Evaluation Office of UN Environment

Terminal Evaluation of the Project "In Situ/On-Farm Conservation and Use of Agricultural Biodiversity (Horticultural Crops and Wild Fruit Species) in Central Asia"

FINAL REPORT

Submitted by Patrick Mulvany

May 2017

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Title: In Situ/On-Farm Conservation and Use of Agricultural Biodiversity (Horticultural Crops and Wild Fruit Species) in Central Asia
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List of acronyms & abbreviations

ABS	Access and Benefit Sharing
ADB	Asian Development Bank
BHL	Biodiversity Heritage Library
BSP	Bali Strategic Plan for Technology Support and Capacity-Building (UNEP)
CA	Central Asia
CATCN-PGR	Central Asian and Transcaucasian Network on Plant Genetic Resources
CBD	Convention on Biological Diversity
CGIAR	Consultative Group for International Agricultural Research
CGRFA	Commission on Genetic Resources for Food and Agriculture (FAO)
CIS	Commonwealth of Independent States
COP	Conference of the Parties
CRP-GL	Centre de Recherche Public - Gabriel Lippmann (Luxembourg)
CSO	Civil Society Organisation
CWANA	Central and West Asia and North Africa
CWR	Crop Wild Relatives
DGEF	Division of Global Environment Facility (UNEP)
EA	Executing Agency; Expected Accomplishment (UNEP)
FAO	Food and Agriculture Organisation of the United Nations
FGD	Focus Group Discussions
[F]PIC	[Free] Prior Informed Consent
FR	Farmers' Rights
GAO	Gross Agricultural Output
GE	Gender Equity
GEF	Global Environment Facility
GIS	Geographic Information Systems
GIZ	[Deutsche] Gesellschaft für Internationale Zusammenarbeit (Germany)
GPA	[1996 Leipzig] Global Plan of Action [for the conservation and sustainable use of PGRFA (FAO)
GRIS	Genetic Resources Information System
HH	Household
HR [BA]	Human Rights [Based Approach]
IA	Implementing Agency
ICARDA	International Centre for Agricultural Research in Dry Areas
ICT	Information and Communication Technology
IFAD	International Fund for Agricultural Development
IPGRI	International Plant Genetic Resources Institute (now Bioversity International)
ISC	International [project] Steering Committee
KIFOR	Kyrgyz/Swiss Forestry Support Programme
IT PGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture (FAO)
LAN	Local Area Network
M&E	Monitoring and Evaluation
MSC	Multidisciplinary Site Committee
MTR/MTE	Mid-Term Review/ Mid-Term Evaluation
MTS	Medium-Term Strategy (UNEP)
NBSAP	National Biodiversity Strategy Action Plan

NFP	National Focal Point
NGO	Non-Governmental Organisation
OP	Operational Program (GEF)
PAA	Priority Activity Area (GPA)
PDF	Preparatory Development Facility (Preparatory PDF-A and PDF-B phases)
PGR[FA]	Plant Genetic Resources [for Food and Agriculture]
PIC	Prior Informed Consent
PIR	Project Implementation Review
PIU	Project Implementation Unit
REAP	Regional Environmental Action Plan
ROtI	Review of Outcomes to Impacts
SCC	Site Coordination Committee
SMART	Specific, Measurable, Assignable, Realistic, Time-related [Indicators]
STAP	Scientific and Technical Advisory Panel (UNEP)
TE	Terminal Evaluation
ToR	Terms of Reference
ToC	Theory of Change
UN CCD	UN Convention to Combat Desertification
UNFCCC	UN Framework Convention on Climate Change
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UN/ESCAP	United Nations Economic and Social Commission for Asia
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPOV	International Union for the Protection of New Varieties of Plants (French acronym)
USAID	United States Agency for International Development

Table 1: Project Summary[1]

GEF project ID:	**1025**	**IMIS number:**	**GFL-2328-2715-4893**
Focal Area(s):	**Biodiversity**	**GEF OP #:**	**13**
GEF Strategic Priority/Objective:	**BD-2**	**GEF approval date:**	**12 October 2005**
UNEP approval date:	**29 December 2005**	**Date of first disbursement:**	**20 January 2006**
Actual start date:	**1 January 2006**	**Planned duration:**	**60 months**
Intended completion date:	**Dec 2011**	**Actual or Expected completion date:**	**31 December 2014**
Project Type:	**FSP**	**GEF Allocation:**	**US$ 5,718,070**
PDF GEF cost:	**US$ 375,000**	**PDF co-financing:**	**US$ 379,000**
Expected MSP/FSP Co-financing:	**US$ 5,795,628**	**Total Cost:**	**US$ 14,653,918**
Mid-term review/evaluation (actual date):	**15-30 October 2008**	**No. of revisions*:**	**4**
Date of last Steering Committee meeting:	**2-4 July 2013**	**Date of last Revision:**	**27/06/2013**
Disbursement as of 30 June 2015:	**US$ 5,695,663.51**	**Date of financial closure:**	**TBD**
Date of Completion:	**December 2014**	**Actual expenditures reported as of 30 June 2015**	**US $ 5,688,070.00**
Total co-financing realized as of 30 June 2015:	**US$ 14,653,474**	**Actual expenditures entered in IMIS as of 30 June 2016:**	**US$ 5,552,300.72[2]**
Leveraged financing:	**US$ 8,858,290**		
Terminal Evaluation (actual date):	**March – August 2016**		

[1] Interim figures provided by UNEP Task Manager, August 2016

[2] This figure to be confirmed by FMO

Executive Summary

Report Summary in Russian Language

RU_OnFarm InSitu Conservation CA_Eva

I. Evaluative Overview

i. At the end of the 20th century, the newly-independent Central Asian countries were facing a crisis of the systemic loss of diversity, habitats and production of locally popular fruit and nut-bearing species of global importance. These included Apple, Grape, Peach, Almond, Pistachio and Walnut, among many others, which originated and have diversified in this region over millennia. In response to the crisis, leading national scientific and technological institutions with local lead farmers and foresters developed a plan to reverse the losses on-farm as well as in situ, especially in forests.

ii. This UN Environment GEF project, over nearly 14 years from concept until it ended, with GEF funds and substantial co-finance, and with technical back-stopping from Bioversity International, has had a catalytic effect. At the time of the Terminal Evaluation in 2016, some two to three years after the end of the project, activities were still expanding. The availability of planting materials of, and produce from, endemic varieties of these valuable crops was still increasing – with hundreds of thousands of saplings being produced and planted across the region.

iii. The project has also helped improve livelihoods, food availability and restore local environments; institutional and training capacities have been strengthened; and the legislative and policy environment is enhancing. There is every indication that this will continue.

iv. The thorough and careful design, inclusive management and participatory implementation of the project, driven by respected local leadership, were main reasons for its success. The results have provided a potential model for improved conservation, and sustainable use on-farm and *in situ*, of such perennial fruit and nut-bearing species, and how to use them in regenerating habitats while providing economic and social benefits.

v. The Terminal Evaluation (TE) has ranked the project as Highly Satisfactory.

II. The evaluation process

vi. The evaluation was set up for two main purposes: (a) to validate evidence of results to meet accountability requirements, and (b) to enhance the project's learning, feedback, and knowledge sharing within and beyond the project's actors to the wider agricultural biodiversity community concerned with the conservation and sustainable use of agricultural biodiversity, including UN Environment and GEF. It used a recursive, investigative and participatory approach including desk reviews of documents, interviews (face to face and by telephone/Skype) of key actors in Rome, Geneva, Central Asia and Nairobi. Both quantitative and qualitative evaluation methods were used to determine project achievements against the expected outputs, outcomes and impacts.

vii. The consultant was invited to participate in a series of meetings including a regional meeting in Bishkek, Kyrgyzstan with the (former) National Coordinators and national meetings of those involved in the project in Kyrgyzstan, Tajikistan and Uzbekistan. Visits were made to several participating institutions in these countries some of which also provided facilities for the Regional Training Centres as well as various farms, orchards, demonstration plots, forestry enterprise and a botanic garden.

viii. The time elapsed between the end of funding and the TE was probably advantageous, allowing results and outcomes, to firm up towards realising the project's desired impacts.

III. Context and global relevance

ix. In the Central Asian countries of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan there is a rich endemic diversity of many valuable perennial fruit and nut-bearing species such as Apple, Grape, Peach, Almond, Pistachio and Walnut, among many others. Over many centuries, these species spread westwards to Europe and beyond along the 'Silk Road' trade routes as fruits, nuts and seeds, and grafted saplings, eventually to become common foods for the whole world.

x. The region is a recognised centre of origin and diversity of these globally-important cultivated and undomesticated perennial fruit and nut-bearing species and their crop wild relatives. It is a unique source of a wealth of agricultural biodiversity, which has been nurtured and developed by people in the region over millennia, through their dynamic management of plants and their habitats. The diversity of these species is maintained by farmers and foresters on-farm and *in situ* in the diverse transboundary ecosystems of the region.

xi. These species remain economically and socially significant in the region providing the current population with a consistent supply of valuable foods and income, especially in unirrigated and drier areas. They also provide environmental benefits from the soil-stabilising roots of these perennial plants, among other environmental functions. Each country derives direct benefits from these species and because of the nature of the transboundary ecosystems, they also benefit from coordinated approaches to sustain the diversity of the species and their habitats.

xii. Over many years, waves of social and economic pressures have undermined this diversity. Most recently, due to the collapse of the Soviet Union and the transition from a centralised economy to a market-driven one, with changes in land tenure arrangements and the reduction in state support for services and research, the Central Asian countries faced increasing losses of the diversity of these species. It also led to increased environmental degradation, driven, in part, by food insecurity and poverty. Now independent, the countries lost capacities to address these issues in a coordinated way across the transboundary ecosystems of the region.

IV. Project design

xiii. The project's design, developed during a long, thorough and inclusive preparatory phase, identified project partners, lead institutions and lead actors, as well as participatory methodologies, training and information needs and policy priorities. It was designed as a country-driven regional approach to tackling common problems in the region's transboundary ecosystems. It was designed to address these by improving capacities and understanding at all levels, increasing availability of planting materials of endemic varieties on a large scale and providing a supportive policy environment, locally, nationally and regionally for continuing benefits towards the project's goal of conserving the high diversity of these species in the region. It was designed to improve co-operation across the region, especially on training, policy development, methodological approaches and information and data handling, thereby reducing duplication of effort. The implementation structures were built up from local site committees to the National Steering Committees and the International (regional) Steering Committee. Implementation was supported by a Regional Project Coordination Team and backstopped by Bioversity International.

xiv. To achieve its goals, integrated and participative approaches were developed by the project bringing together a wide range of actors from scientists and policy makers to local farmers, foresters and users of forest products. With these actors, the project chose to 'target' a few economically-important perennial fruit and nut-bearing species – Almond, Alycha/Cherry Plum, Apple, Apricot, Currants, Fig, Grape, Mulberries, Peach, Pistachio, Pomegranate, Pear, Sea buckthorn and Walnut – for in-depth work on their conservation and sustainable use on-farm and *in situ*. While the project across the region covered all these species and their wild relatives, each country chose a nationally-appropriate sub-set.

xv. A key component of the project was the development of Strong Partnerships and Broad Participation. This was designed to strengthen project partners as well as support institutional

leadership and lead farmers and forest users. This component underpinned all the activities in the other three operative components on Legislation and Policy Development, Knowledge and Methodologies and Capacity Building. A fifth administrative component was also included.

V. Evaluative findings

xvi. Planting of endemic varieties of economically and culturally important fruit and nut-bearing species has increased in the region and are now more readily available across the region. This was due to the project's recognition that the lack of planting materials of these varieties was a severe hindrance to realising its goals, and the consequent project-initiated activities of supporting the development of nurseries by local farmers, has resulted in a thriving and expanding provision, in each country, of hundreds of thousands of saplings and other grafted plants of local endemic varieties for planting across the region and in neighbouring countries.

xvii. The use of endemic varieties of the target species in ecosystem and forest regeneration activities as well as for restoration of production, especially on degraded slopes, has increased. Equally, the increased use of these varieties, which are suited for drier zones without irrigation, has extended their production. The resilience of the endemic varieties and their tolerance to drought and inclement weather has increased recognition of the contribution that the planting of a diversity of these varieties can make to production systems in the context of climate change and future disease and pest stresses. Lessons learned from the project have been included in relevant 'climate change' projects in the region.

xviii. The project has generated hundreds of technical, scientific and information products including papers, leaflets, posters, videos etc. in English, Russian and several local languages. Most of these are available online. Some are posted prominently on international websites including that of the CBD. The project's approach to data collection and use, recognising among other things the need for Free Prior and Informed Consent, was instrumental in achieving high-quality participation by data providers.

xix. The project's focus on policies that have more direct bearing on benefitting farmers and forest users, such as realising Farmers' Rights, securing Access and Benefit Sharing and improving land use, increased the engagement – by all project actors, from local to national levels – in advocating for needed changes, not only in agricultural and environmental policies but also in education.

VI. Lessons learnt

xx. In the context of the globally-recognised imperative for improved conservation, development and sustainable use of agricultural biodiversity on-farm and *in situ*, the project demonstrated how to build upon the innovative skills of resource conservers and users and improve their capacity so that they could provide planting materials of endemic varieties of the 'target' species. This crucial activity was strengthened by the project incorporating systemic linkages between key national and regional institutions and lead farmers and forest users.

xxi. The development of demonstration plots and nurseries, in local farms, orchards and forests, then became the source of much-needed planting materials of diverse endemic varieties for widespread use across the region. Together with appropriate training, and information dissemination by scientific and technical institutions, lead farmers and forest users stimulated the uptake of improved practices and dramatically increased the production of varieties of the target species for planting on-farm and in situ across the region.

xxii. The deliberate incorporation in the project document of partnership and participation activities, as a specific component, rather than an implicit activity of project management, helped identify lead actors, reinforced all project activities, heightened awareness of the importance of the project and the issues it addressed, and stimulated the project's influence on policy and practices. This approach was enhanced by the supportive way in which technical backstopping was implemented, and the development of agreements on data collection and use, which also built trust.

xxiii. National level governance within an agreed regional framework was decisive. Once agreement on the common purposes, activities and outcomes had been achieved regionally, it was the National Steering Committees (NSCs), led by the national coordinators, which were arguably the most important project implementation bodies. They provided the necessary governance of the project at national and local levels, with regular monitoring and reporting to the regional level.

xxiv. This project showed the imperative for a regional approach to address the conservation and sustainable use, across the transboundary ecosystems of the region, of these globally-significant species, and their wild relatives, in their centre of origin and diversity. No national institution had the capacity or mandate to provide the necessary regional coordination and there would have been duplication of efforts at national levels, especially in policy development, training, methodological approaches, information exchange and data handling.

