



Facilitating agrobiodiversity (ABD) conservation and sustainable use to promote food and nutritional resilience in Tajikistan

Part I: Project Information

GEF ID

10821

Project Type

MSP

Type of Trust Fund

GET

CBIT/NGI

CBIT **No**

NGI **No**

Project Title

Facilitating agrobiodiversity (ABD) conservation and sustainable use to promote food and nutritional resilience in Tajikistan

Countries

Tajikistan

Agency(ies)

FAO

Other Executing Partner(s)

National Centre for Environmental Protection Actions; FAO

Executing Partner Type

Others

GEF Focal Area

Biodiversity

Taxonomy

Focal Areas, Biodiversity, Mainstreaming, Agriculture and agrobiodiversity, Financial and Accounting, Conservation Finance, Protected Areas and Landscapes, Community Based Natural Resource Mngt, Terrestrial Protected Areas, Productive Landscapes, Species, Crop Wild Relatives, Plant Genetic Resources, Threatened Species, Influencing models, Transform policy and regulatory environments, Convene multi-stakeholder alliances, Demonstrate innovative approach, Strengthen institutional capacity and decision-making, Deploy innovative financial instruments, Stakeholders, Local Communities, Civil Society, Community Based Organization, Non-Governmental Organization, Type of Engagement, Participation, Information Dissemination, Consultation, Partnership, Beneficiaries, Private Sector, SMEs, Individuals/Entrepreneurs, Financial intermediaries and market facilitators, Communications, Education, Behavior change, Awareness Raising, Gender Equality, Gender Mainstreaming, Sex-disaggregated indicators, Women groups, Gender-sensitive indicators, Gender results areas, Capacity Development, Access to benefits and services, Knowledge Generation and Exchange, Capacity, Knowledge and Research, Innovation, Knowledge Exchange, Knowledge Generation, Learning, Theory of change, Adaptive management, Indicators to measure change, Targeted Research

Rio Markers

Climate Change Mitigation

Climate Change Mitigation 0

Climate Change Adaptation

Climate Change Adaptation 1

Submission Date

6/9/2021

Expected Implementation Start

10/1/2021

Expected Completion Date

9/30/2024

Duration

36In Months

Agency Fee(\$)

168,766.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
BD-1-1	Biodiversity Mainstreaming in Priority Sectors	GET	609,334.00	4,600,000.00
BD-1-4	Sustainable Use of Plant and Animal Genetic Resources	GET	1,167,150.00	7,800,000.00
Total Project Cost(\$)			1,776,484.00	12,400,000.00

B. Project description summary

Project Objective

Conservation, sustainable use and securing of the national and globally significant agrobiodiversity and the associated knowledge and cultural aspects of traditional agro-ecosystems of Tajikistan.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
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Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 1: Improved enabling environment for Agrobiodiversity conservation	Technical Assistance	<p>Outcome 1.1 Enabling environment supports the conservation of globally important agrobiodiversity (ABD)</p> <p><u>Indicators:</u></p> <p><i>3 district-based community seed banks established for conserved landraces and crop wild relatives and accessible to local and remote users</i></p> <p><i>400 seed accessions of 30 crops and 200 CWR established in seed bank</i></p> <p><i>80 active on-farm sites covering 1,600 hectares established for the maintenance of crop landraces</i></p>	<p>Output 1.1.1: Checklists and inventories for crop landraces (LR) and crop wild relatives (CWR) implemented based on FAO's Voluntary Guidelines for LR and CWR conservation</p> <p>Output 1.1.2: Conserved resource gap analysis completed based on eco-geographic data collation of ecological and geographic distributional data</p> <p>Output 1.1.3. Assessment of conserved diversity and crop production resilience completed</p> <p>Output 1.1.4: Tajikistan's National Strategy and Action Plan for Conservation and Use of Agrobiodiversity (NSAP-CUA) prepared and adopted by</p>	GET	617,582.00	3,300,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 2: Strengthened local community and breeding sector's capacity to ensure resilience and use the breadth of indigenous agrobiodiversity	Technical Assistance	<p>Outcome 2.1: Increased climate resilience and sustainable use of target landraces and CWR through targeted participatory plant breeding and capacity building to promote crop improvement</p> <p><u>Target</u></p> <p><i>At least 80 local LR with improved climate resilience developed</i></p> <p><i>Improved farmer incomes from added-value landrace products and new markets developed from at least 12 varieties used by the farmers</i></p> <p><i>At least 80 farmers with improved LR skills to develop improved quality and quantity of LR products</i></p>	<p>Output 2.1 1: Capacity building program to support Tajik farmers improve management and maintenance of LR and add value to crop products</p> <p>Output 2.1.2: Advisory and training package targeting local technicians to increase LR resilience, conservation and use developed and used in pilot areas</p> <p>Output 2.1 3: Local communities in 4 selected districts to improve at least 24 local landraces resilience through PPB</p> <p>Output 2.1 4: Evidence-based value-added information system developed and implemented including at least 25 case studies to</p>	GET	646,881.00	5,200,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 3: Policy development, knowledge management, improved financing and outreach activities for promoting conservation and sustainable use of agrobiodiversity in Tajikistan	Technical Assistance	<p>Outcome 3.1: Improved knowledge, financing and awareness promotes conservation and sustainable use of agrobiodiversity</p> <p>-</p> <p><u>Target</u></p> <p><i>At least 5 existing policies amended to include conservation and sustainable use of agrobiodiversity</i></p> <p><i>100 farmers/ community-based incentive applied to both ABD conservation and LR derived commodity enhancement</i></p> <p><i>At least 25 promotion materials and best practices on ABD values developed and promoting positioning</i></p>	<p>Output 3.1.1: Inter-agency national commission on agrobiodiversity conservation and use and its incorporation into relevant policy instruments</p> <p>Output 3.1.2 Improved understanding of ABD economic value and related ecosystem services, life cycle assessment and market studies that benefit rural livelihoods and food security from improving market channels analyzed</p> <p>Output 3.1.3 Microfinancing credit lines for supporting farmers to improve their production and access sustainable markets</p> <p>Output 3.1.4 Developed and implemented gender sensitive RBM system, communication</p>	GET	350,621.00	2,400,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
				Sub Total (\$)	1,615,084.00	10,900,000.00
Project Management Cost (PMC)						
		GET	161,400.00		1,500,000.00	
		Sub Total(\$)	161,400.00		1,500,000.00	
		Total Project Cost(\$)	1,776,484.00		12,400,000.00	

C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
GEF Agency	FAO	Grant	Investment mobilized	71,700.00
Recipient Country Government	Committee on Environmental Protection under the Government of the Republic of Tajikistan	Public Investment	Recurrent expenditures	4,000,000.00
Recipient Country Government	State Institution for Specially Protected Natural Areas (SPNA)	Public Investment	Recurrent expenditures	2,000,000.00
Recipient Country Government	Agency for Hydrometeorology of the Committee for Environmental Protection under the Government of the Republic of Tajikistan	Public Investment	Recurrent expenditures	2,000,000.00
Recipient Country Government	The National Center for Environmental Protection Actions	Public Investment	Recurrent expenditures	1,500,000.00
Recipient Country Government	National Center for Biodiversity and Biosafety	Public Investment	Recurrent expenditures	1,500,000.00
Civil Society Organization	Public Organization NOOSFERA	In-kind	Recurrent expenditures	500,000.00
Recipient Country Government	Research Laboratory on Natural Protection	Public Investment	Recurrent expenditures	800,000.00
GEF Agency	FAO	In-kind	Recurrent expenditures	28,300.00
Total Co-Financing(\$)				12,400,000.00

Describe how any "Investment Mobilized" was identified

FAO: Strengthening seed systems to build resilient agriculture and food systems (Regional project) and a pipeline project to be implemented in Tajikistan, that both will support the implementation of this GEF project.

D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)
FAO	GET	Tajikistan	Biodiversity	BD STAR Allocation	1,776,484	168,766
Total Grant Resources(\$)					1,776,484.00	168,766.00

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required **true**

PPG Amount (\$)

50,000

PPG Agency Fee (\$)

4,750

Agency	Trust Fund	Country	Focal Area	Programmin g of Funds	Amount(\$)	Fee(\$)
FAO	GET	Tajikistan	Biodiversity	BD STAR Allocation	50,000	4,750
Total Project Costs(\$)					50,000.00	4,750.00

Core Indicators

Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
0.00	22344.00	0.00	0.00

Indicator 4.1 Area of landscapes under improved management to benefit biodiversity (hectares, qualitative assessment, non-certified)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
	20,144.00		

Indicator 4.2 Area of landscapes that meets national or international third party certification that incorporates biodiversity considerations (hectares)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Type/Name of Third Party Certification

Indicator 4.3 Area of landscapes under sustainable land management in production systems

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
	2,200.00		

Indicator 4.4 Area of High Conservation Value Forest (HCVF) loss avoided

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Documents (Please upload document(s) that justifies the HCVF)

Title	Submitted

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female		1,185		
Male		1,185		
Total	0	2370	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

Core Indicator 4: Total of 22,344 hectares comprising Output 1.1.5 updated management plan for the 2 protected areas (Sarikhosor Park 300 ha and Kusavliyskiy reserve 19,844 ha) and additional 2,200 hectares comprising 1,600 hectares as on-farm agrobiodiversity conservation involving 1,400 farmers (1,400 farmers x 1.15 = 1,600 hectares). And Output 1.1.5 ? 600 hectares as establishment of 10 genetic reserves (10 x 60 hectares = 600 hectares outside protected areas). Area of landscapes under improved management include areas able to benefit biodiversity (qualitative assessment and non-certified) including changes in the agriculture system, and the integration of biodiversity-friendly practices. Changes in practices will be used to monitor the process. Also monitoring of Aichi target 7 will be used. Core Indicator 11: Total of 2,370 beneficiaries comprising (i) 1,400 farmers (Output 1.1.5 covering 1,600 hectares); (ii) 600 farmers (Output 1.1.5 with 80 active on-farm sites and 3 community seed banks); (iii) 160 farmers (Output 2.1.1) based on 80 farmers for Land Race maintenance and 80 farmers for improved Landrace products; (iv) 10 breeders (Output 2.2.2) and (v) 200 farmers (Output 3.1.2) as follows: 100 farmers for ABD conservation and 100 farmers for LR derived commodity enhancement.

Part II. Project Justification

1a. Project Description

1. The global environmental context

Many key components of biodiversity for food and agriculture at genetic, species, and ecosystem levels are in decline.[1]¹ Evidence suggests that both crop landrace (LR) and crop wild relative (CWR) genetic diversity is being rapidly eroded and even extinguished globally, plant diversity in farmer's fields is decreasing and threats to diversity are increasing. Key drivers like destruction or degradation of habitats, overexploitation, intensive agriculture, pests, and pollution have led to the decline of many species that contribute to vital ecosystem services including pollinators, natural enemies of pests, soil organisms and wild food species.[2]² This decline is exacerbated by climate change, which has become an immediate threat to subsistence and food security. Climate change is also an important obstacle to achieving the 60% growth in world food production that will be necessary by the year 2050.[3]³ The trend can be reversed but not without a documentation of the extent of the problem[4]⁴ and evidence-based conservation planning including production of inventories of diversity; mapping hotspots; the identification of stakeholders and the fostering of linkages between them; identifying different needs and interests of men and women, the definition of priority activities and the mainstreaming of validated practices as this project proposes.

The above-mentioned drivers of change have also resulted in the degrading or loss of natural habitats for CWR and wild plants that are harvested for food. The *ex-situ* conservation of the genetic diversity of crops and their wild relatives has not kept up with the pace of this erosion of genetic diversity[5]⁵, while *in-situ* conservation practices remain under-explored as a complementary alternative[6]⁶. In fact, in many countries, the conservation of plant genetic resources for food and agriculture (PGRFA) in their natural habitats, where they could continue to evolve adaptive traits, receives at best disjointed attention from disparate public institutions and civil society entities that intervene in concerted manners although not in a sufficient regular basis. The inevitable consequence, therefore, is that many sources of the traits that could be used to develop the resilient and nutritious crop varieties needed to feed an over-increasing population in the face of climate change are going extinct. Equally worrisome, the loss of these natural habitats and the PGRFA that populate them, rob our agricultural and food systems of the very vital ecosystem services that are needed to develop production systems that have minimal environmental footprints.

1.1 Agrobiodiversity in Tajikistan

Tajikistan with its complex topography and various associated micro-climates is a key component of one of the eight global centres of origin and diversity for many crop species identified by Vavilov in 1926, as well as being an important secondary centre of diversity for introduced crops (see

Table 1 in Annex I)[7]⁷. As such it is home to significant ABD of national, regional and global importance. Many fruit trees and CWR are included in the Red Data Book of the Republic of Tajikistan.

In 2019, the area of intensive garden management in Tajikistan increased by 197.7 hectares, new orchards were planted on an area of 3,285.9 ha, of which 2,938.4 ha are orchards and 347.5 ha are new vineyards. Also, in the same year, old gardens were reconstructed on an area of 2,959.3 hectares. The area of orchards and vineyards is increasing mainly due to the re-development of previously fallow and rainfed lands and improving the reclamation state of the areas. In recent years, the Ministry of Agriculture has been paying particular attention to the development of the horticulture and viticulture sector[8]⁸.

The evolution of vegetable crops has taken place continuously over millennia in Tajikistan through a process of domestication and diversification mediated by farmers using traditional production practices still today maintained throughout Tajikistan. The element of agrobiodiversity most often recognized by farmers and breeders in Tajikistan is traditional landraces that are most often maintained in small land plots close to/in villages, which are neither practical nor appropriate to declare as protected areas but could form part of on-farm conservation networks thus far unrecognized in Tajikistan. Native landrace conservation has been the primary focus of national gene banking activities as this material is most easily utilised by farmers and breeders alike, also there are 1.64 million seeds originate from Tajikistan in the Svalbard Global Seed Vault. The Country Report for the Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture[9]⁹ states that there are 5,317 samples held by the Farming Institute and the Pamir Biological Institute, of which 981 are local landraces (a more recent estimate is provided in Table 2 of Annex I), 1,775 are breeders' lines and 3,000 are *Aegilops tauschii* accessions. As such, environmental policy, including biodiversity policy, does not include provisions on conservation of agrobiodiversity. Considering the national importance of agriculture in Tajikistan and therefore the key role agrobiodiversity in sustaining crop production, this is a significant gap. Since 2000 the Farming Institute has collaborated with International Center for Agricultural Research in the Dry Areas (ICARDA), who promoted the establishment of the first gene bank and subsequently engaged in several joint collection missions during which 2,350 crop landrace and CWR accessions were collected (see summary Table 3 and Table 4 of Annex I for the Study area).

Until recently CWR diversity conservation has been largely ignored within country and the CWR collections sampled were made in collaboration with ICARDA (see Table 3 of Annex I). Yet many of the locally domesticated crop species have their wild relatives growing sympatrically with their associated crops in Tajikistan. So potentially genetic exchange may still occur, enabling continued introgression between the crop and the wild forms. It is important to stress that the genetic diversity of agricultural biodiversity in Tajikistan provides a basis for its future food security, but also globally food security because it is at the heart of a centre of crop diversity and hold unique diversity of importance in mitigating the impact of climate change on food production. CWR contain the greatest wealth of traits needed for adaptations to specific local agroecological conditions and resistance to indigenous pests and diseases. A recent global analysis of CWR diversity listed 99 global important CWR native to Tajikistan[10]¹⁰ (see Table 5 of Annex I), 30 of them with known present in the project target areas (Table 4 of Annex I). The continuing erosion of CWR genetic diversity in Tajikistan prevents Tajik scientists and the international community from having access to unique sources of traits for improving

crops that, though originated in Tajikistan, have become fundamental elements of food security and nutrition and sources of livelihoods worldwide.

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FAO[11]¹¹ has suggested the application of *ex situ* gene banking alone does not conserve sufficient diversity for breeders' use in crop improvement and *in-situ* techniques should also be applied in a complementary manner, and further that the most effective form of *in-situ*/on-farm conservation will involve individual site collaborating in a network structure. Networks of on-farm conservation for crop landraces and genetic reserves for *in-situ* CWR conservation have yet to be established in Tajikistan and without the support of the GEF, basic efforts to conserve biodiversity in Tajikistan will neglect issues of the breadth of indigenous agrobiodiversity. Further, the value of genetic resources nationally in Tajikistan and globally has been under-appreciated. No comparative figures exist for crop landraces value but the estimated global annual use value of CWR diversity for 26 top global crops is US\$115-120 billion[12]¹² compared to annual cost of complementary *in-situ* / *ex-situ* conservation would be less than US\$1 million. Therefore, the cost to benefit balance is firmly in the benefit of agrobiodiversity conservation, particularly in a country like Tajikistan with such agrobiodiversity wealth.

1.2 Legal and policy framework

The National Development Strategy of the Republic of Tajikistan for the period up to 2030[13]¹³ sets the framework for defining national priorities for achieving key development goals.

Taking into consideration of its international commitments and the SDGs, the strategy provides guidance on responsibilities of key agencies and measures to strengthen institutional development, effective control, transparency and governance in combatting corruption and ensuring financial accountability as well as measures to strengthen civil society's role in social development. In general, this document serves as a directive action plan for all state bodies and an indicative action plan for the private sector and civil society. The Development strategy comprises 4 main goals, a) Ensure energy security and efficient use of electricity; b) Overcome the communication deadlock and turn country into a transit country; c) Ensure food security and public access to good quality food and nutrition; and d) Improve opportunities for productive employment.

Specifically, this project will support the achievement of the goal, c) Ensure food security and public access to good quality food and nutrition - by strengthening the national capacity to develop policies and mechanisms to support agrobiodiversity conservation, sustainable use and adaptation. Several legal frameworks and policies related to agrobiodiversity are present in Tajikistan, the relevant ones are summarized in **Table 1**.

Table 1. Legal and policy framework

#	Date	Name of law or regulations	Areas /law regulation applies to
LAWS OF TAJIKISTAN RELATED TO AGROBIODIVERSITY PROTECTION AND USE			

1	2002	Law on Environmental Protection	This Law defines the legal foundations of state policy for environmental protection and is aimed at ensuring sustainable socio-economic development, guaranteeing human rights to a healthy and favourable environment, strengthening the rule of law, preventing the negative impact of economic and other activities on the environment, and organizing the rational use of natural resources, identifying payments for use of natural resources and environmental safety.
2	2002	Law on Specially Protected Natural Areas and Sites	This Law defines the legal, organizational and economic foundations of specially protected natural territories, establishes their tasks, mode of operation and zoning.
3	2003	Law on Ecological Expertise	This Law regulates the general procedures for organizing and conducting environmental impact assessments ? including impact to agrobiodiversity - determines the rights and obligations of parties involved in environmental impact assessments, establishes the rights of citizens to receive information about the environmental hazards of designed and operated facilities adopted on its basis, the procedure for appealing opinions and considering disputes, and also establishes liability for violations of environmental law.
4	2006	Law on other mandatory payments to the budget	This Law establishes the types of other obligatory payments to the budget not determined by the Tax Code of the Republic of Tajikistan, payers, the procedure for their calculation and payment. The following basic concepts apply in this Law: Other obligatory payments - obligatory payments to the state budget (hereinafter - the budget), payment which is one of the conditions for commissioning by authorized body legally significant actions, as well as granting certain rights or issuing permits for use natural (payments for use of natural resources) or other resources;
5	2008	Law on Protection and Use of Flora	This Law establishes the principles of the state policy for protection and rational use of flora, defines the legal, economic and social foundations that underlie and aims to preserve and promote its rational use.
6	2011	Law on Environmental Protection	This Law defines the legal foundations of state policy for environmental protection and is aimed at ensuring sustainable socio-economic development, guaranteeing human rights to a healthy and favorable environment, preventing the negative impact of economic and other activities on the environment, and organizing the rational use of natural resources and environmental safety.
7	2012	Law on Genetic resources	This Law establishes the legal foundations of state policy in relation to genetic resources of cultivated plants and their wild relatives, and regulates collection, conservation, research and rational use for the purpose of supporting the agricultural industry, ensuring food, environmental and biological safety, and carrying out research, breeding, educational activities, as well as ensuring the preservation of the socio-cultural and historical heritage in the interests of present and future generations.
GOVERNMENT RESOLUTIONS			
8	2008	Forestry Code	This Code governs forest relations and aims to create conditions for the rational use of forests, their conservation and protection, improvement of the natural environment, the production of forest and agricultural products.

9	2016	National Development Strategy	The NDS's main focus is on Sustainable Human Development, including the complete eradication of poverty, the change from unsustainable use to promotion of sustainable patterns of consumption and production, as well as the protection and rational use of natural resources for further economic and social development that are vital conditions for Sustainable Human Development.
10	2013-2020	Economic Development Plan	The Regional Development Program is annually developed by the Ministry of Economic Development and Trade and deals with expanding horticulture and the conservation of agrobiodiversity in mountainous areas
11	2009-2019 and draft (2020 - 2030)	State Ecological Programme	The State Environmental Program of the Republic of Tajikistan is the umbrella program that defines the main directions for sustainable development of society, maintaining a balance between natural resources and its users, organizing and coordinating relations between users of natural resources and nature itself, healthy development of society, rational use of natural resources, as well as ways to restore the destroyed ecological space. The first program was developed for a period of 10 years (2009 ? 2019) and a second program is under development and adoption by the end of 2020
POLICIES			
12	2005	National Action Plan and Report on Building Capacity to Implement Commitments on Global Environment Conventions	Recognizes the importance of restoring degraded agro-ecosystems to their previous state. It also supports the application of traditional methods of agrobiodiversity conservation and its rational use. It identifies agriculture as the priority sector for adaptation measures and technologies. In terms of agrobiodiversity, the document outlines the need for the improvement of the legislative base for the implementation of government policy in relation to agrobiodiversity.
13	2006	National Environmental Action Plan (NEAP)	The NEAP defines the action plan for national biodiversity conservation and has a dedicated session (3.9) for biodiversity and agrobiodiversity conservation, including measures to preserve agrobiodiversity in cultivated lands.
14	2016	National Strategy and Action Plan for Biodiversity Conservation (NBSAP)	The NBSAP defines the priorities and direction for sustainable use and conservation of biodiversity. These policies place emphasis on the sustainable use of agrobiodiversity.
15	draft	Biocultural protocols for access and benefit sharing	Based on the Nagoya protocol guidance, Tajikistan is developing national guidelines for the biocultural protocols on ABS. It is expected to be finalized by the end of 2020.
16	draft	Access and benefiting sharing legislation	A new Law of the Republic of Tajikistan on the genetic resources of cultivated plants is under development, but it does not include access to and distribution of benefits from genetic resources. This issue is still under discussion.
INTERNATIONAL CONVENTIONS			
17	1997	Convention of Biological diversity	The international framework for "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources."

18	2004	Nagoya Protocol	International framework on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits arising from their Utilization to the Convention on Biological Diversity which create the international legal framework for sharing benefits arising from the utilization of genetic resources in a fair and equitable way.
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Institutional structure for the conservation and sustainable use of agrobiodiversity in Tajikistan

The institutional framework in Tajikistan for the conservation and sustainable use of agrobiodiversity consists of a number of national institutions and organizations (Figure 1). The Committee for Environmental Protection under the Government of the Republic of Tajikistan is responsible for the implementation of all the environmental policies for sustainable use of natural resources. Under the committee's coordination functions there are the following institutions:

- ? National Centre for Environmental Protection Actions (NC EPA) is responsible for the development and implementation of National Environmental Action Plans and the development of digital data bank for ecological monitoring of priority actions for natural protection (Biodiversity, Protected Areas, wetlands, wastes, hygiene and water resources).
- ? The Biodiversity and Biosafety Centre is responsible for maintaining policies and issuing permits for the conservation and use of agrobiodiversity genetic resources in accordance with the Nagoya and Cartagena's Protocols.
- ? The State Institution of Specially Protected Natural Areas is responsible for the conservation of wild relatives of genetic resources in designated protected areas.
- ? State institution Research Laboratory on Nature Protection provides scientific justification for priority activities on sustainable natural resource use and works on creation of a database on flora and fauna. Also, it defines the scientific rationale for the selection of adapted species, varieties and the development of climate adaptation models.
- ? Agency on Hydrometeorology under CEP is responsible for development of climate adaptation modelling.
- ? The National Academy of Science provides the scientific expertise and capability to underpin decisions and actions in the field of sustainable natural resource use.
- ? The Institute of Botany, Genetics and Plant Physiology of the National Academy of Sciences of the Republic of Tajikistan is responsible for the *ex-situ* conservation of the national flora and the preservation of the GR collections.[14]¹⁴

- ? The Pamir Biological Institute develops scientific foundations and methods for the protection, rational use and monitoring of the state of biological diversity of the Pamir flora, covering genetics, breeding and seed production of crops; collection and compilation of a data bank on the local gene pool of agricultural crops and their preservation; development of the scientific basis for the introduction and acclimatization of plants in high mountains.
- ? The Academy of Agricultural Sciences and its subordinate institutions are responsible for supporting the implementation of policies for the conservation of the genetic resources of agrobiodiversity and agriculture.
- ? The National Centre for Genetic Resources is responsible for maintaining the database and gene bank for the genetic resources of fruit, grain and leguminous crops, creating collection gardens preserving species and exchanging germplasm.[15]¹⁵
- ? The Institute of Agriculture is responsible for the introduction of new highly productive varieties of grain and fruit crops and the preservation of traditional species and crops.
- ? The Institute of Animal Husbandry deals with the breeding of meat and dairy cattle, small cattle, birds, fish, beekeeping, rational use of pastures, forage production, the development of livestock biotechnology.
- ? Institute of Bogparvar Gardening and Horticulture of the Tajik Academy of Agricultural Science- TASHN has planting materials and seedlings of fruit and berry crops.[16]¹⁶ The Institute is responsible for the development of fruit growing and the creation of super-intensive and hyper-intensive varieties of fruit crops.
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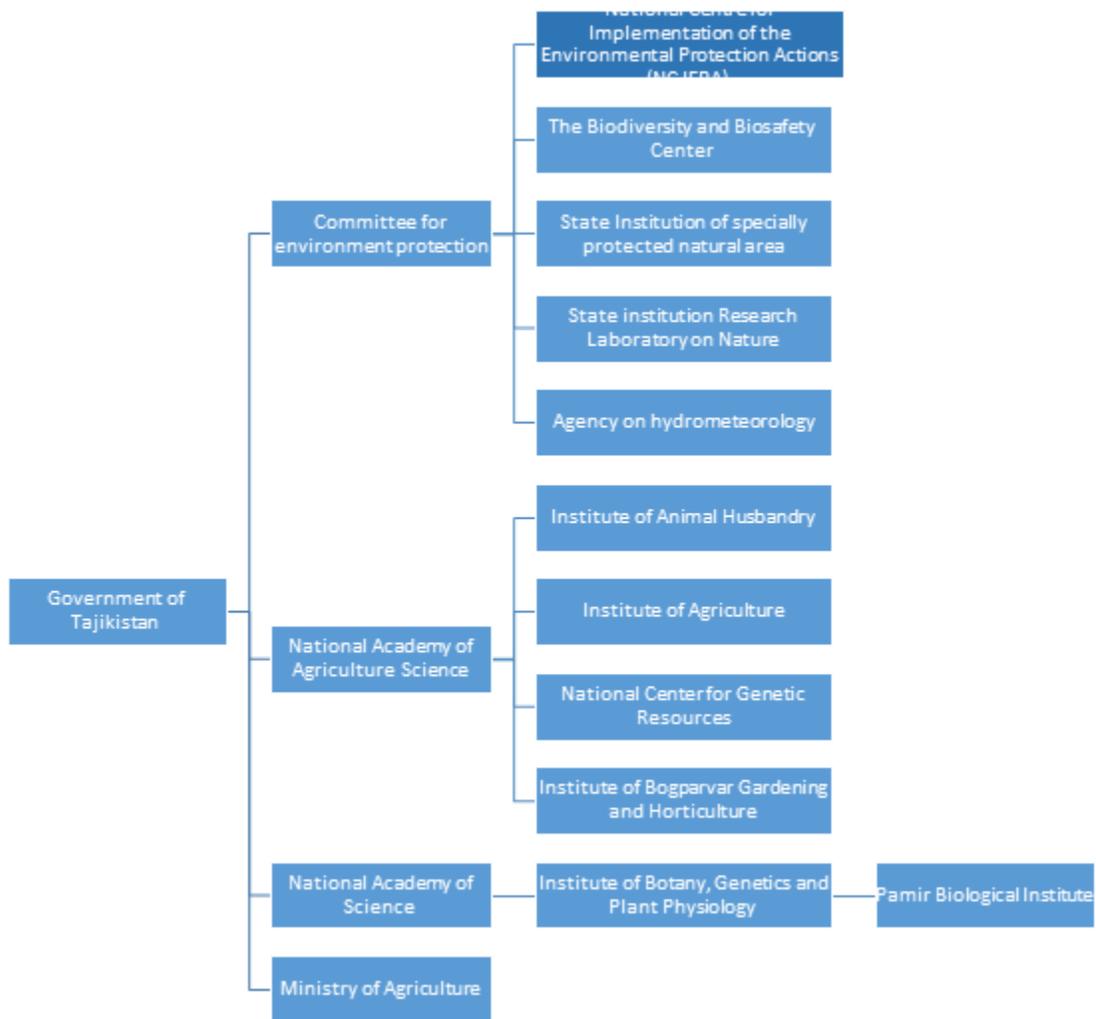


Figure. 1 Institutional structure for the conservation and sustainable use of agrobiodiversity in Tajikistan

The project will be implemented by the National Centre for Environmental Protection Actions (NC EPA) which is responsible for the development and implementation of National Environmental Action Plans, monitoring and definition of priorities actions for environmental protection. During the implementation of components 1 and 3, they will play a key coordination role to assure broader stakeholder participation. For the implementation of Output 3.1.2, it is expected that several of the legal frameworks discussed earlier will be updated.

1.3 Area of intervention

Central Asia comprises the republics of Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan and Turkmenistan. The area is botanically relatively well known, being extensively studied during the Soviet era. It was covered by the All-Union Flora (or Union of Soviet Socialist Republics Soyuz Sovetskikh Sotsialisticheskikh Respublik)(SSSR) and then by individual Floras for each republic, Flora

Tad?ikskoj SSR[17]¹⁷ was started in the 1930s and completed in 10 volumes in 1991[18]¹⁸, including 4513 species. However, it is for its wealth of agrobiodiversity that Tajikistan is globally known. Vavilov first visited in 1916 and noted the wealth of cold-tolerant crop diversity and later included it in his Southwest Asia Centre of diversity, Sub-Centre of the Near East Centre, noting particular diversity in barley, vetchlings, peas, beans, millet, rye and wheat, as well as less commonly cultivated turnip, tobacco, safflower, chickpeas, cotton, sesame, mulberry and grapevine[19]¹⁹. With the breakup of the Soviet Union in late 1980s and the civil war in Tajikistan (1992-7) the country has not developed as might have been expected and although post-millennium agricultural intensification has occurred there still exists a wealth of traditional crop landraces and CWR diversity of significant value to future crop improvement in Tajikistan and globally.

