

signature

date

Nuri Ozbagdatli
Portfolio Manager

Nuri Ozbagdatli

17-Jun-2021

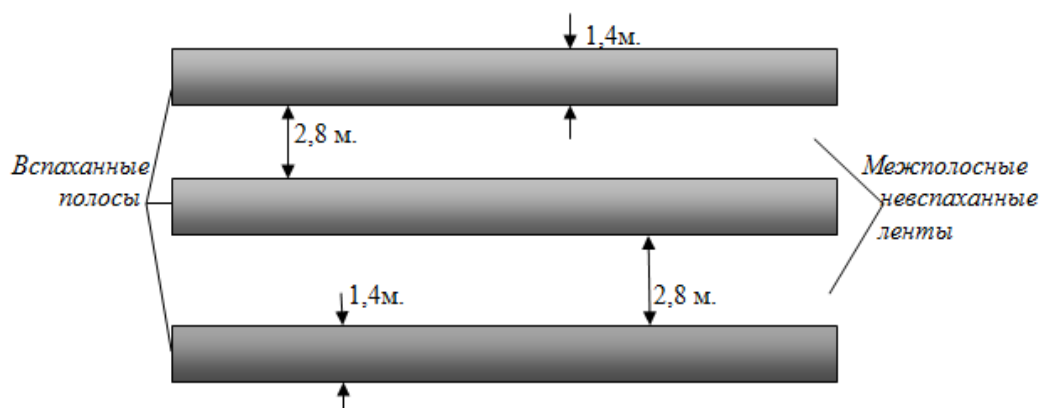
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Schemes of sowing saxaul seeds.

1. Mechanized saxaul sowing, scattered, in strips

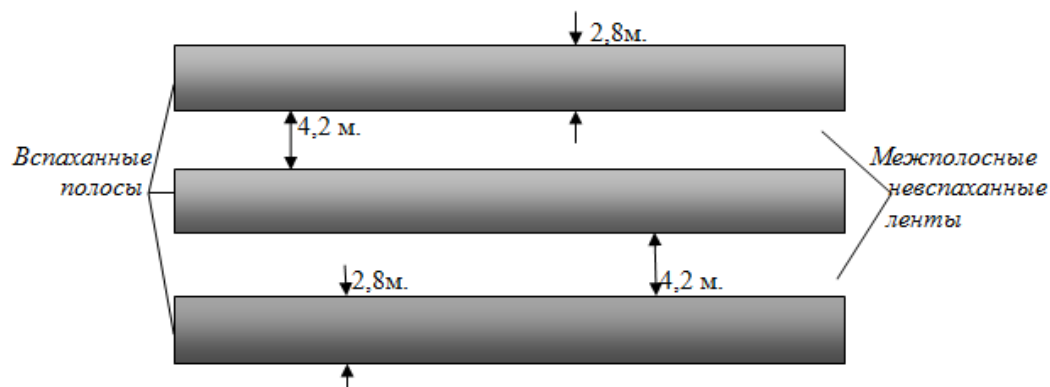
Recommended on soils of the 1st group of forest suitability, light and medium texture. The width between the sowing strips is 2.8 m. The width of the sowing strip is 1.4 m. The sowing is carried out across the entire width of the plowed strip in random order. About 2.5-5 kg of saxaul seeds are sown per hectare, depending on the quality class. Sowing depth of seeds is 0.5 - 2 cm.



Sowing scheme no.1

2. Mechanized saxaul sowing, line, in strips

Recommended on soils of the 1st forest suitability group of light and medium texture. The width between the strips for sowing is 4.2 m. The width of the strips for sowing is 2.8 m. The seeds are sown in the center of the plowed strip with one ribbon, 0.2-0.3 m wide, from the cut off saxaul seeds. About 2.5-5 kg of saxaul seeds are sown per hectare, depending on the quality class. Sowing depth of seeds is 0.5 - 2 cm.



Sowing scheme no.2