VII. Conclusions

xxv. The TE has confirmed that the project had successfully completed its planned activities and achieved all its planned outcomes through excellent coordination, effective management of both processes and finances, with full reporting monitored properly by the project's structures and its executive organisation and task manager. The results of the project have contributed to pathways towards realising the project's objectives to conserve and utilise sustainably, on-farm and *in situ.* The TE found that the project has been effective in developing policy and practices that can help reverse the decline in the agricultural biodiversity of the target species in the transboundary ecosystems of the region. Its results are informing the work of further projects addressing similar issues.

xxvi. The regional design of this project made it strategically relevant as it was therefore able to address the common issues across the transboundary ecosystems of the region. It was also able to facilitate collaboration and the development of common methodologies, training, data collection, information sharing and policy formation.

xxvii. The TE found that the identification of influential leaders and institutions that promoted engagement of a wide range of other institutions and actors in effective partnerships was important for achieving successful results. It reinforced all project activities, heightened awareness of the value of the project and stimulated the project's influence on policy and practices. The influence of the leadership grounded the project in an enduring institutional framework embracing local, national and regional partnerships that have lasted beyond the funded life of the project.

xxviii. The TE has confirmed that innovative farmers and forest users have driven results in orchards and vineyards and in forests and other uncultivated areas. Their knowledge, innovations and varieties, validated and complemented by scientific and technical institutions, provided the rich data that informed the policies and practises promoted by the project.

xxix. It was found that both scientists and farmers influenced policy makers. For example, in Uzbekistan and Tajikistan, changes in policy towards the preferential development of orchards, with specific proposals for those that grow local or old varieties of fruit crops and grapevine, were due, in part, to briefing relevant policy makers. Equally, in Kyrgyzstan and Uzbekistan, measures have been taken, as a result of the project, to strengthen laws and regulations relevant to the conservation and sustainable use of the project's target species.

xxx. The TE found that the regional, multi-country approach was essential in order to address the challenges of conservation and sustainable use of all of the target species, of perennial fruit and nut bearing species and their wild relatives, in the region, which were identified as socially, economically and environmentally significant.

xxxi. The TE confirmed that it would be unlikely that any national institution would have the capacity or mandate to provide regional coordination of activities for future work across the transboundary ecosystem. The facilitation of new work by an external agency would be welcomed.

xxxii. A few key recommendations for UN Environment, Bioversity International and Project partners are included. They are assessed as being implementable using the institutions' own resources.

1 INTRODUCTION

1. The Terminal Evaluation (TE) of the United Nations Environment Programme (UN Environment) Implemented Global Environmental Facility (GEF) project "*In Situ*/On-Farm Conservation and Use of Agricultural Biodiversity (Horticultural Crops and Wild Fruit Species) in Central Asia" was carried out some two years after funding of the project was completed to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) arising from the project, especially their sustainability. The evaluation was done in accordance with UN Environment's Evaluation Policy, UN Environment's Evaluation Manual and the Guidelines for Global Environment Facility (GEF) Agencies in Conducting Terminal Evaluations[3].

1.1 Subject and scope of the evaluation

2. The evaluation was set up for two main purposes: (a) to validate evidence of results to meet accountability requirements, and (b) to enhance the project's learning, feedback, and knowledge sharing within and beyond the project's actors to the wider agricultural biodiversity community concerned with the conservation and sustainable use of agricultural biodiversity, including UN Environment and GEF. The TE should reflect back to the project partners and the wider agricultural biodiversity community, the learnings achieved by the project not only in terms of its scientific, technical, social and environmental outcomes at national levels, but also the *modus operandi* used by the project to secure regional co-operation on an issue of global significance.

1.2 Evaluation approach and methodology

3. The TE process included the following phases: Preparation, including a visit to see some of the project team in Rome; Writing the Inception Report; Visits to the Region; Writing the draft Terminal Evaluation Report; and revising the TE Final Report in the light of comments received from UN Environment, project executing agency and project partners. It used a recursive, investigative and participatory approach including desk reviews of documents, interviews (face to face and by telephone/Skype) of key actors in Rome, Geneva, Central Asia and Nairobi. Both quantitative and qualitative evaluation methods were used to determine project achievements against the expected outputs, outcomes and impacts.

4. The desk review included examination of a selection of the following documents, among others:

   a. Project documents

   b. Related background documentation, including UN Environment and GEF policies, strategies and programmes relevant at the time of the project's development phases and approval;

   c. Annual and semi-annual progress and financial reports, including the annual Project Implementation Reviews (PIR) and Technical reports; Mid Term Review/Evaluation report;

   d. International Steering Committee (ISC) and National Steering Committee(s) (NCC) meeting minutes; notes of local committee meetings; and relevant correspondence;

   e. Documentation related to project outputs, including relevant material published, e.g. in journals, books, leaflets and online, e.g. on project websites and elsewhere.

5. Visits were made to the offices of the UN EnvironmentUN Environment Task Manager and project executing agency (Bioversity International) in Rome and twice to the region to meet with those responsible for implementing the project; key actors providing scientific and other support to the

[3] These Policies and Guidelines include :
UNEP Evaluation Policy www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationPolicy/tabid/3050/language/en-US/Default.aspx,
UNEP Evaluation Manual www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationManual/tabid/2314/language/en-US/Default.aspx, &
Guidelines for GEF Agencies in Conducting Terminal Evaluations www.thegef.org/gef/sites/thegef.org/files/documents/TE_guidelines7-31.pdf.

project; and to meet with some of the project's participating farmers and forest users. These visits were organised in consultation with the project team, especially the regional project coordinator. In addition, ad hoc meetings were held with the Evaluation Office of UN Environment and with some other UN Environment staff in Nairobi as well as with key actors in Rome on other occasions.

6. The interviews were held with key personnel including: UN Environment Task Manager, staff of the executing organisation (Bioversity International) including their coordinating and specialist support staff in the region, and backstopping specialists, who are located in Rome and Geneva, as well as the Director General, among others; a representative of the national GEF coordination in Kyrgyzstan; National Coordinators of the programmes in the five participating countries; members of the International Steering Committee; members of the National Steering Committees in the three countries visited (Kyrgyzstan, Tajikistan, Uzbekistan); members of some of the Site Coordination/ Multi-disciplinary Committees (SCC/MSC); participating farmers, forest users and their colleagues and families; and others with an interest in the work carried out in the region and related issues. The interviews were facilitated by the assistance of excellent interpreters, who translated, as necessary, from and to English and Russian, as well as Kyrgyz, Tajik and Uzbek.

7. The consultant was invited to participate in a series of meetings including a regional meeting in Bishkek, Kyrgyzstan with the (former) National Coordinators and national meetings of those involved in the project in Kyrgyzstan, Tajikistan and Uzbekistan. Visits were made to several participating institutions in these countries some of which also provided facilities for the Regional Training Centres.

1.3 Limitations to the Evaluation

8. As is typical with the evaluation of multi-country projects, the number of country and field visits was limited and no visits were made to Kazakhstan or Turkmenistan. This, therefore, created a risk that the findings originating from the visits to Kyrgyzstan, Tajikistan and Uzbekistan might have caused a bias. The evaluator tried to mitigate this problem by consulting project documents and reports from the other two countries, and by interviewing representatives of the National coordination in those countries.

9. The time elapsed between the end of funding and the TE might have been a limitation to the evaluation, making it difficult to identify results attributable to the project and find the original actors for interview. In practice, this limitation turned into an opportunity; it was possibly advantageous to have had this lapse of time, which allowed results and outcomes, to firm up towards realising the project's desired impacts. Also, the (former) project team worked very hard to line up most members of the original International Steering Committee, as well as many of the lead actors in the countries visited, for meetings, interviews and some selected field visits.

10. The number of languages, other than English (the mother tongue of the evaluator), which were used by actors in the project could have limited the scope of enquiry significantly but resources were provided not only for interpreters to and from Russian, Kyrgyz, Tajik, Uzbek and English, but also to translate key parts of the draft report into Russian, the lingua franca of the project, so that project partners could comment on the draft report, especially, the findings, conclusions and recommendations.

11. The complexity of the project across five countries, with key actors at all levels – from local farmers and forest dwellers to senior scientists and government advisers, as well as international specialists – and spanning some 17 years from initial project conception to the terminal evaluation led to greater than planned time for analysis of all the documentation, the many hours of interviews and meeting records, and the preparation of the report.[4]

[4] The prescriptive format for the evaluation created additional complications by including, for example, evaluation of issues and processes that were not required elements of the project at the time of its formulation, and required a retrospective workaround that was time consuming and not necessarily additive to the quality of the evaluation.

12. The TE did not attempt to audit or formally scrutinise the finances of the project, nor perform any cost/benefit analyses. It reviewed the overall finances, questioned key people involved in managing the project and verified that the reports provided had been satisfactorily accepted by all who were responsible for managing and approving the project's finances. The final financial reporting in the format required for the TE report required additional inputs from UN Environment.

1.4 Main evaluation criteria and questions

13. As required, project performance was assessed with respect to a minimum set of evaluation criteria grouped in six categories: (1) **Strategic Relevance**; (2) **Attainment of objectives and planned results**, which comprises the assessment of outputs and outcomes achieved, effectiveness and likelihood of impact; (3**) Sustainability and replication**; (4) **Efficiency**; (5) **Factors and processes affecting project performance**, including preparation and readiness, implementation and management, participation by key actors and public awareness, country ownership and country driven-ness, financial planning and management, UNEP supervision and backstopping, and project monitoring and evaluation; and (6) **Complementarity with the UN Environment strategies and programmes**.[5]

14. In particular, the TE raised key questions in order to address these criteria:

a. What was the efficacy of the partnership arrangements? To what extent was the Project effective in facilitating broad participation and strong partnerships that achieved improved partnerships between key actors to better manage the conservation and utilisation of *in situ*/on-farm horticultural crops and wild fruit species in Central Asia? What is the level of satisfaction of different groups of key actors?

b. How effective was the project? In particular, to what extent did the Project contribute to the dissemination and use of knowledge and methodologies, and the improvement of capacity for training and support activities, for *in situ* / on-farm conservation and sustainable utilisation of the agricultural biodiversity of the targeted fruit and nut bearing species, and to the availability of these resources, within each participating country and across the region?

c. How successful was the project in improving the policy environment and practices? To what extent did the Project provide an enabling environment including policy options for supporting farmers and local communities to conserve (and sustainably use) the diversity of the specified fruit and nut tree species in the project's target areas?

d. To what extent did the executive organisation structure assure effective project management with outputs and outcomes produced in accordance with the project objectives and plans and inputs provided as required? To what extent did (a) the governance and regional and national level implementation structures and processes enable or hinder delivery of products and services and did they take forward necessary actions after the mid-term review; (b) the management of the project facilitate / mitigate positive or negative outcomes which might have arisen because of external or other unplanned factors; were work plans and action plans prepared, shared, used and completed as agreed and are reports submitted in a timely manner;

e. How sustainable are the outcomes of the project and to what extent will these contribute to achieving the project's objectives and desired impacts? In retrospect what is the validity in terms of sustainability of the assumed input-output-outcome results chain and, thus, what lessons can be learnt about the design and implementation of such projects especially in their regional dimension?

[5] See TE ToRs dated 7 March 2016

Image 1: Farmer at his project-supported nursery in Tajikistan

Lead farmer at his project-supported demonstration site / nursery in Rugund village, Istravshan District, Sughd Province Tajikistan (Photo: PMM)

2 PROJECT BACKGROUND

2.1 Context

2.1.1 Background to the project

15. Central Asia is rich in species and varietal diversity and is a recognised centre of origin and diversity of globally-important cultivated and 'wild' plants of social and economic value, including perennial fruit and nut species of the temperate zone.[6] This agricultural biodiversity has been developed and sustained through the dynamic management of plants by people over millennia. A broad agricultural biodiversity of potentially valuable wild relatives[7] of the same species are also to be found in the region.

16. In arable and pastoral production in the region's ecosystems the human influence has been marked by the selection and development of productive varieties of perennial fruit trees especially over the past three to four millennia, including by the Sogdiana civilisation with its diversity of crops.[8] Within the region's forests many uncultivated perennial fruit and nut bearing species developed over a very long period of time. It is said that in the wetter, more elevated ecosystems of the region, dominated by walnut forests, that these have been present since the Eocene epoch.[9] In drier regions, Pistachio forests are dominant. Over time, the diversity of the populations of these species in both regions has been influenced to some extent by human intervention.

17. Propagation was historically not only by seed but also through the use of grafting techniques developed at that time. The distribution of varieties as seeds and also, perhaps, as grafted plants, in the region and beyond was facilitated, over a similar period of time, by the development of the Silk Road trade route.[10] While cultivation and harvesting of these species has continued ever since, especially in gardens and home orchards, in more recent history different regimes have given greater emphasis to industrial, often annual, crops from imported varieties. For example, the Russian and Soviet regimes, even if they supported regional scientific research on the diversity of perennial species in the region, their focus on producing wheat, tobacco and cotton, among other crops, reduced the availability, and displaced production, of diverse local varieties, and decreased the availability of knowledge about, and skills for, the dynamic management, of the endemic perennial fruit and nut bearing species.

18. A number of changes have taken place in the region, since the countries became independent, including the transition from centrally planned to market-driven economies, changes in land tenure arrangements and the reduction in state support for services and research, including to agriculture and forestry. Additionally, the political architecture and interactions across the region have altered the way in which the intra-regional ecosystem, that supports the production of these globally-important species, is managed. In this context and to differing degrees, the countries of Central

[6] See N. I. Vavilov "The role of central Asia in the origin of cultivated plants." Bulletin of Applied Botany, Genetics and Plant Breeding 26:3-44, Leningrad, 1931. Vavilov, in his surveys and analyses included many of the perennial temperate berries, top and stone fruit and nut bearing species included in this project.

[7] Crop wild relatives are wild plant species that are genetically related to cultivated crops. www.bioversityinternational.org/cwr/

[8] As summarised, for example, in the report of the project's international conference in 2011, in a paper: "Role of Household Orchards and Farm Enterprises in Agrobiodiversity Conservation" by Akhmedov, T.A., Kamolov, N., Makhmadaminov, S., Imamkulova, Z.A, the observation that "Tajikistan is the land of the most ancient primary agriculture that, despite all historical trials, has retained to our times most, if not all, of its achievements. Excellent varieties of apricot, apple, pear, mulberry, walnut, etc. are evidence of this (M G Popov (1935) "Origin of fruit-growing in Tajikistan. Fruit crops of Middle Tajikistan": proceedings of expeditions of Vavilov Institute of Plant Industry. Moscow, Issue 13. pp. 3-30)."