The conservation of agrobiodiversity is largely focused on maintaining landraces and CWR diversity. Therefore, the sites for active conservation are those that are considered hotspots of diversity (= agrobiodiversity richness), with high numbers of crops, landraces within those crops and CWR taxa. The landraces and CWR present are endogenous, in that they have evolved over time with locally derived characteristics. Ideally, sites would be chosen to deliberately complement each other to maximize the ecogeographic, genetic and taxonomic diversity conserved[20]²⁰. Specifically, for sites where landrace diversity would be conserved on-farm, the site should have high intra-crop genetic diversity, have not been previously involved in conservation/development activities that may have introduced exogenous diversity, have high pest and disease diversity so that populations may have evolved resistant traits, where on-farm intervention would be sustainable and cost effective and presence of wild and weedy relatives of the target crops would be an additional benefit. There would also need to be a willingness of local communities to engage in project activities. There is the possibility that they already participate in local diversity fairs so that they understand the value of diversity and are actively involved in their own landrace improvement programmes. The key partners are likely to include governmental agricultural extension workers, non-governmental organizations, community leaders and of course enthusiastic farmers. The farmers themselves should reflect a balance of differing ages and landrace cultivation experiences, wealth levels, gender, local ethnic diversity and be willing to be involved in participatory plant breeding. The sites and farmers also need to have access to existing and potential landrace product markets, credit support and indicate some evidence of enhanced landrace maintenance sustainability post-project[21]²¹.

While specifically for sites where CWR diversity is to be conserved in genetic reserves the criteria of richness, diversity complementarity, and ecogeographic, genetic and taxonomic diversity ? though for CWR taxonomic diversity would be essential and possibly that taxa were endogenous, native or endemic. Obviously the CWR population should be healthy and not subject to any specific threats. The link between CWR *in-situ* conservation and the local community is less stronger than for landraces, but the site managers must be willing to permit amendment of site management plans to ensure CWR active maintenance at the site and be able to make a long-term commitment to conservation, so that conservation is sustainable in the post-project period. Even though local farmers, land managers and communities may not have actively managed CWR populations previously they are likely to recognise the CWR taxa, understand the relationship between them and the associate crop, and may hold traditional/local knowledge associated with the taxa at the site. Finally, for both in-situ conserved landrace or CWR population there should be a commitment from the site managers/farmers

to sharing population samples for utilization, ensuring site/populations are accessible for sampling, *ex-situ* backup, user availability via Standard Material Transfer Agreement (SMTA) and benefit sharing protocols[22]²²,[23]²³.

Having listed the criteria for selection of sites for agrobiodiversity, the sites selected are possibly not those richest in landrace or CWR diversity in Tajikistan. Some preliminary CWR data analysis for 323 records from 43 priority CWR taxa[24]²⁴ found Northwest Tajikistan as the region of high CWR richness. National CWR hotspots are located in the Khudjat, Panjakent and Ayni districts in the Sughd province (Figure 2). Twenty-nine grids of 20 x 20 km are needed to conserve the 43 taxa for which occurrence data are available (Figure 3). The first priority grid cell with 5 priority CWR is located in the Panjakent district (in red below), the second priority grid cell with four different CWR is located in the Khudjand district (in orange), and the third one with three new taxa is also located in Panjakent (yellow).

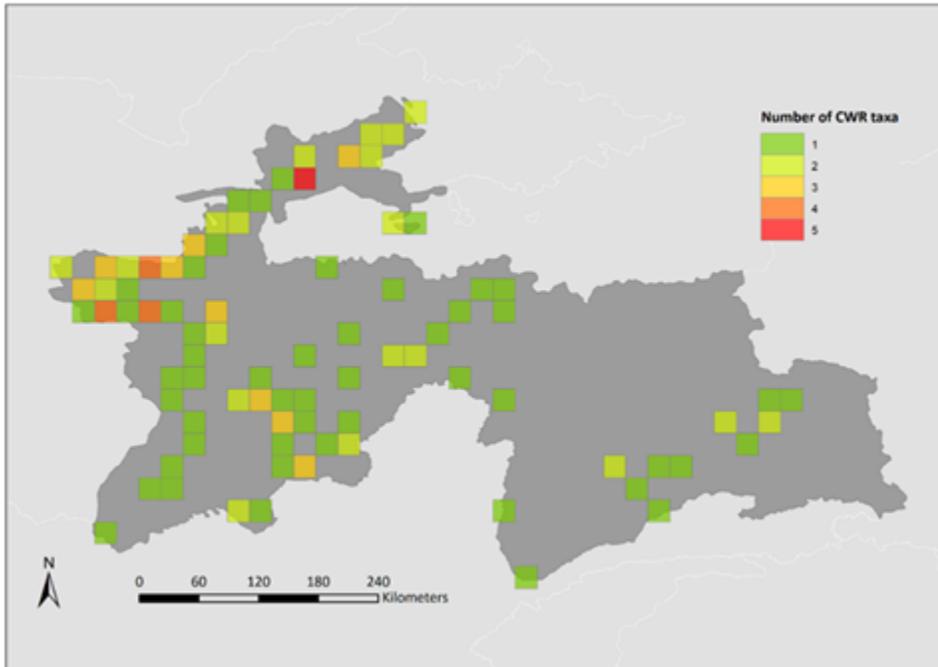


Figure 2. Taxon richness based on the occurrence data collated for the 43 priority CWR.

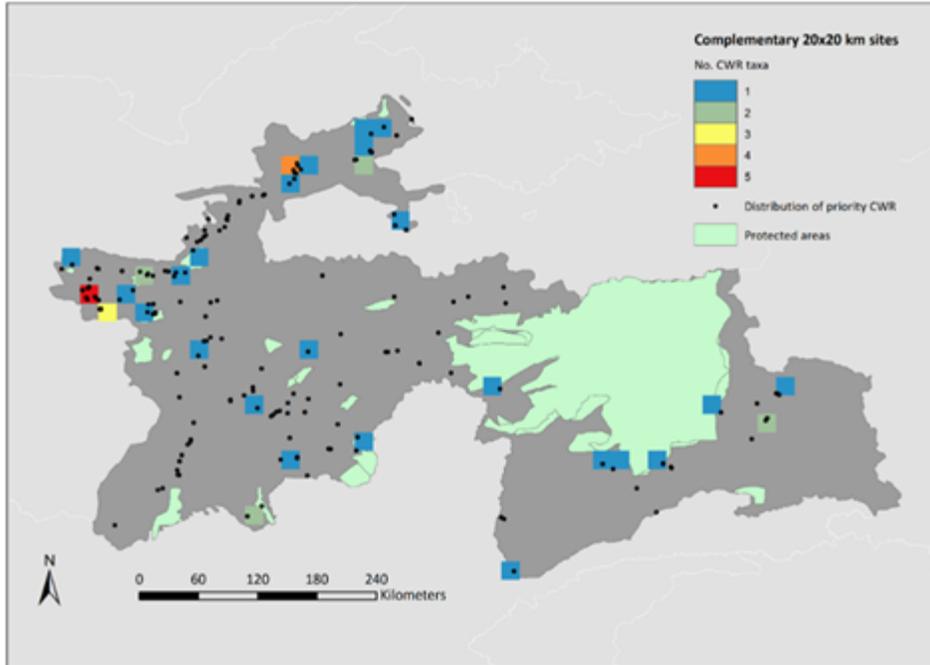


Figure 3. *In-situ* complementary network of the 29 grids of 20 x 20 km that conserve 43 of the 113 priority CWR.

Although the preliminary analysis was constrained by the lack of available georeferenced data, it is well recognized that North and West Tajikistan are hotspots of agrobiodiversity. Two of the three districts finally selected for the project are from this region. It is also noted that both Rasht and Tajikabad districts are under-surveyed. Additionally, it is recognized that Shahruston district is important for the conservation of the *Allium* gene pool where the only recorded population (currently available) of *A. gusaricum*, an endemic species of Tajikistan and Uzbekistan that is Near Threatened both nationally and globally [25]²⁵ is found. Additionally, *A. crystalinum*, another endemic species of Tajikistan and Uzbekistan that is Vulnerable at both national and global levels, also occurs in the Shahruston district as well as the more common *Aegilops tauschii*, which is nevertheless Near Threatened in Tajikistan. The Baljuvan district also includes two populations of *A. gypsodictyum*, a relatively uncommon endemic species of Tajikistan and Uzbekistan that is Endangered at both national and global levels, as well as four populations of *A. tauschii* and *Hordeum geniculatum* which has been assessed as Near Threatened in Tajikistan (Nowak *et al.* 2020).

The final selection of sites is based less on absolute agrobiodiversity richness, due to the lack of adequate georeferenced information, but more on known presence of endogenous landrace and CWR diversity, ease of access for sampling, likelihood of post-project continuation, the lack of prior development projects and to avoid duplication of activities in the same area of the two other projects foreseen in southern Tajikistan: (1) UNDP/GEF7 project "Conservation and sustainable management of high-value arid forest ecosystems in the lower Amu Darya landscape" and (2) Green Climate Fund financing project via UNDP has been avoided) and the willingness of the local communities to engage in project activities. Further, the districts were selected because they represent different traditional farming systems and different types of biodiversity interactions, therefore different approaches (including different actors) can be tested to mainstream biodiversity protection and sustainable use of genetic resources. Considering these criteria, Rasht, Tajikabad, Shahruston and Baljuvan districts were selected to focus project activities (See Figure 4). These landscapes are home to four Key Biodiversity Area and other Protected Areas (see Figure 5) currently receiving significant pressure from

anthropogenic activities. The main characteristics of the selected districts are described in Table 2 below.

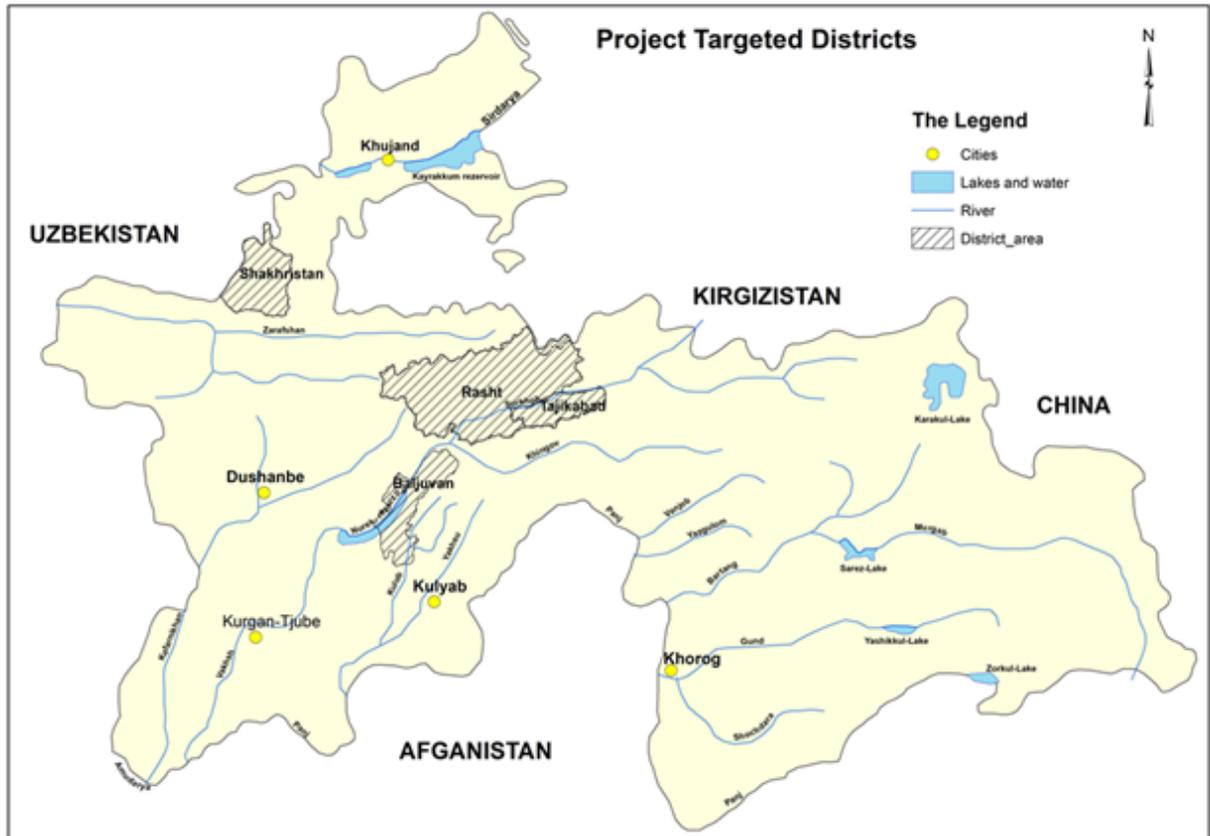


Figure 4. Proposed areas of intervention.

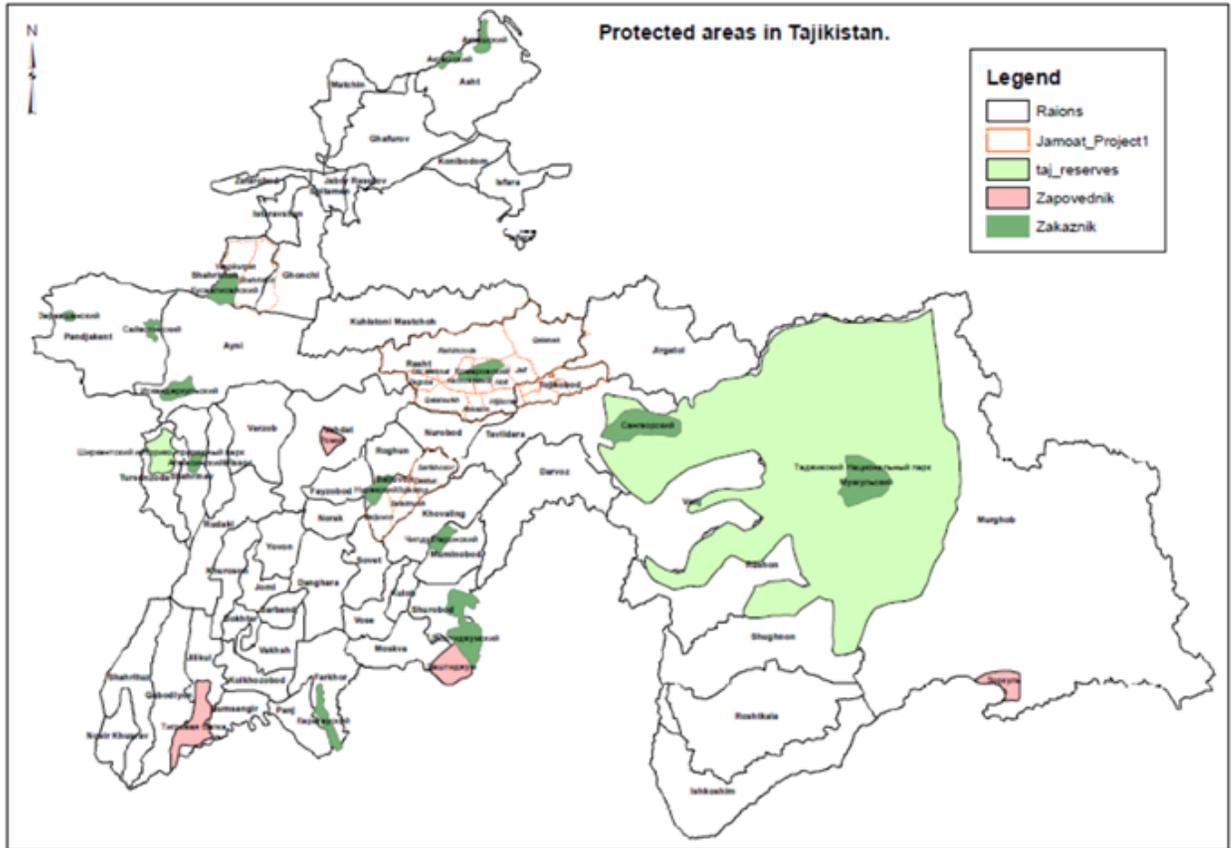


Figure 5. Protected areas in Tajikistan.

Table 2. Statistics data of project areas (numbers in hectare)

Land area	District			
	Rasht	Tajikabad	Baljuvan	Shahrison
Total land area	461,360.52	73,437	132,662	114,263
Irrigated land	4,743	3,199.27	104	13,388.74
Rainfed land	-	-	4440	-
Dry lands	102	-		-
Gardens	1,830.89	472.84	1,488	996.29
Vineyards	3	-	42	-
Mulberry	182.01	23.7	18	-
Pastures	161,281.18	35,793.26	80,647	53,561.81
Hayfield	-	-		
Forests	3,846	54	8,776	28,397.45
Protect area	9,000		3,000	19,844

Other lands	289,287	33,894	37,147	11,493.10
Collective farms	-	-	-	4
State farms	-	-	-	3
Subsidiary farms	33			-
Cooperative farms	1	2	-	3
Farms	-	7	-	-
Dekhkan farm[26] ²⁶	2,275	1,473	-	53
Agro-industrial complexes	-	-	-	-
Schools	111	43	45	21
Medical Items, ambulatories	366	180	175	165

Table 3. Selection characteristics summary for Rasht, Tajikabad, Baljuvan and Shahrston districts.

Selection characteristics	Districts			
	Rasht	Tajikabad	Baljuvan	Shahrston
Basic descriptive data				
Area (Km ²)	4,613	734	1,327	1,142
Population	106,385	42,863	29,977	39,331
Annual Precipitation (mm)	800-1,200	1,800-2,000	500-600	1,500-1,800
Main environmental threats	Cutting trees, land conversion, pasture degradation and pasture pollution, and erosion.	Pasture degradation and pasture pollution, and soil erosion.	Pasture degradation and pasture pollution, and soil erosion.	Forest and pasture degradation, deforestation
Biodiversity and agriculture				
Main type agriculture	Gardening, grain growing, animal husbandry, beekeeping	Gardening, grain growing, animal husbandry, beekeeping	Gardening, grain growing, animal husbandry, beekeeping	Gardening, grain growing, animal husbandry, beekeeping

Main crops	Wheat, barley, rye, oats, flax, alfalfa	Bearded oats, fluffy oats, wild barley, and Turkestan barley), grain legumes (field peas, Dzhungar peas, eastern lentils, Kokand vetch),	Wheat, barley, rye, oats, flax, alfalfa	Bearded oats, fluffy oats, wild barley, and Turkestan barley), grain legumes
Number dekhkan farms	2,275	1,473	108	53
Number collective farms	2	2	5	3
Wild flora	Semi-savannah, xerophilous and mesophilous forests, junipers, meadows, steppes and gardens. Over 1203 plant species belong to 95 families and 522 genera. About 200 species are endemic.	Semi-savannah, xerophilous and mesophilous forests, junipers, meadows, steppes and gardens.	Xerophytic woodlands	Mountain forest juniper forests and juniper trees
IUCN threatened taxa	<i>Juno tadshikorum</i> , <i>Rosa longisepala</i> , <i>Taraxacum srtizhoviaae</i> , <i>Ungernia tadshikorum</i> , <i>Ionicera heterotricha</i>	<i>Rosa longisepala</i> , <i>Juno tadshikorum</i> , <i>Juno popovii</i> , <i>Iris Hoogiana</i> , <i>Iris darvasica</i> , <i>Lonicera paradoxa</i>	<i>Pyrus tadshikistanica</i> , <i>Ranunculus baldshuanicus</i> , <i>Iris hoogiana</i> , <i>Tulipa praestans</i> , <i>Malus sieversii</i> , <i>Salvia baldshuanica</i> , <i>Pyrus kajon</i> , <i>Crategus necopinata</i>	<i>Lonicera paradoxa</i> , <i>Cousinia darwasica</i> , <i>Carex bucharica</i> , <i>Roegneria carinata</i> , <i>Iris hoogiana</i> , <i>Rochelia claviculata</i>

The administrative division of the country is established by its parliament and consists of three tiers of local government. These tiers are described below;

? First tier: sub-district- or jamoat-level. These are village and town governments in rural areas.

? Second tier: district- or raion-level. These are the administrations of large cities and raions which are subordinate to oblasts

? Third tier: oblast-level. These are the administrations of the capital city Dushanbe, as well as the oblasts of the Gorno-Badakhshan

For the current project, the description of the intervention areas was done at district level. The project will target three areas in four districts of mountainous agriculture. These are Shahrison in the North, Baljuvan in the south and Rasht and Tajikabad in the central part of the country. These districts have been selected because of engagement in mountain farming and the preservation efforts of genetic resources of agrobiodiversity since ancient times. Detailed information on the four districts is provided in Annex E.

1.4 Main threats to agrobiodiversity in Tajikistan

The threat to agrobiodiversity in Tajikistan may be more precisely characterised as threat to the endogenous diversity of crop landraces and CWR found in the country. In terms of loss of indigenous crop landraces, there has been significant loss in recent decades due to the widespread introduction of improved cultivars of major crops like wheat, rice, cotton and vegetables[27]²⁷. Nonetheless, significant diversity still remains in minor or underutilized crops, where the economic returns are less attractive to encourage farmers to undertake local landrace cultivation. A similar situation exists nationally for minor or underutilized crops, where the conservation advantage of cultivating local adapted landraces or varieties as opposed to exotic introduced genetically uniform varieties is not economically attractive. However, there has been a concerted effort by local and regional organizations to retain and conserve local crop material.[28]²⁸

Similarly, the conservation of fruit-tree diversity in Tajikistan also has significant challenges[29]²⁹. To date, conservation of wild fruit crops has been via the implementation of government-managed protected areas with minimum participation of forest dwellers or rural communities. While protected areas in the region have offered some protection to wild fruit crops, most notably the wild ancestor of apple, *Malus sieversii* (Ledeb.) M.Roem, which has global significance, but assessed as vulnerable and less effectively managed and conserved in Tajik protected areas[30]³⁰. The threats to the populations are recorded as residential and agricultural intensification, cutting of trees for logs and genetic pollution from exotic commercial varieties grown within cross-pollination practice. Such threats are likely to have much wider impact than just on the apple progenitor populations. Therefore, conservation of wild fruit crops in the region requires a shift towards more active conservation in which targeted actions promote the maintenance of the natural ecosystems that contain targeted taxa and exclude exotic or introduced varieties of the crop[31]³¹. Further actions to conserve CWR include the development of national strategies[32]³², the conservation of genetic reserves outside of specially protected territories[33]³³, the development of inventories to monitor genetic variability and erosion, and the development of policies and incentives to ensure local communities are adequately motivated to secure their important genetic resource[34]³⁴.

In the past decade, habitat degradation in Tajikistan worsened significantly due to the increase of the population and the demand for new agricultural land since approximately 94% of the population relies on agricultural income for their livelihoods[35]³⁵. This is compounded by the fact that many rural people are new farmers and are not familiar with current natural resource management practices. The problem can be illustrated with the case of the IUCN Red List species of wild apple

progenitor *M. sieversii*[36]³⁶. The assessment of threats to these species could easily be mitigated by adoption of a more holistic view to rural land management. The people in the region are proud of their heritage and natural resources, but they require a better education on how to conserve and maintain these resources.

Within this context, globally important biodiversity in the forests, pastures, and farms in Tajikistan is under threat. The root causes of biodiversity degradation are summarized in the country's 5th report to the CBD, as well as other recent studies[37]³⁷,[38]³⁸. The underlying causes of agrobiodiversity degradation in Tajikistan include: (i) human population growth that increases demand on food production, (ii) human population growth causing habitat destruction or fragmentation, (iii) the heterogeneity of economic conditions in the country, (iv) the overexploitation of natural resources as a means of short-term and quick returns, and (v) climate change[39]³⁹. These threats are discussed in more detail below.

1.4.1 Human population growth requiring increased food production Intensive agricultural production

Modern agricultural production in Tajikistan is based on a limited range of crops that are cultivated on a large-scale intensive agricultural production model, characterized by monocultures of a very narrow range of crops and varieties, thereby displacing many unique Tajik crop landraces in the last decades. Consequently, genetic erosion is threatening both agrobiodiversity crops and varietal diversity, meanwhile traditional varieties are considered 'obsolete' and are continued to be lost where native crops and associated species have survived. And it is largely due to traditional communities that keep on cultivating them.

Plant genetic resources are being lost in Tajikistan due to the spread of monoculture systems, introduced exotic varieties, excessive use of external inputs, and loss of traditional management systems and knowledge due to migration of young community members to urban areas. Traditional agricultural practices where farmers freely cultivate, store and exchange their seeds have also been incrementally affected by the commercial seed sector.

With globalization, food systems in Tajikistan are increasingly influenced by large agro-industrial firms and retailers, and this trend is set to increase in the future (OECD, 2011). This tends to create unequal power relations between upstream and downstream actors in the value chain, especially with regard to smallholders and family farmers. As recognized by the 2014 International Year of Family Farming (IYFF), inclusiveness of smallholders is a key element for sustainability, and has big consequences on agricultural biodiversity, food security and social sustainability. Family farms need to exert control over the value chain to maximise their income rather than allowing this role to be played by industrial firms and retailers. When farmers have a greater role in value chains, this helps to safeguard agrobiodiversity and sustain communities and cultures.

Abandonment of traditional practices of agrobiodiversity management

One direct cause of agrobiodiversity loss is the abandonment of traditional agroecosystems, which is in turn is caused by factors such as: changes in the economic activities and income sources of rural settlers; migration from the countryside to the city; changes in land use and abandonment of the countryside by young people, meaning that there is no generational continuity in the management of traditional production practices. The precarious income from the sale of agricultural products and the monetization of the economy in rural areas means that families increasingly depend on jobs outside their family plots of land and monetarized social subsidies. Non-farming activities can be carried out in the same community, outside it, nearby or even in far-off areas or abroad. These socioeconomic changes disrupt succession of traditional practices. The children of farmers do not carry on farming

because this employment option cannot provide a reasonable income. Young people are also changing their food preference, preferring foods that come from outside the area and stop eating traditional products. Consequently, local varieties are no longer sown. Therefore, rural poverty and migration towards urban zones and abroad have deepened the effects of intergenerational loss of traditional knowledge and varieties management. In rural areas near cities, there has been a rapid change in land use from agricultural to urban. In regions further away from the influence of urban growth, other land-use changes have contributed to the loss of agrobiodiversity, for example changing from farming to livestock keeping or mono-species plantations.

1.4.2 Human population growth causing habitat destruction or fragmentation

Transformation of forests and grasslands to agricultural lands

In the past decades, agricultural land areas in Tajikistan have increased, mainly due to the cultivation of both dry and irrigated lands^[40]⁴⁰. It also includes use of land, which was previously considered marginal (critical) for cultivation, and use of agricultural land with low yield (such as wheat, linen, barley, beans and peas) in vulnerable and unique ecosystem areas, where wild relatives of globally important crops grow (e.g., persimmon, peas, pear, grapes, apples, etc.). Farmers increasingly process pastures at the slopes of mountains to grow agricultural crops, thereby destroying unique pasture ecosystems, valuable storages of globally important agrobiodiversity, particularly CWR diversity. Such land may be used only for a short period, often only for 2-3 years, then it is degraded and abandoned.

Data on forest coverage is limited, but the State Committee on Land Management has tracked forest cover in their yearbook on 'Land funds of the Republic of Tajikistan' since 2013^[41]⁴¹. Latest data available under FAO's Forest Resources Assessment (FRA) for 2019 recognises 412,000 ha as forest (3% of the total land area of 13,879,000 ha). The proportion of forestland in Tajikistan remains low compared to agricultural land that covers 4,734,700 ha or 34% of the land area of the country. Nonetheless, the country's NBSAP reports that mesophilic forest areas are dwindling and that reforestation activities are almost non-existent. In Tajikistan forest margins are a vital habitat for CWR taxa and the extent of the erosion of this habitat will impact CWR diversity, though the impact has yet to be quantified. The main driver of this degradation is the expansion of agricultural lands. Natural regeneration of pistachio plantations, for example, is very low because of the extensive use of these lands as pastures and hayfields. These forests are being replaced with secondary communities, which make poor habitats for CWR.

1.4.3 Heterogeneity of economic conditions in the country

Public policies that discourage traditional agricultural practices

Policy makers in Tajikistan have noted the importance of, and are committed to biodiversity conservation, according to the source data. However, in practice, considering limited resources and capacity, priority is given to increasing production and promoting short-term poverty-reduction programs. Forestry activities are focused on production and protection. Forestry production is almost exclusively focused on timber production. The huge potential of generating valuable non-timber forest products (i.e., fruit and nut agrobiodiversity in forests) is not considered in the current forestry policy and programs. There is thus very limited opportunity to introduce biodiversity outcomes in the forestry sector, and in particular increasing the contribution of agrobiodiversity to the economy, and, at the same time, guaranteeing sustainable use of agrobiodiversity.

Therefore, currently in Tajikistan, there is no comprehensive agricultural policy or strategy for the country. In practice, however, there are sub-sector strategies for more important crops, such as cotton and wheat. Generally, agriculture is focused on increasing yield of cotton and cereals on irrigated land. These strategies do not identify the development of agriculture in mountainous areas as a priority area. Conservation of biodiversity, including agrobiodiversity, is an even lower priority. Many

opportunities of implementing biodiversity aspects in the agricultural sector via increasing the contribution of agrobiodiversity in the economy, and, at the same time guaranteeing sustainable use of agrobiodiversity, are neglected. Until recently, decision-makers in Tajikistan have not recognized the importance of domestic gardens and traditional cultivation systems. This lack of awareness has induced major risks and negative pressures through the design of public policies that have been contradictory or have had undesired effects on agrobiodiversity. The promotion of monocropping to feed global and national markets has created serious challenges to conserve traditional species and agroecosystems in rural areas. Despite the large number of institutions, researchers and technicians that participate in work related to PGR, Tajikistan does not have satisfactory knowledge required to plan or implement conservation, use and access to plant genetic resources in the country. This is linked to limited coordination and lack of harmonization among state agencies and their respective strategies, work plans and research objectives that impact on efforts for *in-situ* conservation of native species and its wild relatives being few, occasional and discontinuous. Furthermore, although laws and regulations may exist to protect PGR they are irregularly enforced in different regions of the country[42]⁴². At the national level, important legislation related to Prior Informed Consent and Access and Benefit Sharing has yet to be fully developed, although nevertheless, it is expected by late 2020 or early 2021. Once published and endorsed it is hoped it will significantly improve agricultural practices and valorization of Tajik agrobiodiversity.

1.4.4 Overexploitation of natural resources

In the past decade, habitat degradation in Tajikistan worsened significantly as demand for new agricultural land increased alongside population growth, since approximately 94% of the population work in agriculture[43]⁴³ there is a feeling that forest equates to poor economic return and the only benefit is from complete extraction and conversion to agricultural land³⁶. The rural communities in general see the forest as an infinite resource that can sustain continued resource harvesting, rather than one that requires careful management to sustain periodic harvesting, the norm being salvage cutting for commercial sale. The threat of transformation of forests and grasslands to agricultural lands and lack of enforcement of environmental protection laws and regulations has led to decline of forests and genetic resources.