[9] The project had both walnut and pistachio experts of renown who have a wide knowledge of the development of the species in the region. For some of this history see also, for example, Edward W. Berry (1912) "Notes on The Geological History of The Walnuts and Hickories." The Plant World, Vol. 15, No. 10 (October, 1912), pp. 225-240. Also M.G. Al-Saghir (2009) "Evolutionary History of the Genus *Pistacia*" International Journal of Botany, Volume: 5. Issue: 3:255-257

[10] Interviewees provided a lot of the background about the development of the target species in the region. Also, see, for example, Janick, J. (2005). The origins of fruits, fruit growing, and fruit breeding. Plant Breed. Rev. 25:255-320

Asia have faced common problems in relation to the conservation and sustainable use of fruit and nut bearing species both on-farm and *in situ* in forests, which needed shared solutions.

19. The agricultural biodiversity in the region of these globally-important species was, as a result, under severe threat, as summarised in the Project Document:[11] "*Due to the collapse of the Soviet Union and the transition from a centralized economy to a market-driven one, the Central Asian (CA) countries – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan – face serious development problems. These include food insecurity, poverty, and degradation of the environment. Issues of food security and poverty were pushing unsustainable agricultural development and consequent biodiversity loss. While government efforts to restructure the agricultural sector and diversify production were ongoing, genetic erosion, including of fruit species, is on the rise. Important fruit species genetic diversity is found both in the wild and on-farm; both sources are threatened…*"

20. The threats to this globally-significant genetic diversity in the region's forests, in the absence of an effective system of environmental protection, included, among others, overgrazing, deforestation, unsustainable extraction of timber and other forest products, unsustainable harvesting of wild fruits and human-induced reduction of intraspecific diversity of these species, with consequent loss of a wide range of valuable ecosystem services. Perennial fruit and nut-bearing crops produced on-farm faced equal pressures. While many valuable landraces and local cultivars of these species were still maintained in home gardens and orchards and on small farms, pressures to expand production of introduced, uniform, high-yielding varieties, reduced the area of agricultural lands on which local cultivars are maintained, which resulted in the loss of on-farm biodiversity.

21. Integrated approaches among key actors – farmers and local communities, scientific institutes, government agencies, and the private sector – to conserve the diversity of the perennial fruit and nut-bearing crops and wild species which originated and diversified in the Region, were hampered by: inadequate information about the value, number, quality, diversity, distribution, conservation, and use of these genetic resources;[12] lack of coordination between environmental protection and agricultural development agencies; and inadequate communication nationally and regionally among scientific institutes and between local and national government agencies. Limited financial resources and inadequate institutional structures diminished the effectiveness of developing legal frameworks for protection of the environment. The key actors in the region lacked the benefit of modern technologies for scientific enquiry (e.g. molecular markers) for the conservation and sustainable use of these genetic resources; knowledge among scientists and farming and communities of forest users was widely dispersed and fragmented and very little was documented by the formal research sector. Moreover, there was no regional, national or local research infrastructure to coordinate documentation, collection, and management of genetic resources locally was in a relatively poor state.

22. The linkages between and among stakeholder groups were weak, resulting in fragmented documentation about the genetic diversity of these perennial species. Nurseries managed by a variety of actors (institutes, government agencies, and some farmers and their associations) were operating in isolation, with limited production of endemic varieties. There was little effort to coordinate management of this globally-significant genetic diversity on-farm or *in situ* of the region's perennial species or information about it.

23. The project was therefore designed to protect the globally-significant, but threatened, agricultural biodiversity of fruit and nut bearing species in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan and to develop a regional approach that would be sustainable and provide learning for similar initiatives. This project would also provide an important global benefit through the

[11] This Section is based on project documents and discussions with interviewees, with additions by the evaluator. The quoted text is taken from Para 4 of the Project Document.

[12] A distinctive feature of the project was its identification of the lack of appropriate planting material of endemic varieties of the target species

conservation of the rich agricultural biodiversity of fruit and nut species on-farm and *in situ* in the region, resources that could be made available for future use by plant breeders, researchers and farmers. A number of key perennial fruit and nut bearing species were prioritised as an outcome of the initial project preparation work.

24. The project recognised that in addition to increasing the awareness of the importance of these resources, their conservation and sustainable use on-farm and *in situ* in forests, an inter-related set of policy reforms would be required, which would *inter alia* recognise the priority role that farming and local communities play.

25. Integrated and participative approaches were developed by the project bringing together a wide range of actors from scientists and policy makers to local farmers and users of forest products. The intention was to provide a supportive policy environment, locally, nationally and regionally for continuity and expansion of the work, as possible.

26. In this context, all the countries in the project were already signatories to international agreements, including the Convention on Biological Diversity (CBD), and all had developed their National Biodiversity Strategies and Action Plans (NBSAPs) with components to conserve agricultural biodiversity before the project was conceived and subsequently some, but not all, of the countries formally acceded to the Cartagena Protocol on Biosafety, the Nagoya Protocol, the International Treaty on Plant Genetic Resources for Food and Agriculture (IT PGRFA) and the Commission on Genetic Resources for Food and Agriculture (CGRFA).[13] Some of the countries are members of the UPOV Convention.[14] The translation of these international agreements into nationally-supported practices was needed.

2.1.2 Assessment of the Project Design[15]

27. As part of the TE, the project design was assessed retrospectively as highly satisfactory.

28. The project had been designed to address a common problem in similar ecosystems across five countries - to move from the pre-existing state of environmental degradation and erosion of the agricultural biodiversity of the target species towards a situation in which the reversal of those conditions could be sustained at local levels and with long-term backup from national institutions.

29. Across the region, the planned nationally-rooted project activities to sustain *in situ* and on-farm the globally important perennial fruit and nut species of Central Asia in their centre of origin and diversity it was designed to have high strategic significance and identified the activities that would be needed to achieve long-term sustainability

30. At the project design stage there was a clear plan for achieving efficiency and it was designed to attract significant levels of co-financing, making the use of GEF finance efficient. It planned to have an efficient and effective regional management structure, with decisions devolved to national institutions and structures, wherever appropriate.

31. The sustainability, replication and catalytic impact of the project was also carefully planned, including an analysis of risks, to be reviewed regularly, which identified five potential areas:

[13] Since the project was conceived, all countries except Uzbekistan have also acceded to the Cartagena Protocol on Biosafety (Kazakhstan (2008), Kyrgyzstan (2005), Tajikistan (2004), Turkmenistan (2008)) but not its Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress. Kyrgyzstan also became a member of the Commission on Genetic Resources for Food and Agriculture (c.2007), a Contracting Party to the International Treaty on Plant Genetic Resources for Food and Agriculture (IT PGRFA)(2009) and acceded to the Nagoya Protocol (2016). Kazakhstan became a member of the Commission on Genetic Resources for Food and Agriculture (CGRFA)(c.2009) and both Kyrgyzstan and Tajikistan have nominated focal points (and Uzbekistan has an interest in naming one) for the CGRFA's report on the State of the World's Biodiversity for Food and Agriculture. During the preparatory phase and the early stages of this project, all countries ratified the UN Framework Convention on Climate Change (UNFCCC) and the UN Convention to Combat Desertification (UN CCD).

[14] Kyrgyzstan and Uzbekistan are members of the International Union for the Protection of New Varieties of Plants (UPOV) and have acceded to the 1991 Act.

[15] The TE questioned all members of the Project Team and the National Coordinators about the design of the project. This section is based on those interviews and a desk-based review of the project documents and related documents developed during the preparatory PDF A/B phases, carried out during the preparation of the Inception Report for the TE.

participation, public policy and law, technical capacity, and management. For each potential risk there were proposals of how to mitigate these; strong management and mitigation of challenges was a planned feature of project implementation. The design of activities at national levels provided every possibility that work catalysed by the project could be sustained and the activities in the field would continue to increase, with long-term positive impacts on local agricultural biodiversity.

32. At all levels, appropriate structures and processes, overseen by a proposed hierarchy of project committees, was designed to provide the necessary governance for satisfactory implementation. The plan for the project to be rooted in national institutions and to gain the commitment of lead farmers and forest dwellers in project sites was good design feature and could protect it from most challenges. In the political and economic context within which the project was designed, every attempt seemed to have been made to ensure its resilience to changes that might affect implementation.

33. The design of the management execution arrangements were carefully prepared to ensure ownership by countries, engendering a sense of engagement in the successful development of the project by key actors at all levels, with a sound design for regional coordination and overall management of the project.

34. The embedding of strong partnerships as a key outcome with clearly articulated activities and outputs for achieving these was a particular strength of the project design. The distinctive mode of engagement with the local population and the forging of strong partnerships between actors e.g. between researchers and farmers was a particular strength of the design. These were to be embedded by developing formal agreements for the access and exchange of information, gathered through the project, between actors, institutions and countries.

35. The project's budget was assessed as having been carefully developed to cover all planned activities, although some reviewers questioned whether it would be sufficient to realise the projects goal. Regular reporting and feedback, with in-built monitoring and evaluation following UNEP guidelines, was an important part of the design.

2.1.3 Complexity of project implementation arrangements

36. The project, in concept, is relatively straightforward: the conservation and sustainable production and harvesting of a dozen target species across a broad ecosystem; and yet it has an ambitious aim to achieve significant impacts in terms of conservation, food provision and livelihoods. In terms of implementation, though, it is very complicated. First, the 'ecosystem' is transboundary and stretches across five countries; and it is highly differentiated because of topography, altitude, land use patterns and water availability, to name but a few factors. Secondly, each country has priorities which may or may not be common to all. Thirdly, the issues that need to be addressed in order to improve conservation and sustainable use cut across many ministries and institutions from, for example, agriculture and the environment to legal affairs and trade. Fourthly, the range of interested parties and potential key actors is very broad, cutting across nationalities, ethnicities, languages and social groups, and many more might want to be involved than can be supported by any one project. Fifthly, the issues that local farmers and forest-users may want to address, in order to improve their livelihoods and the sustainability of production and harvesting of the identified species, cut across many different institutions, government and social structures. And, finally, the competencies of key actors to address the issues vary significantly, necessitating innovative ways of linking people and institutions across disciplines, geographies, languages and political boundaries. A deep understanding of local realities and competencies in multiple languages[16] has been essential to the development of the project.

[16] The project operated mainly in Russian and reported to UNEP/GEF and Bioversity International's HQ in English. Many scientific papers were also published in English. Information leaflets were often published in local languages. Working languages of project teams were usually the national

37. The design of the project, assisted significantly by the thorough PDF A/B preparatory process[17], addressed all these challenges and was successful in engaging key actors, located in broader alliances and communities, in processes that were manageable at local, national and regional levels (see Section 3.6.1). The range of partner institutions and the geographical spread of project 'sites' (as described in Sections 2.3, and 2.7) were brought together in the design of the implementation arrangements for the project (see Section 2.5), which ensured that decision-making involved all the key actors and decisions were to be ratified by the broad range of actors in the National Steering Committees (NSC).

2.1.4 Project implementation capacity

38. In the context of the implementation arrangements outlined above (and in Section 2.5), the role of project management is to ensure activities produce high quality results and are implemented on time, are kept within budget, and that there is transparent accountability and accurate and timely reporting, among other tasks. To achieve this, the institutions responsible for the work in each country and at the regional level required technical excellence and administrative competence.

39. As will be seen in Section 3, one of the reasons why this project was so successful is that it excelled in its ability to identify high quality partners who could manage not just the project's activities and ensure production of good results but also to be able to deal with the plethora of issues and challenges that arise in such a project.

2.1.5 Project's external operating environment

40. As outlined above, the region is diverse geographically, politically, linguistically and socially. Managing joint activities, communications and financial transfers across the region is not simple. Disputes, conflicts and natural disasters as well as political changes are potentially disruptive of any plans. And, at a technical level, differential competencies, levels of technical expertise and availability of reliable infrastructure may require a variety of supportive measures to ensure that plans can be implemented. The value of the contribution of the regional project coordination to the successful outcomes of the project cannot be overstated.

2.2 Project elements[18]

41. The aim, objective, purpose and components of the project were:

- The **project aim** was 'to conserve the high diversity of horticultural crops and wild fruit species found in the Central Asian countries, a resource of global significance'.
- The **development objective** of the project was that '*in situ*/on-farm conservation and utilization of horticultural crops and wild fruit species are ensured for sustainable agricultural development, food security, and environmental stability'.
- The **purpose of the project** was that 'farmers, institutes, and local communities are provided with and use knowledge, methodologies, and policies to conserve *in situ*/on-farm horticultural crops and wild fruit species in Central Asia'.
- The four operative **components of the project** and the fifth management component, included in the project design to cover the necessary project management, administrative and operational measures, are detailed below.

languages of the participating countries i.e. Kyrgyz, Kazakh, Tajik, Turkmen and Uzbek and interpretation was often required for researchers from other countries. In the list of reports of meetings organised by the project (submitted as part of Annex 2 to the Terminal Report) 228 were available in 1 language and 86 were translated into 2 languages, with four of these translated into a third language. About half the reports were available in Russian and/or English and about half in national languages. The interpretation and translation burden of the project was significant.

[17] The PDF A/B processes were comprehensive and formed the basis of the Project Document, which has in its Optional Annexes E to L the results of the processes from summaries of legislation to design of participatory training suited to the purposes of the project – more details in Section 3.6.1.

[18] These elements of the project are taken from the Project Document dated 14 August 2005 and the TE ToRs dated 7 March 2016.

2.2.1 Component 1: Legislation and Policy

42. This component of the project aimed to provide policy options for supporting farmers and local communities to conserve *in situ* and on-farm local varieties of horticultural crops and wild fruit species are available and used. It included examination of existing legislation and policies in the five partner countries, efforts to assess its effectiveness, and identify legislative and policy options for strengthening national legal and policy frameworks that support the conservation of the genetic diversity of horticultural and wild fruit species. These options included access and benefit sharing mechanisms and the realisation of Farmers' Rights, among others. Specific policy recommendations were documented, promoted among policy makers positioned to affect change and their implementation, and initiated at least in one country.

2.2.2 Component 2: Knowledge and Methodologies.

43. This component of the project was designed to assist with the assessment, documentation, and the sustainable management of local varieties of horticultural crops and wild fruit species. Through this component, knowledge and methodologies on *in situ* and on-farm conservation and utilisation of horticultural crops and wild fruit species were to be made available, disseminated and used. The project aimed to develop methods and guidelines for analysis, documentation, and management of endemic fruit and nut bearing species and especially of the horticultural crops and wild fruit species selected during the PDF A phase and tested these during the PDF B phase: (in alphabetical order in English) Almond (*Amygdalus communis*), Alycha [Cherry Plum](*Prunus Cerasifera*), Apple (*Malus* spp.), Apricot (*Prunus armeniaca*), Fig (*Ficus carica*), Grape (*Vitis* spp.), Peach (*[Prunus] Persica vulgaris*), Pistachio (*Pistacia vera*), Pomegranate (*Punica granatum*), Pear (*Pyrus* spp.), Sea Buckthorn (*Hippophae* rhamnoides), Walnut (*Juglans regia*). Currants (*Ribes spp),* a key species in Kyrgyzstan, was also included as a target species for the project in the country.[19] Similarly mulberries (*Morus alba* and *M. nigra*) are important food species in Tajikistan and were included in surveys and practical advice.[20]

2.2.3 Component 3: Broad Participation and Strong Partnerships

44. This component was to facilitate and promote broad stakeholder participation, representative decision-making, and strong partnerships among them. It aimed to establish and strengthen links among farmers, between farmers and institutions and with the private sector, and foster links among the same actors in the five countries involved in the project. It aimed at inviting Government agencies (national and regional), scientific institutes, farmers, farmer associations, local communities, and NGOs concerned with conservation and agricultural development to engage in the conservation and sustainable management of fruit and nut bearing species. Building links between these groups was seen as instrumental to the success of the proposed *in situ* and on-farm conservation activities during the life of the project and beyond. This component supported the organisation of management committees, assessment and promotion of links between and among groups of different actors, promotion of farmer involvement, and communications between and among levels of operation.

2.2.4 Component 4: Capacity Building

45. The purpose of this component was to establish capacity for training and support activities on *in situ*/on-farm conservation and sustainable use of fruit and nut bearing species and the diversity of their genetic resources. This capacity-building component aimed to improve the stakeholder skills in their respective roles. Target stakeholder groups were policy-makers at state and local levels, instructors and teachers from research and training institutes, farmers and forest dwellers/users,

[19] *Ribes spp* (Currants) were not included in the final list accepted in the Project Document but were added later by the National Programme.

[20] *Morus spp.* (Mulberries) were included subsequently by the programme in Tajikistan.

and employees of reserves and forest farms. Training curricula included a variety of legal and other policy aspects of the conservation of agricultural biodiversity as well as participatory management, policy and law, GIS and GRIS, assessment of agricultural biodiversity, including survey procedures and documentation, socioeconomic issues related to management etc. This component also covered development of training programmes and manuals for each of the categories of trainees and on the various topics of training.

2.2.5 Component 5: Project Management

46. This component was included to cover the establishment of an executive organization structure that would assure an effective execution and monitoring of the project. It ensured that regional and national level project implementation infrastructure was in place and in operation and that project implementation was administrated properly both at regional and national levels. Progress and financial reports were to be completed and submitted in a timely manner and annual work plans were to be prepared and implemented. Personnel skilled in project management were to be made available in partner countries with NSCs in each country and the ISC in operation regionally. A Mid-term evaluation of the project was to be completed and actions necessary to improve project delivery were to be identified and taken. In sum, this component ensured that the project was to be implemented efficiently and effectively leading to impacts in accordance with its objectives.

Image 2: Members of International Steering Committee with others, Bishkek, Kyrgyzstan

National Project Coordinators or their representatives from Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, with Regional Consultants, the Regional Project Coordinator, the TE Consultant and GEF representative at TE meeting in Bishkek, May 2016 (Photo: Kubanichbek)

2.2.6 Logical framework

47. A summary of the project's logical framework is presented in Table 2.

Table 2: Summary of the Project's components, outcomes, outputs and targets[21]

Component	Outcome	Outputs included	End-of project Targets included
Legislation and policy	1) Policy options for supporting farmers and local communities to conserve *in situ*/on-farm local varieties of horticultural crops and wild fruit species are available and used.	**Policy recommendations**; Proposals on protection of **Farmers' Rights**; **Benefit sharing mechanism** is developed; **Public awareness materials** produced and disseminated; Farmers, forest users and local communities realize and fully understand play active role in project implementation.	Policy recommendations submitted to policymakers and used for improvement of the existing national legislation; Awareness and understanding of various target groups increased; ABS recommendations are developed, field tested and submitted to policymakers.
Knowledge and Methodologies	2) Knowledge and methodologies on *in situ*/on farm conservation and utilization of horticultural crops and wild fruit species are available, disseminated and used.	**Distribution and level of diversity of target species assessed** for their adaptation to climatic/edaphic *in situ*/on-farm conditions, using agromorphological, biochemical and molecular characterization; **Experience and knowledge of farmers, forest users and local communities embedded** in the project; **Demonstration plots**, and **Nurseries** of economically advantageous varieties identified (and recommendations to use them for breeding purposes to improve diversity) established; **Network of databases** developed and maintained; Recommendations for use of varieties of target species in **non-breeding programmes**, including improved **marketing**, use for **regeneration** of marginal lands, for **environmental improvement** and **soil and water conservation**; **Socioeconomic assessment and development proposals** made ; **New technologies** promoted; **Farmer knowledge** on marketing increased. **Scientific Guidelines** on relevant technologies are developed and used.	National methodologies prepared and available for use by farmers and researchers; Databases, nationally and regionally, including adaptive traits that can improve farmers' resilience to variable *in situ*/on-farm environments, are established and used; Information bulletins on market preferences are published annually; Nurseries and Demonstration plots established or upgraded.
Broad Collaboration and Strong Partnership	3) Broad participation and strong partnerships/links are established among farmers, among institutions, between farmers and institutions, and with the private sector, and among countries.	**Multidisciplinary Site Committees** (MSC) and **Site Coordination Committees** (SCC) are established in each country; **Strength and weakness** of linkages among farmers, among institutions, between institutions and farmers/local communities, across all countries, assessed **using PRA**; **Constraints and solutions** at all levels of partnership are identified; **Collaboration agreements** on access and exchange of information in databases developed; **Information on farmers' achievements** documented, available, used and disseminated, including to farmers outside the region; **Information exchange** is continuous; **Annual diversity fairs** organized; **Farmers' associations** established and link efforts; National and regional scientific and practical **conferences on agricultural biodiversity are organised**.	Farmers associations established; agreements for collaboration on access and exchange of information in the databases adopted; representatives farmers participate in national committees; Regional digital database on project partners is accessible; MSC and SCC established; Diversity fairs and Conferences organised.
Capacity Building	4) Capacity for training and support activities on *in situ*/on-farm conservation and use of fruit species genetic resources is established.	**Regional Training Centres** on pomegranate - in Turkmenistan, walnut - in Kyrgyzstan, molecular markers - in Uzbekistan are established and training of trainers carried out; **National Training Centres** for target species established in each country; **Appropriate facilities** for training, field surveys and data analysis, tools for cultivation in nurseries are provided; **Training programmes** and **manuals** for different categories of trainees are developed and used and training conducted; **Strong links and collaboration** between scientists and farmers are established through participatory workshops and field visits; **National and regional ICT networks** are established	Regional and national training programmes are operational; Researchers with expertise on interdisciplinary and participatory approaches are available in each country; Farmers and forest users have improved their knowledge and skills; Regional ICT network is established and used.
Project Management *(not part of the project intervention logic)*	5) Establishment of an executive organization structure that would assure an effective execution and monitoring of the project.	Ensure regional and national level project implementation infrastructure in place and in operation and that project implementation was administrated properly; Progress and financial reports completed on time; Annual work plans prepared and implemented and monitored and evaluated. Required personnel available; NSCs and ISC established.	A mid-term evaluation carried out; project implemented efficiently and effectively leading to impacts in accordance with its objectives.

[21] This table summarises the project's logical framework. The complete Logframe is in the TE ToRs, pages I-4 – I-9 (see Annex 1). This includes revisions in timing of milestones that were agreed by the ISC – see PIR. The original Project Logframe can be found in the Project Document, Annexes B and G.

2.3 Target species by country

48. During the preparatory phase (PDF A/B), the project partners at national levels debated the focus of the project in terms of geography and species and the ways in which to involve farmers and forest users in implementing the project. The outcome was agreement for a participatory mode of working with selected farmers and forest users living in non-irrigated and more marginal lands and selected forest and peri-forest regions with high diversity of endemic species of fruit and nut bearing species. The decision was to focus on the most important perennial fruit and nut bearing species endemic to the region and their crop wild relatives – see map and list of species below (Figure 1).[22]

Figure 1: Map of Central Asia showing the project's Target Species in the 'Wild' and 'On-Farm' for each country

Fig 1: Adapted from the figure in the project's MTR by the evaluator

TURMENISTAN
In wild: *Malus, Pyrus, Punica granatum, Ficus carica, Prunus, cerasifera, Pistacia vera, Vitis spp* and *Amygdalus communis*
On-farm: *Malus, Pyrus, Punica granatum, Ficus carica, Prunus armeniaca*

KAZAKHSTAN
In wild: *Malus, Pyrus and Prunus*
On-farm: *Malus, Pyrus, Prunus Armeniaca, Vitis vinifera*

KYRGYZSTAN
In wild: *Malus, Hippophae rhamnoides, Prunus cerasifera, Pistacia vera,* and *Juglans regia*
On-farm: *Malus, Ribes*, Vitis vinifera, Juglans regia*

UZBEKISTAN
In wild: *Malus, Pyrus, Punica granatum, Pistacia vera, Vitis* and *Amygdalus communis and Juglans regia*
On-farm: *Malus, Pyrus, Punica granatum, Prunus armeniaca, Amygdalus communis, Juglans regia, Vitis vinifera*

TAJIKISTAN
In wild: *Malus, Hippophae rhamnoides, Pyrus, Pistacia vera* and *Juglans regia*
On-farm: *Malus, Morus** Pyrus, Prunus armeniaca, Persica vulgaris, Vitis vinifera, Juglans regia*

Almond (*Amygdalus communis*), Alycha/Cherry Plum (*Prunus Cerasifera*), Apple (*Malus* spp.), Apricot (*Prunus armeniaca*), Fig (*Ficus carica*), Grape (*Vitis* spp.), Peach (*Persica vulgaris*), Pistachio (*Pistacia vera*), Pomegranate (*Punica granatum*), Pear (*Pyrus* spp.), Sea Buckthorn (*Hippophae* rhamnoides.), Walnut (*Juglans regia*),

[*Currants (*Ribes spp*) are key species in Kyrgyzstan but not included as a target for the project.

****Mulberries (*Morus alba* and *M. nigra*) are important species in Tajikistan.]**

[22] Of the 12 target species (plus currants in Kazakhstan and mulberry in Tajikistan), countries focused on between 3 and 9 of the 12 species for the work on-farm in their country.

2.4 Key dates and milestones in project design and implementation

49. The project was conceived in the late 1990s and a Concept Note produced in 2000. This released funding for a five year preparatory phase (PDF A/B). The approved project started in 2006, had a mid-term review in 2008 and, with no-cost extensions ended in December 2014. The delays were caused by temporary difficulties in implementation, due to political unrest beyond the project's control, in Kyrgyzstan and Turkmenistan but, with the leverage from co-financing, the project was able to complete satisfactorily and post project activities have continued. The Terminal Evaluation was conducted in 2016 (see Table 3).

Table 3: Key dates in project design and implementation

Project Development	Key dates
Concept Note	2000
PDF A / B preparatory process	2001 – 2005
UNEP approval date:	29 December 2005
Actual project start date	1 January 2006
Intended completion date	December 2011
Mid-term evaluation	15-30 October 2008
Date of last budget revision:	27 June 2013
Date of last International Steering Committee meeting:	2-4 July 2013
Actual Completion date	31 December 2014
Terminal Evaluation.	March – August 2016

50. In order to ensure the project achieved a minimum set of outputs, milestones were planned in the project preparation process and the timing adjusted, as necessary, by the International Steering Committee. Examples of these milestones, extracted from the project's logframe (see Table 2) are presented below in Table 4.

Table 4: A sample of planned milestones[23]

Examples of planned milestones	Dates
Regional and national training programmes operational	by 2008
Information bulletins on market preferences published annually	from 2008
Annual diversity fairs are organized in each partner country	from 2008
Mini-nurseries established or strengthened	by 2010
Demonstration plots established	by 2011
Regional ICT network established and used	by 2012
Policy recommendations submitted for consideration by authorities	by 2011 / 12
Benefit sharing mechanism policies developed, tested and submitted	by 2012
National assessment methodologies prepared	by 2012
National and regional conferences on agricultural biodiversity organised.	by 2012
National and regional databases established and used	by 2013

[23] The timing of achieving these milestones was set back in some cases to dates in the period of the no-cost extensions of the project up to the end of 2013, with the agreement of the ISC.

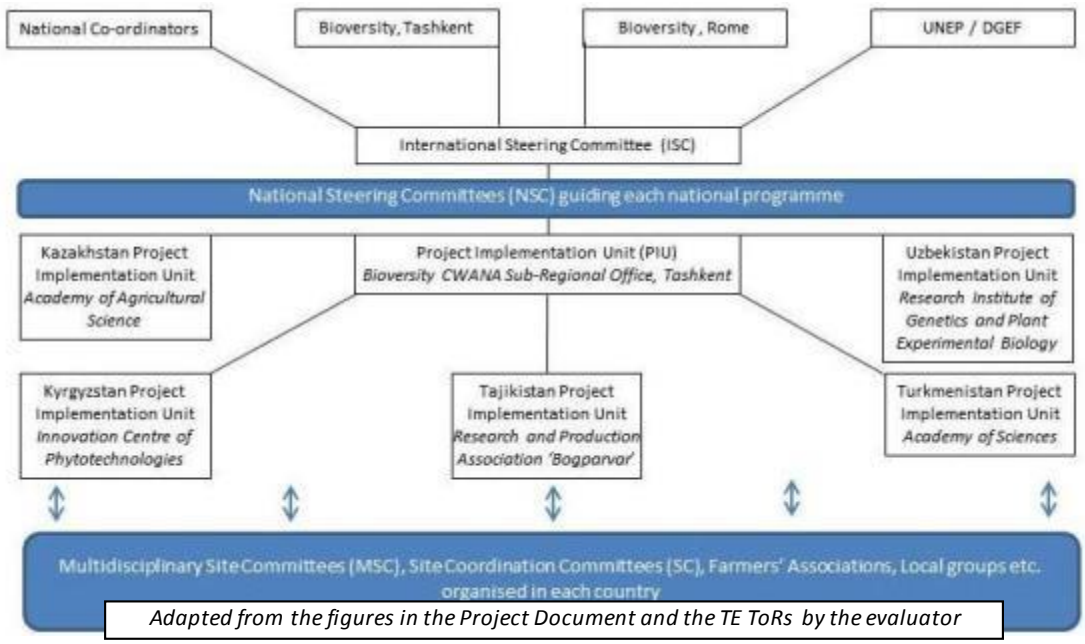
2.5 Implementation Arrangements

51. UN Environment was the GEF implementing agency (IA) of the Project and International Plant Genetic Resources Institute (IPGRI - now Bioversity International) was the executing agency (EA), through the Regional Office for Central and West Asia and North Africa (CWANA), Aleppo, Syria, and the IPGRI-CWANA Sub-Office, Tashkent, Uzbekistan.[24] Implementation was in collaboration with the following national agencies: Kazakhstan - The Academy of Agricultural Sciences of the Republic of Kazakhstan, Almaty; Kyrgyzstan: Research Institute of Farming, Bishkek (subsequently transferred in 2009 to the Innovation Centre of Phytotechnologies of the National Academy of Sciences of the Kyrgyz Republic); Tajikistan - Research and Production Association 'Bogparvar', Dushanbe; Turkmenistan: Garrygala Research and Production Centre on Plant Genetic Resources of Research Institute of Farming, Garrygala (although the Academy of Sciences of Turkmenistan took on administrative oversight at a later stage); Uzbekistan – Research Institute of Genetics and Plant Experimental Biology, Tashkent. Programmes in each country were guided by National Steering Committees (NSC).