1.4.5 Climate Change

Global studies have predicted that without adaptation and mitigation, climate change will negatively affect production of the world's major crops around the world.[44]⁴⁴ This includes loss of cropping areas, reduction in productivity and significant adverse impact on rural communities. Climate change also affects ecosystems by producing asynchrony between crop flowering and pollinators, and it could favour the spread of invasive species, pests, and parasites[45]⁴⁵. Climate change is also expected to specifically affect the breadth of diverse genetic resources[46]⁴⁶?it could threaten the survival of strategic reservoirs of crop and livestock genetic resources as farmers abandon varieties and breeds that are not sufficiently resilient. Since forests populations are not mobile, they will have to adapt *in-situ* to the changing climate. Therefore, trees will need to rely on their phenotypic plasticity and genetic diversity to survive. At the same time, genetic resources represent the basis for adaptation to climate change. Crops, livestock, trees and aquatic organisms that can survive and produce in future climate will be essential for future production systems. In this regard, it is of utmost importance that the genetic diversity to adapt to future changes is not lost. Therefore, *in-situ* and *ex-situ* conservation

programmes for domesticated species, their wild relatives and other resources important for food and agriculture need to be improved, together with policies that promote their sustainable use^[47]⁴⁷.

The countries of Central Asia continue to struggle with establishing policies to address the effects of climate change and with applying strategies for future sustainable use of resources. Institutional and political constraints often lead to the absence of environmental and related issues in national policy agendas. However, progress is being made throughout the region. Awareness of climate change impacts, particularly for agriculture, energy, disaster risks, and the water sector, is broadly increasing, as are efforts to reduce greenhouse gas emissions. While targeted climate change policies are lacking, governments in the region are integrating climate change considerations and actions into sectoral policies and sustainable development strategies.

Climate change forecasts for Tajikistan^[48]⁴⁸,^[49]⁴⁹,^[50]⁵⁰ suggest that in the next half of the century temperature will rise in average by 2-3°C, including up to 5°C in summer. In recent years, temperature increase of around 0.5-2.5°C have already had negative impact on productivity of pastures^[51]⁵¹. Glaciers in Tajikistan have lost over 20 bln m³ of their volume (i.e., around 2.5%, small glaciers suffered the most) in the 20th century. Further temperature increase will speed up glacial retreat. Thousands of small glaciers will disappear entirely, reducing flows, water reserves, which is replenished due to the melting of glaciers in summer, when irrigation is very important for farming.

Climate change may also change precipitation patterns, causing more floods, droughts, and other natural disasters. For many species of plants such changes may not be marginal, particularly if they are already on the edge of tolerance level. More specifically, observed climate aridity due to the stable air temperature increase would cause loss of soil humidity. Dewatered soil will be subject to erosion because of the wind. Frequent heavy rains during short humid seasons washes away the upper layer of soil. Such processes stimulated by climate change become the cause of degradation of land and pose existence of local vegetation under threat. The Third National Communication suggests that some observed changes are expected in all types of ecosystems by 2050 in Tajikistan²⁶.

Warming will cause changes in phenological parameters and may change the composition of ecosystem types. Climate change also is a threat to sustainability of local farming and rural development. Threats caused by climate change include increasing aridity, seasonal and inter-seasonal variations in the pattern of droughts and floods, which are exacerbated by the limited capacity of communities to cope with these changes. The result of real vulnerability to climate change is the threat to stability of agro-systems, crop failures, and increasing food insecurity.

Agricultural production in areas with high agrodiversity in Tajikistan is sensitive to climate change. Droughts and floods are associated with the loss of domestic animals and reduction of agricultural production. Poor farmers and rural communities lack adaptation strategies or mitigation skills in the face of such threats. Existing consultative services are not capable enough in terms of supporting farmers to adequately respond to negative impact of climate change and enhance adaptation. In most cases, farmers do not have access to technical consultations and are not aware of risks caused by climate change to their food security.

The establishment of the Agro-Meteorological Advisory Committee (AMAC) as a common high skilled committee between the Agency of Hydrometeorology and the Ministry of Agriculture is a first step towards improving the service. A Memorandum of Understanding (MoU) should be prepared and agreed by Agency of Hydrometeorology and Ministry of Agriculture. The MoU will establish the ways of data acquisition, pricing and other aspects of data sharing. This is part of institutionalized options for further improvement of the agrometeorological service in the country.

Current provisions on agricultural production and food production do not consider climate change risks. Tajikistan does not have institutional or policy frameworks for adequate adaptation to

forecast impact of climate change. The dynamics of climate change are not properly understood at the national and local levels; communities are poorly prepared for adaptation; and adaptation policy and technical assistance options are not yet identified.

The Government of Tajikistan provides very limited support to farmers. The severe winter of 2007-2008 entailed threats to water, food and energy security of the country, where millions of people lost access to heating and electricity during the severely cold winter; the economy suffered and this had negative impact on food and energy security.

To support the above-mentioned efforts, the current project will try to establish long term adaptation measures tailored to men and women's needs and benefits, which should include implementation of effective policy for biodiversity conservation, building capacity for improved resource and agriculture management, and for managing genetic resources in its natural habitat.

1.5 Barriers

Within the current biodiversity, agrobiodiversity, agricultural, economic and development context, the government of Tajikistan wishes to improve the enabling frameworks for the sustainable use and conservation of biodiversity for food and agriculture. This includes ensuring that incentives are in place to support the use of biodiversity friendly planning and practices. A regulatory solution is to introduce globally important agrobiodiversity and climate resilience structures into the policies being developed for agriculture and rural areas, and the production practices at the national and local levels in Tajikistan. At the same time, conservation of agrobiodiversity may become a solution for dealing with climate change risks that threaten mountain ecosystems and the livelihoods (income) of the rural population in Tajikistan. However, there are a few barriers to the proposed solution. These are described below:

1. **Weaknesses in the strategies and actions for agrobiodiversity conservation:** Globally in terms of agrobiodiversity conservation, the focus has historically been almost exclusively on *ex-situ* conservation, partially because seed sampling and gene bank storage protocols were relatively easily and cheaply implemented and this also provided ease of access for the user community, and also because *in-situ* protocols did not exist until recently and users could easily access the conserved resource[52]⁵². Therefore, it is not surprising that Tajik researchers and institutions have made, as elsewhere globally, little progress in *in-situ* conservation of endogenous landraces on-farm or CWR in establishing *in-situ* genetic reserves, especially when compared to the country's *in-situ* biodiversity conservation.

In reporting for the State of Plant Genetic Resources for Food and Agriculture, Muminijanov[53]⁵³ reported that the work done on *in-situ* conservation, rescue, and improvement of useful plants in traditional agroecosystems has been minimal. Work aimed at the conservation of crops and wild relatives *in-situ* has been undertaken by researchers, academic institutions and/or government agencies and it has not been possible to sustain any conservation efforts in the long-term. Muminijanov describes the biodiversity protected area network in Tajikistan that was established to primarily protect mega-fauna and rare habitats. Although agrobiodiversity inclusion was not a priority for site selection, undoubtedly these biodiversity protected areas do contain landrace and CWR diversity. But their maintenance is passive, individual landrace and CWR populations are not monitored. So could under changing environmental conditions they could be eroded or extinguished without the site managers' awareness. *In-situ* conservation protocols are now much more clearly defined and exemplar models are

available, so the priority should be in their implementation to conserve the full range of agrobiodiversity found in Tajikistan.

Ex-situ conservation alone currently safeguards the actively conserved agrobiodiversity in Tajikistan in gene banks. Germplasm of crops and crop wild relatives is conserved in more than 1,750 gene banks worldwide and adds up to a total of about 7.4 million accessions maintained under medium- and long-term conditions globally[54]⁵⁴. This total includes approximately 7,000 genera and over 51,000 species. Since 1996, almost 2 million accessions have been added to *ex-situ* gene banks with medium- and long-term collections, though gaps still exist (WIEWS, 2017)[55]⁵⁵. However, the vast majority of the samples stored worldwide belong to around 100 crop plant species of the approximately 7,000 species domesticated by human. Among the species considered for *ex-situ* conservation, there are important gaps in terms of primitive cultivars and wild relatives that are related to the centres of origin and of genetic diversity.

In Tajikistan, the lack of funds and long-term financing, as well as the low interest from public and private sectors, have hindered the increase of *ex-situ* conservation collections. Despite the creation of the National Genetic Resources Centre in the Farming Institute[56]⁵⁶, the lack of an adequate infrastructure has further limited the representation of species and crop accessions in the national gene banks. Lack of resources also inhibited the development and/or implementation of a gene bank management system. However, in 2008, the Farming Institute formed a collaborative link with the Swedish International Development and Cooperation Agency, SIDA and with funding and technical support from NordGen, specialists installed the *Sesto* gene bank management system[57]⁵⁷. In addition, the policy and legislative frameworks of Tajikistan do not fully support conservation and sustainable use of agrobiodiversity. Agriculture and forestry policies are not comprehensive. Existing and past programs and plans have not had a significant impact on agrobiodiversity conservation and its use. Unfortunately, the Farming Institute no longer had access to the data associated with the conserved resources as the *Sesto* gene bank management system was corrupted by a computer virus in 2012. As a consequence, policies are not informed by knowledge of what material is conserved, the conserved resources are not monitored, and the material is unavailable for utilization.

The follow outputs will support overcome this barrier: 1.1.5, 1.1.6, 1.1.7, 2.1.4, 2.1.5, 2.1.6, 3.1.1, 3.1.2, 3.1.3 and 3.1.4.

2. Lack of agrobiodiversity valuation and functional agroecosystems: Many political, social and economic stakeholders are not aware of the contribution of agrobiodiversity and traditional agroecosystems to the Tajik economy. Plant diversity generates current and potential benefits that are largely ignored. The economic and political environment in which farmers, consumers and agricultural policy-makers make decisions regarding the conservation and use of agrobiodiversity is distorted by positive and negative externalities[58]⁵⁸, as well as by a lack of understanding of the crucial role that agrobiodiversity plays in maintaining key functions of agrifood systems. The enormous value of agrobiodiversity for food and nutritional security is not recognized in the marketplace and therefore does not receive the attention it deserves from stakeholders, particularly in relation to its role in maintenance of community health, nutrition and responses to climate change. There is widespread ignorance of the local and global importance of agrobiodiversity, even among the traditional producers who are fundamentally dependent on it for their livelihood. Traditional farmers continue to sow traditional varieties because they do not have enough money to buy or access improved varieties, which

are perceived, in some cases, as being better than local varieties. This contradictory perception by traditional farmers themselves can lead to low valuation of local genetic resources, reinforced by the low comparative value of such products in the local and regional markets. Similarly, there is an obstacle to increasing income from existing products and development of new products. Moreover, even if farmers want to improve agricultural or forestry practices, or create a new product, they have no access to financing to facilitate these efforts. There is also no credit system with full coverage of rural areas in Tajikistan yet. Therefore, most of the farmers cannot develop new practices and methods.

CWR historically contributed significantly to the current value of agricultural crops[59]⁵⁹, however, some breeders have been reluctant to use CWR in their breeding programmes because of the linked drag associated with desired gene or trait transfer and the time taken to breed out the undesirable traits that are transferred alongside those desired. While, in the context of global environmental change, plant breeders need to produce new crop varieties adapted to novel or changing environments, reticence to use CWR in crop improvement has been sometimes a constraint. However, this has been overcome in other countries using pre-breeding, although there has been limited effort to promote pre-breeding as a means for improvement crop productivity in Tajikistan.

The follow outputs will support overcome this barrier: 1.1.1, 1.1.2, 1.1.3, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5 and 2.1.6.

3. **Knowledge and institutional capacity limitation:** Tajikistan was recognized by Vavilov in 1926 as a hotspot of crop diversity and part of his third centre of Inner Asia with high intrinsic agrobiodiversity of *Triticum vulgare* - wheat; *Pisum sativum* ? garden pea; *Lens culinaris* ? lentil; *Brassica*, *Eruca* and *Lepidium* species; *Linum*, *Sesamum* and *Coriandrum* (one of their centres); *Carthamus tinctorius*; *Cannabis indica*; *Gossypium herbaceum*; various vegetables and melon species, spice crops, etc.; fruit and nut trees in the genera *Malus*, *Pyrus*, *Prunus*, *Pistacia*, *Amygdalus*, *Juglans*, *Corylus*, etc.[60]⁶⁰ Despite the long-standing recognition of the importance of Tajik agrobiodiversity and its application by farmers for millennia, the scientific studies, description and inventories of diversity have been limited. The relationships among the domesticated diversity, wild or only semi-domesticated varieties, and human practices/uses that add value to these species have not been sufficiently analysed until the present. Therefore, information concerning this globally important cornucopia of diversity is fragmented and unsystematized. Both crop landraces and CWR is poorly identified and therefore not surprisingly poorly conserved and used. This lack of standardized information has prevented these landraces and CWR taxa from being systematically protected through public policies. Policy decision-making has not always been adequately informed. Knowledge of the resource itself, its cultivation growth and traditional knowledge systems validated over time is central to effective future conservation and use. There is a considerable agrobiodiversity information gap in Tajikistan, and therefore, at the global level.

Farmers inherited the traditions of the soviet systems agricultural production with dominating use of alien crop species in the context of intensive use of agrochemicals and water. Lack of awareness of the intrinsic value and characteristics of local varieties, combined with their limited quantities in the fields, is a huge obstacle for their replanting in agricultural lands. Many farmers are 'new' farmers, who started farming after the collapse of the Soviet Union. Considering the long civil war following the collapse of the Soviet Union, they were not able to develop skills, and still use outdated practices and

technologies, and use varieties that are susceptible to climate change. This is further aggravated by the fact that in most cases farmers do not have access to technical advice, and they are not aware of risks to their food security caused by climate change. In most cases farmers rely on other farmers' advice. As they face new challenges, typical farmers will not have answers. Therefore, although technical solutions may be known, local farmers do not have access to such information and recommendations and their best efforts are unlikely to sustain crop production. In addition, access to seasonal forecast is very limited, and farmers are unaware how best to react to climate warnings.

The following outputs will support overcome this barrier: 1.1.2, 1.1.5, 1.1.6, 3.1.1, 3.1.2, 3.1.3 and 3.1.4.

4. Lack of foresight and adaptive management: The current provisions in agriculture and food production do not consider the risks associated with the barriers identified above. Tajikistan does not have institutional and policy frameworks for adequate foresight in agrobiodiversity planning or adaptive management of the resources being conserved, for example being able to respond appropriately to extreme weather events or how to employ indigenous genetic resources to apply adaptive management to reduce the potential adverse impact. Moreover, there is no effective system to assess environmental impact or strategic environmental assessment to guarantee that projects, policies, and investments do not have potentially foreseeable negative impacts on agrobiodiversity. These impediments are aggravated by inadequate systems for coordination in management of PGR conservation with regulatory functions of public production sector institutions. There is a need to improve coordination and cooperation between state entities responsible for genetic resource conservation and use, decision-making, conservation of natural resources and land management. Further, the First State of the World of PGRFA report [61]⁶¹ found the majority of countries and collections lack even basic information on the accessions they conserved, as high as 90% of conserved accessions lacked passport, characterization and evaluation data. However, the second report found that there had been an overall improvement of accessibility to information [62]⁶², but still in many countries, as is the case in Tajikistan, the unavailability of characterization and evaluation data is still inhibiting crop improvement.

The following outputs will support overcome this barrier: 1.1.3, 1.1.4, 1.1.5, 1.1.7, 2.1.3, 2.1.4, 2.1.5 and 2.1.6.

Project conceptual model: The complex interacting web of factors that threaten globally significant biodiversity in Tajikistan is illustrated in a conceptual model in **Figure 6**. This indicates the key areas (indirect and direct factors) and the points where project intervention can contribute towards a reduction in the level of threats, and therefore contribute towards the conservation of agrobiodiversity and globally threatened landraces and crop wild relatives and the integrity of the ecosystems they inhabit. The main elements of these strategies are summarized in the Theory of Change diagram in the following section (**Figure 7 - please see separate uploaded document**).

1.6 Baseline scenario and any associated baseline projects

In recent years in Tajikistan, as elsewhere there has been a shift towards the inclusion of genetic diversity held in agricultural landscapes when considering national biodiversity conservation. This is reflected in the National Strategy and Action Plan for Biodiversity conservation (NBSAP) and the Report on Building Capacity for Implementation of Obligations on Global Environmental Conventions.[1],[2] The result of the National Capacity Self-Assessment (NCSA) in Tajikistan, recognizes the importance of rehabilitation of degraded ecosystems, as well as application of traditional ways of conserving and sustainable use of agrobiodiversity. The current project highlights the need to improve the legal framework as a priority for implementation of the government policy on biodiversity with special focus on effective enforcement of the current legislation at the local level. To date, biodiversity conservation in Tajikistan has concentrated on (i) creation of protected territories; and (ii) high-profile biodiversity such as rare mammal species. Now is the time to consider agrobiodiversity conservation.

The policy framework for environmental protection in Tajikistan has changed recently and several new policy documents on environmental protection and sustainable development have been adopted, as well as some sectoral policy documents that include environment-related provisions (see section 1.2). Multilateral environmental agreements ratified by Tajikistan have also been incorporated into its legal system. Environmentally related provisions can also be found in several sectoral laws, including in energy, tourism, transport and urban planning and construction. Yet, for many environmental strategies, programmes and plans, financing has not been secured, and therefore most of them have not been implemented. The Committee on Environmental Protection was established in 2004 and is the body under the Government that is responsible for environmental protection in Tajikistan. Table 4 summarizes the existing government funded projects relevant to project proposed.

In order to address the threats to biodiversity and ecosystem services in the high value ecosystems, the State Committee for Environmental Protection is making investments with its limited central government funding, through the State Ecological Programme of the Republic of Tajikistan (conservation and sustainable use of biodiversity); National Action Plan and Report on Building Capacity to Implement Commitments on Global Environment Conventions of the Republic of Tajikistan (environmental awareness, training programs, biodiversity capacity building); National Environmental Action Plan (SPNA system strengthening, environmental monitoring); and implementation of the National Biodiversity Strategy and Action Plan; and Environmental Monitoring Programme of the Republic of Tajikistan (environmental monitoring). The State Committee for Environmental Protection also continues to invest in the national protected areas system, but financial and institutional resources in Tajikistan are extremely limited. In addition, the Forest Agency is committing resources to sustainable forest management through the Forest Development Programme of the Republic of Tajikistan (implementation of sustainable forestry principles in high value drylands forests, sustainable hunting, etc.). The Ministry of Agriculture is addressing improved agricultural practices and land restoration through the State Program for the development of new irrigated lands and restoration of agricultural lands (sustainable agriculture, sustainable pasture management, agro-forestry, and development of agro-business).

Tajikistan is implementing various environmental-economic mechanisms, including payments for use of natural resources, which has been outlined at the legislative level. Practically all implemented projects in Tajikistan, especially the ones on land resources, water resources and forest resources under implementation of ministries, agencies and private organizations are estimated as add-on to improving the baseline to the projects funded by donors. The political will of the Government of Tajikistan is demonstrated by supporting such initiatives, which is showcased by giving privileges for agricultural projects through tax exemption for importing seeds and plant varieties to Tajikistan.

Table 4. Summarizes of existing government funded projects relevant to project proposed.

Title	Budget	Objective/Focus/Coordination	Timeframe
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State Environmental Program (State Committee for Environmental Protection)	\$1 million USD/year	This program provides support in promoting and upscaling projects activities, awareness raising, capacity building among the different groups of population and the cost includes mainly in-kind contribution.	2009-2019, extended to 2030
Comprehensive program for the development of environmental education and public education (State Committee for Environmental Protection)	\$1 million USD/year	Environmental awareness, training programs, biodiversity capacity building.	Originally to 2020;
Environmental Monitoring Programme of the Republic of Tajikistan 2013-2017 (State Committee for Environmental Protection)	\$1 million USD/year	Despite the completion of the programme in 2017, about \$ 1,000,000 is annually spent for monitoring of biodiversity in accordance with the Law of the Republic of Tajikistan "On Environmental Monitoring". Thus, \$3.1 million will be invested in biodiversity monitoring during 2020-2023.	Originally to 2017; currently ongoing
Implementation of the National Biodiversity Strategy and Action Plan up to 2020 (State Committee for Environmental Protection)	\$3.8 million USD	Funding will continue to be invested following 2020, with \$3.8 million foreseen for the first three years of project implementation.	2020-2023
National Environmental Action Plan 2006-2011 (State Committee for Environmental Protection)	\$8 million USD	SPNA system strengthening, environmental monitoring. Due to non-utilization of funds provided from various sources, the NC EPA is to be updated and extended until 2030. \$20 million from different sources of financing are foreseen in the NC EPA for the improvement of lands and biodiversity, out of which \$8 million to be allocated during 2020-2023.	Originally to 2011; currently to 2030
Forest Development Program (Forestry Agency)	\$3.8 million USD	Implementation of sustainable forestry principles in high value drylands forests, and sustainable hunting.	2020-2023
Program for Developing Specially Protected Natural Areas up to 2015 (State Institution for Specially Protected Natural Areas)	\$2.5 million USD	Development of SPNAs.	Originally to 2015; currently 2020-2023
State Program for the development of new irrigated lands and restoration of agricultural lands (Ministry of Agriculture)	\$4.5 million USD	Sustainable agriculture, sustainable pasture management, agro-forestry, and the development of agro-business.	2020-2023

The lessons learnt from the UNDP/GEF Project 'Sustaining Agricultural Biodiversity in the face of Climate Change' showcased the best practices of use of natural resources and its integration into the market. The baseline scenario for future projects on environmental conservation can also be enhanced from best practices from projects implemented by UNDP, World Bank, FAO, GiZ on biosafety capacity building, agrobiodiversity conservation, pasture management and forest restoration. Table 5 summarizes existing donor funded projects that are relevant to the proposed project.

Table 5. Summarizes of existing donor funded projects relevant to project proposed.

Title	Budget	Objective/Focus/Coordination	Timeframe
Biodiversity and ecosystem services in agrarian landscapes (GiZ)	4 million Euro	<p>The project is part of the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. It sets out to strengthen individual and institutional capacities as well as to boost knowledge on increasing biodiversity and sustainable use of ecosystem services in agrarian landscapes. The project is implementing pilot projects in Rasht and Ayni districts designed to restore ecosystems suffering from degradation. The project also supported the integration of biodiversity and ecosystem services in the law on grazing land.</p> <p>Deutsche Welthungerhilfe acts as an implementing partner for the project in Tajikistan.</p>	2016-2020
Building climate resilience of vulnerable and food insecure communities through capacity strengthening and livelihood diversification in mountainous regions of Tajikistan (World Food Programme, with Green Climate Fund funding)	10 million USD	<p>This initiative will introduce adaption measures to address climate change effects leading to declines in agricultural yields, increases in food prices and reduced agricultural wages. It will focus on the most vulnerable and food insecure communities in the Rasht valley, Khatlon and Gorno-Badakhshan Autonomous Region (GBAO). It will include an integrated approach to provide climate information services, capacity building, sustainable water management and resilient agriculture and forestry.</p> <p>This GCF-funded project does include two districts (Rasht and Tojikobod) that are within the geographic scope of the project. In particular, the proposed project will ensure that sustainable agrobiodiversity management and use practices supported under the project are climate resilient, based on the experience of the WFP-GCF project.</p>	2018-2021

<p>Climate Adaptation and Mitigation Program for the Aral Sea Basin (CAMP4ASB) (World Bank, with World Bank, Green Climate Fund, and national government funding)</p>	<p>68 million USD</p>	<p>Scaling up the Climate Adaptation and Mitigation Program for Aral Sea Basin (CAMP4ASB) by providing support to adaptation activities in Tajikistan and Uzbekistan. Providing grants to the most vulnerable communities for climate resilient measures in priority areas, including the poorest populations residing in risk-prone areas, and marginalized groups such as women. The CAMP4ASB Program is a World Bank Group program addressing both adaptation and mitigation support in the Aral Sea Basin. The program builds regional cooperation to the challenges of climate change. GCF investments will contribute to CAMP4ASB by addressing adaptation, initially in Tajikistan and Uzbekistan. This will target the poorest and most climate-vulnerable rural communities, benefiting farmers and village in particular. The facility will strengthen climate resilience and food security. Agricultural land and water management practices will be implemented based on local agro-ecological conditions in order to strengthen climate change resilience. Investments via the facility will be demand-driven, but will include crop diversification, water resource management, rehabilitation of degraded land, conservation agriculture, livestock production improvements, agro-products processing, energy efficiency improvements and expansion of renewable energy sources.</p>	<p>2016-2021</p>
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<p>?An integrated landscape approach to enhancing the climate resilience of small-scale farmers and pastoralists in Tajikistan? funded by Adaptation Fund.</p>	<p>10.0 million USD</p>	<p>The UNDP Country Office in Tajikistan, together with Committee for Environmental Protection is launching a large-scale project ?An integrated landscape approach to enhancing the climate resilience of small-scale farmers and pastoralists in Tajikistan? funded by Adaptation Fund.</p> <p>The objective of the project is to enhance the livelihoods of the small-scale farmers and pastoralists living in the Kofirnighan River Basin (KRB), including Rasht and Tojikobod districts under extreme climate conditions. Extreme climate conditions have socio-economic impacts on livelihoods and agricultural productivity among others.</p> <p>A climate-resilient catchment management strategy will be designed for the basin. The current GEF project can support the achievement of the project as improved seeds can be used to building the climate resilience of agro-ecological landscapes and support the implementation of the strategy for the basin catchment management and ecosystem-based adaptation.</p>	<p>2020-2025</p>
<p>Creating enabling environments for enhanced climate resilience in agriculture TCP/RER/3802</p>	<p>400,000 USD</p>	<p>The project will help to create enabling environment to strengthen the seed system to build resilient agriculture and food system in Kyrgyzstan, Tajikistan and North-Macedonia, and strengthen the resilience of the seed systems and promoting quality seeds at national level. The project will also implement seeds bank and the activities in Tajikistan will be coordinated with this GEF project</p>	<p>2020 - 2022</p>

<p>GCP /TAJ/013/EC Strengthening Institutions and Capacity of the Ministry of Agriculture & State Veterinary Inspection Service for Policy Formulation</p>	<p>5,712,955 USD -</p>	<p>The project goal is to ?enhanced capacities of the Government to implement the Agrarian Reform and support the development of the agriculture and rural sector with specific focus on the formulation and implementation of inclusive and effective agriculture and food security policy processes. Improved platforms and institutions supportive to private public partnership in sector of provision of veterinary services? and under one of its Output: ?Agriculture and FSN policy framework strengthened to reflect current and emerging challenges? FAO has strength the national capacity on PPP and the organization of seeds bank based on local cooperatives, this activity has also address the inclusion of business for model for seeds. A legal and technical national base for PPP has been developed and tested. Including not only the production of seeds, but also revolving funds schemes and storage technologies A national knowledge hub for the seed sector will be available by December 2020. This current GEF project will provide the continuation of several activities started by the GCP /TAJ/013/EC, but also will be benefited by all the bases already established</p>	<p>2015-2020</p>
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In terms of synergies and coordination, several steps will be taken to ensure synergies and coordination with other relevant initiatives and development partners. All relevant stakeholders have been consulted on the project design. Once the project is approved, relevant stakeholders will then again be invited to participate in the project inception workshop and during the implementation of the project to ensure synergies and sharing of best practices. Relevant stakeholders will also be considered to serve as members of the Project Steering Committee.

1.7 Project Objective, Results and Outcomes

1.7.1 Project strategy and project principles

The **overarching aim** of this project is the Conservation, Sustainable Use and Securing of the national and globally significant agrobiodiversity of Tajikistan, including in particular the valuation and maintenance of crop landraces, crop wild relatives and their associated knowledge and cultural values. The project will improve agrobiodiversity conservation, help facilitate its use and ensure the fair and equitable sharing of the profits arising from its use for the benefit to the people of Tajikistan by underpinning food and nutritional security and promoting wealth and wellbeing. As such it will mitigate the four barriers that are unnecessarily restricting the conservation and sustainable use of agrobiodiversity in Tajikistan.

The **project strategy** for achieving this objective consists of:

- ? Developing and implementing a gender-responsive national agrobiodiversity conservation and use strategy for Tajikistan that systematizes resource conservation and use

- ? Generating and making available to users (farmers and breeders) comprehensive knowledge about native and naturalised agrobiodiversity of national and globally importance,
- ? Strengthening local capacities to support long-term plans and actions for agrobiodiversity conservation and sustainable use, developing strategies for revaluating traditional knowledge, and supporting continuous adaptation to climate change, while maximizing provision-based ecosystem services,
- ? Mainstreaming the protection and promotion of knowledge, practices and traditional production systems into gender-responsive governmental plans and policies, while building effective alliances with local communities, crop producers and crop product markets,
- ? Strengthening awareness and value recognition of agrobiodiversity among diverse stakeholders through policy initiatives that support national agrobiodiversity conservation and use strategy implementation.

Each one of these supportive aims will directly impact the objective of agrobiodiversity conservation and sustainable use promotion, but together they will exert a synergistic effect due to the causal relations between them. For example, knowledge about the globally important value of Tajik agrobiodiversity will feed into mainstreaming public policies; or building awareness about the economic and non-economic values of agrobiodiversity will contribute to strengthening capacities among stakeholders to conserve and sustainably use **agrobiodiversity**; and more efficient agrobiodiversity conservation will underpin food and nutritional security and promote wealth and wellbeing in Tajikistan. This project is not meant to address the comparative differences between traditional and large-scale intensive and monocrop production systems.

This project strategy rests on some basic **principles**:

- ? Building trust amongst scientists, small-scale farmers and local communities and decision-makers involved in the conservation and sustainable use of agrobiodiversity, through a renewed and more equitable way of interacting that ensures an adequate dynamic feedback system that prioritizes local community needs.
- ? From the design stage, the project will seek to help ensure that the data and information of agrobiodiversity will promote a more positive impact on the genetic resources and the communities that maintain them.
- ? Helping to ensure that ongoing local and regional processes in support of agrobiodiversity are maintained and strengthened, by promoting stakeholder engagement and self-management of agrobiodiversity by local communities and local organizations collaborating with them.
- ? Helping to halt the promotion of contradictory or counter-productive public policies and actions that affect and/or put into risk processes that support traditional farming systems and the conservation and sustainable use of agrobiodiversity and their products and local livelihoods.
- ? Supporting food security of traditional farmer communities by stimulating self-consumption, promoting commercialization and consumption of agrobiodiversity-based food products in local, regional and national markets, while searching for opportunities for product delivery to the wider region and international markets.

1.7.2 Project objectives, outcomes and outputs

The **project objective** is the Conservation, Sustainable Use and Securing of the national and globally significant

agrobiodiversity and the associated knowledge and cultural aspects of traditional agro-ecosystems of Tajikistan. This encompasses the valuation and maintenance crop landraces, crop wild relatives and their associated knowledge and cultural methods within the traditional agro-ecosystems of Tajikistan.

Target species are: cereals ? *Avena sativa* (oat), *Hordeum vulgare* (barley), *Secale cereal* (rye), *Triticum aestivum* (wheat); pulses - *Lens culinaris* (lentil), *Vicia faba* (faba bean); vegetables - *Allium cepa* (onion), *A. sativum* (garlic), *Glycyrrhiza glabra* (liquorice), *Lactuca sativa* (lettuce); fruits ? *Berberis vulgaris* (barberry), *Malus domestica* (apple), *Morus alba* (mulberry), *Pistacia vera* (*pistachio*), *Prunus Armeniaca* (apricot), *P. avium* (sweet cherry), *P. dulcis* (almond); forages *Medicago sativa* (alfalfa), *Vicia sativa* (common vetch); plus their priority CWR (see Table 5 of Annex I).

The project **target sites** are in the district of: Shahrستان, Baljuvan, Rasht and Tajikabad. These districts were selected based on the importance of them for agrobiodiversity conservation and the willingness of the communities to get involved in the project as described in session 1.3.

The project will contribute to **Program 7, Objective 1 of the GEF Biodiversity Focal Area** by promoting biodiversity mainstreaming in agriculture while increasing the genetic diversity of globally significant cultivated plants, wild relatives and associated species in a Vavilov Centre of Diversity in Tajikistan. This will occur by providing tested methodologies, innovative mechanisms and lessons learned that can be scaled up in Tajikistan, in the Central Asian region, and subsequently adapted to other centres of origin around the world, through South-South Cooperation, the FAO network and the Commission on Genetic Resources for Food and Agriculture. The project will support *in-situ* conservation and agriculture practices based on local and traditional knowledge that allows continued evolution and adaptation which will improve food security of local communities by supporting self-consumption of agrobiodiversity-based products; will promote policies that shift the balance in agricultural production in favour of sustaining agrobiodiversity; will strengthen the capacities of extension and research agencies and institutions for *in-situ* conservation; will support climate change adaptation through sustainable agriculture and traditional knowledge; and will strengthen the capacities of community and family farmers to participate in the identification, development and implementation of plant breeding and other solutions to prevent genetic erosion. GEF resources will be invested in improving and rescuing traditional agro-ecosystems, crop landraces and CWR diversity through project components 1, 2 and 3. In order to remove the barriers detailed under section 2) and achieve global environmental benefits, GEF incremental financing will be invested in three components.

1.7.3 Theory of Change

The project will follow the proposed Theory of Change (Figure 6), which is linked to the three Components and their associated Outcomes and Outputs that are described below (Please see separate uploaded document).

1.7.4 Components, results, and outcomes

Component 1 Improved enabling environment for Agrobiodiversity conservation

Component 1 addresses barriers to agrobiodiversity health, namely barriers 1, 2, 3 and 4 described in section 1.5 above, by focusing on the effective conservation planning and implementation of agrobiodiversity in Tajikistan, so providing a future base for food and nutritional security and

livelihood well-being for the people of Tajikistan. Specifically, Component 1 is aimed at reviewing current conservation of agrobiodiversity in Tajikistan, generating a National Strategy for the Conservation and Use of agrobiodiversity, a national action plan and timeline for Tajikistan with gender perspective considerations, along with identifying the socioeconomic and cultural processes that sustain diversity. This data and related knowledge-management mechanism will inform public policies and appropriate field interventions, as well as conservation techniques training to increase the effectiveness of conservation implementation.

The aim is to achieve the following outcome for component 1 using incremental GEF resources:

Outcome 1.1: *Enabling environment supports conservation of globally important agrobiodiversity (ABD)*

The expected outcome is to have all appropriate agrobiodiversity data and information that can be used to generate a *National Strategy for Conservation and Use of agrobiodiversity (NSAP-CUA)*, an *Action Plan and Timeline* using the model provided by FAO Voluntary Guidelines for landrace and CWR conservation.[1],[2] This will involve the creation of checklists and inventories for both crop landraces and CWR diversity indigenous to Tajikistan, followed by ecogeographic data collation of ecological and geographic distributional data that informs a conserved resource gap analysis that identifies priority *in-situ* and *ex-situ* actions that will form the basis of the *National Strategy and Action Plan*, linked to the *Action Plan* with further links to time-bound actions throughout the three years of the project. In terms of conservation action, the research process will highlight the policy interventions and environmental protection measures required to create the successful measures for sustaining indigenous agrobiodiversity, considering their Intellectual Property Right (IPR) value to Tajikistan and resource use linked to Nagoya Protocol principles of fair and equitable benefit sharing that benefits the Tajik economy and people. Various project actions will be implemented in the four pilot districts and eight jamoats (commune or municipality). The aim of this outcome is to improve agrobiodiversity, moving from an *ad hoc* to a systematic conservation approach that maximises diversity held in active *in-situ/ex-situ* conservation and make it available for food and nutritional security and livelihood well-being for the people of Tajikistan. Further, it will ensure that the factors necessary to build a broad understanding among stakeholders (researchers, producers, processors, traders, consumers and public policy-makers) and decisions are backed by knowledge and have a positive impact on agrobiodiversity and its exploitation in Tajikistan.

Currently, there is a skills shortage in the application of contemporary conservation techniques, particularly *in-situ/on-farm* population management in Tajikistan. Therefore the project will help strengthen the conservation skills of professional conservationists, so they can provide assistance to local communities in managing landrace diversity maintained on-farm and *in-situ* conservation using genetic reserve techniques for priority CWR populations. Those receiving this training will primarily be from the professional conservation community, specifically involving in conservation activities and gene bank staff. This Outcome will be achieved through seven Outputs.

Output 1.1.1: *Checklists and inventories for crop landraces (LR) and crop wild relatives (CWR) implemented based on FAO's Voluntary Guidelines for LR and CWR conservation*

This output will be achieved by building on the existing infrastructure for agrobiodiversity in Tajikistan, using an approach proposed in the FAO Technical Guidelines for developing National Strategies for Conservation and Use of Landrace⁶⁷ and CWR⁶⁸ diversity. As noted, there are two types of genetic resources associated with agrobiodiversity that are actively conserved, namely landrace and CWR, and the precise methodology applied will vary depending on the component being actively conserved. The two components also vary in the availability of their background information. CWR are wild plant species often identified in general biodiversity studies, their specimens have often previously been included in herbaria and in studies such as the recently published *Red List of Vascular Plants of Tajikistan?* [3], which makes planning their conservation significantly more straight forward than planning the conservation of landraces. Crop landraces have very rarely been studied previously at a national level, no country has a national inventory (though some are working toward it) and the methodology for generating a Strategy for Conservation and Use of Landrace has not been so widely tested. As a result, it can be argued when developing the *National Strategy for Conservation and Use of*

agrobiodiversity NSAP-CUA that actions related to landraces will be restricted to the four project areas, while for CWR these will be made at the country level. Having highlighted the differences between preparing landrace and CWR strategies, they nevertheless do have common features, both will start with inventories of on-farm/in-nature populations, gap analysis that compares total on-farm/in-nature population diversity and that subgroup of populations that are already actively conserved, identifying the 'gaps' and conservation objectives, and finally for the both, applications to be successfully implemented. The process of strategy preparation would require local community and broader stakeholder buy-in on the overall goals and implementation plans.

Information in participating communities, including relating to traditional knowledge, will be gathered after obtaining prior consent and in a manner that the community considers relevant and along with information protection mechanisms on the basis of existing national legislation and international agreements.

The following activities will be carried out to achieve this output:

- ? Review existing sources of information on ABD diversity in Tajikistan
- ? Using existing sources, collate information on CWR national and crop landrace target areas presence
- ? Create a national CWR inventory
- ? Create target area landrace inventory
- ? Prepare georeferenced occurrence database for CWR taxa and cultivated landraces nationally and in target areas
- ? Publish inventory of ABD in Tajikistan, including LR and CWR diversity

The associated indicators of success are:

- ? Inventory of ABD, LR and CWR diversity
- ? CWR georeferenced dataset for all CWR taxa in Tajikistan
- ? Landrace georeferenced dataset available for 30 crops in target areas

Output 1.1.2: *Conserved resource gap analysis completed based on ecogeographic data collation of ecological and geographic distributional data*

While Output 1.1.1 focuses on collating the baseline ABD data, Output 1.1.2 focuses on analysis of this data and producing the *National Strategy* and *Action Plan* that is to be implemented. The Voluntary Guidelines for landrace and CWR conservation proposes that georeferenced data for the LR and CWR diversity being reviewed to assess current gaps in information. As a simple procedure, gap analysis entails comparing the ABD diversity found in the wild in nature or cultivated on-farm with the sample of that diversity that is actively conserved either using *in-situ* or *ex-situ* techniques. The gap assessment will identify gaps in diversity that is not currently conserved, and which then becomes the target for future conservation action. Identifying the gaps helps to identify the priority *in-situ* and *ex-situ* actions that will form the basis of the *National Strategy* and *Action Plan*.

Using the Voluntary Guidelines for landrace and CWR conservation the following steps will be carried out to achieve this output:

- ? Review of existing CWR taxa and crop landrace diversity
- ? Collate of available georeferenced data for CWR taxa and crop landrace occurrence
- ? Undertake of a conservation assessment of current active CWR and landrace *in-situ* and *ex-situ* conservation actions

- ? Compare overall CWR and landrace diversity with CWR taxa actively conserved in the wild and landraces cultivated on-farm
- ? Identify gaps (gap analysis) of indigenous ABD, CWR and landrace diversity
- ? Set targets to fill gaps (recommended *in-situ* and *ex-situ* conservation actions and strategies) that will form the basis for the *National Strategy and Action Plan*

The associated indicators of success are:

- ? Completion of gap analysis of indigenous ABD
- ? Recommended *in-situ* and *ex-situ* conservation actions incorporated into the NSAP-CUA
- ? The recommendation is gender screened/or gender expert review for gender responsiveness

Output 1.1.3: *Assessment of conserved diversity and crop production resilience completed, covering 300 LR and 100 CWR*

Extreme weather events are an unprecedented threat to crop production[4],[5] and agrobiodiversity conservation[6]. Agrobiodiversity may respond to extreme events by: (a) adapting to a changing environment (natural evolution), (b) shifting their range (moving with their climatic envelope), (c) being moved or assisted by humans (translocation, assisted migration or population enhancement) or (d) going extinct[7]. Therefore, before a National Strategy for Conservation and Use of agrobiodiversity, an action plan and timeline need to be developed and tested to ensure its resilience, in other words, all actions proposed must have been considered in light of expected extreme weather events and changes. FAO70 argues that existing genetic diversity can be used to sustain production systems by improving abiotic stress tolerance, biotic stress tolerance and by promoting community-based management of a wide portfolio of genetic diversity to facilitate adaptive capacity, particularly local varieties adapted to extreme climatic events. However, this potential use of agrobiodiversity in climate change mitigation is only possible if the correct decisions are made when planning conservation. The relative impact of climate change must be considered when planning agrobiodiversity conservation. This can be specifically addressed by recognizing the potential impact of climate change on: (a) the production levels of various crops in Tajikistan, (b) where to focus *ex-situ* conservation sampling, and (c) where to locate genetic reserves or on-farm conservation activities. Predictions of future crop production levels will highlight which crops and localities are likely to be most adversely impacted by climate change and therefore decisions can be made over which crops to focus conservation attention. Some crop gene pools may not require conservation action as they are unlikely to be sustainable in Tajikistan and/or other crops, including novel crops may present better future production options. While for priority crop gene pools, the localities where genetic diversity is likely to be eroded or extinguished can be targeted for *ex-situ* conservation. The medium and long-term sustainability of genetic reserves or on-farm sites can be considered when selecting future genetic reserves or on-farm conservation actions. The priorities for *ex-situ* conservation are those sites where the agrobiodiversity will likely be lost and genetic reserves, while on-farm action is best implemented in areas where populations have maximum chance of long-term survival. The means of assessing climate change vulnerable taxa will include the use of IUCN Red List Assessment, IUCN's climate change vulnerability assessment and species distribution modelling. The IUCN Red List Assessment was developed before the threat of climate change was fully appreciated but as all Tajik plant species have been recently assessed[8], these assessments can provide information to understand the relative threat from climate change. While, IUCN's climate change vulnerability assessment is a recently developed technique[9],[10] based on the life history and biological traits of a species and this technique could be applied to agrobiodiversity in Tajikistan.

A more direct means of assessing the impact of climate change on plant diversity is through modelling. Climate envelope models use environmental data to identify taxon-specific ecological niches[11],[12] to postulate the locations where a species has been found or are absent, to infer its climatic

requirements. These inferred requirements can then be used to compare a taxon's current niche with future climate scenario models to predict the longevity of potential protected area (PA) sites, the likely shift and extent of suitable niche environments available as the climate changes and the probability that suitable conditions will remain within the boundaries of sites managed.

The following activities will be carried out to achieve this output:

- ? Review of existing IUCN Red List Assessment for Tajik CWR to see if resilience is included as a specific threat.
- ? Review of IUCN's climate change vulnerability assessment of crop landraces and CWR
- ? Modelling resilience and fitness for crop landraces and CWR
- ? Review of *National Strategy for Conservation and Use of agrobiodiversity* conservation recommendations to ensure they are climate change smart
- ? Completion of climate resilience assessment for selected LRs and CWRs

The associated indicators of success are:

- ? 300 LR of 30 crops and 100 CWR assessed for resilience
- ? 300 LR of 30 crops and 100 CWR assessed for modelling of resilience and fitness
- ? The results of the above assessments inform the NSAP-CUA
- ? Review of NSAP-CUA recommendations for climate resilience that includes at least 2-4 gender-sensitive actions
- ? At least 5 meetings with women's CSOs and women farmers are conducted as part of the assessment and formulation of recommendations, with 50% mandatory representation

Output 1.1.4: *Tajikistan's National Strategy and Action Plan for Conservation and Use of Agrobiodiversity (NSAP-CUA)*

prepared and adopted by Inter-Agency Commission on Agrobiodiversity Conservation (IAC)

This output will be achieved by building on the existing infrastructure for agrobiodiversity in Tajikistan using the approach proposed in the FAO Technical Guidelines for developing National Strategies for Conservation and Use of Landrace⁶⁷ and CWR⁶⁸ diversity. Based on the results of the outputs 1.1.1, 1.1.2 and 1.1.3, the strategy will be designed. To assure the effectiveness of the NSAP-CUA, mainstreaming activities will be proposed, agreed and tested, and a constant feedback mechanism will be created (output 3.1.1). The starting point will be policy interventions and environmental protection measures to sustain indigenous agrobiodiversity. Consultation mechanisms will be established assuming that farmers and the ones who own traditional knowledge will be involved during the policy preparation. A first draft, based on the data generated by the outputs 1.1.1, 1.1.2 and 1.1.3, will be prepared and tested at field level (output 1.1.5). At the same time, an inter-agency national commission on agrobiodiversity conservation and use will be established with the responsibility of overseeing the NSAP-CUA implementation and assuring coordination among different sectors.

The following activities will be carried out to achieve this output:

- ? Organization of the results of the previous outputs for decision making process
- ? Draft the national strategy and action plan for conservation and use of ABD (NSAP-CUA)
- ? Open consultation on recommendations of NSAP-CUA with gender perspective
- ? Approval of the first draft of NSAP-CUA for testing
- ? Testing the effectiveness of the draft NSAP-CUA (Output 1.1.5)

- ? Improving the draft NSAP-CUA based on inputs from different stakeholders, the inter-agency national commission and the field activities
- ? Drafting and approval of the final NSAP-CUA

The associated indicators of success are:

- ? Recommendations agreed by stakeholders
- ? At least 5 meetings with women's CSOs and women farmers conducted during preparation of national strategy and action plan with 50% mandatory representation to ensure gender responsiveness
- ? Stakeholder endorsed a draft of National Strategy and Action Plan for ABD Conservation and Sustainable Use
- ? Publish National Strategy and Action Plan for ABD Conservation and Sustainable Use

Output 1.1.5 Conservation measures in NSAP-CUA implemented by management type as follows:

The Convention of Biological Diversity clearly establishes the precedence for *in-situ* over *ex-situ* conservation techniques[13]with *ex-situ* being primarily a means of backing up *in-situ* populations. However, as pointed out[14] this has never been the case for agrobiodiversity where *ex-situ* conservation has historically been the predominant means of conservation due to ease of application and provided the primary means of users gaining access to the conserved resource for exploitation. The Convention of Biological Diversity does acknowledge the need for complementary conservation, meaning each conserved resource should be conserved using a combination of both *in-situ* and *ex-situ* techniques, so Output 1.1.5 will provide the ground activities for the implementation of Tajikistan's National Strategy and Action Plan for Conservation and Use of Agrobiodiversity (NSAP-CUA) developed under Output 1.1.4, by combining *in-situ*/on farm and *ex-situ* conservation practices.

For the maintenance of crop landraces supported on 80 farm locations in 4 pilot districts, it will be necessary to build on existing relationships between traditional farming communities cultivating agrobiodiversity in Tajikistan and project implementing staff. It will develop a methodology derived from existing practice[15] and composing the following three phases and component activities: (1) Project Planning and Establishment, (1a) Identification of project sites, (1b) Identification of project partners, (1c) Formulation of project activities, (2) Population Management and Monitoring, (2a) Initiation of landrace population management, (2b) Adding value to landrace products, (2c) Monitoring landrace population and product(s), (2d) Review of project activities, and (3) Diversity Utilization, (3a) Landrace population and product use, (3b) Linkage to *ex-situ* conservation, research, duplication and education. Further decisions will need to be made on (a) what definition of landraces will be applied[16], (b) how will landrace diversity be recognized, whether a landrace is recognized on the basis of the name provided (nomenclature) or based on genomic distinction (genetic diversity)⁵², (c) the scope of the landrace inventory, meaning which types of crops will be included (all or a subset of major field crops, forages, fruit and vegetables or even medicinal and wild harvested species), and (d) the scale of cultivation to be recognized as a distinct landrace (cultivated by one farmer for self-consumption or only landraces grown for commercial sale). The inventory for the 4 districts will be compiled by collating information from all available sources including *ex-situ* holdings (gene banks, field gene banks, agricultural research stations and botanic gardens), expert advice, commercial seed companies, scientific and grey literature, official documentation and farmer interviews[17].

For the management plans for 10 genetic reserves (covering 600ha) in 4 pilot districts adapted to actively promote conservation of CWR populations, it will be necessary to build on existing relationships between biodiversity and agrobiodiversity conservation implementing staff in Tajikistan. To do so it will develop a methodology derived from existing practice for genetic reserve establishment[18], and compose the following three phases and component activities (1) Reserve Planning and Establishment, (1a) Reserve site selection, (1b) Reserve design, (1c) Formulation of management plan, (2) Population Management and Monitoring, (2a) Initiation of CWR population management plan, (2b) Monitoring CWR populations, and (3) Diversity Utilization, (3a) Landrace

population and product use, (3b) Linkage to *ex-situ* conservation, research, duplication and education. In addition, this output will mainstream CWR conservation into the managed plan of 2 protected (Sari-Khosor natural park and Kusavlin reserve with a total of 20,144 hectares) as protected areas have an existing ethos of biodiversity conservation and a protected areas management plan that could be amended to suit the additional active management of CWR populations.

For the 600 seed accessions representing 40 crops and 300 CWR held in the national gene banks, it will be necessary to establish novel relationships between traditional farming communities cultivating agrobiodiversity, protected area managers maintaining CWR populations in Tajikistan, the national plant genetic resources centre/gene bank and local district-based community seed banks, where the samples taken from conserved landrace or CWR population will be stored *ex-situ* and made available to local and remote users. The methodology applied will be derived from the standard protocol [19],[20],[21], that will be composed of the following three phases and component activities: (1) Seed collection Planning, (1a) Collection timing, (1b) Identification of collection sites, (2) Population Seed Sampling, (2a) Field sampling, (i) distribution of collection sites, (ii) number of sites sampled, (iii) delineation of the sites, (iv) distribution of plants sampled within site, (v) number of plants sampled per site, (2b) Population identification, (2c) Field processing of collected materials, and (3) Seed Sample Integration into National Gene Bank and district-based community seed banks, (3a) Gene bank processing of collected materials, (3b) Linkage to utilization, research, duplication and education.

Information in participating communities, including information relating to landrace population levels and traditional knowledge, will be gathered after obtaining prior consent and in a manner that the community considers relevant and considering information protection mechanisms, if necessary.

The following activities will be carried out to achieve this output:

- ? Planning, design and establishment of on-farm sites
- ? Management and monitoring of on-farm population
- ? On-farm diversity utilization
- ? Local community engagement in crop landrace on-farm conservation of diversity
- ? Planning, design and establishment of formal CWR genetic reserves
- ? Planning, design and establishment of informal CWR genetic reserves
- ? CWR populations diversity utilization
- ? Protected areas and local community backup LR/CWR conserved diversity in *ex-situ* gene bank
- ? Seed Sample Integration into the National Gene Bank and district-based community seed banks

The associated indicators of success are:

- ? Plans implemented
- ? 80 active on-farm sites
- ? LR exchange in 80 active LR on-farm sites
- ? 3 community seed banks established
- ? 10 active CWR genetic reserves established
- ? Informal CWR in-situ conservation in 4 communities
- ? Agreed changes to 2 PA management plans (Sari-Khosor natural park and Kusavlin reserve) to conserve CWR diversity
- ? 10 CWR incorporated in breeding programme
- ? 400 seed accessions of 30 crops/ 200 CWR accessions in gene bank

? Duplication of seed accessions in *ex-situ* and community seed banks, Result inform Strategy

Output 1.1.6: *Capacity building program for local communities developed and implemented to support on-farm maintenance of traditional crop landraces, with special attention to women groups.*

This output will be achieved by building on existing relationships between local communities, agricultural extension officers and agrobiodiversity conservation implementing staff in Tajikistan and developing a methodology derived from existing practice for on-farm maintenance.[22] Such local community capacity building will include promotion of landrace value through agrobiodiversity fairs/shows, farmer-to-farmer workshops, establishment of community gene banks/seed saver schemes/landrace protection schemes, visits to communities and agrobiodiversity fairs, encouraging seed exchange networks, techniques for landrace maintenance, recording of indigenous knowledge associated with cultivation and product promotion, product sales through farmers'/community markets and various ways of adding value to landrace products[23]. Agrobiodiversity fairs are public events where farmers display their diversity of seeds and/or harvested products. The aim of such events is to allow farmers to tell other farmers and the general public about their cultivated diversity. The events may be at community, regional or state level. During the event, seeds and products can be exchanged between farmers and sold to the general public. Cultural and artistic activities can also be carried out focusing on the social recognition and appreciation of agrobiodiversity, farming activities and farmers. District-based studies will be used as input for the design and dissemination of catalogues of varieties and recipes for the use of these species, books, posters, murals or other appropriate means of dissemination for communities in the district. For example community radio programmes or contributing information on agrobiodiversity to strengthen community seed banks and museums.

Each of these interventions will be carried out with the participation of local agrobiodiversity technicians who are community members, preferably educated to middle school or higher level, and are coordinated by the project team. Local agrobiodiversity technicians are the field staff who will collect information, systematize it with the support of Component 1 (following on-farm landrace valuation and enhancement designed under output 1.1.2) and disseminate it to the community by the appropriate means. The local technicians should be preferably young and female to promote gender equality.

Information will be gathered alongside seed samples from local communities, including information relating to traditional knowledge, after obtaining prior consent and in a manner that the community considers relevant and considering information protection mechanisms, if necessary.

The following activities will be carried out to achieve this output:

- ? Design programmes to build capacities for the conservation and sustainable management of agrobiodiversity through district and inter-district exchange events, participatory research projects, dissemination materials and other methods. At least 10% of capacity-building training programmes is dedicated to gender mainstreaming into ABD conservation and management
- ? Produce and distribute gender-responsive materials for disseminating knowledge and appreciation of agrobiodiversity (brochures, books, posters, murals, radio programmes, etc.).
- ? Arrange district and inter-district events for information exchange and participatory research and other methods. These events will include district agrobiodiversity fairs.
- ? Systematize and disseminate lessons learned from capacity-building programmes for the conservation and sustainable use of agrobiodiversity.
- ? Identify, diagnose and select seed management initiatives that are in progress or planned by local and external stakeholders such as farmers, farmers' organizations, local entrepreneurs, researchers or civil society organizations. These must involve young people, and women. Property and access to benefit rights are safeguarded in such projects.

? Provide direct technical and organizational assistance to community seed bank and seed exchange projects, through ongoing support by local technicians and project advisers. Each district will have its own allocated budget to cover project monitoring visits based on a schedule agreed with the community and the regional coordinator. This project will work to ensure that the created capacity stays in communities and that local technicians and people in the community are trained to make the project their own.

? Installation of GRIN-Global gene bank documentation system and transfer of conserved seed accessions data from the existing outdated documentation system.

The associated indicators of success are:

? 1,400 farmers involved (50% women)

Output 1.1.7: *Capacity building plan for Tajik conservation professionals (i.e. central and field government staff), including a special section on advanced ABD conservation techniques, developed and implemented*

Implementation of the *National Strategy and Action Plan for Conservation and Use of agrobiodiversity* and achieving outputs 1.1.1 to 1.1.5 will require a highly skilled implementing national PGR programme staff with a range of general and specific conservation skills. To ensure the most appropriate training is provided to meet any skills shortage, a training needs assessment will form part of the project inception meeting and generate a *Capacity Building Plan* that: (i) identifies the skills shortage and topics that should be covered by the capacity building programme, (ii) identify who should be nominated to attend these training events, and (iii) how the training is expected to be delivered. Essentially it is foreseen that there will be a need for refresher/continuing professional development training for existing staff, as well as short course training for new staff, as well as more specialist training in specific techniques that are to be applied in the project. The general curriculum for Output 1.1.7 will cover: conservation planning, eco-geography, gap analysis, evidence-based conservation, climate change mitigation, field survey and inventory techniques for plant genetic resources, field taxonomy, field site selection techniques, field collection, post-field seed management, gene bank techniques, reserve design, site management and monitoring; conservation genetics, sampling strategies, mapping techniques and use of GIS to plan conservation, field conservation data management and analysis; critical issues for plant conservation, formal and informal conservation sectors and community-based conservation, and the fair and equitable sharing of germplasm.

The following activities will be carried out to achieve this output:

? Completion of a *Capacity Building Plan* as a basis for skill enhancement.

? Practical application of contemporary conservation techniques and collaboration/participatory interaction with local communities.

? Enhancing the use of conserved accessions use promoted following categorization and evaluation from data collections and made availability through a web portal.

The associated indicators of success are:

? 30 professional staff trained in conservation

? 30 field staff trained in field surveys and monitoring

? At least 50% of female conservationists and extension workers are trained on CWR *in-situ* and landrace on-farm conservation techniques

Component 2 Strengthening local community and breeding sector's capacity to ensure resilience and

use the breadth of indigenous agrobiodiversity

Component 2 addresses barriers to agrobiodiversity 2 and 4 described in section 1.5 above, the assumption being made that Component 1 has ensured the framework for effective and systematic conservation of Tajik agrobiodiversity, the onus is on ensuring the conserved resource is available for utilization and food and nutritional security for the people of Tajikistan. Specifically, component 2 activities may be split between those addressing (a) landrace and (b) CWR germplasm conservation and use in Tajikistan. For crop landraces held on-farm, there is significant wealth of diversity present, but that diversity is threatened by climate change. Thus, the cultivated varieties must change to ensure climate resilience, and even though they contain greater inherent diversity, these local landraces need to become more resilient. This goal will be achieved by a mixture modelling to find which landrace are most vulnerable to climate change and participatory plant breeding (PPB) to ensure those landraces are crossed with material that has drought or heat stress tolerance. Therefore, maintaining the basic landrace, but in a climate resilient form is required to ensure that the agrobiodiversity resource is maintained in a changing climate scenario. The component will also focus on helping landrace maintainers develop *de novo* or enhance existing landrace products by opening new or niche markets for landrace products or extending the existing products by adding value to the traditional landrace products. Further the project will use existing landrace examples from Tajikistan to start to build an added-value evidence-based information system that helps local communities learn from others' experiences to facilitate expanding the market viability of traditional crop varieties in Tajikistan.

There has always been a reluctance for plant breeders to use CWR held in nature or conserved either *in-situ* or *ex-situ* in their breeding programmes, because such breeding requires a greater breadth of diversity, particularly diversity that can be found in CWR taxa.[24] Obtaining favourable traits from CWR is often resource intensive, in part because of linkage drag, the transfer of maladapted along with beneficial traits when crossing crops with their wild relatives[25]. Yet the beneficial traits offered through CWR breeding can be significant, especially in climate change mitigation. In this regard Tajik breeders will be provided with training in CWR use in crop improvement. Further the use of germplasm in crop improvement is limited by the availability of characterization and evaluation data[26], so the component will include some characterization and evaluation of Tajik conserved crop landrace and CWR germplasm and making such information available through the project.

This data and related knowledge-management mechanism will inform public policies and influence appropriate local community and plant breeding interventions, as well as agrobiodiversity utilization techniques to increase the effectiveness of conserved resource use. Component 2 will also feed into indicator 7.1 of GEF Biodiversity Focal Area programme 7: *Diversity status of target species: improved knowledge, conservation and monitoring of agrobiodiversity species, CWR and associated species*, concerning ?improved knowledge and monitoring?.

The aim is to achieve the following outcome for component 2 using incremental GEF resources:

Outcome 2.1: *Increased climate resilience and sustainable use of target landraces and CWR through targeted participatory plant breeding and capacity building to promote crop improvement:*

At present in Tajikistan there is very limited assistance provided through policy or governmental support to help local communities improve their exploitation of the genetic diversity in agrobiodiversity and enhance the value of products produced from crop landraces. Further significant diversity that currently exists in Tajikistan, at Vavilov Centre of Global Diversity, is increasingly threatened by climate change. The second State of the World's Report on PGRFA[27] identifies several potential interventions that can be implemented to help strengthen and promote on-farm conservation and increase competitiveness of traditional varieties. These include:

- ? Adding value through improved characterization of traditional varieties.
- ? Improving traditional varieties through plant breeding and seed processing.
- ? Improving market incentives and public awareness to increase consumer demand.
- ? Improving access to information and materials.

? Enhancing enabling environments through more supportive policies, legislation and incentives[28].

Therefore Outcome 2.1 is designed to (a) ensure the long-term survival of indigenous crop landraces in the face of climate change through PPB with local communities to improve the climate change resilience of local landraces, (b) helping landrace maintainers develop *de novo* or enhance landrace products by opening new or niche markets for landrace products or extending the existing products by adding value higher net worth traditional landrace products, (c) providing exemplars of landrace product that add value to local communities to help them generate greater economic advantage using an added-value computer evidence-base, but also provide a collection of study cards for those without internet access in Tajikistan. The aim of this outcome is to sustain long-term agrobiodiversity products and halt the drift toward less diverse, but possibly higher yielding cultivars. Further a more agrobiodiversity encouraging policy context will be established that results in a more agriculturally diverse Tajik agricultural sector, both in term of extending the crops and crop varietal base, as well as underpinning future food and nutritional security in Tajikistan.