52. The Executing Agency was guided by an International Steering Committee (ISC). It aimed to comprise representation from each of the project implementation units at the national level (National Coordinators), Bioversity International, and UN Environment. It oversaw project implementation at the regional level with Bioversity providing management oversight and a Project Implementation Unit (PIU) located at Bioversity's CWANA sub-regional office for Central Asia in Tashkent, Uzbekistan, and managed daily operations.

53. UN Environment, as the GEF Implementing Agency, was responsible for overall project supervision to ensure consistency with the GEF and UN Environment policies and procedures, and to provide guidance on linkages with related UN Environment and GEF funded activities. The UN Environment -GEF Task Manager monitored the implementation of the activities undertaken during the executing of the project. The UN Environment responsibilities also included clearance and transmission of all financial and progress reports to the GEF Secretariat. UN Environment was tasked with providing monitoring and evaluation oversight.

Figure 2: Project Management Structure [25]



Adapted from the figures in the Project Document and the TE ToRs by the evaluator

[24] Bioversity's CWANA sub-regional office for Central Asia initially reported to the IPGRI-CWANA (later renamed Bioversity-CWANA) regional office but this was closed in 2008 and reporting lines were then directly back to the head office in Rome. The potential risks introduced by the closure of the Bioversity-CWANA regional office were addressed in the MTR/MTE.

[25] The box with UNEP / DGEF (top right) refers to the former Division of GEF coordination in UN Environment

2.6 Project Financing

54. As can be seen in the Project Summary (Table 1), the total cost of the project was planned to be US$ 11,513,698. Of that amount, GEF approved US$ 5,718,070 (with an additional US$ 379,000 for the PDF preparatory phase), or 22% of the total costs of the approved project.

55. The project planned to mobilise an additional amount of US$ 5,795,628 in co-financing from a number of funders and partners' in-kind contributions but in fact leveraged an additional US$ 8,858,290 to bring the total co-financing to US$ 14,653,918.

56. The co-financing was split between government and other sources but was only available as 'Grant' and 'In-kind' funds.[26]

2.7 Project partners

57. Project partners were selected through a country-driven process during the PDF B preparatory phase.[27] The institutions that took on the responsibility for the Project Implementation Units in Kyrgyzstan and Turkmenistan have been added. The partners are listed by country in Table 4. Given the many partners in Kyrgyzstan, the agencies under the Centre of Agrarian Science and Consultancy Services of the Ministry of Agriculture, Water Resources Management and Processing Industry are listed by the agency name alone. [H] Changes in design during implementation

58. The project went through an intensive country-driven design phase over several years in which proposed actions and modes of intervention were first designed, in the PDF A process, and then tested and changed as necessary, in the PDF B process. The governance of the project, through the International Steering Committee (ISC), with oversight from UN Environment and Bioversity International, ensured that the project completed all its activities and realised its outcomes in as efficient and effective way as possible. There were no project design changes during the life of the project but, in the light of the particular challenges in partner countries, the ISC approved some changes in key actors (see section 2.5) and changes in timing for the achievement of milestones.[28]

2.8 Reconstructed Theory of Change of the project

59. Progress made towards achievement of project objectives and impacts has been examined using a Review of Outcomes to Impacts (ROtI) analysis developed by the GEF. [29, 30] This methodology has three distinct stages: (i) identifying the project's intended impacts, (ii) review of the project's logical framework and (iii) analysis of the project's outcomes to impact pathways.[31]

    a. **Identifying the project's intended impacts**. The project's intended impacts are implicit in the project's aim, objectives and purpose.[32] The project aim was 'to conserve the high diversity of horticultural crops and wild fruit species found in the Central Asian countries, a resource of global significance'. Its development objective was: '*in situ*/on-farm conservation and utilization of horticultural crops and wild fruit species are ensured for sustainable agricultural development, food security, and environmental stability'. And the purpose of the project was that 'farmers, institutes, and local communities are provided with and use knowledge, methodologies, and policies to conserve *in situ*/on-farm

[26] Details of Project financing are provide in Annex 4.

[27] A list of key stakeholders in each country is at Annex 7. The full list, together with the proposed institutional arrangements in each country, can be found in Optional Annex F of the Project Document.

[28] See the logframe in the TE ToRs (Annex 1) for finally agreed milestones.

[29] GEF Evaluation Office (2009) www.thegef.org/gef/sites/thegef.org/files/documents/M2_ROtI%20Handbook.pdf

[30] A ToC process was not a required part of the planning of this project, which was carried out in the early 1990s, nor was this type of assessment used during the lifetime of the project. This Section is, thus, a retrospective consideration of what may have been in the minds of the project developers and implementers with an assessment using RoTI, based on post-project observations by the evaluator, of the factors that are supporting or could hinder the project's outcomes leading to impacts that will help realise its overall goals.

[31] UNEP evaluation literature identifies impact pathways as consisting of inputs, activities, outputs, outcomes and impact.

[32] The project's aim, objectives and purpose are provided in section 1.2. and repeated in this paragraph.

horticultural crops and wild fruit species in Central Asia'. These statements could be summarised in a single expected impact: "Conservation and sustainable use *in situ* and on-farm of a high diversity of endemic, perennial, cultivated and wild fruit and nut-bearing species and their wild relatives is enhanced in the trans-boundary ecosystems of the Central Asian region (see Section 2.8.3).

b. **Review of the project's logical framework**. Using the theory of change methodology, the likely achievement of the intended impact and intermediate results can be ascertained through examining the project's logical framework for the ways in which it shows how the various outputs could contribute towards the desired broader outcome. In particular, the broader outcome can be examined through assessing the awareness, interest and actions by (increasing numbers) of institutions, farmers and forest users, who, working in concert, are expanding the area in which a broad diversity of endemic varieties of the target perennial fruit and nut bearing species are grown on-farm or are conserved *in situ*.

c. **Analysis of the project's outcomes to impact pathways**.[33] This analysis, using the theory of change, identifies four overlapping clusters of outputs contributing to the four Project Components which, in turn, contribute to three inter-related pathways towards impact. These are affected by a range of drivers and assumptions and have inherent risks.

2.8.1 Impact pathways

60. Pathways to Impact during and beyond the project can be summarised as follows:

61. **Pathway 1:** Establishing strong partnerships of key actors at, and between, all levels provides the basis for extending awareness, understanding, use and wider development, of the project's results. These sustain the agricultural biodiversity of targeted, globally significant fruit/nut species on-farm and *in situ.* This leads to increased institutional and local farmer/forest user participation in promoting the issues and deriving benefits, and which, in turn, should result in viable collaborative arrangements, beyond the life of the project, locally, nationally and across the region. These arrangements will be for supporting, developing and implementing work on sustaining agricultural biodiversity on-farm and in-forest in the transboundary ecosystems of the region, with local, national and regional benefits**.**

62. The drivers for Pathway 1 include:

a. [D1a] The provision of incentives, both in terms of confidence-boosting status, as well as improved access to facilities, information and materials, for, scientists, researchers and policy advisers, to sustain and further develop partnerships at all levels nationally and intra-regionally, and especially with farmers and forest users;

b. [D1b] Farmers and forest-users benefit, and realise rights, through continued partnerships with institutions, strong alliances within their local communities, and supportive linkages with the market;

c. [D1c] Scientific institutions and their staff benefit from national and regional alliances, conferences, interactions, training and exchanges;

d. [D1d]Credible coordination at regional and national levels, with activities led by influential and recognised people and respected institutions, which raise and sustain increased awareness at all levels

[33] UNEP evaluation literature identifies impact pathways as consisting of inputs, activities, outputs, outcomes and impact.

63. The assumptions underlying Pathway 1 include:

a. [A1a] Partnerships, especially between technical institutions nationally and intra-regionally, and between these institutions and local farmers and forest users, can endure beyond the funded project;

b. [A1b] Local level partnerships prevail for the mutual benefit of all actors;

c. [A1c] Partners at all levels recognise, respect and defend actions that sustain agricultural biodiversity on-farm and in-forest beyond the funded project.

d. [A1d] Financing mechanisms are in place to maintain partnerships and provide for required travel within countries and in the region;

e. [A1e] Capacity is sustained for regional coordination;

f. [A1f] Conflicts of any kind at local, national and intra-regional levels will not disrupt partnerships and sustained activities in the long-term.

64. **Pathway 2:** using, developing and further disseminating the knowledge, methodologies and capacities enhanced through the project, by scientists, advisers and practitioners, leads to wider uptake of improved policies, research and practices. These will significantly increase the availability of planting materials and the area of land being sustainably used for the conservation, development and harvesting of the agricultural biodiversity of local varieties of targeted perennial fruit and nut bearing species, on-farm and *in situ,* with direct benefits for participants and the wider community.

65. The drivers for Pathway 2 include:

a. [D2a] Project partners feel energised through their association with the project to continue raising awareness and promoting the knowledge, capacities and skills developed through the project and from other relevant sources;

b. [D2b] Local communities, valuing, and understanding the importance of the sustainable production of local, endemic varieties of the targeted fruit and nut-bearing species, have access to planting materials and the capacity and opportunity to increase the area of land dedicated to diverse plantings of these varieties;

c. [D2c] The market, and related advertising and promotion, favour the produce of local endemic varieties and fair returns are secured for producers, harvesters and processors;

d. [D2d] Information gathered by the project is easily available and accessible through the internet and local institutions;

e. [D2e] Political commitment to protect forests and support sustainable production of endemic varieties of the targeted species.

66. The assumptions underlying Pathway 2 include:

a. [A2a] Demand for, and availability of, planting materials and the produce from local endemic varieties is sustained;

b. [A2b] Research, technical and other institutions at all levels, backed by political commitment, favours production of endemic varieties and protection of 'wild' species and varieties in natural ecosystems and the dissemination of related information, knowledge and skills.

c. [A2c] Consumer preferences are not influenced to favour other varieties and the market squeezes out local, endemic varieties, grown sustainably;

d. [A2d] Methods used for production, crop protection and harvesting do not undermine the specific and broader agricultural biodiversity in the managed environment and in 'natural' ecosystems;

e. [A2e] Resources continue to be available to sustain information systems and databases.

67. **Pathway 3:** National policies, norms and programmes in all relevant areas of administration give priority to the project's recommended approaches, leading to an improved environment for sustaining agricultural biodiversity and securing benefits for society.

68. The drivers for Pathway 3 include:

a. [D3a] Demand by farmers, forest-users, technicians and other citizens for equitable policies on these issues;

b. [D3b] Decision makers at all levels and in many sectors supporting such policies, in part, because it fits with their needs;

c. [D3c] International institutions, donors, and the wider agricultural biodiversity community, create pressures to support further implementation of the results of the project at regional, national and local levels;

d. [D3d] International decisions, norms, agreements relevant to this issue, mediated by e.g. CBD, IT PGRFA, FAO/CGRFA etc., are adopted and provide encouragement to implement these at national levels.

69. The assumptions underlying Pathway 3 include:

a. [A3a] Policy changes, in practice, influence local actions that lead to improved, sustainable use of agricultural biodiversity, especially of local varieties of endemic, perennial fruit and nut bearing species beyond project sites;

b. [A3b] Policies are not adversely influenced by those who would wish to benefit from short-term exploitation of natural resources, and the production and/or importation of uniform monocultures of exogenous varieties of fruit and nut-bearing species.

c. [A3c] Political interest in the project's recommended approaches is secured;

d. [A3d] Changes in government do not lead to decreased support for the results of the project, including sustainable use on-farm and in-forest, conservation *in situ*, research and necessary legislation;

e. [A3e] Trade policies do not undermine policies for conservation and sustainable use of local varieties of endemic, perennial fruit and nut bearing species.

2.8.2 Intermediate State

70. The Intermediate State has been identified as a supportive institutional framework[34] and strong partnerships promoting policies, practices, research and knowledge-sharing. This would underpin a significant improvement in the level of *in situ* and on-farm conservation and sustainable use of the targeted perennial horticultural and wild fruit and nut bearing species across the region by an increasing number of well-informed farmers and forest users in Central Asia. Table 5 and Figure 3 summarise the logic of the project towards impact, through the application of the TOC approach.

2.8.3 Expected impact

71. Conservation and sustainable use, in the trans-boundary ecosystems of the Central Asian region, of a high diversity of endemic, perennial, cultivated and wild fruit and nut-bearing species and their wild relatives, a resource of global significance and with increased recognition and demand, is significantly enhanced, especially through activities to sustain agricultural biodiversity *in situ* and on-farm, providing improved agricultural and forest development, food security, livelihoods and environmental resilience.

[34] The institutional framework envisaged is one which combines political and legal norms, scientific and technical capacities, and sympathetic institutions at all levels, especially scientific institutes and the meso-level of municipalities, oblasts etc.