While Tajik breeders are used to employing indigenous landrace germplasm in their breeding programmes, they are not used to having such a wide array of landrace material to select from, although a wealth of CWR diversity is present in the country. Therefore, Output 2.1.5 will address the characterization and evaluation of newly conserved agrobiodiversity to promote its use in national breeding programmes. While in the case of CWR as argued above many breeders globally are reluctant to use CWR in their breeding programmes despite the known range of beneficial traits they possess because of linkage drag, the transfer of maladapted along with beneficial traits when crossing crops with their wild relatives[29]. Given the wealth of globally and undoubtedly nationally useful CWR diversity found in Tajikistan, this should not be ignored in the effort for crop enhancement by Tajik breeders. Therefore, Output 2.1.6 will focus on technical training for Tajik plant breeders by experts in pre-breeding on how to maximise the advantage of using the greater breadth of diversity found in CWR in their crop improvement programmes. This Outcome will be supported by six Outputs:

Output 2.1 1: Capacity building program to support Tajik farmers improve management and maintenance of LR and add value to crop products

Although cultivation and maintenance of indigenous landraces is a routine activity for Tajik farmers, there may be ways in which the cycles of (i) seed sowing, (ii) crop cultivation, (iii) harvesting, (iv) seed storage, (v) crop product development might be adjusted to improve the maintenance of agrobiodiversity. For example, seed storage might be improved by saving seeds in a community gene bank or there may be various other methods of adding value to the crop product. The project team will work with local communities to review their cultivation and management practices and where appropriate the team and local communities will together develop alternative modes of operation that enhance the value of the product going to market. As such participatory interactions will be tailored to meet individual community needs, but may involve (a) Seed reproduction for planting, (b) Community Seed Bank and maintenance of diversity on-farms, (c) Special encouragement for custodians of traditional Tajik cultures in crop production (figs, pistachio, walnut, pomegranate, apricot, almonds, mulberries), (d) Value creation in supply chains and market development, and (e) Developing agrobiodiversity products through agribusiness. An example of product development interventions might include making jams rather than selling fruits or stimulating product sales of traditional culturally associated Tajik crops through formation of grower's cooperatives, and/or numerous other options[30].

Information in participating communities, including information relating to traditional knowledge, will be gathered after obtaining prior consent and in a manner that the community considers relevant and considering information protection mechanisms, if necessary.

The following activities will be carried out to achieve this output:

- ? Review local communities cultivation and management practices
- ? Project team will collaborate with farmers to develop improved or new crop products for sale into niche or international markets.

? Branding indigenous crop products with internationally accepted certificates of origin or niche markets will be applied. The final outcome being market sustainability for the benefit of producers.

? Set up and supply social network websites to promote and market products aimed at consumers in general and agrobiodiversity product buyers in particular.

? Recommendations for policy interventions that promote indigenous landrace product sales including considering their IPR value to Tajikistan.

The associated indicators of success are:

? 80 farmers with improved LR maintenance skills

? 80 farmers with improved quantity and quality of LR products

? At least 50% of women-maintainers are trained to cultivate, manage and sell new crops

Output 2.1.2: Advisory and training package targeting local technicians to increase LR resilience, conservation and use developed and used in pilot areas

Output 2.1.2 will be achieved through collaboration between on-farm landrace maintainers, local agrobiodiversity technicians and project scientific staff, with the local agrobiodiversity technicians acting as intermediaries between the local communities and professional agrobiodiversity conservationists. The collaboration will be largely face to face between the three groups involved, but pre-prepared materials will aid to get the best practice knowledge across to the local communities. The pre-prepared materials will be generated by the following activities:

? Design programmes to build capacities for the conservation and sustainable management of agrobiodiversity through district and inter-district exchange events, participatory research projects, dissemination materials and other methods. These programmes will be designed to link and assist with preparation of the National Strategy for Conservation and Use of agrobiodiversity.

? Produce and distribute gender-responsive materials for disseminating knowledge and appreciation of agrobiodiversity (brochures, books, posters, murals, radio programmes, etc.).

? Arrange district and inter-district events for information exchange and participatory research and other methods. These events will include district-based agrobiodiversity fairs.

? Systematize and disseminate lessons learned, including gender-related experiences from capacity-building programmes for the conservation and sustainable use of agrobiodiversity.

Any information gained in participating communities, including information relating to traditional knowledge, will be gathered after obtaining prior consent and in a manner that the community considers relevant and considering information protection mechanisms, if necessary.

The following activities will be carried out to achieve this output:

? Production of gender-responsive catalogues, pamphlets, posters explaining the value and knowledge concerning agrobiodiversity.

? Appearance of local agrobiodiversity technicians and project scientific staff on radio and television programmes explaining the value and knowledge concerning agrobiodiversity. At least 10% of radio and TV programme content promote GEWE in ABD conservation (lessons learned, good practices, etc.)

? Local agrobiodiversity technicians and project scientific staff giving classes in district schools or community centres explaining the value and knowledge concerning agrobiodiversity

The associated indicators of success are:

- ? Gender-sensitive advisory and training materials to aid LR cultivation, management and product enhancement for farmers in pilot areas published

Output 2.1 3: Local communities in 4 selected districts improve at least 24 local landraces resilience through PPB

Crop landraces are the component of agrobiodiversity outside of the breeder's own material that is most commonly used because it has relatively high levels of genetic diversity and can be easily crossed with modern cultivars as it is the same species and there is no crossing barrier. Yet like all crop varieties, landraces are subject to the adverse impact of climate change[31]. In fact that it can be argued that landraces are more prone to the impact of climate change than modern cultivars because modern cultivars commonly only have a cultivation life of 5/6 seasons while landraces can be grown for millennia and so they will suffer impacts of climate change over long generation of time. Just as cultivars are renewed periodically and their traits 'improved', so landraces, if they are to be climate resilient need to have their climate related traits updated. It is not desirable to replace entirely the existing landraces as this will cause their locally evolved traits and locality unique diversity to be lost. Rather, the effort should be more narrowly focus on refreshing just the climate associated traits, e.g. heat stress tolerance, drought resistance and extreme weather resilience using exogenous germplasm, as natural evolution is unlikely to evolve the necessary traits sufficiently quickly. This will be achieved using participatory plant breeding techniques and Tajik sourced germplasm that is known to have the desired climate resilience. This will address the goal of producing climate resilient indigenous landraces that are suited for the predicted environmental regime in Tajikistan over the next 20-30 years.

Information in participating communities, including information relating to traditional knowledge, will be gathered after obtaining prior consent and in a manner that the community considers relevant and considering information protection mechanisms, if necessary.

The following activities will be carried out to achieve this output:

- ? Landrace maintainers will be approached and offered the opportunity to collaborate in PPB activities to improve the climate resilience of their landraces, thus rendering them 'climate smart landraces'.
- ? Project PPB team with farmers will facilitate crossing between local indigenous landrace and exogenous germplasm known to have climate resilience traits.
- ? The next generation of local indigenous landrace will be monitored to see if climate resilience has been transferred to indigenous landrace.

The associated indicators of success are:

- ? 80 local LR with improved resilience
- ? 4 districts with improved climate resilience through PPB partnerships
- ? At least 50% of women participate in PPB activities to enhance their skills in climate smart landraces

Output 2.1 4: Evidence-based value-added information system developed and set-up including at least 25 case studies to facilitate market viability of traditional crop varieties in Tajikistan

In recent years there has been a movement to improve agrobiodiversity conservation intervention through the adoption of an 'evidence-based approach' to conservation[32],[33]. The quality of conservation intervention often reflects the ratio between the information that the conservationist has at hand compared to the sum of relevant information that is potentially available; the more background information (evidence), the better the decision and conservation outcomes. An evidence-based framework aims to inform conservationists about the likely result of applying alternative conservation actions, helping them maximize the likelihood of successful outcomes by choosing those actions that

are most appropriate. These are said to: (a) be efficient, unbiased, systematic and scientific; (b) provide a formalized method to identify areas where evidence is lacking; (c) give a clear statement of best practice; and (d) generate a needs-led research agenda[34]. This methodology is being applied in Europe to indigenous landraces management on-farm and landrace added value products development[35]. In the agrobiodiversity context this has involved as follows: (i) collecting descriptive information on how landraces are cultivated and managed by maintainers, (ii) collecting descriptive information on how the maintainers have added value, developed new markets or promoted the landrace products to generate increased income for the maintainers, and (iii) this information is made available via a queryable online database. Users of the database can look up examples of how other farmers are cultivating the crop or how they are improving their crop products and expanding markets, so benefitting all maintainers. The presumption is that maintainer generating additional income from a landrace will not only feel bio-cultural advantage but also have an economic benefit that would deter them from switching to exogenous modern cultivars. It might be argued that in Tajikistan farmers may not be familiar with online database querying, so the evidence-base could also be made available via a series of landrace case study cards.

Information in participating communities, including information relating to traditional knowledge, will be gathered for inclusion in the evidence-base but only after obtaining prior informed consent and in a manner that the community considers relevant and considering information protection mechanisms, if necessary.

The following activities will be carried out to achieve this output:

- ? Landrace maintainers provide descriptive information on how their landraces are cultivated and managed.
- ? Landrace maintainers provide descriptive information on how for their landraces value has been added to the crop product.
- ? Project team makes the evidence-base available via a queryable online database and landrace case study cards.
- ? Recommendations for policy interventions that promote indigenous landrace product sales, including considering their IPR value to Tajikistan.

The associated indicators of success are:

- ? LR added-value evidence-base web-enabled including at least 25 case studies of added value best practice and at least 10 cases studies that target women

Output 2.1.5: *Capacity building program carried out for 16 government based and 10 commercially based plant breeders on characterization and evaluation of newly conserved agrobiodiversity to promote their sustainable use*

The most common factor determining whether conserved germplasm is used in the promotion and sustainable use of agrobiodiversity is the availability of characterization and evaluation data. The project's activities as outlined here will lead to a significant increase in the numbers of *in-situ* and *ex-situ* conserved agrobiodiversity accessions and for the first time the availability of large collections of CWR taxa. To ensure the success of the project, these accessions must be characterized and evaluated so that the genetic resources can be effectively used for the benefit of the country. Characterization is largely based on simply recording inherited descriptors that are often highly heritable and are expressed in all environments. The main objective of characterization is to describe and determine the value of plant germplasm, while specific objectives include the true taxonomic clustering, suitable morphological description, phenotypic variability, etc. On the other hand, evaluation depends on recording characters showing more complex inheritance that are often influenced by the environment and relationships between different characteristics. Its main objective is to accurately and precisely assess the agronomic value of conserved resources[36].

Information related to the characterization and evaluation of conserved crop and CWR accessions in Tajikistan will be gathered for inclusion in an online database made available through the project

portal, but only after obtaining prior informed consent and in a manner that the local communities who provide the original accessions consider its information protection mechanisms.

The following activities will be carried out to achieve this output:

- ? Morphometrically characterized and evaluated using standard FAO/ Biodiversity descriptors of conserved crop accessions.
- ? Morphometrically characterized and evaluated using standard FAO/ Biodiversity descriptors of conserved CWR accessions.
- ? Project team makes the characterization and evaluation data for conserved crop and CWR accessions available via a queryable online database, taking into consideration the IPR of the donor and Nagoya Protocol to ensure fair and equitable sharing of benefit from exploitation.

The associated indicators of success are:

- ? 400 LR and 100 CWR accessions characterized and evaluated
- ? 10 breeders given pre-breeding training
- ? 6 CWR traits used in crop improvement

Output 2.1.6: Capacity building program for national experts in pre-breeding using CWR diversity to apply greater breadth of diversity in crop improvement

It is vital, because of the unique and defining nature of agrobiodiversity conservation that conservation is linked to use[37]. Therefore, there would be little value for the project to collect greater breadth of genetic diversity if it had no ability to utilise that diversity in its breeding and crop improvement programmes. Therefore, Output 2.1.6 will focus on technical training for Tajik plant breeders by experts in pre-breeding on how to maximise advantage of using the greater breadth of diversity found in CWR in their crop improvement. Use of such exotic germplasm will provide much greater breadth of genetic diversity and enable Tajik breeders to address the need for improved crop varieties with climate resilience that can significantly improve national crop production and food and nutritional security. Such training commonly takes the form of training pre-breeders (often state or CGIAR-funded) to undertake the initial crosses between breeders' lines and CWR and produce pre-bred lines containing the CWR derived adaptive traits that then can be used by the broader governmental or commercial breeding community[38].

Information related to the conserved CWR accessions collected in Tajikistan will be gathered for the pre-breeding training, but only after obtaining prior informed consent and in a manner that the local communities who provide the original accessions consider its information protection mechanisms.

The following activities will be carried out to achieve this output:

- ? Training of Tajik breeders in pre-breeding techniques
- ? Use of conserved CWR material in crop pre-breeding to produce pre-bred lines containing the CWR derived adaptive traits.
- ? Use of pre-breeding to produce pre-bred lines in further crop varietal improvement.
- ? Use of conserved CWR material in crop pre-breeding takes into consideration the IPR of the donor and Nagoya Protocol to ensure fair and equitable sharing of benefit from exploitation.

The associated indicators of success are:

- ? 10 breeders (6 x state and 4 x commercial) given pre-breeding trainings

Component 3 Policy development, knowledge management, improved financing and outreach activities

for promoting conservation and sustainable use of agrobiodiversity in Tajikistan

Component 3 addresses improvements to the policy, knowledge management and educational context surrounding agrobiodiversity conservation and use and barriers 1 and 3 described in section 1.5 above, the assumption being made that Component 1 has ensured the effective and systematic conservation of Tajik agrobiodiversity, Component 2 has ensured the effective use of the agrobiodiversity conserved resource and the onus of Component 3 is on ensuring (a) the appropriate national policy environment and local community support structures exists to underpin agrobiodiversity conservation and use, and maximise wealth creation from novel crop product development, (b) the value of agrobiodiversity and the benefit of its use by a range of stakeholders is significantly greater than the cost of its conservation, (c) local communities who live alongside agrobiodiversity are fully aware of the value of their agrobiodiversity wealth and supported in their conservation and use efforts to sustain the base resource, and (d) local communities feel secure that exploitation of their agrobiodiversity will result through acceptable access and benefit arrangements that bring benefits to their local community, sustaining their traditional culture and improving their livelihoods. Yet such a valuable resource is being rapidly eroded or extinguished that could result in economic benefit to Tajikistan being lost. There is therefore a need for decision-makers and professional conservationists to engage in formulating policies and programmes that incorporate and foster the conservation and sustainable use of Tajik agrobiodiversity.

This data and related knowledge-management mechanism will inform public policies and appropriate local community and plant breeding interventions, as well as agrobiodiversity utilization techniques to increase the effectiveness of the use of the conserved resource base. Component 3 will also feed into indicator 7.1 of GEF Biodiversity Focal Area programme 7: *Diversity status of target species: improved knowledge, conservation and monitoring of agrobiodiversity species, CWR and associated species*, concerning ?improved knowledge and monitoring?.

The aim of this component is to achieve through the following outcome using incremental GEF resources:

Outcome 3.1: *Improved knowledge, financing and awareness promotes conservation and sustainable use of agrobiodiversity*

Development of agrobiodiversity policy in Tajikistan has been largely *ad hoc* thus far. There is thus an urgent need to develop a more coherent approach to agrobiodiversity conservation and use in future that will facilitate the effective implementation of the *Strategy for Conservation and Use of agrobiodiversity* and *action plan*. The National Strategy will require all stakeholders to work together to create a policy-enabling environment that will encourage uptake of the project's outputs.

Therefore, Outcome 3.1 will address the creation of a more cohesive approach to agrobiodiversity conservation and use that encompasses all Tajik stakeholders, ensuring they each have a voice and contribute to the successful implement of the National Strategy for the benefit of the Tajik people. These stakeholders include representatives of government agencies, local administration, local community, civil society organizations and commercial users of genetic diversity. This outcome will be implemented through five outputs.

Output 3.1.1: *Inter-agency national commission on ABD conservation and use and incorporation into relevant policy instruments*

As noted above, if the *National Strategy for Conservation and Use of agrobiodiversity* and *action plan* is to be implemented within the agreed *timeline* then there is a need for all stakeholders including representatives of government agencies, local administration, local community, civil society organizations and commercial users of genetic diversity to be actively engaged in this process. One way to get them to formally come together is to establish a Tajik inter-agency national commission on agrobiodiversity conservation and use to formally oversee the implementation of the National Strategy

and Action Plan. Such a national commission on agrobiodiversity conservation and use (NSAP-CUA) would have as its objective the following activities: (1) prioritize legislation, policies and programmes that the project seeks to influence, (2) draw up an analysis of existing policies and formulate alternative policies to address the gaps, (3) negotiate and agree on proposals for new or alternative policies, (4) incorporate proposals into the relevant policy instruments, (5) develop the capabilities of institutions responsible for implementing changes and (6) monitoring and assessing changes, detailed as follows:

1. Prioritize legislation, policies and programmes that the project seeks to influence. In order to carry out this activity, the NSAP-CUA will be tasked with actively promoting the implementation of the Fifth National Report on Preservation of Biodiversity of the Republic of Tajikistan that highlights the need for setting-up an interagency mechanism for integrating biodiversity, which is an ideal mechanism for promoting the inclusion of agrobiodiversity in agricultural, social and tourism policies.
2. Review and analyse existing policies, identify gaps and formulate alternative policies. Once the legislation, policies or programmes have been prioritized, their implementation and impact on agrobiodiversity must be analysed with the aim of obtaining the empirical evidence required for developing alternative legislation, policies or programmes and evaluating their cost-benefits. These alternative policies may involve the creation, removal or amendment of legislation, policies and programmes.
3. Negotiate and agree on alternative proposals. When the legislation, policies and programmes have been prioritized, NSAP-CUA will draw up a proposal for the creation, removal or amendment of the relevant legal instrument and this will be negotiated and agreed within the relevant inter-ministerial coordination working group.
4. Incorporate alternative proposals in the relevant instruments. Once the proposal has been negotiated and accepted, the decentralized agencies and bodies will be responsible for incorporating the agreed changes in the relevant policy instruments.
5. Develop the capabilities of institutions responsible for implementing changes. To ensure effective implementation of these changes, the decentralized agencies and bodies must amend their processes and systems and train public officials in the method of implementing such changes.
6. Monitoring and assessing changes. This involves finding out whether changes to legislation, policies and programmes have been effectively implemented and whether these changes have translated into effective application of the new conservation policies to traditional farming practices as well as to agrobiodiversity and its sustainable use. Measures will be taken to ensure that the mechanism for monitoring and assessing changes in public policies is housed in one of the institutions involved after project closure. When monitoring impacts of such changes, regional coordinators will actively participate in government decision-making and maintain a close relationship with State delegates from federal agencies to ensure that changes to policies or their instruments are properly implemented.

The associated indicators of success are:

- ? Stakeholders for *NSAP-CUA* identified and Commission established
- ? Commission structure agreed and set-up
- ? Commission statutes agreed and set-up
- ? 50% of representatives joining the *NSAP-CUA* are female
- ? Assessment of the level of awareness on agrobiodiversity by TAJ policy makers
- ? At least 5 existing policies amended considering also gender

Output 3.1.2: *Improved understanding of ABD economic value and related ecosystem services, life cycle assessment and market studies that benefit rural livelihoods and food security from improving market channels analyzed*

Local communities are at the forefront of crop landrace cultivation, crop product enhancement and helping ensure market diversity is maintained. FAO has documented many instances where developments in markets have enabled farmers to maintain their sustainable practices[39]. This can be enhanced through: (1) ensuring self-consumption by rural and indigenous families and planning diversified production for marketing; 2) marketing agrobiodiversity products, particularly those that are undervalued and underused, with a focus on short marketing circuits or short value chains; 3) identifying local product attributes as a basis for their differentiation and labelling under participatory and inclusive schemes such as local seals, umbrella brands (identifying the supply of goods and services from a specific area) and collective marks to help establish a premium price and add intangible value, for example landscape conservation, intangible heritage such as cuisine and festivals, and so on; 4) public procurement with local purchase from smallholders; 5) implementing advertising campaigns within the strategy designed as mentioned above, in order to increase interest in agrobiodiversity conservation and bring about a change in consumer behavior and preferences. Further the farmer may be aware of simple adjustments to their cultivation or marketing practices but not have the necessary short term resources to invest to make the difference, in this case small grants or micro-borrowing revolving fund schemes often associated with agricultural extension programmes can make all the difference.

The aim of output 3.1.2 is to strengthen links with both local, national and supra-national markets by improving the value chain (VC)[40] approach oriented to national/international markets and the promotion of the Short Food Chains (SFC) approach. The VC approach looks at all the stakeholders and stages in the chain and not only at the farmer's level. In view of this, the approach not only considers farmers and their organizations, but looks as well to their value chain interactions with small traders, small and medium food processors, small and local markets and retailers, food services (restaurants and take-outs), final consumers (locally and remote). The VC approach also looks at the value added along the entire value chain and how to sustain the business related to these products in a sustainable way[41], providing economic incentives for producers and other stakeholders who can acquire this value added benefit. Whereas SFC considers the *value chain* approach in its complete description, it may not fit to all smallholders' needs, many of these farmers do not have access to all stages of a full value chain.

Information related to adding product value will be gathered by the project team, but only after obtaining prior informed consent and in a manner that the local communities who provide the original accessions considers its information protection mechanisms.

The following activities will be carried out to achieve this output:

- ? Mapping of potential products to be included in the market studies
- ? Mapping of the willingness of the farmers to work with the project team and improve their access to market
- ? Conduct the market studies and validate the result with relevant stakeholders
- ? Conduct a study on alternative market channels for ABD products
- ? Selection of value chains based on environmental and socio-economic sustainability criteria
- ? Social life cycle assessments (SLCAs) and life cycle sustainability assessments (LCSAs) of the selected value chains conducted including ABD use indicators

- ? Selection of the six value chains to be supported based on the SLCA and LCSA results and assuring that at least two of them is focused on women only.
- ? Development of business plans for the selected value chain, including engagement of financial institutes

The associated indicators of success are:

- ? 8 Market studies conducted
- ? 1 Marketing campaign strategy developed
- ? Mapping of potential channel markets for ABD products conducted

Output 3.1.3: Microfinancing credit lines for supporting farmers to improve their production and access to sustainable markets

Although agrobiodiversity policies may be sanctioned at national level, they are enacted at the local level. Therefore, there is a need to focus on the community implementation of agrobiodiversity conservation and sustainable use policies. As national policy has historically been largely *ad hoc*, for the implementation of the *National Strategy for Conservation and Use of agrobiodiversity, action plan and timeline* to be fully successful there is a requirement for its careful application at the individual community level. Therefore, this output will address how limited State funding might be used most effectively to support individual community-based policies in the maintenance of agrobiodiversity, promotion of added value for crops products and encouraging market viability. One policy tool used will be provision of small grants and micro-borrowing revolving fund scheme that underpin novel initiatives in agrobiodiversity conservation and use. Such initiatives will help ensure the local communities are willing to participate in project activities. Finally, there is a need to not only significantly improve the conservation and sustainable use of agrobiodiversity, but also to ensure that the general public in Tajikistan understands its value and its direct impact on their future food and nutritional security, their individual well-being and their economic prosperity. To achieve this outcome would involve working with local community, civil society organizations and the people of Tajikistan, as well as government agencies and local administrations.

The following activities will be carried out to achieve this output:

- ? Discuss with the microfinancing institution on the modality and possibility of the credit lines
- ? Define the criteria for the credit lines and consult with the commission
- ? Create a controlling mechanism to ensure the effectiveness of the credit lines and alignment with the NSAP-CUA
- ? Define specific criteria to assure women can access the credit line (even a specific credit line can be considered)

Indicators ?

- ? Number of farmers/community-based incentive applied for ABD conservation
- ? Number of farmers/community-based incentive applied to LR derived commodity enhancement

Target ?

- ? 100 farmers/community-based incentive applied for ABD conservation (at least 50% targeting women)

? 100 farmers/community-based incentive applied to LR derived commodity enhancement (at least 50% targeting women)

Output 3.1.4: *Developed and implemented gender sensitive RBM system, communication strategy and KM strategy targeting decision makers concerning the value of agrobiodiversity, its conservation, use and contribution to provisioning ecosystem services*

The project will prepare a communication and outreach plan, followed by knowledge and communication products in the area of Conservation and sustainable use of agrobiodiversity, which integrate gender perspectives. A national and local Conservation and sustainable use of agrobiodiversity guideline will also be published that describes how sustainable should be implemented at different scales. The knowledge management aspect of the project would include (i) documentation and dissemination of case studies, best practices and lessons learned from the project; (ii) policy guidance notes that addresses current constraints and gaps in existing policies, legislation and practices; (iii) technical reports, publications and other knowledge management products disseminated via mass media; (iv) documentation of traditional knowledge related to agrobiodiversity; (v) workshops to facilitate dissemination of field lessons for uptake; (vi) inclusion of public engagement pages on social media platforms that link to information about the project and its products, including development of a specific public information sharing platform; and (vii) end of project national seminar on outcomes of project to inform replication.

Output 3.1.5: *Project Mid-term Review and Final Evaluation contributing to adaptive management and long-term strategy for agrobiodiversity conservation and use*

A mid-term evaluation will be carried out with field visits to selected sites and consultation with local stakeholders and national project partners. A final evaluation will also be conducted and will include review of project reports, web-based information, gender equality attainment/implications of project implementation in piloting sites, and field visits to selected project sites, with recommendations for ensuring sustainability of Project outcomes and the Conservation and sustainable use of agrobiodiversity national process.



1.8 Alignment with GEF focal area and/or Impact Program strategies

The proposed project is aligned with the Biodiversity Focal Area. It will focus on Program 1 ?biodiversity mainstreaming in priority sectors? and Program 4 ?sustainable use of plant and animal genetic resources. In particular, the project will support programs and sustainable use of CWR and neglected agrobiodiversity (under components 1 and 2) to strengthen the national capacity in the sustainable use of GR. Also, policies will be promoted to mainstream the conservation of ABD in different sectors (components 1 and 3). Further, the project will carry out demonstration activities in the field (to be upscaled with co-financing resources) to improve the sustainable use of ABD and promote sustainable production practices to be more biodiversity-friendly. The project will build technical capacity of local farmers and support resource mobilization efforts and financial schemes, developing awareness on the importance of ecosystem services and bring the private sector into the discussion. Furthermore, the principles and mandatory requirements of GEF?s Guidelines on Gender Equality (2017) will be applied during the project design, implementation and monitoring.



1.8.1 Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF,

LDCF, SCCF, and co-financing

As an alternative scenario, GEF will supplement basic project activities through dealing with gaps in conservation and sustainable use of globally valuable biodiversity, which, in turn, will provide a basis for the promoting the use of threatened and neglected species both at the national and international levels; and will provide opportunities for the creation of new sources of demand and income from products received from local agrobiodiversity. GEF will add funds to the base amount, which is USD 1,776,484. The total cost of the alternative GEF scenario is USD 14,200,000 (USD 12,400,000 base amount plus USD 1,776,484 of GEF co-financing). The total amount of co-financing (in-kind, in cash and parallel funding) is up to USD 12,400,000, of which USD 4,000,000 is co-financing from the Committee on Environmental protection, USD 2,000,000 is co-financing from the State Institution Specially Protected Natural Areas, USD 2,000,000 is co-financing from the Agency for Hydrometeorology, USD 1,500,000 is co-financing from the National Centre for Biodiversity and Biosafety, USD 800,000 is co-financing from Research Laboratory on Natural Protection and USD 1,500,000 is co-financing from the National Centre for Environmental Protection Actions. Also USD 500,000 of co-financing from NOSFERA, a national NGO. The FAO co-financing of USD 100,000 in cash will be aimed for relevant communities supporting some field activities and improving seeds based on their ecological value. Additional amount provided by the GEF is USD 1,776,484 and will be focused mainly on the development of local-level initiatives that demonstrate replicable approaches for working on biodiversity conservation, but also at the national level strengthening the national legal framework to support the sustainable use of agrobiodiversity. The impact of this project will achieve the whole country but also global levels as several of the target species in this project are globally important. Also, the dissemination and replication of experience and lessons acquired during project implementation, all over Tajikistan, and the Central Asian region.

1.8.2 Summary of Costs

The total amount of project expenditures, including co-financing and GEF funds, will make up to USD 14,176,484. Of this amount, co-financing consists of USD 12,400,000. GEF financing presents the remaining USD 1,776,484. The cost matrix in section 1 provides a brief explanation of the breakdown by principal amount, co-financing, and an alternative amount provided by the GEF.

1.8.3 The global environmental benefits (GEFTF, NPIF) and/or benefits of adaptation (LDCF/SCCF)

Tajikistan is at the heart of one of eight global Centres of Crop Diversity^[42] and as such has a wealth of crop landrace and Crop Wild Relatives that are important to the global and national community in sustaining food security and human wellbeing. Such diversity is increasingly threatened from environmental change and land management intensification globally^[43] and specifically in Tajikistan^[44] and therefore, active conservation will also have global and Tajik benefits. The Tajik agrobiodiversity also provides significant and essential ecosystem services, such as wildlife habitats and recreational opportunities but the core benefit is to underpinning provisioning services through sustaining crop improvement and promoting diversification. In addition, the scenic, cultural and historic value of the Tajik environment is not only economic, but also supports the quality of life benefits cherished by the people of Tajikistan.

The Global Environmental Benefits (GEBs) that will result from GEF's biodiversity financing and project implementation will include:

- *Conservation* of globally significant biodiversity; and
- *Sustainable use* of the components of globally significant biodiversity.

Specifically, the Tajik and local governmental agencies, civil society organizations, the local communities, traditional farmers (especially women and young people) and their organizations, the academia and FAO will help to attain these Global Environmental Benefits (GEBs) through this project under the GEF biodiversity focal area.

•Conservation of globally and nationally significant biodiversity

- Securing the significant national breadth of traditional crop landraces and crop wild relative diversity that constitute a reservoir of genetic resources and knowledge for the whole of mankind, both for global and national future security and future agricultural research;
- Ensuring the continuity of the domestication and diversification processes and conservation of local seed that can help reducing the uniformity of global crops and their vulnerability to extreme climatic events;
- Identifying the major threats to species and genetic level diversity and either mitigating its impact through environmental management changes or changes to farming systems to promote resilience;
- Systematically conserving genetic diversity which is a fundamental useful in meeting future challenges - like food supply and adaptation of crops to upcoming social and environmental pressures (i.e. increase of global population and climate change);
- Improving the conservation status of traditional agricultural systems and aiding in adding value to landrace products.

•Sustainable use of the components of globally significant biodiversity

- Providing tested germplasm use methodologies, innovative mechanisms and lessons learned that can be scaled up in Tajikistan, in the Central Asian region, and adapted to other centres of origin around the world, through South-South Cooperation, the FAO network and the Commission on Genetic Resources for Food and Agriculture and Biodiversity[45];
- Use participatory plant breeding techniques to improve the environmental resilience of local landraces to underpin the sustainability of production;
- Improve characterisation and evaluation of conserved genetic resources and making that data available to plant breeding programmes to aid selection of germplasm, specifically targeting identification of optimal development environmental ranges, resistance to pests, diseases or drought;
- Supporting crop landraces local variety product promotion to develop new added-value and niche markets;
- Working with national breeders to encourage the use of indigenous CWR trait diversity in national breeding programmes through assisted pre-breeding programmes.

? Targeted *knowledge generation* and public policies have an important supporting function for achieving these GEBs

Knowledge generation

- Generating systematized documentation and improved knowledge on traditional crop landrace and crop wild relative diversity, that are currently poorly known, threatened, under-conserved and relatively unknown to the user community, knowledge of their eco-geography and trait diversity will enhance utilization potential, as well as facilitating their complementary conservation and monitoring.
- Generating agroecological knowledge on crop landraces will aid their cultivation, including their optimal development environmental ranges, resistance to pests, diseases or drought;
- Generating information about traditional landrace uses will enable product enhancement from crop to crop, and landrace to landrace, so promoting sustainability.
- Public policies that support conservation and sustainable use of agrobiodiversity
- Providing support for crop landraces and crop wild relative diversity maintenance through targeted public policies.

Global Environmental Benefits delivered by the project will be measured through the following GEF core indicators:

•Indicator 4: Number of globally significant CWR species actively conserved through the project in four target districts. There is a baseline checklist of 4,269 CWR species and 113 prioritized CWR taxa, both numbers of checklist and prioritized CWR taxa will increase in terms of actively conserved *in-situ* populations in genetic reserves, actively conserved *in-situ* populations maintained on-farm and *ex-situ* samples held in the national gene bank. *In-situ* CWR conservation increases from none to 12 multi-CWR sites (covering 600 hectares) containing 35 CWR species and for *ex-situ* from to 200 to 300 samples.

•Indicator 4: Number of globally significant crop landrace actively conserved through the project in three target districts. Numbers of landraces will be conserved *in-situ* through active on-farm maintenance and *ex-situ* samples held in the national gene bank. *In-situ* landrace conservation increases from none to 80 multi-landrace on-farm conservation sites and for *ex-situ* from to 200 to 400 seed samples and 3 community gene banks established.

•Indicator 4: Direct coverage: Number of hectares of globally important landraces (traditional varieties) secured (through data and information gathering related to the 12 target crops, their relatives and the agroecosystems where these thrive, capacity development, improved public policy and markets), with a final target of 100,000 hectares.

•Indicator 4: Indirect coverage: Total area covered by traditional agriculture in the country is 826,700 hectares[46] in 2020; the project final target is that 1,600 hectares will be secured for maintenance of traditional diversity based agriculture.

? Indicator 11: Number of producers having received different benefits for conserving and sustainably using ABD (market incentives, other subsidies for conserving ABD and related traditional practices): Baseline: none, with a final target of 2,370 producers

1.8.4 Innovation, sustainability and potential for scaling up

A. Innovation

Innovativeness is integrated throughout this project. At the policy level, the project will facilitate a transformation of the current ad hoc regulatory frameworks, providing a more incentivized enabling environment for participation in conservation and sustainable use of agrobiodiversity. The project will support the development of a national strategy for conservation and use of agrobiodiversity that recognize socio-economic and cultural processes that will help sustain the diversity of the country's agrobiodiversity. The related knowledge management mechanisms that center around this approach will inform public policies and promote appropriate field interventions that support conservation. Associated research processes will be directly aimed at highlighting and influencing policy interventions and ensuring support for conservation measures to create the successful context for sustaining indigenous agrobiodiversity and take into active consideration of IPR values to the country and actions necessary to link with the Nagoya Protocols of fair and equitable benefit sharing. This will be expected to encourage local communities and farmers to conserve these resources as well as help benefit the national economy. In this respect, it is innovative in that it ties conservation directly with ensuring direct local and national benefit to the country.

This project will demonstrate several innovative approaches, including promotion of an integrated approach towards agrobiodiversity conservation and sustainable use, through in-situ and on-farm conservation in natural areas and within farmer fields and ex-situ genetic collections, propagation and distribution of seeds and planting materials for enhancing agrobiodiversity within the landscape. These objectives cannot be achieved at an individual farm or plot level, but rather at a collective scale. The project will facilitate best management practices within four demonstration agricultural landscapes and the demonstrated approaches will be replicated across other landscapes in the country, according to a replication strategy and upscaling plan that will be defined within the national strategy for conservation and use of agrobiodiversity.

The project will establish innovative systems, tools and approaches for the protection of agricultural species varieties in the four district sites, including the mainstreaming of collective community/farmer approaches for *in-situ* conservation and the establishment of incentive-based mechanisms for sustainable use and conservation. It will also play a role to reduce gender gaps including women in all project activities and promote safe space for them to actively participate in the project and benefit from it. The close involvement of the private and banking sector will help facilitate the promotion of farmer engagement in ABD conservation and commodity enhancement. The innovative, market-based tools and approaches for the conservation of traditional LRs varieties will support supply chain development (e.g., collective marketing), developing niche markets, promoting agro-ecotourism, enhancing cultural preference branding, showcasing nutritional branding, recognizing traditional knowledge, enhancing e-commerce among rural communities, facilitating new partnerships, etc.

B. Sustainability

The sustainability of the project will be ensured across several fronts. With respect to the financial dimension of sustainability, the project will help facilitate improved and broader uptake of incentive mechanisms, both market-based and non-market-based. Strengthening the capacities of local farmers, agricultural associations and enterprises will help build stronger markets for ABD products and enable these stakeholders to expand their operations through implementing sound business and financial decisions. This will be an effective approach in working with local farmers and ensuring that

national and local administrative areas possess required capacity for the future actions and support that will serve as a means for ensuring continued community engagement and sustainability. The Project will demonstrate practices beneficial to the economy, environment, and biodiversity at the level of village that will encourage sustainability. In addition, the Project will significantly invest in the national capacity building to replicate success and strengthen the current policy and legislative framework to support the efforts.

In terms of institutional frameworks and governance, the national strategy for conservation and use of agrobiodiversity will provide strategic guidance for prioritizing sustainable use of agrobiodiversity and through the project help create an enabling environment that incentivizes participation in agrobiodiversity management. Efforts will be made to integrate these approaches into the country's agricultural and conservation policies as well as within the target districts planning processes. At the district levels, Inter-sectoral and cross-sectoral coordination will also be enhanced in support of agrobiodiversity use and its sustainable use.

Strengthened capacities of local farmers, agricultural institutions and enterprises, increased awareness of the nutritional and traditional values of ABD varieties, and implementation of conservation and sustainable use plans will contribute towards ensuring project results are sustained after GEF funding ceases. The increased social capital and sustainable livelihood benefits generated through the project activities will provide demonstrable socio-economic incentives for new entrants and existing stakeholders to engage in conservation and sustainable use of agrobiodiversity resources. Enabling facilities and activities, including community seed banks will also enhance the likelihood that project results will be sustained.

C. Potential for scaling up

The project design focuses on building an incentivized enabling environment for agrobiodiversity conservation, including development of a *national strategy for conservation and use of agrobiodiversity*, preparation and *Action Plan and Timeline* using the model provided by FAO Voluntary Guidelines for landrace and CWR conservation, and agrobiodiversity management implementation frameworks and strengthened institutional and farmer's capacities. Moreover, Component 2 focuses on demonstrating effective implementation of non-market-based and market-based incentive mechanisms. Mainstreaming is a core outcome of Component 3 so that the approaches and tools developed at demonstration sites are institutionalized for wider application and incorporated into sector work plans. Project resources are earmarked to support governmental and non-governmental stakeholders to initiate measures for potential replication elsewhere, which will also be integrated and defined within the *national strategy for conservation and use of agrobiodiversity*, preparation and *Action Plan*. The partnerships established between farmers, private sector enterprises, public sector and research institutions will build a secure base from which to expand incentive mechanisms across the country. Approaches, knowledge and results achieved will be shared with national partners to support exchange of knowledge and encourage scaling up of best practice initiatives beyond the project district.

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[43] FAOSTAT. Agricultural land increased by roughly 165,000 hectares between 2000 and 2016, with the largest changes occurring in land under permanent crops (30% increase) and land under permanent meadows and pastures.

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[45] IUCN, 2017. Invasive alien species and climate change. IUCN issues briefs November 2017. <http://iucn.org/issues-briefs>.

[46] FAO, 2015. Coping with Climate change. <http://www.fao.org/3/a-i3866e.pdf>pg 29-33

[47] FAO, IFAD, UNICEF, WFP and WHO. 2017. The State of Food Security and Nutrition in the World 2017: Building resilience for peace and food security. Rome, FAO.

[48] Committee on Environmental Protection of Republic of Tajikistan, 2014. Third National Communication of the Republic of Tajikistan under the United Nations Framework Convention on Climate Change. https://unfccc.int/sites/default/files/resource/tjknc3_eng.pdf

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[56] FAO, 2008. State of Plant Genetic Resources for Food and Agriculture in the Republic of Tajikistan.

[57] SESTO is a gene bank documentation system for Plant Genetic Resources for Food and Agriculture (PGRFA) developed by NortGen for information management associated with their *ex-situ* seed systems. SESTO was superseded by more advanced systems and so is no longer supported

[58] An externality arises when (i) the actions of an economic agent in society impose costs or benefits on other agents of that society and (ii) there is no full compensation for such costs or benefits and they are therefore not considered in decision-making by the decision-making agent. Without intervention in the free market to internalize externalities, there are few benefits of positive externalities and the costs of negative externalities are excessive (The Economics of Ecosystems and Biodiversity).

[59] One estimate of the annual value of CWR introduction of new genes to crops is \$115 billion per year worldwide (Pimentel *et al.*, 1997), while more recently PWC (2013) estimated a similar value for use of CWR in breeding of the 26 top global crops alone.

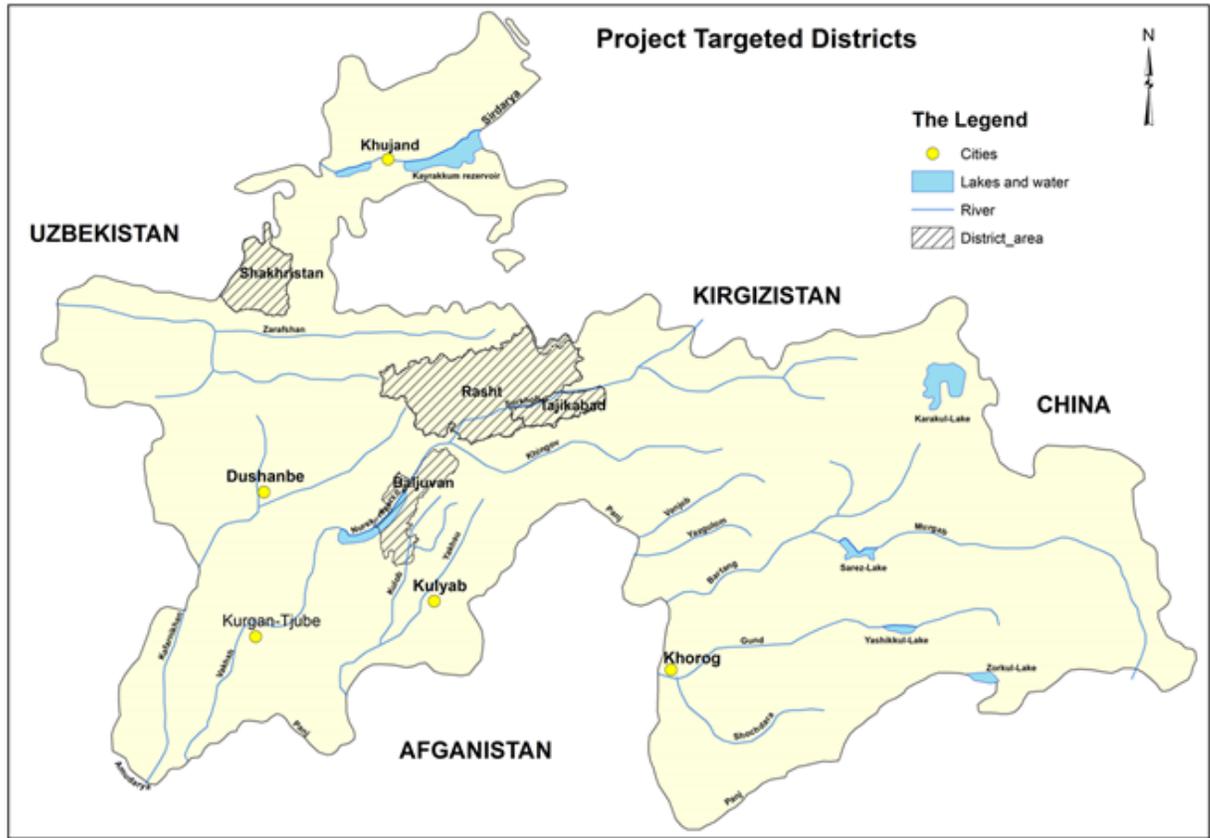
[60] Vavilov, N.I., 1926. Tzentry proiskhozhdeniya kulturnykh rastenii. [The centres of origin of cultivated plants]. Works of Applied Botany and Plant Breeding, 16(2), 248 P: [Russian, English].

[61] FAO, (1998). State of the World's Plant Genetic Resources for Food and Agriculture. Food and Agriculture Organization of the United Nations, Rome, Italy. Available online: www.fao.org/agriculture/crops/thematic-sitemap/theme/seeds-pgr/sow/en/

[62] FAO, (2010). Second report on the State of the World's Plant Genetic Resources for Food and Agriculture. Food and Agriculture Organization of the United Nations, Rome, Italy. Available online: <http://www.fao.org/agriculture/seed/sow2/en/>

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.



1c. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

n/a

2. Stakeholders

Please provide the Stakeholder Engagement Plan or equivalent assessment.

The project will work with a wide range of stakeholder, from international, central government, to sub-national and local levels. The main stakeholders and their roles are summarized below in Table 6.

Table 6. Summary of stakeholder engagement plan

Stakeholder (group)	Mandate (or activities)	Potential role in Project
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State Committee on Environmental Protection	Responsible for the implementation of all the environmental policies and sustainable use of natural resources, to support the implementation of the policies. The committee coordinates several centers. National Centre for Environmental Protection Actions (NC EPA), The Biodiversity and Biosafety Centre, State Institution of specially protected natural area and State institution Research Laboratory on Nature Protection	Responsible for the project design, implementation and monitoring of the project
National Centre for Environmental Protection Actions (NC EPA)	Development and implementation of National Environmental Action Plan. Development of digital data bank for ecological monitoring of priority directions of natural protection (BD, Protected Areas, wetlands, wastes, hygiene and water resources)	Lead executing agency
National Biodiversity and Biosafety Centre	Responsible for the implementation at national level of all activities linked to the implementation of Tajikistan's commitments to CBD and Nagoya Protocol.	They will be involved in the implementation of the outcomes 1.1 for the preparation of the National Strategy and Action Plan for ABD Conservation and Use. Also, to outcome 2.1 supporting the training process and raising national capacity, Outcome 2.2 and 3.1, assuring that all the process for the national breeding sectors follows the international standard. Also, it will contribute co-financing as shown on session C.
State institution of specially protected areas	Implement state policy and rules in the field of protection, planning and management of protected areas, including reforestation and seed harvesting, hunting supervision, and plan and manage all protected areas.	They will be involved in the implementation of the output 1.1.5, supporting the activities in project areas, especially the ones related to CWR.

<p>Agency on hydrometeorology</p>	<p>Responsible for the implementation of Tajikistan's commitments to UNFCCC and for coordinating the overall activities in the climate change/adaptation to climate change sector including:</p> <ul style="list-style-type: none"> •Development of climate adaptation models •Weather forecasting •Established 'Centre for the study of climate change?. •Managing agro-climatic observation at five meteorological stations. •Better dissemination of information (warnings) for extreme climatic events, including through the Operational Services Ministry for Emergency 	<p>They will be involved in the preparation of the National Strategy and Action Plan for ABD Conservation and Use. Also, it will contribute with co-financing as shown on session C</p>
<p>Ministry of Agriculture</p>	<p>Formulates and executes policies of agricultural production: Improving legislation on environmental management, forestry code, regulatory and legislative standards for the extraction of natural resources, etc.</p> <p>Improved methods for environmental impact assessment in the evaluation of development projects in rural areas, taking into account the value of agricultural biodiversity and adaptation to climate change.</p> <p>Improvement programs of state control over operating systems, improving the system of permits and license for natural resources, Introduction of new mechanisms for environmental expertise in evaluating development project territories. ■</p>	<p>Support the project implementation, including policy process and the design of the National strategy for agrobiodiversity conservation and sustainable use. Support the transfer of knowledge to farmers.</p>
<p>Forestry Agency</p>	<p>Responsible for: (i) prepare and administer state forest policy and regulations; (ii) plan and manage state forests and forest resources (including reforestation and seed harvesting); (iii) oversee hunting activities; and (iv) plan and manage all SPNAs. There are three divisions, of which the Division for Forestry, Fauna and Flora Protection and Hunting is most concerned with this project.</p>	<p>Project outcome 1.1; output 1.1.4 and co-financing</p> <p>The Forestry Agency will be involved in the assessment of forest genetic resources in the territories of protected areas.</p>

Ministry of Economy and Trade	Preparation of development programs and strategies to support local development plans.	They will be involved in the market studies, ABD valuation and ABD value. Also, it will be involved in the National strategy for agrobiodiversity conservation and sustainable use, value chain development and development of local markets.
The Academy of Sciences of the Republic of Tajikistan	Responsible for providing the scientific expertise and capability to underpin decisions and actions in the field of sustainable natural resource use.	Development of recommendations and proposals for adopted, highly productive varieties and types of cereals, legumes, oil crops and fodder crops.
Institute of Botany	Responsible for the study of life forms of plants to assess the status of agro?ecosystems and the preparation of studies and recommendations on indicator species.	Development and updating of genetic resources data base, enriching of herbarium.
Academy of Agricultural Sciences and its subordinate institutions	The Academy of Agricultural Sciences will provide support in planning, coordination of scientific guidelines on development of fundamental and applied researches. Supporting preparation of high-quality specialists in the different agriculture sectors.	They will be involved in the implementation of the outcome 2.1 supporting the development and delivery of trainings, also its own staff will benefit from the training, practical workshops and experience sharing cross visits.

<p>State institution Research Laboratory on Nature Protection</p>	<p>Provide scientific justification for priority activities on sustainability of nature use. Creation of a database on flora and fauna. Scientific rationale for the selection of adapted species and varieties and the development of climate adaptation models</p>	<p>They will be involved in the implementation of the outcome 2.1 supports the resilience modelling process. Also, it will contribute co-financing as shown on session C</p>
<p>State institution on protected areas</p>	<p>Implement state policy and rules in the field of protection, planning and management of protected areas, including reforestation and seed harvesting, hunting supervision, and plan and manage all protected areas.</p>	<p>They will be involved in the implementation of the outcomes 1.1, supporting the activities in project areas, especially the ones related to CWR.</p>
<p>National Centre for Genetic Resources</p>	<p>Responsible for establishing the national gene bank, training, including training of specialist biologists and data collection, description, analysis, catalogue composition and preparation for storing.</p>	<p>They will be involved in the implementation of the outcomes 1.1, 2.1, and support all the activities relates to inventory, characterization, database, training and any other relevant information related to GR.</p>
<p>District (Raion) Rasht, Tajikabad, Baljuvan and Shahrison</p>	<p>Provide support to, and oversees, local economic and land use activities, mostly through Jamoat governments,</p>	<p>Provide support throughout the whole project implementation at regional level. Follow all the activities at regional/local level. Mobilize the Jamoats and benefit from the capacity building process. Also, it will be part of the PSC.</p>

Jamoats	Provide support to, and oversees, local economic activities, rational use of land resources. The Jamoat head will represent those Jamoats engaging in project activities.	They will direct benefit from the project, it will be involved in all project components implementation and will benefit from the project, it will be consulted during all the relevant decision related to each Jamoat.
Jamoat Resource Centres	Supporting local governance, technical assistance and credit facilities for local farmers and community members.	They will be involved in all project activity implement at Jamoat level. They will support mobilization of financial, material and human resources within the local community and from outside, and support the dialogue with private sector, national governmental and NGOs. They will also assure that all activities are implemented in accordance with transparent criteria and policy priorities established through open consultation with the local community.

Local farmers	Holders of traditional knowledge and the genetic resources, responsible for the conservation and maintenance of the agrobiodiversity.	Local communities will be direct project beneficiaries in selected project sites. They will present proposals reflecting their needs and priorities, within a context of improving production practices to reduce pressure on natural resources. They will also be involved in the identification of priority sites.
Research Scientific Institute Boghparvar	Vast knowledge on farmers? training, communication tools and awareness raising process, provides agricultural advice and support to local farms. Support biodiversity conservation actions and strengthen the dialogue between communities and government.	They will provide support to local communities in uptake of improved technologies and approaches to sustainable use of natural resources.
NGO Noosphera	Provides support and training for women and men ? local farmers across a broad range of issues.	They will be involved in the implementation of the outcome 3.1, actively supporting the implementation of the National Strategy for Conservation and Use of agrobiodiversity and action plan.

<p>NGO Zan va Zamin</p>	<p>The awareness rising events for dissemination traditional knowledge on conservation of agrobiodiversity and genetic resources.</p>	<p>They will be involved in the implementation of the outcome 3.1, actively supporting the implementation of the National Strategy for Conservation and Use of agrobiodiversity and action plan.</p>
<p>Fayzi Surkhob</p>	<p>Microfinance Organization responsible for mobilizing financial and human resources in the local communities of Rasht and Shahrison. It supports the microcredit initiatives for creation of small business and development of local market.</p>	<p>They will support the implementation of the outcome 3.1 providing small grants to the farmers involved the project.</p>
<p>Imdodi Khutal</p>	<p>Microfinance Organization responsible for mobilizing financial and human resources in the local communities of Baljuvon. It supports the microcredit initiatives for creation of small business and development of local market</p>	<p>They will support the implementation of the outcome 3.1 providing small grants to the farmers involved the project.</p>
<p>INGO Acted</p>	<p>Community mobilization, providing consultative support to develop extension services and capacity building of local communities, value chain development activities, supporting of small business and agro-enterprises.</p>	<p>They will be involved in all activities related to the farmers including mobilization, knowledge transfer capacity building and raise awareness, with special attention to the Outcome 1.1 and 2.1</p>

ACTED (NGO)	ACTED is an international humanitarian NGO and has been actively supporting the sustainable management of natural resources, protection of ecosystems and biodiversity and disaster risk resilience in Tajikistan since 1996 and fosters a participatory, inclusive approach and brings over 20 years? experience in mobilizing communities and co-constructing inclusive local governance in some of the most remote and rural communities of Tajikistan.	They will be involved in be in all activities related to the farmers including mobilization, inclusive participatory process, PPB with special attention to the Outcome 1.1, 2.1 and 3.1
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In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement.

Several consultations were conducted throughout the whole project preparation, meeting with the above-listed stakeholder took place most of them in February and March 2020. Extensive field consultation coordinated by the National Centre for Environmental Protection Actions (NC EPA) in all target jamoats was done on 7 August 2020 in Shahrison district, on 10 August 2020 in Rasht district, on 11 August 2020 in Tojikobod district, and on 24-25 August 2020 in Baljuvon district. During this consultation, the project activities were presented, and inputs and suggestions from the participants were collected, all suggestions have been incorporated into the project design.

Final stakeholder consultation [1] with 50 representatives from the local authorities and farmers from the targeted districts, Academia, State universities, national scientific research institutions, local and international NGOs and representatives of line ministries was done on 13 August 2020. The final project design was presented and agreed upon. The following main suggestions/comments received from the participants:

? The project is very ambitious and multifaceted and more financial resources need to be allocated for further promotion of best practices and lesson learnt.

? As project envisaged to develop the Agrobiodiversity Strategy and many of the project's activities are involved with the Strategy of Agrobiodiversity, therefore, it is necessary to work out mechanisms for testing the results on the ground at the demo sites to develop an action program for implementation in the policy.

? The development of regulations and by-laws and their alignment within the framework of the Nagoya Protocol on Genetic Resources is very important for the country

? The application of a bottom-up approach from the farmer to the Government to improve policies for the conservation of agrobiodiversity in the face of climate change is needed.

Select what role civil society will play in the project:

Consulted only;

Member of Advisory Body; Contractor; Yes

Co-financier; Yes

Member of project steering committee or equivalent decision-making body; Yes

Executor or co-executor; Yes

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

The Project aims at promoting gender equality and women's empowerment (GEWE) by improving the participation and decision taking of rural women to benefit from equal socio-economic opportunities and services in general. Aligned with acknowledgement of importance of women's role^[1] in the Nagoya Protocol^[2] and considering the gender needs, opportunities and benefits between men and women in the country's agriculture sector, the Project will collect disaggregated data by sex, age, and gender; conduct a rapid gender assessment prior to significant activities in order to effectively address the different needs and priorities of women and men within all levels of stakeholders; conduct stakeholder analysis, which will provide opportunities for consultations with and engagement of women's organizations and beneficiaries, fostering women's role as drivers of change in agrobiodiversity conservation; include featuring gender-related competencies in Terms of Reference of involved staff and consultants. The Gender Action Plan is developed which indicates the activities and will measure the progress on GEWE at all Project's output levels.

FAO Gender marker G2a^[3] is applied for this Project, as it addresses gender equality in a systematic way, but this is not one of its main objectives. Gender is mainstreamed in all relevant dimensions of the Project such as results, activities and monitoring framework.

According to 2019 state statistics over 73% of total 9.3 million of the population in Tajikistan live in rural areas that makes agriculture one of the major sources of livelihood of people. An estimated 75% of working women are engaged in agricultural work in Tajikistan.^[1] Despite the important share of women in this sector the tasks of women are often restricted to field activities such as weeding, sowing and harvesting, and not in any decision-making capacity. On the contrary, decision-making roles and responsibilities are predominantly made by men who select seeds, fertilizers, pesticides, etc.^[2] The division of labour demonstrates that women's burden of responsibility is twice or thrice higher than men in household and productive activities. Apart from housework chores, it is expected that women contribute to production of crops and/or livestock that is under the management of male family members.^[3] Women are mainly responsible for un-paid household work (cleaning, cooking, taking

care of children and elderly people, poultry and animal feeding) alongside with work in household plots or small family farms.

The Government of Tajikistan recognizes gender equality as a main development goal and has incorporated it in different national development strategies and policies to eliminate gender inequalities and to extensively empower women[4]. These strategies and policies underline the existing problems of gender inequalities in agriculture, including "higher poverty rates among women compared with men, and rural women's being unpaid and informally contributing to agricultural production"[5]. However, the implementation of international commitments and national strategy programmes are not properly put in practice due to weak political will, lack of inter-ministerial network, absence of responsible parties, lack of financial support, etc. Similarly, gender experts state the implementation of gender aspects in agriculture is weak in practice[6] and, therefore, gender inequalities persistently remain unresolved and "on paper".

Moreover, such weak integration and implementation of gender perspectives at the field level can be as a result of lack of systematic sex-disaggregated data and information on agricultural activities at national level. The UNCT Tajikistan report to the CEDAW Committee points to the insufficient statistics on rural women's role in agriculture. The Committee recommends improving gender information collection to comprehensively assess the situation of rural women in terms of access to key resources and services.[7] The national statistical data is limited to general sex-disaggregated data on rural population, employment, number of male and female-headed households that practically does not explicitly reveal the gender inequalities among women and girls.

Besides, the knowledge of representatives of many governmental institutions and beneficiaries themselves on gender mainstreaming or participatory planning processes leaves much to be desired due to misconception about gender equality and social stereotypes. In many cases, regular training on gender-related topics are not provided to the staff members, implementing partners, service providers, governmental and private sectors. Furthermore, community sensitisation and gender awareness campaigns would be required to facilitate women's participation, both as learners and as future trainers or mentors.

The proposed Project has been built on several gender assessments and studies carried out by FAO in Tajikistan[8], Asian Development Bank[9], USAID and desk review of different national and international policies and reports. The findings of the assessments revealed that even though women play a noticeable role in the management of dehkan farms and significantly contribute to all aspects of agricultural production they are in vulnerable and disempowered position with little opportunity to participate in the role of decision-making, access to knowledge and technologies, and control over productive resources.

Nevertheless, rural women encounter continuous impediments in participation and enjoyment of benefits from agricultural production due to labour, time and mobility constraints as well as sociocultural barriers to participate in trainings, limited access to resources and services. The recent study by ADB to evaluate the labour division between men and women shows that over 70% of total time of women is spent for unpaid care and domestic work while the same amount of time is spent by men for paid work.[10] The rigid gender roles in rural communities and family, limited access to financial resources, a lower level of knowledge about the legal requirements of running a farming enterprise, and dependence on men or in-laws to navigate the various networks cause serious obstacles for rural women in fully benefiting from production and marketing of agricultural product.

Despite the above-mentioned obstacles, experience in the country has shown that female farmers can thrive when their literacy skills are increased, their access to resources is improved as a means of empowerment, and that women are often quick to adapt to new practices. In this context the proposed project will ensure women's participation as leaders in decision-making processes by providing targeted training, by ensuring the participation in policy planning activities (Components 1 and 3), by providing them training on improved production practices and technologies, and by ensuring they have access to financial resources and markets (Components 2 and 3).

The project will ensure women's full participation in all project activities and interventions by:

? Pursuing a gender-sensitive approach, where women's participation in training workshops, demonstration activities, farmer field schools, and management committees will be strongly promoted. Special efforts will be made to ensure women's participation in project activities, considering the most appropriate modality, time and location for women to participate, supporting childcare facilities and services to ensure mothers to attend, creating a safe atmosphere to ensure that women can voice their opinion, targeting women-only meetings.

? Conducting specific activities targeted at women such as building capacity to participate effectively in decision-making forums to communicate needs and priorities of rural women and to ensure their perspectives are taken into account by the project. Project efforts will also seek to strengthen rural women's self-confidence and capacity to take on leadership roles, while working with men to champion and support change through removing gender-discriminatory norms and attitudes (Component 1 and 3).

? Ensuring that women have equal access to and control over resources such as agricultural inputs, technologies, finances and extension service (Component 2).

? Establishing gender-specific groups to identify and support potential women entrepreneurs, examine distinctive roles for women in the improvement (adding value) and/or creation of agricultural/agro-forestry schemes, and specific opportunities for women to develop flexible supplementary sources of income (Component 3).

? Considering the choice and promotion of specific agricultural crops (including CWR) in the context of the different uses and practices of men and women in the selected sites. (Components 1 and 2)

? Carrying out continuous gender sensitization and awareness-raising campaigns on GEWE in communities and among men by showing women as drivers of change in agrobiodiversity conservation. (Component 3)

During preparation and implementation of the project, efforts will be made to better inform women and to support interventions that will contribute to inclusion of women in the sustainable use of agrobiodiversity, allow access to, and support their involvement in, and management of sustainable CWR and seeds. Under components 1 and 3, the project foresees the implementation of productive activities in the target sites, which could result in an increase in household incomes both through cost reductions and productivity increases. Opportunities will be explored to increase employment opportunities in rural areas and contribute to reducing rural migration. Project investments will be targeted through group structures that could enhance social development in participating rural communities. In addition, the project will seek to raise awareness of gender issues in participating

ministries and local governments by including women in all activities following FAO gender guidelines, including demonstrations, trainings and other capacity building activities.

The project is fully in line with the goal of FAO's Policy on Gender Equality to achieve equality between women and men in sustainable agricultural production and rural development for the elimination of hunger and poverty by 2025. Women should be enabled to participate equally with men as decision-makers in rural institutions and in shaping laws, policies and programmes; both sexes should have equal access to and control over income, land and other productive resources, women and men should have equal access to goods and services for agricultural development and to markets, and women's work burden should be reduced through improved technologies, services and infrastructure.[11] Indicators to measure these gender benefits have been developed and are available on **Annex L Gender Action Plan and Budget (please refer to separate uploaded document)**.