Table 5: Pathways to Impact

OUTCOMES	PATHWAYS	DRIVERS / ASSUMPTIONS	INTERMEDIATE STATE / IMPACT
Outcome 3: Broad participation and strong partnership/links among farmers, among farmers and institutions, between farmers and institutions, and the private sector, and among countries are established	**Pathway 1 (P1):** ♦ establishing strong partnerships extends awareness, understanding, use and wider development, of project results ♦ leads to increased institutional and local farmer/forest user interest in the issues ♦ leading to viable collaborative arrangements, beyond the life of the project, locally, nationally and across the region, on-farm and in-forest, in the transboundary ecosystems.	♦ D1a Confidence among actors ♦ D1b Farmers/Forest Users incentivised ♦ D1c Scientists/institutions develop new alliances ♦ D1d Credible coordination engaging influential actors ♦ A1a Enduring partnerships… ♦ A1b ..prevail for mutual benefit ♦ A1c All partners defend agricultural biodiversity ♦ A1d Financing mechanisms are in place to sustain partnerships and activities ♦ A1e National institutional priorities and regional coordination support the broadening of project results ♦ A1f Conflicts do not disrupt … …	**IMPACT** Conservation and sustainable use, in the trans-boundary ecosystems of the Central Asian region, of a high diversity of endemic, perennial, cultivated and wild fruit and nut-bearing species and their wild relatives, a resource of global significance and with increased recognition and demand, is significantly enhanced, especially through activities to sustain agricultural biodiversity *in situ* and on-farm, providing improved agricultural and forest development, food security, livelihoods and environmental resilience.
Outcome 2: Knowledge and methodologies on *in situ*/on farm conservation and utilization of horticultural crops and wild fruit species are available, disseminated and used. **Outcome 4:** Capacity for training and support activities on *in situ*/on-farm conservation and use of fruit species genetic resources is established	**Pathway 2 (P2):** ♦ using, developing and further disseminating the knowledge, methodologies and capacities enhanced through the project ♦ leads to a wider uptake of improved policies, research and practices that will significantly increase the availability of planting materials and the area of land growing local varieties of targeted perennial fruit and nut bearing species sustainably on-farm and *in situ*.	♦ D2a Project energises key actors ♦ D2b Access to planting materials ♦ D2c Markets drive demand ♦ D2d Desired information providedD2e Political commitment ♦ A2a Demand for local planting materials sustained ♦ A2b Research continues to support production of local varieties ♦ A2c Consumer continue to prefer local varieties ♦ A2d Wider Agricultural Biodiversity not undermined by production methods ♦ A2e Sustained maintenance of information systems and databases	
Outcome 1: Policy options for supporting farmers and local communities to conserve *in situ*/on-farm local varieties of horticultural crops and wild fruit species are available and used	**Pathway 3 (P3):** ♦ national policies, norms and programmes give priority to the project's recommended approaches ♦ lead to support for implementing positive changes in all relevant areas of administration ♦ leading to an improved policy environment for sustaining agricultural biodiversity.	♦ D3a Demand from producers for equitable policies ♦ D3b Decision makers seeking support for policy development ♦ D3c International actors pressure for implementation of conservation efforts ♦ D3d Need to internalise international commitments in national policies ♦ A3a Policies change practices beyond local sites ♦ A3b Policies not undermined by eroding influences ♦ A3c Political interest is secured ♦ A3d Government changes do not affect biodiversity priorities ♦ A3e Trade policies do not undermine agricultural biodiversity	**INTERMEDIATE STATE** **S**upportive institutional framework and strong partnerships promoting policies, practices, research and knowledge-sharing that underpin a significant improvement in the level of *in situ* and on-farm conservation and sustainable use of the targeted perennial horticultural and wild fruit and nut bearing species across the region by an increasing number of well-informed farmers and forest users in Central Asia.

Figure 3: Project's Reconstructed Theory of Change

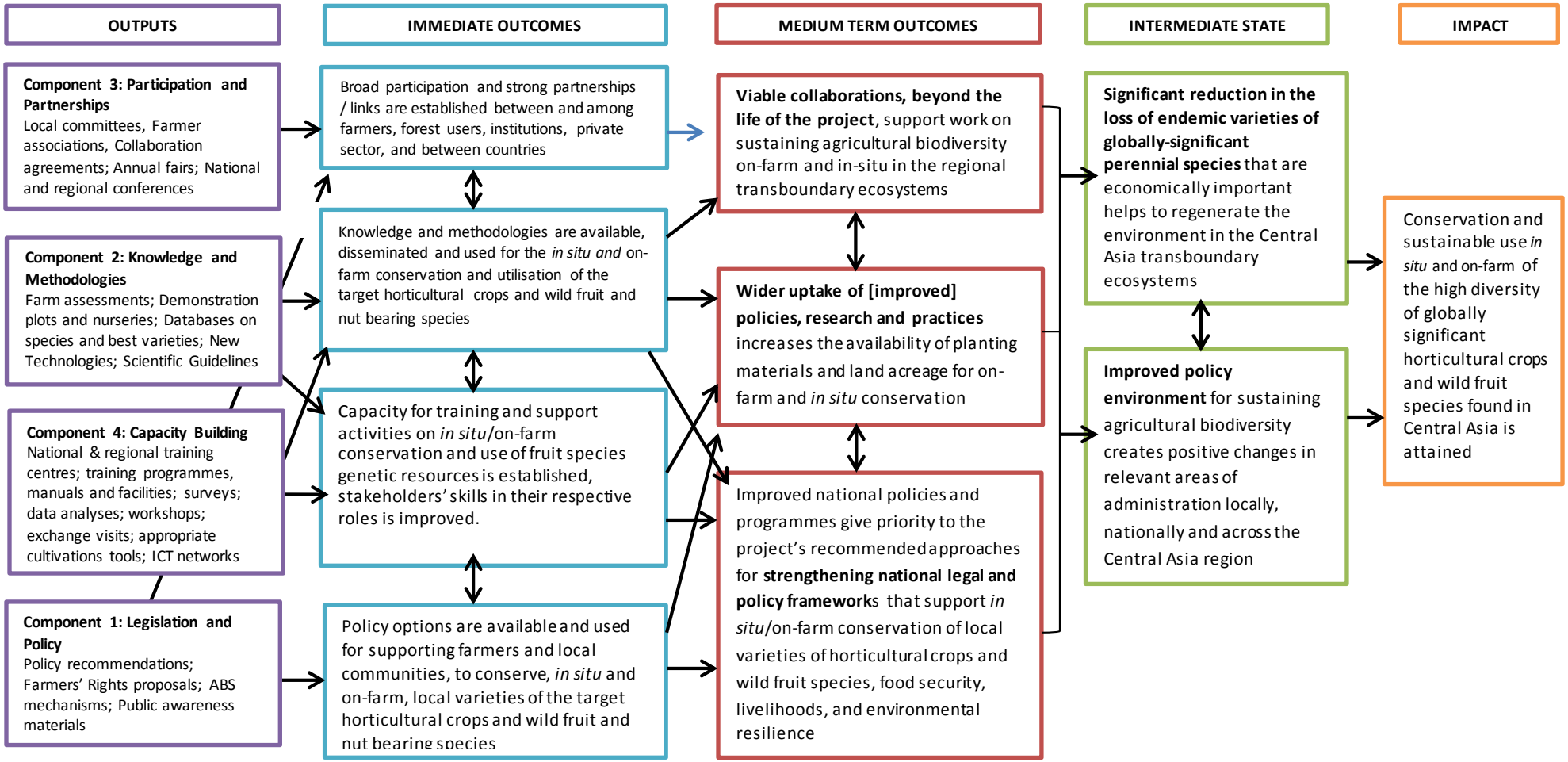


Figure redrawn by EO

3 EVALUATION FINDINGS

3.1 Strategic Relevance

3.1.1 Alignment with UN Environment's strategy, policies and mandate

72. The design of the project took place during the early 2000s and aligned with the advice of the report GEO 2000, which had, among other recommendations, the promotion of sustainable development,[35] and the subsequent priority of UNEP, as reported in 2002,[36] "to make people's livelihoods more productive and environmentally sustainable." Although project design pre-dates the development of later UN Environment strategies, it can be argued that the project is aligned, in one way or another, with the UN Environment Medium-Term Strategy (MTS) 2010–2013,[37] with its six cross-cutting thematic priorities: Climate change, Disasters and conflicts, Ecosystem management, Environmental governance, Harmful substances and hazardous waste, Resource efficiency – sustainable consumption and production. The project's outcomes and potential impacts fall within the 'Ecosystem management' and, to some extent, the 'Climate change,' 'Environmental governance' and 'Resource efficiency' sub-themes.

73. The project has contributed within the 'Ecosystem management' sub-theme to the second Expected Accomplishment (EA2) concerning the use of ecosystem management tools.[38] The project was not designed to address the development of capacity to utilise ecosystem management tools, *per se,* but many of its activities have facilitated improved management of both the sustainable use of natural ecosystems and the sustainable development of managed ecosystems. For example, tools to improve the conservation of natural forests and the sustainable harvesting of non-timber forest products (e.g. walnuts) have been developed and disseminated through the project, thereby enabling restoration of threatened resources. Equally, techniques supported by the project for regenerating pistachio populations in arid lands, with measures to ensure sustainable harvesting from existing and new trees, have improved the management of this fragile ecosystem.

74. The project has made a contribution to enabling more environmentally sustainable production, processing and consumption of natural resources. In particular, the project has helped fulfil consumer preferences for fruits and nuts of endemic varieties produced or harvested locally, especially varieties that are early ripening. The methods promoted by the project have encouraged the sustainable extraction from natural ecosystems of fruits and nuts, and the use of more environmentally-sustainable methods for their relatively small-scale production in local farms. These methods contrast with those used for the large-scale and external-input intensive production of exogenous varieties, which are not the first choice of consumers in the region. Hence it could be said that the project could have contributed to EA3 of the 'Resource efficiency' sub-theme concerning consumer choice.[39]

75. The project has made some contribution to improving resilience of ecosystems to adapt to climate change. This is not a specific EA of the 'Climate change' sub-theme but aspects of the project and

[35] See GEO 2000 - Promote sustainable development as the central theme in policies relating to agriculture, trade, investment, research and development, infrastructure and finance by stressing the high economic and social value of environmental goods and services, and the high costs of poor environmental management. www.unep.org/geo/GEO2000/english/0243.htm

[36] See UNEP Annual Report for 2002 www.unep.org/gc/gc22/Media/UNEP_Annual_Report_2002.pdf

[37] See www.unep.org/PDF/FinalMTSGCSS-X-8.pdf

[38] EA2 of the Ecosystem management sub-theme of the MTS 2010-2013 is "Countries and regions have capacity to utilize ecosystem management tools."

[39] EA3 of the Resource efficiency sub-theme of the MTS 2010-2013 is "Consumer choice favours more resource-efficient and environmentally friendly products."

its promotion of increased diversity in production and the regeneration of degraded natural ecosystems have improved the resilience of the natural and managed ecosystems that produce the fruits and nuts targeted by the project. Indirectly, the project may have 'strengthened the ability of countries to integrate climate change responses into national development processes'.

76. The development of advice on key policies that affect the implementation of environmental agreements and associated laws, for example on Access and Benefit Sharing (ABS),[40] is an outcome of relevance to the 'Environmental governance' sub-theme and, potentially, to its EA2.[41]

77. In a similar way the potential impacts of the project could also contribute to the current UN Environment Medium-Term Strategy (MTS) 2014–2017.[42] Impacts of the project are also relevant to the sub-programme on Ecosystem management[43] with its aim "to help ensure the conservation and sustainable use of biodiversity and strengthen the resilience and productivity of ecosystems". The project will make an important contribution to the aim of the current UN Environment Strategy to contribute to the management of trans-boundary ecosystems in the context of the CBD's Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets.[44] The impacts of the project could also be relevant to the realization of EAs of other sub-programmes of the MTS, including Climate change, Environmental governance and Resource efficiency.

3.1.1.1 Alignment with the Bali Strategic Plan for Technology Support and Capacity-Building (BSP)

78. The project was developed before the Bali Strategic Plan was agreed yet two of its Components, (2) on 'knowledge and methodologies' and (4) on 'capacity building', are aligned with the Objectives of the BSP.[45] For example, the production of new knowledge about a theme in the BSP – 'food security and the environment' – through, in this project, the conservation and sustainable use of agricultural biodiversity is aligned, as is the development of methodologies by the project, for research on, and monitoring and assessments of, the globally-significant species targeted by the project. The technical training in the project on the conservation and sustainable use of the targeted species *in situ* and on-farm is aligned with the BSP's focus on capacity building for 'environmentally-sound technologies'.

3.1.1.2 Gender balance

79. The project included women as key actors at all levels from local farmers and forest users, and processors of local fruits, to project co-ordination and the project's scientific and technical advisors, as well as membership of the International Steering Committee. The influence of the female Regional Project coordinator was evident in the project's structures, which included many women. The project worked without intended discrimination with both women and men. While the proportion of direct participants in the project was skewed towards men, women were deliberately

[40] ABS is one of the CBDs principal objectives and is the central purpose of the Nagoya Protocol of the CBD, which, so far, Kyrgyzstan has ratified.

[41] EA2 of the Ecosystem governance sub-theme of the MTS 2010-2013 is "States increasingly implement their environmental obligations and achieve their environmental priority goals, targets and objectives through strengthened laws and institutions."

[42] See www.unep.org/pdf/MTS_2014-2017_Final.pdf

[43] The objective of the ecosystem management for development sub-programme is to promote a transition to integrating the management of land, water and living resources, with a view to maintaining biodiversity and providing ecosystem services sustainably and equitably among countries. www.unep.org/pdf/MTS_2014-2017_Final.pdf

[44] The MTS for 2014-2017 includes an aim that "UNEP will strengthen the enabling environment for ecosystem management, including transboundary ecosystems, at the request of concerned countries. The aim is to help ensure the conservation and sustainable use of biodiversity, based on the Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets, adopted by the Convention on Biological Diversity as an overarching framework on biodiversity for all stakeholders, and other biodiversity targets linked to multilateral environmental agreements."

[45] The BSP's objectives include "training or other capacity-building efforts… [and developing] national research, monitoring and assessment capacity." The project's *modus operandi* fits with the agreed approach of the BSP to include, *inter alia*, "5. Furthermore, as part of the basic approach of the plan: (a) Efforts should build on existing capacities; UNEP/GC.23/6/Add.1 4 (b) Activities under the plan must have national ownership to ensure that built capacities are sustained; (c) Capacity-building programmes must be tailored to individual countries based on a bottom-up needs-assessment process;…"

included.[46] Women were also important beneficiaries of the project's activities and will benefit, along with male members of the participating households, in the outcomes of the project. Importantly, in a region in which men have traditionally dominated, female scientists have also been selected as key actors in the project and the promotion of its results; for example, seven female researchers participated, through the project, in an international congress in India in 2012[47].

3.1.1.3 Human rights based approach (HRBA)

80. The project made important contributions to respecting and fulfilling Human Rights, although it was not explicitly designed to include a 'Human Rights Based Approach.[48]' It had a key output to develop Farmers' Rights policies and ensure that farmers and forest users had access to, and could receive the benefits derived from, the genetic resources they are conserving and using. [49] The conservation and sustainable use of the targeted genetic resources in the productive and 'wild' environment provided benefits[50] to local people, to which they should have rights of access and, prior to the project, were being lost, in part, it could be argued, for lack of satisfactory accountability for the underlying causes of these losses. Through the inclusion of legal expertise by the project's participating institutions, the accountability of those responsible for fulfilling the rights of the farmers and forest users was improved. Additionally, through the explicit inclusion of farmers and forest users in the decision-making bodies of the project, e.g. the National Steering Committees, the accountability of the institutions participating in the project was improved, thereby, it could be argued, improving the fulfilment of the human rights of these users and conservers of PGRFA. Beyond the immediate scope of the project the issues of equitable access to land, water and forests, as well as the Right to Food, which are important Human Rights issues, were also crucial for participating farmers and forest users and their communities.