[1] Asian Development Bank (ADB). 2016. *Tajikistan Country Gender Assessment*. Manila. <https://www.adb.org/sites/default/files/institutional-document/185615/tajikistan-cga.pdf>

[2] Nate Kline et al. (2014). *AgTCA Tajikistan: Agriculture Technology Commercialization Assessment*. USAID Enabling Agricultural Trade

[3] Cristina Manfre et al. (2013, April). *Reducing the Gender Gap in Agricultural Extension and Advisory Services*. USAID MEAS Discussion Paper 2.

[4] *National Development Strategy of the Republic of Tajikistan for the period until 2030*. (2016). Dushanbe.

[5] *Agri-Gender Statistic Toolkit*. (2016). Ankara: FAO

[6] Food and Agriculture Organization (FAO). 2016. *Gender Profile of Agricultural and Rural Livelihoods in Tajikistan*. Dushanbe: FAO. <http://www.fao.org/3/i5766e/I5766E.pdf>

[7] United Nations Country Team in Tajikistan. (2018). *Submission to the 71 Pre-Sessional Working Group on CEDAW implementation in Tajikistan*. Dushanbe, Tajikistan: Unpublished

[8] Food and Agriculture Organization (FAO). 2016. *Gender Profile of Agricultural and Rural Livelihoods in Tajikistan*. Dushanbe: FAO. <http://www.fao.org/3/i5766e/I5766E.pdf>

[9] Asian Development Bank (ADB). 2016. *Tajikistan Country Gender Assessment*. Manila. <https://www.adb.org/sites/default/files/institutional-document/185615/tajikistan-cga.pdf>

[10] Asian Development Bank (ADB). 2020. *Women's Time Use in Rural Tajikistan*. <https://www.adb.org/sites/default/files/publication/609486/womens-time-use-tajikistan.pdf>

[11] FAO. (2013). *Policy on Gender Equality: Attaining Food Security Goals in Agriculture and Rural Development*.

[1] Recognizes "the vital role that women play in the conservation and sustainable use of biological diversity and (affirms) the need for the full participation of women at all levels of policy-making and implementation for biological diversity conservation". Preamble

[2] United Nations Environmental Programme. "Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity." Secretariat of the Convention on Biological Diversity, 2011

[3] Retrieved on June 18, 2020 from "Guide to mainstreaming gender in FAO's project cycle" FAO website <http://www.fao.org/publications/card/en/c/3ff71f41-8828-483a-b9fd-b9cec12a82b4/>

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?

Yes

Closing gender gaps in access to and control over natural resources; Yes

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

Will the project's results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Elaborate on private sector engagement in the project, if any

The proposed project seeks to mainstream sustainable use of agrobiodiversity in key areas in the country. In this regard, the project will work with male and female farmers and smallholders located in the target project sites to improve the uptake of agrobiodiversity-friendly practices to enhance the promotion of agrobiodiversity. This will be done by including small farmers in the decision and planning processes, so ensuring their needs are addressed. Also, micro-financing organizations will be involved in the project implementation and will mobilize resources and allow the sustainability of the project activities after its end. The project will try to improve production practices, and beneficiaries are expected to provide co-financing (including in-kind). Further, the project will try to raise awareness on the value of biodiversity and the value of ecosystem services as a tool to attract investments. Medium and large-scale private sector agriculture facilities will also be invited to participate. Their role in improving their operations by exploring markets for novel crop products, which will support efforts to maintain adequate genetic diversity and improve household incomes.

Also, the project will involve 2 Microfinance Organizations which will support the implementation of the outcome 3.1 providing small grants to the farmers. Involvement of the financing organizations is an important step for the project and can be scaled up and lessons learned from this project can be used by other institutions.

Also, it is expected to develop new and strengthen existing market channels for agrobiodiversity products, particularly those that are undervalued and underused, with a focus on short marketing circuits or short value chains. Even in the short value chain small business and local fairs will be positively impacted by the project and can become partners during the project implementation. Also, during the value chain analyses, stakeholders throughout the whole value chain will be mapped and

involved such as small traders, small and medium food processors, small and local markets and retailers, food services (restaurants and take-outs), final consumers (locally and remote).

5. Risks to Achieving Project Objectives

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

Risk management is a structured, methodical approach to identifying and managing risks for the achievement of project objectives. The risk management plan enables stakeholders to identify in advance and then manage risks by specifying and monitoring mitigation actions throughout project implementation. Project risks have been identified and analyzed during the preparation phase and mitigation measures have been incorporated into the design of the project (Part A of this section focuses on External Risks to the Project, Part B on Environmental and Social Risk Management and Part C on Specific Risks Associated with Project Implementation).

The Project Steering Committee will be responsible for the management of such risks as well as the effective implementation of mitigation measures. A Monitoring and Evaluation (M&E) System will serve to monitor performance indicators and outputs, project risks and mitigation measures. The Project Steering Committee will also be responsible for monitoring the effectiveness of mitigation measures and adjusting mitigation strategies as needed, and to identify and manage any new risks that were not identified during the project's preparation, in collaboration with project partners.

The Project Progress Report (PPR) is the main instrument for monitoring and risk management. PPRs include a section covering the systematic monitoring of risks and mitigation actions that were identified in previous PPRs. PPRs also include a section to identify new risks or risks that have yet to be addressed, their classification and mitigation actions, as well as those responsible for the monitoring of such risks and their estimated deadlines. FAO will monitor the project's risk management closely and will follow up as needed, lending support for the adjustment and implementation of mitigation strategies. Reports on the monitoring of risks and their classification will also be part of the Annual Project Implementation Review (PIR) prepared by FAO and submitted to the GEF secretariat.

5.1 Section A: Risks to the project

Table 7. Risks to the project.

Description of risk (what the risks lead to)	Potential Level of Impact	Mitigation actions
Continuation of COVID-19 pandemic into 2021 may affect project start up	L	Risks associated with the Covid19 while considered low as it would likely affect the early phase of the project. However, if the Covid19 situation remains uncontained, a contingency plan would be developed to allow for project activities to continue even under hypothetical temporal lock-down scenarios. This plan will entail efforts to maximizing experts in country. Methods for biosecure implementation will be needed, such as increased use of remote communication, use of PPE, etc.

Impact of COVID-19 causes significant economic downturn that impacts project outcomes	L	Globally this is a real risk for ABD conservation and can threaten landrace product value chain enhancement and this will be monitored, and adaptive management applied if necessary. The potential availability of co-financing could also be affected by changes in government fiscal priorities and exchange rates.
Impact of COVID-19 would affect the engagement of local farmers and communities	H	At the national level, Government has its protocols in place for staff, and is requiring a full normal workload. Meetings are being conducted in small groups and via video. Nevertheless, response times are normal, The Committee of Environmental protection is fully engaged on this proposal and is expecting FAO to move forward with the work. At the district level, precautions will be taken adhering to normal protocols established by the government.
The enabling legal and institutional framework is not sufficiently conducive to the Project Objectives and is not modified/adopted in a timely way.	M	Component 3 addresses weaknesses in the legal and institutional framework and will ensure that all issues related to the suitability or adequacy of policies related to ABD will be identified and raised through the proper administrative channels. Progress with strengthening the enabling environment will be continuously monitored by the Government and FAO, and strategic changes to the Project approach will be identified and implemented if necessary.
Incorrect selection of Business models and Value chains	M	Stakeholder engagement within the different stakeholder groups and along the value chains combined with contextualized approaches and indicators will act as corrective feedback measures.
Internal conflict around investment strategies and location of interventions	M	Stakeholder engagement and transparency in project preparation and during project implementation the establishment of an inter-agency National Commission on Agrobiodiversity Conservation and Use is established and will monitor the implementation of project activities under the National Strategy for Conservation and Use of agrobiodiversity, so ensuring project objectives are achieved.
Lack of coordination or integration of the actions of the State Agencies working with ABD conservation and use	M	Stakeholder engagement and transparency in project preparation and during project implementation the establishment of an inter-agency National Commission on Agrobiodiversity Conservation and Use is established and will monitor the implementation of project activities under the National Strategy for Conservation and Use of agrobiodiversity, so ensuring inter-agency operations to achieve project objectives.

Climate change impacts on ABD and management systems makes resource loss inevitable and Best Practices knowledge platforms quickly outdated.	L	Climate change resilience measures will be approached through various project outputs and supported by analysis and feedback from core indicator achievement, adaptive field-based monitoring systems and market access assessment. This will allow for goals and activities to be reassessed during project implementation, if necessary. A complete Climate change screening is available on Annex J
Climate change sensitivity in terms of reduce revenues from agriculture can influence people's approach to conservation of agrobiodiversity been addressed?	M	The project recognizes that changes have occurred and are occurring and will plan to assist the local population to protect water supplies, ensure climate sensitive agrobiodiversity cultivation and conservation practices with improved niche markets and development of climate resistant crop varieties, and increase forest resilience through improved conservation practices.
Availability of technical and institutional capacity, and information could constrain efforts to deal with climate change	M	The project will seek to enhance technical capacity on climate effects, adaptation and mitigation actions through research institutions and FAO. These include climate-smart agrobiodiversity cropping practices, natural CWR management, and landscape management to preserve natural habitats. These aspects has been fully considered in this proposal and will be designed into government capacity-building training.
Support to COVID-19 recovery efforts in the context of this project	L	It is expect that the project can increase resilience of the agriculture system thru increasing biodiversity, this can generate a positive response to the recovery process of the targeted communities after the COVID-19

5.3 Section C: Specific risks associated with project implementation

Table 9. Specific risks associated with project implementation.

Description of risk	Potential Level of Impact	Mitigation actions
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<p>Farmers may be un-willing to engage in active on-farm conservation of landraces</p>	<p>L</p>	<p>Most of the project activities will be in the field working with farmers and local communities, so their support for the project is crucial to the project's success. There has been some contact between the project development team and the local communities in four districts of mountainous agriculture, in north Shahrستان district of Sughd province, in south Baljuvon district of Khatlon province, in central part of the country Rasht and Tajikabad districts of the Region of Republican Subordination with which they wish to engage. Once the go ahead for the project is confirmed there will need as a first priority to be clear community awareness raising in the value of ABD. However previous experience has shown that convincing rural and agricultural communities of the value of conserving their ABD diversity is relatively straight forward, especially as farmers in Tajikistan are already observing themselves the impact of climate change on agricultural production.</p>
<p>Protected area managers may be un-willing to engage in active genetic reserve conservation of CWR</p>	<p>M</p>	<p>From initial project formulation officials from the key stakeholder agencies (Committee on Environment Protection under the Government Republic of Tajikistan, National Biodiversity and Biosafety Centre, State institution Research Laboratory on Nature Protection, State institution on protected areas) were involved in project development and had opportunities for input. Thus, the purpose and aim of the project is well known to individual protected area managers and therefore they would likely be supportive of achieving the project outcomes and able to see the additional benefit of CWR active conservation in the protected areas they manage projects.</p>
<p>Gene bank staff lack capacity to be able to collect new accessions</p>	<p>L</p>	<p>Due to lack of funds for gene bank activities in recent year the gene bank team may find it difficult to locate and even identify crop landrace and CWR material that requires <i>ex-situ</i> conservation or <i>in-situ</i> backup duplication. The gene bank team has expressed willingness to engage fully with project activities and to aid them in their areas of responsibility there will be a training course offered to gene bank staff, so the risk is reduced.</p>

<p>Public / private bodies may not be willing to engage with project and agree National Strategy</p>	<p>L</p>	<p>The preparation of the project has deliberately involved a wide range of stakeholders to help ensure their buy-in the project implementation. These include:</p> <ul style="list-style-type: none"> ? Government ? Committee on Environment Protection under the Government Republic of Tajikistan, Ministry of Agriculture, The Academy of Sciences of the Republic of Tajikistan, Institute of Botany, Tajik Academy of Agricultural Sciences, Agency on Land Management, Agency on Hydrometeorology, Forest Agency under the Government Republic of Tajikistan, National Biodiversity and Biosafety Centre, State institution Research Laboratory on Nature Protection, State institution on protected areas and National Centre for Genetic Resources. ? Local Administration ? Regional Government (Hukumat), District (Raion), Sub-district (Jamoat) Government (group of villages), Jamoat Resource Centres and Micro Finance Institutions ? Local Community ? National Union of Dekhan Farms, Pasture Users Unions and Local farmers ? Civil Society Organizations ? Local and national NGOs, such as Boghparvar and NOOFERA <p>These stakeholders will be given a voice through the establishment of the inter-agency commission of ABD conservation and use for Tajikistan, so they should feel they have been given a voice in making project decisions.</p>
<p>Lack of data available for CWR and LR population to make assessments</p>	<p>M</p>	<p>Initial data collation for the CWR conservation element of the project has found a lack of georeferenced data for the priority CWR taxa present in Tajikistan. However, the flora was studied extensively during the Soviet era and large number of herbarium specimen are present in the national herbarium in Dushanbe (TAD) and two major herbaria in St Petersburg (LE and VIR). This data will be collected and digitized by the project team in the first year of the project.</p>
<p>Professional & field staff may not have incentives to engage in training activities</p>	<p>M</p>	<p>ABD conservation and use staff have previously had limited access to specialist continuing professional development training and although some techniques and subjects will be novel, their desire to advance their professional status will in itself help ensure buy-in from in-country staff and ensure they engage in training activities.</p>
<p>Community may not be willing to engage in genetic reserve establishment</p>	<p>L</p>	<p>The concept of community seed banks will be developed in the farming community closer to the conserved resource, helping them retain greater ownership of the resource, access to crop material, promote local LR diversity value and its continued use and enhance product market opportunities. All of these are positive outcomes for the local community so the risk of their non-engagement should be very limited.</p>

Farmer able and willing to use online database	M	Although farmers in Tajikistan may not be that familiar with internet access, they will be assisted in use first by project staff and subsequently by professional extension workers in the Ministry of Agriculture.
Plant breeders unresponsive and un-willing and able to receive training	L	Conventional breeding techniques are well established in Tajikistan but breeding for climate change resilience requires access to a broader range of diversity, as is found CWR species. Tajikistan is rich in endogenous diversity that is currently unused in crop improvement, training will be provided in pre-breeding techniques using CWR diversity. The risk is breeders may be unwilling to get involved in pre-breeding training, but given that the training would extend their employability, it might be potentially possible to convince breeders to take advantage of the training available, even if subsequently only a subset of trainees use the advanced techniques taught.
Conserved crop wild relative diversity has little relevance for national breeding programmes	L	Currently Tajik breeders do not use CWR diversity in their crop improvement programmes because of difficulty of crossing elite lines with exotic material, but climate change is already impacting crop production in Tajikistan and there will be growing realization that such material contains the traits necessary to sustain Tajik future crop production.
Incorrect selection of Business models and Value chains	M	Stakeholder engagement within the different stakeholder groups and along the value chains combined with contextualized approaches and indicators will act as corrective feedback measures.
Public support for ABD enhanced products might be limited	M	Most of the Tajik population either work in agriculture themselves or have close links to agricultural production in their extended families. So, persuading them of the value of agrobiodiversity and its link to food and nutritional security should be reasonably easy to achieve. Perhaps a more difficult task will be developing niche market for diverse landrace products, but again literature produced by the project will explain the value of agricultural diversification to food and nutritional security and therefore the value of consuming a broad range of products. Also, in rural areas the event of such project activities as diversity fairs will engender public interest and gain public support for project activities.

6. Institutional Arrangement and Coordination

Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

The NC EPA will have the overall executing and technical responsibility for the project, with FAO providing oversight as GEF Agency. The NC EPA is responsible and accountable to FAO for the timely implementation of the agreed project results, operational oversight of implementation activities, prompt reporting, and for effective use of GEF resources for the intended purposes and in line with FAO and GEF policy requirements.

As requested by Tajikistan's GEF Operational Focal Point (OFP), FAO will play a minor role as one of the executing agencies, together with the NC EPA, as well as the implementing agency for this project. As

the GEF implementing agency, FAO will act as a trustee of GEF resources, applying a fiduciary standard to ensure efficient delivery of global environmental benefits. FAO will disburse funds as approved and requested by the PSC and the PMU, and provide technical, operational, and financial oversight throughout the project cycle, and will fulfil annual reporting obligations to GEF Secretariat on the project's status.

These implementation arrangements have been established to strengthen government capacity to gain operational experience (international procurement) for the future as well as to ensure smooth and efficient delivery of the project with required technical assistance. FAO will ensure that the NC EPA will be involved in the international procurement processes with an aim of independent government implementation and coordination of these actions in the future.

Figure 7. Project structure. (Please refer to separate uploaded document)

The government will designate a National Project Director (NPD). Located in NC EPA the NPD will be responsible for coordinating the activities with all the national bodies related to the different project components, as well as with the project partners. He will also be responsible for supervising and guiding the Project Coordinator (see below) on the government policies and priorities.

The NPD (or designated person from lead national institution) will chair the Project Steering Committee which will be the main governing body of the project. The PSC will approve Annual Work Plans and Budgets on a yearly basis and will provide strategic guidance to the Project Management Team and to all executing partners.

The PSC will be comprised of representatives from Committee for Environmental Protection under Government of Republic of the Tajikistan Research Laboratory on Nature Protection, National Biodiversity and Biosafety Centre, Ministry of Agriculture, Academy of Sciences of RT, NGO NOOSFERA. The members of the PSC will each assure the role of a Focal Point for the project in their respective agencies. Hence, the project will have a Focal Point in each concerned institution. As Focal Points in their agency, the concerned PSC members will: (i) technically oversee activities in their sector; (ii) ensure a fluid two-way exchange of information and knowledge between their agency and the project; (iii) facilitate coordination and links between the project activities and the work plan of their agency; and (iv) facilitate the provision of co-financing to the project.

The National Project Coordinator (see below) will be the Secretary to the PSC. The PSC will meet at least twice per year to ensure: i) Oversight and assurance of technical quality of outputs; ii) Close linkages between the project and other ongoing projects and programmes relevant to the project; iii) Timely availability and effectiveness of co-financing support; iv) Sustainability of key project outcomes, including up-scaling and replication; v) Effective coordination of governmental partners work under this project; vi) Approval of the six-monthly Project Progress and Financial Reports, the Annual Work Plan and Budget; vii) Making by consensus, management decisions when guidance is required by the National Project Coordinator of the PMU.

A Project Management Unit (PMU) will be co-funded by the GEF grant and established within Dushanbe. The main functions of the PMU, following the guidance of the Project Steering Committee, are to ensure overall efficient management, coordination, implementation and monitoring of the project through the effective implementation of the annual work plans and budgets (AWP/Bs). The PMU will be composed of a National Project Coordinator (NPC) who will work full-time for the project lifetime. In addition, the

PMU will include, National Project Officer, 2 field coordinators, finance assistant, administrative assistant and Monitoring expert.

The National Project Coordinator (NPC) will oversee daily implementation, management, administration and technical supervision of the project, on behalf of the Operational partner and within the framework delineated by the PSC. S/he will be responsible, among others, for:

- i) Coordination with relevant initiatives;
- ii) Ensuring a high level of collaboration among participating institutions and organizations at the national and local levels;
- iii) Ensuring compliance with all Operational Partners Agreement (OPA) provisions during the implementation, including on timely reporting and financial management;
- iv) Coordination and close monitoring of the implementation of project activities;
- v) Tracking the project's progress and ensuring timely delivery of inputs and outputs;
- vi) Providing technical support and assessing the outputs of the project national consultants hired with GEF funds, as well as the products generated in the implementation of the project;
- vii) Approving and managing requests for provision of financial resources using provided format in OPA annexes;
- viii) Monitoring financial resources and accounting to ensure accuracy and reliability of financial reports;
- ix) Ensuring timely preparation and submission of requests for funds, financial and progress reports to FAO as per OPA reporting requirements;
- x) Maintaining documentation and evidence that describes the proper and prudent use of project resources as per OPA provisions, including making available this supporting documentation to FAO and designated auditors when requested;
- xi) Implementing and managing the project's monitoring and communications plans;
- xii) Organizing project workshops and meetings to monitor progress and preparing the Annual Budget and Work Plan;
- xiii) Submitting the six-monthly Project Progress Reports (PPRs) with the AWP/B to the PSC and FAO;
- xiv) Preparing the first draft of the Project Implementation Review (PIR);
- xv) Supporting the organization of the mid-term and final evaluations in close coordination with the FAO Budget Holder and the FAO Independent Office of Evaluation (OED);
- xvi) Submitting the OP six-monthly technical and financial reports to FAO and facilitate the information exchange between the OP and FAO, if needed;
- xvii) Informing the PSC and FAO of any delays and difficulties as they arise during the implementation to ensure timely corrective measure and support.

The Food and Agriculture Organization (FAO) will be the GEF Implementing Agency (IA) for the Project, providing project cycle management and support services as established in the GEF Policy. As the GEF IA, FAO holds overall accountability and responsibility to the GEF for delivery of the results. In the IA role,

FAO will utilize the GEF fees to deploy three different actors within the organization to support the project (see Annex J for details):

- ? The Budget Holder, which is usually the most decentralized FAO office, will provide oversight of day to day project execution;
- ? The Lead Technical Officer(s), drawn from across FAO will provide oversight/support to the projects technical work in coordination with government representatives participating in the Project Steering Committee;
- ? The Funding Liaison Officer(s) within FAO will monitor and support the project cycle to ensure that the project is being carried out and reporting done in accordance with agreed standards and requirements.

FAO responsibilities, as GEF agency, will include:

- ? Administrate funds from GEF in accordance with the rules and procedures of FAO;
- ? Oversee project implementation in accordance with the project document, work plans, budgets, agreements with co-financiers, Operational Partners Agreement(s) and other rules and procedures of FAO;
- ? Provide technical guidance to ensure that appropriate technical quality is applied to all activities concerned;
- ? Conduct at least one supervision mission per year; and
- ? Reporting to the GEF Secretariat and Evaluation Office, through the annual Project Implementation Review, the Mid Term Review, the Terminal Evaluation and the Project Closure Report on project progress;
- ? Financial reporting to the GEF Trustee.

Coordination with other relevant GEF-financed projects and other initiatives

? UNDP / GEF project ?Conservation and Sustainable Management of High-Value Arid Ecosystems in the Lower Amu Darya Basin?

The two projects will coordinate the work and exchange experience during their implementation. The exchange will include activities on sustainable land management methods, exchange experiences on conservation of forest genetic resources, introduce alternative sources of income, conservation of wild relatives of rare cultures in key areas of biodiversity, community-based management of the territory, value of nature and biodiversity, among others, Also the projects will share experience and the challenges on the implementation modality and execution of the projects.

? UNDP / GEF project ?Strengthening Human Resources, Legal Framework and Institutional Capacity for the Implementation of the Nagoya Protocol in Tajikistan?

The current project will benefit from the results and lessons learned from the ?Strengthening Human Resources, Legal Framework and Institutional Capacity for the Implementation of the Nagoya Protocol in Tajikistan, including the application of the developed biocultural protocols for using plant genetic

resources (mulberry, walnut). Also, this current project will follow the ABS guidelines (draft legislation) for development of the value chain and the market channels for agrobiodiversity products considering gender perspectives.

7. Consistency with National Priorities

Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

National Biodiversity Strategies and Action Plan (NBSAP)

The NBSAP of Tajikistan is aimed at the conservation of biodiversity, focuses on achieving of concrete results in strategic global goals and Aichi targets for the period up to 2020.

The project is aligned with the country's NBSAP, specifically with the following national targets in Table 10.

Table 10. Aligned with the NBSAP target for Tajikistan.

Target 1	By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	Component 3, awareness raising
Target 2	By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes are being incorporated into national accounting, as appropriate, and reporting systems.	Component 1
Target 3	By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions.	Component 1 will analyse the status of existing subsidies as part of the diagnostic for the sector.
Target 4	Parliament, Government of the country and local authorities strengthen the legislation on the national, local and sectorial levels and adopt measures for sustainable regulation of use of natural resources, and mainly biological resources.	Component 1, capacity building and support the incorporation of Tajikistan to the Treaty on PGRFA
Target 5	Introduction of incentive mechanisms in preservation zones of natural habitats of biodiversity, particularly genetic resources and especially valuable species for the purposes of food security, medicine and selective breeding.	Component 1 and 2

Target 7	Sustainable management of land use with consideration of representative preservation of biodiversity and ensuring sustainable preservation of migration channels and diversity in accordance with approved national and regional eco-net.	Components 1 and 2.
Target 11	By 2020, at the latest: To improve and strengthen preservation and rational use of biodiversity in order to ensure optimal provision of ecosystems services, particularly high-mountain cryophyte, low-mountain sand-desert ecosystems, xerophyte light forest ecosystems, savannah ecosystems. Therewith, mesophilic broad-leaved walnut ecosystems have top priority.	Components 1 and 2.
Target 12	By 2020 to conduct full inventory, cartography and conditioning of habitats of and sites of rare species of biodiversity which are under the threat of extinction, and to develop mechanisms of rehabilitation and prevention of the threat of reduction of species and populations, to define the status of their preservation and use.	The national government will be able to develop the cartography using the tools that will be applied (Collect earth)
Target 13	By 2020, to develop e-catalogue (album) of genetic resources of the main plant and animal species, their wild congeners, assessment on value of genetic resources by regions and ecosystems sectioned by ecologic districts, ecosystems and their importance for the global, regional, national and local biodiversity	Component 1
Target 18	By 2020, traditional knowledge, novation and practice of native and local communities which are important for preservation and sustainable use of biodiversity and use of biological resources are included into legal-regulative documents as a mechanism of sustainable preservation and use of biodiversity in accordance with the national legislation and UN Convention on Biological Diversity.	Component 2

United Nations Convention on Biological Diversity (CBD)

The project will support the implementation of several activities linked to the CBD including ?Mainstreaming of biodiversity across sectors including agriculture, forests and fisheries? supporting the country to implement strategies and action plans to allow the sustainable use of agrobiodiversity while promoting the sustainable development of the rural communities and farmers including rural women. Also, the project will support the implementation of the Nagoya Protocol that emphasizes the important role of women in ABD conservation and use as well. The country has ratified the Protocol, but its implementation still in the initial phase and all the project activities will support the government?s effort in creating a strong framework for it. Also, the value of biodiversity will be promoted at national level.

The project is also aligned with the Aichi Targets.

Table 11. Aichi Targets linked to the project

Target 1	By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	Component 3,
Target 2	By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes are being incorporated into national accounting, as appropriate, and reporting systems.	Component 1
Target 4	By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	Component 1, capacity building and support the incorporation of Tajikistan to the Treaty on PGRFA
Target 13	By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	Component 2 and 3
Target 18	By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant to the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	Component 2

And it will also support the implementation of the SDGs.

Table 12. SDGs linked to the project

Goal 1	End poverty in all its forms everywhere	Component 1 and 2
Goal 2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	Component 2
Goal 5	Achieve gender equality and empower all women and girls	Component 1, 2 and 3
Goal 15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Component 2

8. Knowledge Management

Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

The proposed project will develop a set of technical content to be used by different target audiences including policymakers, extension workers and producers.

- ? Output 1.1.1 will develop a queryable online database for crop and CWR accession
- ? Output 1.1.7 will develop a Capacity Building Plan as a basis for skill enhancement
- ? Output 2.1.1 will review local communities cultivation and management practices, develop material to support farmers to improve their crops products
- ? Output 2.1.2 will design programmes to build capacities for the conservation and sustainable management of agrobiodiversity, systematize and disseminate lessons learned, including gender-related experiences, from capacity-building programmes for the conservation and sustainable use of agrobiodiversity
- ? Output 2.1.4 will produce added-value evidence-base web-enabled including at least 25 case studies of added value best practice and at least 10 cases studies should target women
- ? Output 2.1.6 will produce Training content on pre-breeding techniques
- ? Output 3.1.2 will produce an assessment of the knowledge and knowledge gaps, perceptions, and awareness levels of ABD value by decision-makers
- ? Output 3.1.3 will produce studies and content on market, access to market and potential market channels for ABD products
- ? Output 3.1.4 will produce 6 Life Cycle Assessment and market studies conducted including gender analysis

The activities implemented under component 3 will result in elaboration of Knowledge Management System for sharing project results and replicating tested methodologies in other districts and jamoats across the country. The KM system will contribute to scale up and replication using various types of knowledge products produced including thematic case studies, evaluation and learning reports and briefs; strategic papers, educational and informational materials in printed and digital forms, knowledge management events, social networks, etc.

In order to achieve this outcome the following will be delivered and/or implemented by the project team: Result Based Management (RBM) system of the project will promote adaptive management through capturing key results of the project activities; a sensitive RBM system of the project promoted adaptive management through capturing key results of the project activities; a Gender sensitive communication Strategy and KM strategy targeting decision makers concerning the value of agrobiodiversity, its conservation, use and contribution to provisioning ecosystem services are developed and implemented (supported with annual work plans) for information and knowledge-sharing with other regions and dissemination and replication of verified data and tested methodologies. A Project Mid-term review and Final Evaluation will be conducted.

Systematize and disseminate lessons learned, including gender-related experiences, from capacity-building programmes for the conservation and sustainable use of agrobiodiversity				X	X	X	X	X	X	X	X	X
Training content on pre-breeding techniques			X	X	X							
Assessment of the knowledge and knowledge gaps, perceptions, and awareness levels of ABD value by decision-makers		X	X	X	X							
Awareness raising												
Communications Strategy development		X										
Media campaigns (at a minimum 1 update on FAO website once every quarter)			X	X	X	X	X	X	X	X	X	X
Promotion of ABD conservation and sustainable use										X	X	
Sharing of project results at UNCBD								X	X			
Sharing of results at Commission on Genetic Resources for Food and Agriculture, FAO Biodiversity Mainstreaming Platform					X					X	X	

9. Monitoring and Evaluation

Describe the budgeted M and E plan

The project will ensure transparency in the preparation, conduct, reporting and evaluation of its activities. This includes full disclosure of all non-confidential information, and consultation with major groups and representatives of local communities. The disclosure of information shall be ensured through posting on websites and dissemination of findings through knowledge products and events. Project reports will be broadly and freely shared, and findings and lessons learned made available.?

The monitoring and evaluation of progress in achieving the results and objectives of the project will be based on targets and indicators in the Project Results Framework (Annex A). Project monitoring and the evaluation activities are budgeted at USD 118,900 (see Table 14). Monitoring and evaluation activities will follow FAO and GEF policies and guidelines for monitoring and evaluation. The monitoring and evaluation system will also facilitate learning and replication of the project's results and lessons in relation to the integrated management of natural resources.

Oversight and monitoring responsibilities

The monitoring and evaluation roles and responsibilities specifically described in the Monitoring and Evaluation table (see Table 14) will be undertaken through: (i) day-to-day monitoring and project progress supervision missions (PMU); (ii) technical monitoring of indicators to measure a reduction in land degradation (PMU and LTU in coordination with partners); and (iii) monitoring and supervision missions (FAO).

At the beginning of the implementation of the GEF project, the PMU will establish a system to monitor the project's progress. Participatory mechanisms and methodologies to support the monitoring and evaluation of performance indicators and outputs will be developed. During the project inception workshop, the tasks of monitoring and evaluation will include: (i) presentation and explanation (if needed) of the project's Results Framework with all project stakeholders; (ii) review of monitoring and evaluation indicators and their baselines; (iii) preparation of draft clauses that will be required for inclusion in consultant contracts, to ensure compliance with the monitoring and evaluation reporting functions (if applicable); and (iv) clarification of the division of monitoring and evaluation tasks among the different stakeholders in the project. The M&E Expert will prepare a draft monitoring and evaluation matrix that will be discussed and agreed upon by all stakeholders during the inception workshop. The M&E matrix will be a management tool for the NPC and the Project Partners to: i) six-monthly monitor the achievement of output indicators; ii) annually monitor the achievement of outcome indicators; iii) clearly define responsibilities and verification means; iv) select a method to process the indicators and data.

The **M&E Plan** will be prepared by the M&E expert together with local communities in the first three months of the PY1 and validated with the PSC. The M&E Plan will be based on the M&E summary table and the M&E Matrix and will include: i) the updated results framework, with clear indicators per year; ii) updated baseline, if needed, and selected tools for data collection (including sample definition); iii) narrative of the monitoring strategy, including roles and responsibilities for data collection and processing, reporting flows, monitoring matrix, and brief analysis of who, when and how will each indicator be measured. Responsibility of project activities may or may not coincide with data collection responsibility; iv) updated implementation arrangements, if needed; v) inclusion of data collection and monitoring strategy to be included in the final evaluation; vi) calendar of evaluation workshops, including self-evaluation techniques.

The day-to-day monitoring of the project's implementation will be the responsibility of the NPC and will be driven by the preparation and implementation of an AWP/B followed up through six-monthly PPRs. The preparation of the AWP/B and six-monthly PPRs will represent the product of a unified planning process between main project stakeholders. As tools for results-based management (RBM), the AWP/B will identify the actions proposed for the coming project year and provide the necessary details on output and outcome targets to be achieved, and the PPRs will report on the monitoring of the implementation of actions and the achievement of output and outcome targets. Specific inputs to the AWP/B and the PPRs will be prepared based on participatory planning and progress review with all stakeholders and coordinated and facilitated through project planning and progress review workshops. These contributions will be consolidated by the PC in the draft AWP/B and the PPRs.

An annual project progress review and planning meeting should be held with the participation of the project partners to finalize the AWP/B and the PPRs. Once finalized, the AWP/B and the PPRs will be submitted to the FAO LTO for technical clearance, and to the Project Steering Committee for revision and

approval. The AWP/B will be developed in a manner consistent with the Project Results Framework to ensure adequate fulfillment and monitoring of project outputs and outcomes.

Following the approval of the Project, the PY1 AWP/B will be adjusted (either reduced or expanded in time) to synchronize it with the annual reporting calendar. In subsequent years, the AWP/Bs will follow an annual preparation and reporting cycle.

Reporting schedule: Specific reports that will be prepared under the monitoring and evaluation program are: (i) Project inception report; (ii) Annual Work Plan and Budget (AWP/B); (iii) Project Progress Reports (PPRs); (iv) Annual Project Implementation Review (PIR); (v) Technical reports; (vi) Co-financing reports; and (vii) Terminal Report. In addition, the GEF-7 Core Indicator Worksheet will be completed and will be used to compare progress of Project Core Indicator 4: 'Area of landscapes under improved practices?', as well as Project Core Indicator 11: 'Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment?' with the baseline established during the preparation of the project.

Project Inception Report: After FAO internal approval of the project, an inception workshop will be held. Immediately after the workshop, the NPC and REC Caucasus will prepare a project inception report in consultation with the FAO Representation in Tajikistan and other project partners. The report will include a narrative on the institutional roles and responsibilities and coordinating action of project partners, progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. It will also include a detailed first year AWP/B and the M&E Matrix. The draft inception report will be circulated to FAO and the PSC for review and comments before its finalization, no later than three months after project start-up. The report will be cleared by the FAO BH, LTO and the FAO/GEF Coordination Unit. The BH will upload it in FPMIS.

Annual Work Plan and Budget(s) (AWP/Bs): The NPC will present a draft AWP/B to the PSC no later than 10 December of each year. The AWP/B should include detailed activities to be implemented by project Outcomes and Outputs and divided into monthly timeframes and targets and milestone dates for Output and Outcome indicators to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included together with all monitoring and supervision activities required during the year. The FAO Representation in Tajikistan will circulate the draft AWP/B to the steering committee and will consolidate and submit FAO comments. The AWP/B will be reviewed by the PSC and the PIU will incorporate any comments. The final AWP/B will be sent to the PSC for approval and to FAO for final no-objection. The BH will upload the AWP/Bs in FPMIS

Project Progress Reports (PPR): The PPRs are used to identify constraints, problems or bottlenecks that impede timely implementation and take appropriate remedial action. PPRs will be prepared based on the

systematic monitoring of output and outcome indicators identified in the Project Results Framework (Annex A), AWP/B and M&E Plan. Each semester the National Project Coordinator (NPC) will prepare a draft PPR and will collect and consolidate any comments from the FAO PTF. The NPC will submit the final PPRs to the FAO Representation in Tajikistan every six months, prior to 10 July (covering the period between January and June) and before 10 January (covering the period between July and December). The July-December report should be accompanied by the updated AWP/B for the following Project Year (PY) for review and no-objection by the FAO PTF. The Budget Holder has the responsibility to coordinate the preparation and finalization of the PPR, in consultation with the PIU, LTO and the FLO. After LTO, BH and FLO clearance, the FLO will ensure that project progress reports are uploaded in FPMIS in a timely manner.

Annual Project Implementation Review (PIR): The NPC, under the supervision of the LTO and BH and in coordination with the national project partners, will prepare a draft annual PIR report covering the period July (the previous year) through June (current year) no later than July 1st every year (exact deadlines will be confirmed each year by the FAO-GEF Coordination Unit). The LTO will finalize the PIR and will submit it to the FAO-GEF Coordination Unit for review by July 10th. The FAO-GEF Coordination Unit, the LTO, and the BH will discuss the PIR and the ratings. The LTO is responsible for conducting the final review and providing the technical clearance to the PIR(s). The LTO will submit the final version of the PIR to the FAO-GEF Coordination Unit for final approval. The FAO-GEF Coordination Unit will then submit the PIR(s) to the GEF Secretariat and the GEF Independent Evaluation Office as part of the Annual Monitoring Review of the FAO-GEF portfolio. The PIR will be uploaded to FPMIS by the FAO-GEF Coordination Unit.

Technical reports: The technical reports will be prepared as part of the project outputs and will document and disseminate lessons learned. Drafts of all technical reports must be submitted by the National Project Coordinator to the PSC and FAO Representation in Tajikistan, which in turn will be shared with the LTO for review and approval and to the FAO-GEF Coordination Unit for information and comments before finalization and publication. Copies of the technical reports will be distributed to the Liaison Committee and the PSC and other project stakeholders, as appropriate. These reports will be uploaded in FAO FPMIS by the BH.

Co-financing reports: The NPC will be responsible for collecting the required information and reporting on in-kind and cash co-financing provided by all the project co-financiers and eventual other new partners not foreseen in the Project Document. Every year, the NPC will submit the report to the FAO Representation in Tajikistan before July 10th covering the period July (the previous year) through June (current year). This information will be used in the PIRs.

Core Indicators worksheet: In compliance with GEF policies and procedures, at project mid-term and completion, Agencies report achieved results against the core indicators and sub-indicators used at CEO Endorsement/ Approval.

The GEF evaluation policy foresees that all medium and large size projects require a separate **terminal evaluation**. Such evaluation provides: i) accountability on results, processes, and performance; ii) recommendations to improve the sustainability of the results achieved and iii) lessons learned as an evidence-base for decision-making to be shared with all stakeholders (government, execution agency, other national partners, the GEF and FAO) to improve the performance of future projects.

The BH will be responsible to contact the Regional Evaluation Specialist (RES) within six months prior to the actual completion date (NTE date). The RES will manage the decentralized independent terminal evaluation of this project under the guidance and support of OED and will be responsible for quality assurance. Independent external evaluators will conduct the terminal evaluation of the project taking into account the "GEF Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects." FAO Office of Evaluation (OED) will provide technical assistance throughout the evaluation process, via the OED Decentralized Evaluation Support team ? in particular, it will also give quality assurance feedback on: selection of the external evaluators, Terms of Reference of the evaluation, draft and final report. OED will be responsible for the quality assessment of the terminal evaluation report, including the GEF ratings.

After the completion of the terminal evaluation, the BH will be responsible to prepare the management response to the evaluation within 4 weeks and share it with national partners, GEF OFP, OED and the FAO-GEF CU.

Final Report: Within two months prior to the project's completion date, the National Project Coordinator will submit a draft final report to the PSC and FAO Representation in Tajikistan. The main purpose of the final report is to give guidance to authorities (ministerial or senior government level) on the policy decisions required for the follow-up of the Project, and to provide the donor with information on how the funds were utilized. Therefore, the terminal report is a concise account of the main products, results, conclusions and recommendations of the Project, without unnecessary background, narrative or technical details. The target readership consists of persons who are not necessarily technical specialists but who need to understand the policy implications of technical findings and needs for ensuring sustainability of project results. Work is assessed, lessons learned are summarized, and recommendations are expressed in terms of their application to the integrated landscape management in the three pilot sites, as well as in practical execution terms. This report will specifically include the findings of the final evaluation. A project

evaluation meeting will be held to discuss the draft final report with the PSC before completion by the Project Coordinator and approval by the BH, LTO, and FAO-GEF Coordination Unit.

Monitoring and Evaluation summary

Table 14. Summary of the main monitoring and evaluation reporting, responsibilities and time frame

M&E Activity	Responsible parties	Time frame/ Periodicity	Budget
Inception workshop in Dushanbe	NC EPA supported by FAO	Within two months of project startup	USD 3,000
Project Progress Reports (PPRs)	NC EPA, NPC, FAO Representation in Tajikistan with stakeholder contributions and other participating institutions	Six-monthly	PMU time covered by the project budget. REC Caucasus and FAO staff time
Project Implementation Review (PIR)	Drafted by the NPC, with the supervision of the LTO and BH. Approved and submitted to GEF by the FAO-GEF Coordination Unit	Annual	FAO staff time financed through GEF agency fees. PMU time covered by the project budget.

M&E Activity	Responsible parties	Time frame/ Periodicity	Budget
Technical reports	PC supported by FAO	As needed	PMU time covered by the project budget. GEF Agency fees for FAO technical staff
Independent mid-term review	PC and PIU	Midpoint of year 2 of project	USD 45,000
Final evaluation	The BH will be responsible to contact the Regional Evaluation Specialist (RES) within six months prior to the actual completion date (NTE date). The RES will manage the decentralized independent terminal evaluation of this project under the guidance and support of OED.	At least six months before end of project	USD 45,000
Final workshop	NC EPA supported by FAO	At the end of the project	USD 3,000
Terminal Report	PC; FAO (FAO Representation in Tajikistan, LTO, FAO-GEF Coordination Unit, Business Development and Resource Mobilization (PSR) Reporting Unit)	Two months prior to the end of the project.	USD 6,900
Total budget			USD 102,900

10. Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

Tajikistan is at the heart of one of eight global Centres of Crop Diversity^[1] and as such has a wealth of crop landrace and Crop Wild Relative importance that is global as well as national importance in sustaining

food security and human wellbeing. Such diversity is increasingly threatened from environment change and land management intensification globally[2] and specifically in Tajikistan[3] and therefore, active conservation will also have global and national benefits. The conservation value of Tajik agrobiodiversity is significant and provides many essential ecosystem services, such as wildlife habitats and recreational, opportunities but the core benefit is to underpinning provisioning services through sustaining crop improvement and promoting diversification. The scenic, cultural and historic value of the Tajik environment is not only economic, but the quality of life benefits cherished by the people of Tajikistan.

The Global Environmental Benefits (GEBs) that will result from GEF's biodiversity financing and project implementation will include:

- *Conservation* of globally significant biodiversity; and
- *Sustainable use* of the components of globally significant biodiversity.

The project will also:

- ? Promote gender equalities in terms of men's and women's participation in decision making and/or their differential access to productive resources, services and markets including 2,370 (1,185 men and 1,185 women) direct beneficiaries
- ? Promote the sustainable use of GR and neglected species
- ? Promote the on-farm conservation of landraces and the active conservations of CWR
- ? Improve the access to Gene bank material to farmers, breeder and researchers
- ? Add at least 400 seed accessions of 30 crops and 200 CWR established in seed bank and 400 LR and 100 CWR accessions characterized and evaluated
- ? Strengthen the national technical capacity in sustainable use of agrobiodiversity
- ? Support new business models for biodiversity products including new microfinancing lines for farmers allowing them to new and innovative business models
- ? Generate and improve knowledge on traditional crop landrace and crop wild relative diversity
- ? Promote traditional and local knowledge

[1] Vavilov, N.I., 1926. Tzentry proiskhozhdeniya kulturnykh rastenii. [The centres of origin of cultivated plants]. Works of Applied Botany and Plant Breeding, 16(2), 248 P: [Russian, English].

[2] FAO, (2010). Second report on the State of the World's Plant Genetic Resources for Food and Agriculture. Food and Agriculture Organization of the United Nations, Rome, Italy. Available online: <http://www.fao.org/agriculture/seed/sow2/en/> [Accessed 25 July 2013].

[3] FAO, 2008. State of Plant Genetic Resources for Food and Agriculture in the Republic of Tajikistan.

11. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification *

PIF	CEO Endorsement/Approval	MTR	TE
Low			

Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

5.2 Section B: Environmental and Social risks from the project

This section is based on the risk matrix obtained during risk screening in the concept note (in FPMIS) and based on further update and revision by the PTF under the responsibility of the LTO.

Complete the information corresponding to each of the risks identified during concept note. The result will be an environmental and social risk management plan that will be monitored during project implementation and regularly reported upon through the project progress reports. Please note that:

- For low risk projects, this section is not required.
- For moderate and high-risk projects, the following information should be included as part of an environmental and social risk management plan.

Table 8. Summary of environmental and social risks.

Description of risk	Potential Level of Impact	Mitigation actions

<p>The project may involve access to genetic resources for their utilization and/or access to traditional knowledge associated with genetic resources that is held by indigenous, local communities and/or farmers.</p>	<p>M</p>	<p>Stakeholders have expressed interest in better understanding how to sensibly share genetic resources and traditional knowledge of their communities, in a way that it will make them more resilient, not more vulnerable. In order to mitigate this risk, it is important to provide all stakeholders with information and tools to deepen their understanding of agrobiodiversity and to transmit it to others within their communities.</p> <p>In accordance to FAO directives, a thorough Free Prior and Informed Consent (FPIC) process will be conducted from the start-up of project implementation. In addition, capacity development on access and benefit sharing will be key in the project implementation. The project will learn the lessons provided by the UNDP/GEF project ?Strengthening of National Capacities for the implementation of the Nagoya Protocol on Access to Genetic resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity?, taking advantage of the drafted community procedures for access to genetic resources and benefit sharing they developed.</p> <p>The governance of evidence-based value-added information system?Component 2? will be transparent and participative, implying that new accessions resulting from project activities will be disclosed to all participating farmer communities periodically.</p>
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<p>Existing gender inequalities in terms of men's and women's participation in decision making and/or their differential access to productive resources, services and markets</p>	<p>M</p>	<p>To mitigate this risk the project is designed to ensure that the various components focus on actions and processes aimed at the participation and empowerment of women. Since its conception the project has been based on the assumption that the role of women in aspects of agrobiodiversity is fundamental and overriding because women contribute in some way when deciding on the crops and landraces to be grown due to their experience and preferences in food preparation. Women also participate by maintaining a group of species and varieties with culinary, medicinal and other properties in more domestic cultivation settings that are under their control, such as home gardens or backyards. In other words, women play an important role in conserving agrobiodiversity. However, we realize that the role of women has changed in the post-Soviet environment and this project therefore aims to find out exactly how the role of women has changed and document this change with the aim of influencing their empowerment.</p> <p>Thus, in Component 1, Agrobiodiversity conservation planning and implementation, one of the approaches is to understand the role of women in promoting knowledge of agrobiodiversity in order to use this as a basis for specific reinforcement actions.</p> <p>In Component 3, Supporting agrobiodiversity policy development and outreach activities, the project will produce a communication and awareness building strategy aimed at decision makers concerning the value of agrobiodiversity, its conservation, use and contribution to provisioning ecosystem services, including specific action plan for women developed.</p> <p>Once the project gets under way, the M&E consultant will support the setting up of an Index that will measure women's participation in the various processes and actions carried out by the project, based on the targets and interventions described in the GAP.</p>
<p>The project will involve working in Natural Protected Areas whose ethos in conservation in isolation from utilization</p>	<p>L</p>	<p>From the beginning on, the presence of officials from the key stakeholder agencies (Committee on Environment Protection under the Government Republic of Tajikistan, National Biodiversity and Biosafety Centre, State institution research Laboratory for nature protection, State institution on protected areas) were involved in project development and had opportunities for input. This enables them to be introduced to the purpose and aim of the Project as well as establishing a link between these officials and the GEF projects.</p> <p>Engagement will reduce the risk involved in the integration of the activities of the Project with those already implemented by ABD conservationists in Tajikistan and reassuring the protected area community that collaboration is mutually beneficial and ultimately may promote stronger environmental safeguards for the protected areas they manage.</p>

Climate change impacts on ABD and management systems make resource loss inevitable and Best Practices knowledge platforms quickly outdated.	L	Climate change resilience measures will be approached through various project outputs and supported by analysis and feedback from core indicator achievement, adaptive field-based monitoring systems and market access assessment. This will allow for goals and activities to be reassessed during project implementation, if necessary. A complete Climate change screening is available on Annex J.
Climate change sensitivity in terms of reduced revenues from agriculture can influence people's approach to conservation of agrobiodiversity been addressed?	M	The project recognizes that changes have occurred and are occurring and will plan to assist the local population to protect water supplies, ensure climate sensitive agrobiodiversity cultivation and conservation practices with improved niche markets and development of climate resistant crop varieties, and increase forest resilience through improved conservation practices.
Availability of technical and institutional capacity, and information could constrain efforts to deal with climate change	M	The project will seek to enhance technical capacity on climate effects, adaptation and mitigation actions through research institutions and FAO. These include climate-smart agrobiodiversity cropping practices, natural CWR management, and landscape management to preserve natural habitats. These aspects have been fully considered in this proposal and will be designed into government capacity-building training.

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
FAO ES Screening Checklist CN TAJ	CEO Endorsement ESS	
Risk certification_TAJ	CEO Endorsement ESS	
Climate Change Risk Assessment	CEO Endorsement ESS	

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Responsible for data collection	Assumptions
Objective: Conservation, Sustainable Use and Securing of the national and globally significant agrobiodiversity and the associated knowledge and cultural aspects of traditional agro-ecosystems of Tajikistan							
None	Indicator 1: GEF Core Indicator 4: Area of landscapes under improved practices (excluding protected areas) for maintenance of landraces and promotion of conservation of crop wild relatives (hectares)	None	(1.a) 30 active LR on-farm sites covering 600 hectares for maintenance of landraces	(1.a) 80 active LR on-farm sites covering 1,600 hectares for maintenance of landraces established	Project Progress reports; Field verification reports	PT	Farmers see advantage of engaging actively in on-farm conservation; project staff have appropriate skills in contemporary conservation techniques; and effective partnerships are achieved between project staff and farmers to maintain LR diversity
			(1.b) 3 active CWR genetic reserves covering 150 hectares	(1.b) 10 active CWR genetic reserves covering 600 hectares established			

			(1.c) 1 PA management plans (Sarikhosor Park 300 ha and Kusavlyiski reserve 19,844 ha) updated to mainstreaming CWR conservation	(1.c) 2 PA management plans (Sarikhosor Park 300 ha and Kusavlyiski reserve 19,844 ha) updated to mainstreaming CWR conservation	Updated management plans		are willing to engage in active genetic reserve conservation
	Indicator 2: GEF Core Indicator 11: Number of direct beneficiaries disaggregated by gender	None	600 (300 men and 300 women)	2,370 (1,185 men and 1,185 women)	Project progress reports, Social surveys	PT	Communities willing to engage in project activities for conservation of LRs, CWR and wild relatives, breeding and value addition
Component 1: Improved enabling environment for ABD conservation							
Outcome 1.1 Enabling environment supports conservation of globally important agrobiodiversity (ABD)	Indicator 3: Number of community seed banks functional	None	1 community seed banks established	3 community seed banks established	Conservation report and records in database	PMU	Communities collectively willing to engage in establishment of community seed banks
	Indicator 4: Number of additional seed accessions of selected crops and CWR accessions established in seed bank	2,348 seed accessions of 49 genera in seed bank	200 seed accessions of 15 crops and 100 CWR accessions established in gene bank	400 seed accessions of 30 crops and 200 CWR established in seed bank	Conservation report and records in database	PMU	Gene bank staff able to collect new accessions

Indicator 5: Percentage of geo-referenced datasets available for CWR taxa and number of landrace datasets available for crops in target sites	None	CWR geo-referenced datasets for 80% taxa and LR datasets available for 15 crops in target sites	CWR geo-referenced datasets for 100% taxa and LR datasets available for 30 crops in target sites	CWR and LR geo-referenced datasets on project website	PMU	Adequate availability of information; capacity for data analysis exists
Indicator 6: Status of assessment and modeling of resilience and fitness of crop LR and CWR for climate adaptation	None	150 LR of 15 crops and 50 CWR assessed	150 LR of 15 crops and 50 CWR assessed	Resilience reports	PMU	Sufficiently detailed data available to undertake the IUCN climate change vulnerability assessment for crop landraces and CWR populations; Government institutions, various conservation, agriculture and biodiversity-based stakeholders are able and willing to promote the climate change assessment and use the information conservation planning.

	Indicator 7: Level of national recognition and commitment for conservation and sustainable use of agrobiodiversity in Tajikistan	Limited commitment to conservation and sustainable use of agrobiodiversity	Review and gap assessment completed; broad consensus achieved on priority actions, and draft under preparation	National Strategy and Action Plan for Conservation and Use of Agrobiodiversity (NSAP-CUA) prepared and adopted by Inter-Agency Commission on Agrobiodiversity Conservation (IAC)	Published strategy and Government approval letter	PMU	Key stakeholders willing to support NSAP-CUA
	Indicator 8: Status of utilization of CWR population diversity for improved crop development	None in Tajikistan, but building on external research	5 CWR incorporated in breeding program	10 CWR incorporated in breeding program	Conservation reports; Field survey reports	PT	Farmer willingness to facilitate sampling their CWR populations; Breeders willing to use CWR in breeding program
Component 2: Strengthened local community and breeding sector's capacity to ensure resilience and use the breadth of indigenous agrobiodiversity							
Outcome 2.1: Increased climate resilience and sustainable use of target landraces and CWR through	Indicator 9: Number of local LR with improved resilience identified	High LR diversity to build upon, but none developed	20 local LR with improved resilience identified	80 local LR with improved resilience identified	Conservation reports, Field survey reports	PT	Farmers willing to engage with project activities; government institutions willing to promote PPB

targeted participatory plant breeding and capacity building to promote crop improvement	Indicator 10: Number of resilient varieties used by the farmers able to improve food security	Some existing varieties used by farmers	4 resilient varieties actively used by the farmers able to improve food security	12 resilient varieties actively used by the farmers able to improve food security	Conservation reports, Field survey reports	PT	Farmers willing to apply exotic germplasm based crop improvement ; alliances encouraged between plant breeders and pre-breeding team at ICARDA
	Indicator 11: Number of CWR traits characterized , evaluated and available to be incorporated in crop improvement programs	Practical plant breeders involved in crop development, but CWR assessments not evaluated and breeders lack training to use CWR more effectively	(11.a) 200 LR and 50 CWR accessions characterized and evaluated (11.b) 10 breeders given pre-breeding training (11.c) 2 CWR traits used in crop improvement	(11.a) 400 LR and 100 CWR accessions characterized and evaluated (11.b) 10 breeders involved in breeding crop improvements (11.c) 6 CWR traits used in crop improvement	Improved pre-bred available for breeder's use; Farmer survey reports	PMU	Plant breeders willing and able to receive training; trainees can generate pre-bred lines containing CWR derived adaptive traits within timescale of project; pre-bred lines containing CWR derived adaptive traits are taken and used in further crop varietal improvement

Component 3: Support policy development, knowledge management, improved financing and outreach activities for promoting conservation and sustainable use of agrobiodiversity in Tajikistan

Outcome 3.1: Improved policy, knowledge, financing and awareness promotes conservation and sustainable use of agrobiodiversity	Indicator 12: Number of enhanced policies in support of conservation and sustainable use of agrobiodiversity	Current policies lack adequate support for agrobiodiversity	Policy assessment completed to enable identification of gaps in at least 5 existing policies related to agrobiodiversity	5 existing policies amended to enhance gender sensitive agro-forest conservation and sustainable use	Published government approved policies	PMU	Stakeholders able to engage in the ABD discussion and there is political commitment to make consideration of ABD value and conservation and use requirements
	Indicator 13: Availability of financial incentives for ABD conservation and LR derived commodity enhancement	None	(13.a) 40 farmers applying community-based incentives for ABD conservation (at least 50% women) (13.b) 40 farmers applying community-based incentives to LR derived commodity enhancement (at least 50% women)	(13.a) 100 farmers applying community-based incentives for ABD conservation (at least 50% women) (13.b) 40 farmers applying community-based incentives to LR derived commodity enhancement (at least 50% women)	Conservation Reports; Reports from financial institutions, Field survey reports	PT	Tajik communities and CSOs are willing and able to engage in community-based incentive and micro-funding schemes; ABD conservation and use alliances are set up between Tajik stakeholder that are mutually beneficial and so self-sustaining: general public are able to value of agrobiodiversity and its maintenance is of direct value to them and their families.

	Indicator 14: Extent of farmers' willingness to accept incentives for supporting ABD conservation and sustainable use	Farmers and communities have pride and value of endogenous ABD resources, but limited means to actively engage	(14.a) 50 community members accept incentives to compensate for public good services (14.b) 50 community members engage in economic assessment of cost-benefit approach to public good services	(14.a) 100 community members accept incentives to compensate for public good services (14.b) 100 community members engage in economic assessment of cost-benefit approach to public good services	Use enhancement reports; farmer survey reports	PT	Community willingness to engage in socio-economic options evaluation; Tajik crop landrace maintainers willing and able to be trained in crop product added value development; landrace maintainers are willing to take up small grants or use the micro-borrowing revolving fund
	Indicator 15: Number of promotional best practice materials developed and disseminated	None	10 promotion materials on ABD values and 10 product campaign and material evaluations	25 promotion materials on ABD values and 25 product campaign and material evaluations	Promotional and campaign materials disseminated	PMU	National lead agencies and other stakeholders support and commitment to continuous learning and exchange of knowledge

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

n/a

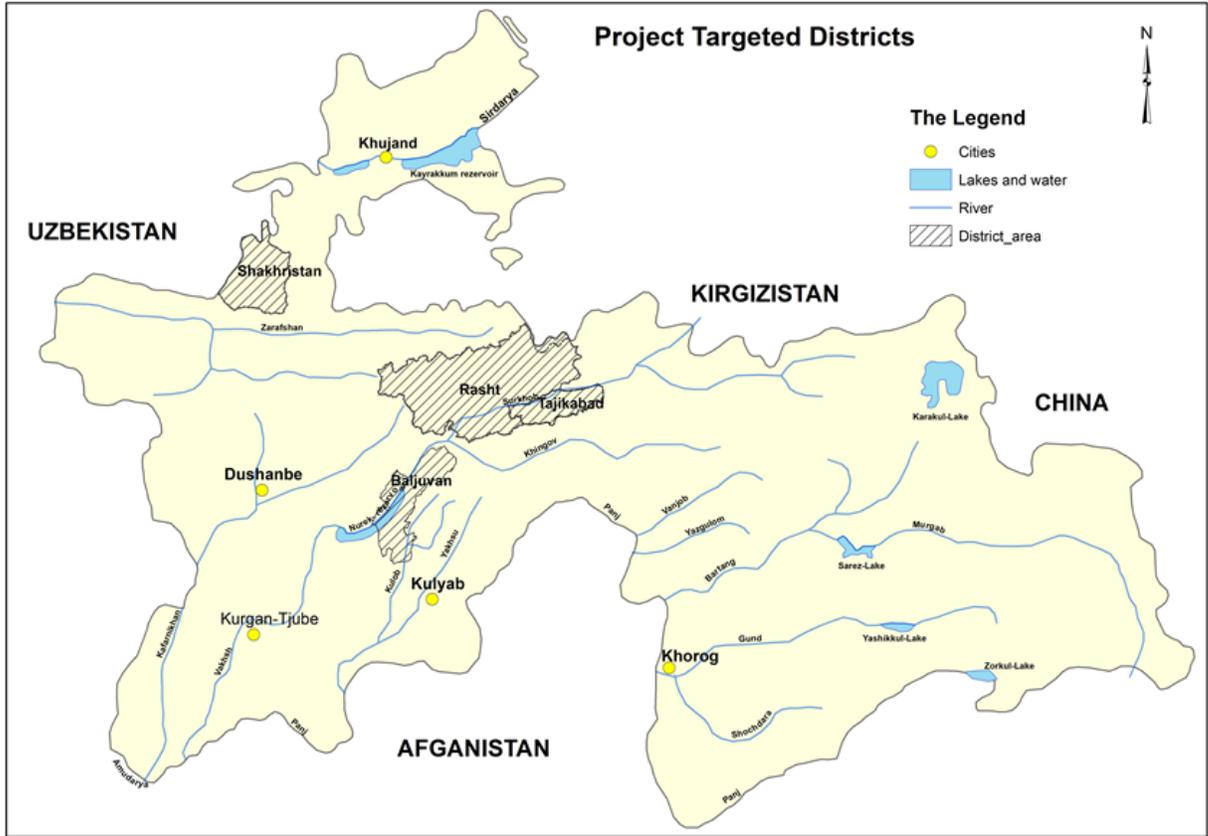
ANNEX C: Status of Utilization of Project Preparation Grant (PPG). (Provide detailed funding amount of the PPG activities financing status in the table below:

Description	Unit	No of Units	Unit cost (USD)	Total (USD)	Amount spent to date (USD)	Amount committed (USD)
National consultants						
National PPG Coordinator (ABD expert)	<i>Month</i>	<i>4</i>	<i>1,500</i>	6,000	3,869	

Gender expert/socioeconomist	<i>Days</i>	40	100	4,000	3,710	
Climate change expert	<i>Days</i>	20	100	2,000	3,710	
Mapping expert	<i>Days</i>	10	100	1,000	1,031	
Translation services	<i>Days</i>	10	100	1,000	137	
Subtotal national consultant				14,000	12,457	
International consultants						
Project designer	<i>Days</i>	38	600	22,800	26,652	5,525
ABD expert (eflora CWR)	<i>Days</i>	10	300	3,000	3,092	
Subtotal International consultants				25,800	29,744	5,525
Training						
Training cost	<i>Lump sum</i>				1,165	
Expendable Procurement	<i>Lump sum</i>				224	
Subtotal travel				0	1,389	
Travel						
Local/field visits	<i>Lump sum</i>	1	5,000	5,000	885	
International missions	<i>Lump sum</i>	2	2,500	5,200		
Subtotal travel				10,200	885	
Total Budget				50,000	44,475	5,525

ANNEX D: Project Map(s) and Coordinates

Please attach the geographical location of the project area, if possible.



ANNEX E: Project Budget Table

Please attach a project budget table.

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit a finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agency is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies' capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).