3.1.1.4 South-South Cooperation

81. The project was not designed to deliver 'South-South Cooperation', in the sense the policy intended, but for intra-regional co-operation, which had been undermined by the collapse of the Soviet Union. The results of the project have informed global policy and have been made available to a wide range of researchers and practitioners in many parts of the world, including the Global South. For example, five national scientists and three farmers from Kazakhstan, Kyrgyzstan and Uzbekistan participated in the cross-country and cross-regional Fruit Tree Knowledge Share Fair 2012 organized on 12-14 March 2012 in Chiang Mai, Thailand, which was organised by the project team of UN Environment -GEF regional project 'Conservation and Sustainable Use of Cultivated and Wild Tropical Fruit Diversity: Promoting Sustainable Livelihoods, Food Security and Ecosystem Services'. This cooperation has been facilitated particularly through the publication and outreach services provided by Bioversity International and its scientific and technical staff. The shared learning across similar intraregional ecosystems has been an important element in the project with links made through the executing agency, Bioversity International, and co-financing partners.[51] The

[46] For example, between 7% and 12% of targeted participants (both scientists and farmers) in key capacity building, training and production activities were women.

[47] Seven female researchers from Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan participated in the International Congress "Women in Agriculture", New Delhi, India, 13-15 March 2012.

[48] "A human rights based approach is about empowering people to know and claim their rights and increasing the ability and accountability of individuals and institutions who are responsible for respecting, protecting and fulfilling rights." From 'Early Warning as a Human Right: Building Resilience to Climate Related Hazards', UNEP, 2015.
http://apps.unep.org/publications/index.php?option=com_pub&task=download&file=011971_en

[49] See Section 3.2.1 for a fuller description of the way in which policies on Farmers' Rights and Access and Benefit Sharing were addressed by the project.

[50] Tangible benefits included locally-appropriate foods and other agricultural and forest products, and the income derived from their sale or exchange; environmental goods and services such as restoration of degraded lands, increased resilience in production; protection of forests for future generations; recognition and protection of intellectual property.

[51] For example, the co-financing partner, The Christensen Fund, linked project partners with their international programme on Biocultural Heritage, which works across several continents. In addition, women scientists participated in the congress in New Delhi (see Section 3.1.1.2).

UN Environment Task Manager has also used her knowledge of projects in her thematic area (agricultural biodiversity) to make links across countries and regions in order to encourage mutual learning.

3.1.2 Alignment with GEF focal areas and strategic priorities

82. The project was specifically designed in the framework of the former GEF Operational Programme 13 on Agricultural Biodiversity (OP 13)[52] and responded to two elements of the objective of OP 13, "to promote: the conservation and sustainable use of genetic resources of actual and potential value for food and agriculture; and the fair and equitable sharing of benefits arising out of the use of genetic resources". It was also in line with Strategic Priority Two in the Biodiversity focal area, as agreed in the business plan for GEF Phase 3: "to mainstream biodiversity into production systems, and applied to the three major themes: (a) capacity building; (b) participation of government agencies beyond "green" ministries in biodiversity projects to foster greater political and institutional participation; and (c) enhancing and sustaining participation of local and indigenous communities and the private sector in GEF projects." Subsequent GEF policies, including GEF-6, have also included similar elements to which the project has contributed. For example, the project is in line with the GEF 6 strategic priority to support the realization of the CBD's 2011-2020 Strategic Plan and its Aichi Biodiversity Targets,[53] which aim to help countries "take effective and urgent action to halt the loss of biodiversity." The project is also relevant to the GEF-6 biodiversity focal area strategy and its objectives on 'mainstreaming'.

3.1.3 Relevance to other international environmental and agricultural agreements

83. All the countries are members of the CBD and other relevant international instruments.[54] The project was developed in this context and as a contribution to several important international environmental and agricultural agreements. These include the 1996 Leipzig Global Plan of Action (GPA)[55] concerning the conservation and sustainable use of PGRFA, especially Priority Activity Area (PAA) 2 "Supporting on-farm management and improvement of plant genetic resources for food and agriculture" and PAA 4. "Promoting *in situ* conservation of wild crop relatives and wild plants for food production." This Global Plan of Action was facilitated through the Commission on Genetic Resources for Food and Agriculture (CGRFA) of the FAO. It informed Parties to the CBD who, in the year 2000 in Nairobi, agreed Decision V/5 on Agricultural Biological Diversity, which was especially important for GEF's strategy and OP 13 (see above para). The International Seed Treaty (IT PGRFA), the legal instrument for implementing the Leipzig GPA, negotiated by the CGRFA and which came into force in 2004. It has elements that address the issues of Farmers' Rights, Access and Benefit Sharing, and Conservation and Sustainable Use. During the lifetime of the project, these agreements have provided the basis for further CBD Decisions and FAO technical agreements. The project is aligned with these and has made valuable contributions to the process; for example through much acclaimed presentations of project results to key meetings of the CBD.[56]

[52] The objective of Operational Programme 13 'Conservation and Sustainable Use of Biological Diversity Important to Agriculture' was "to promote: the positive impacts and mitigate the negative impacts of agricultural systems and practices on biological diversity in agro-ecosystems and their interface with other ecosystems; the conservation and sustainable use of genetic resources of actual and potential value for food and agriculture; and the fair and equitable sharing of benefits arising out of the use of genetic resources."

[53] The CBD's Strategic Plan for Biodiversity for 2011-2020 included the Aichi Biodiversity Targets that provide www.cbd.int/sp/targets . Particularly relevant are Aichi Targets 7 (sustainable agriculture, aquaculture and forestry), 13 (genetic resources of cultivated plants and farmed and domesticated animals and of wild relatives) and 5 (natural habitats including forests).

[54] See Section 2.1.1.

[55] The Leipzig GPA is, in full, the 'Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture.' It has 20 Priority Activity Areas. ftp://ftp.fao.org/docrep/fao/meeting/015/aj631e.pdf

[56] For example, the project has contributed to the CBD's 11th Conference of the Parties (CBD/COP 11) in Hyderabad, India.

3.1.4 Relevance to national and regional priorities

84. The project was designed with the purpose of finding a regional approach to addressing a strategically important issue in the transboundary ecosystems of the region, namely, reversing the loss of endemic varieties of globally-significant perennial species that are economically important and can help regenerate the environment. To achieve this, the project contributed to linking the strategic interests of the five participating countries in improving related legislation and the practices of national institutions and local farmers and forest users in the conservation and sustainable use of the target species, across the region. Since their independence in 1991, all five countries have been developing policy frameworks[57] to address issues related to biodiversity conservation, land use and protected areas, farming systems, Farmers' Rights, and sustainable agricultural development and the project was designed to increase this effort.

85. All five countries entered into the Treaty on the Cooperation in the Field of Ecology and Protection of Environment, an agreement of Commonwealth of Independent States (CIS) countries that entered into force in February of 1992. Four of the project countries are Parties to the Treaty on Collaboration in the field of Conservation and Use of Cultivated Plant Genetic Resources, also an agreement among the CIS countries (1999). The project partner institutions were members of the Central Asian and Transcaucasian Network on Plant Genetic Resources (CATCN-PGR), established in 1996, but currently has become less active. Several regional projects addressing related issues, which have been co-ordinated by IPGRI/ Bioversity International and funded through UNEP/GEF and other donors, have provided additional opportunities to reinforce the strategic relevance of the specific work carried out by the project, with mutual exchange of learning between the projects.

86. The project was developed in line with the Regional Environmental Action Plan (REAP), which has international legal obligations that reflect the importance of transboundary environmental issues within the framework of the countries of the Commonwealth of Independent States (CIS). It also was developed in line with the Agreement on Environmental Impact Assessment (CIS, 1991) and the 1997 Almaty Declaration of the Presidents of the Central Asian States, the 1998 Tashkent Declaration on the special UN program for the Central Asian States, and the 2002 Dushanbe Declaration.

3.1.5 Relevance of the project interventions to key stakeholder groups

87. The project's interventions have increased the profile of many of the key actors participating in the project and the issues they have been addressing. The most important evidence is, perhaps, from the lead farmers and forest users[58], who stated that without the project they would not have been able to achieve as much, especially in relation to increasing the area planted in their localities, and to growers throughout their own and neighbouring countries, to endemic varieties of fruit and nut bearing species and improving the livelihoods of their families. Through the development and dissemination of relevant and scientifically-validated knowledge and skills to the lead farmers, their colleagues and communities, the project has provided the basis for a dramatic increase in availability and planting of these varieties, improved processing, use and sales of the produce and increased income.[59]

[57] All the countries, before the project started, had already adopted a number of conservation and development laws, norms and plans related to PGRFA and its sustainable use, and agriculture. Preliminary analysis of relevant laws and policies was carried out during the PDF B phase, and are summarised in Annex E of the Project Document.

[58] The evidence was gathered through meetings and interviews with farmers, forest users and their families and people from their communities, some of whom were also in local Site Coordination Committees/ Multidisciplinary Site Committees, in the three countries visited by the consultant (Kyrgyzstan, Tajikistan and Uzbekistan).

[59] See also the results of the socio-economic surveys carried out twice during the lifetime of the project with the same participants.

88. The mutual learning and exchange of information between scientists and farmers / forest users has been a significant intervention by the project, yielding mutual benefits.[60]

89. The project's institutional partners, especially scientific and technical institutions, have also recognised the significance of the project in raising the profile of the issues and improving actions to confront the threats identified, and in initiating processes, through the development of policies, for embedding needed changes in national laws.

90. All the national project co-ordinators welcomed the way in which the project enhanced regional cooperation and facilitated the development of regional training capacities and the exchange of knowledge and information.[61] The project's focus on developing broad participation and strong partnerships nationally and across the region was welcomed by all participants interviewed and these partnerships have endured beyond the funded life of the project.

91. The project has raised the profile of the region's contribution to, and has significantly improved the understanding of how to sustain, the agricultural biodiversity of globally-significant and economically important perennial species (and their wild relatives), on-farm and *in situ*, in their natural biome across an ecologically comparable but politically diverse region. [62] ..

The overall rating for Strategic Relevance is Highly Satisfactory

3.2 Achievement of outputs

3.2.1 Component 1: Legislation and Policy

92. The project was designed to provide an enabling environment and appropriate advice to the relevant authorities on an inter-related set of policies important for achieving the objectives of the project, through processes that facilitated awareness raising and inclusion of key actors. The planned outputs for this component were of three types: 1) **Policy**: to contribute to policies on conservation and sustainable use and to produce specific policy recommendations[63]; produce proposals on the protection of Farmers' Rights; and develop mechanisms for [access and] benefit sharing among partners; 2) **Awareness raising:** specifically to produce and disseminate public awareness materials, but the outputs also included a wide range of other activities including radio and television appearances, information exchange through meetings and partners, and so on[64]; and 3) **Participation:** to promote participation of farmers and local communities in project activities.[65]

93. Activities for realising all three types of outputs are central to all the project's outcomes. As identified in the ToC analysis (Section 2.9) elements of activities on awareness raising and participation run through all three pathways and are relevant to all outcomes, as are the project's contributions to the enactment of enabling policies, which provide the institutional environment in which the project activities were developed and can be sustained.

[60] This was mentioned repeatedly in all the meetings of National Coordinators and their colleagues.

[61] As above.

[62] Based on conversations with several people from outside of the region, including Dr. Geoff Hawtin, former Director General of IPGRI.

[63] Developing policy and legislative proposals, and interactions by the project in such processes, are relevant to the achievement of outputs and outcomes described in other components as emphasised by interviews held with the regional coordinator, national coordinators and colleagues in April and May 2016 and in the annual PIR reports as well as the project's Terminal Report.

[64] See Annex 2 of the Terminal Report which lists many of these awareness raising activities.

[65] Also vice versa – the project promoted the participation of scientists and institutional representatives in support of the activities of farmers, forest users and their communities. This dimension of 'participation' by scientists and institutional representatives was emphasised by all National coordinators and colleagues during the visits by the consultant to the Region.

3.2.1.1 Policy

94. It is important to note that the project was significantly assisted by the studies completed by national partners in each country on existing relevant legislation during the preparatory PDF B process.[66] This was followed, in the early years of the project, by further local level discussions with farmers and forest users, roundtables with policy makers, and four regional policy workshops. [67] The overall impact appears to have been positively received, at all levels. The criterion for selection of project partners and lead actors was, in part, because of their leadership in their institutions and communities, and their contacts with relevant policy-makers.[68] Through these contacts they have been effective and policy changes in support of the objectives of the project have been achieved including key policies on Conservation and Sustainable Use, Access and Benefit Sharing and Farmers' Rights, as well as policy gains beyond those that were planned.[69]

Conservation and sustainable use

95. Through the activities of the project, partners engaged with many policy processes, especially at national levels. In some the project took the lead, for example in the introduction or reinforcement of measures to protect specific species [70]and, more broadly, to support the conservation of fruit and nut-bearing species, often specifically the target endemic species.[71]

96. The project positioned itself well, in the changing policy environment since independence, to be able not only to propose changes but also to seek benefits for the outcomes of the project from changes, beyond the remit of the project,[72] stimulated through other processes. For example, to capitalise on the benefits derived from the emerging effects of changes in land tenure and consequent improvements in Gross Agricultural Output (GAO).[73] Further, in the context of the ratification of, or accession to, relevant international conventions and treaties,[74] the project was able to build upon and provide advice on legal norms needed for the domestication of already approved international law and agreements and to meet needed phytosanitary standards.[75]

97. While the focus was on national level policies, at the regional level, the project engaged, when opportune, in the development of transboundary agreements which could positively improve the conservation of the target species;[76] it also focused on achieving agreement on policies for

[66] See ANNEX E – Analysis of Existing Legislation and Policy – in the project Document.

[67] Reports on individual roundtables and policy workshops were produced. An excellent summary of the policy work was published, in English, after the end of the project in 2014 "*Conservation of fruit tree diversity in Central Asia: Policy options and challenges.*" www.bioversityinternational.org/e-library/publications/detail/conservation-of-fruit-tree-diversity-in-central-asia-policy-options-and-challenges/

[68] In interviews with project actors from local lead farmers to directors of institutes, it was confirmed that many had very good links with relevant decision makers in different departments of government that could influence project outcomes.

[69] For example, in Uzbekistan and Tajikistan, changes in policy towards the preferential development of orchards were due, in part, to meetings with relevant policy makers.

[70] For example, Kyrgyzstan adopted a law on the inclusion of addenda and changes in the Forest Code of the Kyrgyz Republic dated July 2, 2007, no. 94, to include in the list of valuable tree species (art. 57-1) Pistachio and Wild almonds.

[71] For example in Uzbekistan, the project sought to strengthen the monitoring of the implementation of existing laws and regulations relevant to the conservation of fruit crops and their wild relatives.

[72] While not a specific planned output of the project, assistance was given to fruit famers to strengthen their abilities to manage their farms and to propose measures that would support their economic development e.g. exemption from land taxes for farmers growing local or old varieties of fruit crops and grapevine.

[73] For example, as concluded in a regional study in 2009: "*The steep decline in GAO that characterized the early years of transition (1990-1994) changed to robust growth in the second half of the 1990s.*" (FAO Regional Office for Europe and Central Asia Policy Studies on Rural Transition No. 2009-3)

[74] See details of membership of international conventions and agreements in Footnote in Section 2.1.1.

[75] The need for effective phytosanitary controls, especially for imported planting materials, was emphasised by project partners. The present danger of diseased materials contaminating local production is real. Other Bioversity projects have addressed pest and disease threats and will continue to do so.

[76] Kyrgyzstan together with Kazakhstan and Uzbekistan are working to promote the nomination of the transboundary "Western Tian-Shan" as a UNESCO World Heritage site.

information sharing and so on, that would have not only immediate benefits for the project but also for others, and beyond the lifetime of the project.[77]

Farmers Rights

98. Farmers' Rights were identified as a key issue during the preparatory process, especially because of the recognition of needing to put farmers centre-stage in the implementation of the project. The development of the project had occurred during the negotiations for the new International Treaty[78] (IT PGRFA) with its Article 9 on Farmers' Rights, but helping countries to ratify the Treaty and implement its Articles was not part of the project design. The concept of 'Farmers' Privilege' is also embedded in the UPOV Convention, which two countries had joined[79]. The project prioritised aspects of inclusion and participation in decision making, information sharing and rights to retain access to (and, to some extent, 'intellectual property' over) genetic material.

99. Through processes developed by the project, however, it has enabled national authorities to look at relevant legislation with respect to requirements of implementing appropriate policies on agricultural biodiversity and Farmers" Rights so that they can identify gaps and elaborate normative proposals. This consideration by authorities has been stretched beyond the strict boundaries of the project and has included proposals on, for example, land tenure and appropriate subsidies that could enhance the sustainability of cultivation of endemic and heritage varieties of the target species by local famers.

100. In this context, the interpretation of Farmers' Rights was developed through participatory processes and focused especially on rights of inclusion, access to information, services and non-monetary benefits[80] and to being able to claim rights over genetic material (ability to 'patent' a variety) developed on-farm.

101. One particular example of the practical implementation of the policies developed by the project was the preparation in all five countries of registers / lists of local varieties of the target fruit and nut bearing crops maintained *in situ* and on-farm in the area of project sites.[81] These registers / lists were developed in a framework of Farmers' Rights and were authorised by national authorities, which, thereby, recognised the farmers as custodians of that biodiversity. The authorities were, as a result, more willing to take the farmers views into account in research, development and policymaking. This example of good practice is one which authorities consulted respect and would implement more widely, as possible.

Access and Benefit Sharing (ABS)

102. Although all countries were already signatories to the CBD before the project started (see Section 2.1.1) there was relatively little understanding and internalisation of Access and Benefit Sharing (ABS), which are two of the three principal pillars of the CBD, in national institutions and their inclusion in policies and laws. In this sense, the project made a very useful impact in familiarising technicians and politicians about this issue. The activities on the development of policy on ABS, and related issues concerning Farmers' Rights, were focused on the way in which project partners –

[77] See following Sections especially on ABS.

[78] The International Treaty on Plant Genetic Resources for Food and Agriculture (IT PGRFA) came into force in 2004. Kyrgyzstan subsequently became a contracting party in 2009.

[79] Article 15 of the UPOV 1991 Convention deals with farmers' privilege to access and use genetic resources. Kyrgyzstan became a member in 2000 and Uzbekistan in 2004.

[80] An example of a non-monetary benefit expressed by several key actors is the 'recognition' that a variety developed on-farm has potential national value and can be useful for other farmers and communities.

[81] The numbers of varieties listed were recorded as follows: Kazakhstan (154), Kyrgyzstan (187), Tajikistan (219), Turkmenistan (133) and Uzbekistan (433).

scientists and local participants – collected, used and exchanged information and genetic resources identified during the project and how farmers could benefit from this.[82]

103. Building on this work, policy guidelines were developed and later were published in 2012.[83] They were subsequently shared more widely by Bioversity International and then positioned prominently on the relevant webpage of the Convention on Biological Diversity's (CBD) website as an example of good practice.[84]

104. In this policy document, the agreements reached among the project's participants are detailed and pro-forma procedures are provided. An important element of this policy was that access to and use of (often sensitive and personal) information[85] is restricted to national partners within each country unless the person responsible for the information at national level approves the sharing of the information with others.[86] All partners interviewed about this issue, including both information providers as well as users, were pleased with the rigour with which the agreement had been used in practice. It was because of their confidence in the process that information was provided to the project and could be stored in the database and used.

3.2.1.2 Awareness Raising

105. An important dimension of the effective development of appropriate regulation, legislation and improved policy was increasing awareness about the need for this. The activities appeared to have been effective at increasing understanding about the need to conserve, and use sustainably, the genetic diversity of local varieties of endemic fruit and nut bearing species under cultivation and in the wild (including crop wild relatives).[87] The audience was not only the broad range of actors and their institutions who were directly involved in the project but also those in other institutions, policy-makers and the general public. Given the realities in most of the countries, not all people, especially in rural areas, have the same concerns about conservation, especially when the implementation of laws may lead to restrictions in access to some needed resources at some times.[88] The project has been at pains to help communities understand the importance of effective regulation for their future livelihoods and those of their children. More will be said below about the outputs – printed materials, websites, radio and TV appearances, 'diversity fairs', 'Agrotheatre', meetings etc. – but the overall finding is that because of the careful selection of, and engagement by, key actors and the perceptive outreach at all levels, the project, with excellent technical support, was able to build a broad base of support for delivering its planned outcomes, and more.

[82] The project produced an agreement on Prior Informed Consent (PIC), an Information Access and Sharing Agreement and a fruit genetic resources and planting material transfer agreement covering these issues including collection of information and genetic resources and the governance of partners' access to and use of the common database and specific information collected by the project.

[83] Agreement to do this was made at the fourth regional policy workshop: "Legislative framework of agrobiodiversity and access and benefit sharing." 4-6 May, 2011, Tashkent, Uzbekistan.

[84] The project's paper "Guidelines on Access and Benefit-sharing in research projects" was published in English and Russian (hard copy) by the project and is presented on the CBD's main ABS webpage describing "an overview of instruments, guidelines, codes of conducts, policies and other tools developed for different types of users of genetic resources to assist with the implementation of the access and benefit-sharing provisions of the Convention by responding to the particular needs of their constituents." It is available to download in five CBD languages AR, EN, ES, FR, and RU – unfortunately not (yet) in Chinese. www.cbd.int/abs/instruments/

[85] The sensitive information includes, for example, geo-location data and personal information from household surveys

[86] The person responsible is the National Focal Point (NFP) designated by each National Executing Agency with capacity to provide information to be uploaded on the website and take decisions about access and use of the information by third parties.

[87] In addition to activities summarised in project reports, anecdotal information gathered during the consultant's visits to the region reinforced this view that people at all levels of authority and in many different types of institutions now recognised, with pride, the importance of the issues raised by the project. For example, advocacy by some of the project's key farmers and forest users with politicians at the highest level had helped raise awareness of the significant contribution that conservation and sustainable use of the target species can make, beyond genetic resource conservation, to livelihoods, food security and the environment.

[88] Information derived from interviews with forest workers in Burchmulla Forestry Enterprise, Bostanlyk district, Tashkent Province, Uzbekistan.

The awareness-raising and outreach, beyond the partner institutions, was well embedded in practice and was sustained beyond the life of the project.[89]

3.2.1.3 Participation

106. The project was designed around a participative and inclusive model of engagement at all levels, a key component of the project developed during its preparatory phase.[90] Not only did this ensure improved two-way linkages between farmers/forest users and scientists, which helped deliver many of the results, but it also ensured that broad participation and strong partnerships became the mechanism for delivery of all outcomes and for future sustainability. This *modus operandi* embedded many desirable characteristics in the operation of the project. For example, as alluded to above, the opening up of scientific institutions and participating scientists to the opportunities afforded by working closely with farmers and forest users yielded lasting benefits. Equally, the trust developed by women and men farmers and forest users in scientific institutions permitted the sharing of information about what might have been 'scientifically-unrecognised' and hitherto not 'scientifically-validated' but subsequently became so, thereby improving mutual confidence and a desire to continue participating.[91]

3.2.2 Component 2: Knowledge and Methodologies

107. The outputs produced within this component (and the directly related fourth component on Capacity Building) provided the bulk of the scientific, technical and practical work undertaken by the project. They can be summarised under four headings covering assessments, information sharing, demonstration plots and nurseries, and knowledge and skills.

3.2.2.1 Assessments

108. From the earliest preparatory phase (PDF-A) onwards, for every area of activity, assessment was the initial step taken; assessments were embedded in project design and execution. From multi-disciplinary survey missions and detailed socio-economic surveys to assessments of local knowledge and locally-available genetic resources,[92] the project carried out detailed assessments of different types in all five countries. As will be seen below (Section 3.2.4), capacity to prepare these assessments had to be developed, with support either from scientific institutions within the region or from international experts.[93]

109. The surveys of existing resources and socio-economic data were carried out with the same 732 households[94] in each country in 2007/8 and three years later in 2011.[95] This represented a significant achievement of the project. The development of the methodology for this, the training of data collectors with appropriate language skills, the identification of a statistically-representative

[89] For example, Tashkent University recently started a new course, which teaches students about the biodiversity of fruit crops; and an Uzbek TV station initiated a gardening programme "Mening Bog" (My Garden), which included information about growing and caring for the project's target species.

[90] see Section 3.3.3 below on Participation and Partnerships.

[91] For example, the validation of local budding or grafting techniques for the multiplication of fruit crops; or the recognition of local varieties of fruits that could be added to national registers of varieties.

[92] These genetic resources were of the endemic varieties of the target species listed in para 2.3 and their crop wild relatives. The project identified 781 local varieties and forms of target species maintained on-farm in the farmers' orchards an around their houses. Local registers or lists of endemic varieties were developed in each country – see para 3.3.1.

[93] Bioversity International provided several scientists who assisted local partners with data collection and, as noted above in para 3.3.1, the uploading of that information to regionally-accessible databases.

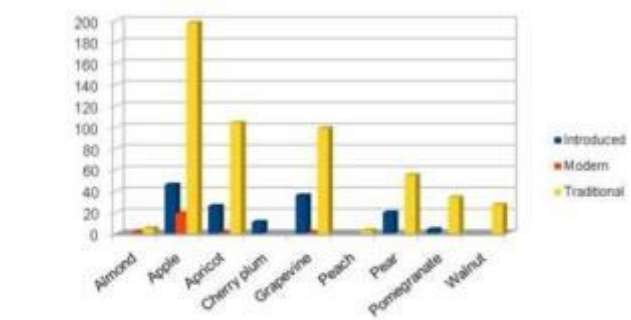
[94] 732 households were randomly sampled in the region both for treatment and control groups, including 126 households in Kazakhstan, 98 in Kyrgyzstan, 130 in Tajikistan, 108 in Turkmenistan and 270 in Uzbekistan. Of these, the regional database holds 10,769 records on 258 household, demography, environment, economic, social, management descriptors.

[95] This was confirmed with the Regional Project Coordinator in June 2016. All the data are in the restricted access database to which the evaluator had access with the exception of the fully restricted data such as information about households and the geolocation data.

cross-Section of households, the collection and recording of the data,[96] and the logistical organisation of the work, was a significant achievement by the project. The national datasets were prepared, verified and then uploaded to the regional database. The overall findings, with respect to the socio-economic status and environmental improvement over three years, were broadly positive.[97]

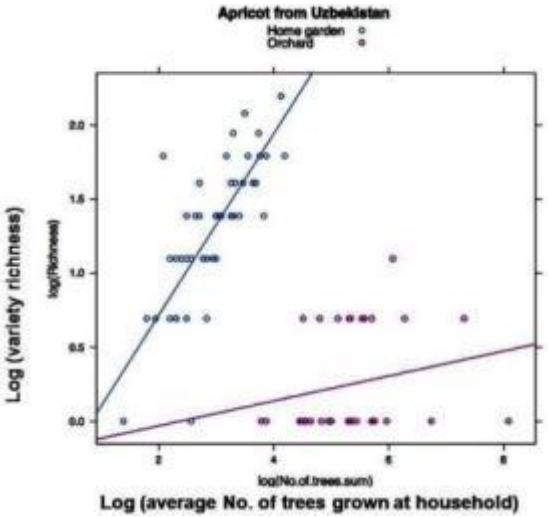
Figure 5: Diversity of Apricots in Uzbekistan

Source: Bioversity International



Richness (number) of Fruit tree varieties in Central Asia (5 countries)

Figure 6: Richness of fruit tree varietal diversity



Log (average No. of trees grown at household)

110. The data on the varieties of the target species and their relatives have been used for many purposes including the mapping of the status of diversity of the species across the five countries, identification of varieties with especially valuable characteristics, the monitoring of changes in diversity over the three year period, and much more.[98] It is a rich database and scientific staff were found to be still using the datasets for publications in 2016 and intend to do so for some time to come. One output from these data of significant interest to the outcomes of the project is the assessment of diversity within orchards as compared with the diversity in home gardens. As an example provided by staff of Bioversity International, the data presented in Figure 5 provide evidence that the varietal diversity of the target species in the region is mainly of endemic, traditional varieties of all species, except almond and peach. Introduced and 'modern' varieties are fewer in number but may represent more trees overall. The presentation of data in Figure 6 show that for apricots in Uzbekistan most diversity remains in gardens around the house (the top line) and that in commercial orchards a diversity of varieties is still sustained but it is much lower (the bottom line at the base of the diagram).

3.2.2.2 Information sharing

111. One feature of the project that stands out among many accomplishments was its capacity to stimulate the production of information by partners for diverse audiences – from scientists in

[96] It is interesting to note how the project helped staff in the partner institutions to become familiar with the computer-based systems necessary for recording, collating and uploading the information. For many, as reported to the evaluator, it was their first exposure to many of the programs, such as MS Excel, skills that have become useful for multiple purposes within and beyond the project.

[97] In Uzbekistan it was found that there had been a 30% improvement over the three years. In other countries, for example, Kyrgyzstan, the period coincided with political changes, which affected some communities. Improvements in the productivity of, for example of steep-sloped, degraded or arid land were transformative. Nurseries, as income generation enterprises, also helped some participants.

[98] The regional database also holds 2,943 records on the morphology and characterisation descriptors of 1,571 samples of fruit and nut bearing species including grape. The database is located in the project web portal http://centralasia.bioversityinternational.org .NB the numbers of distinct varieties surveyed, as recorded in project reports, varies between about 700 and 1,000, the majority being apple, apricot and grape. The number of varieties recorded in the variety registers produced by the project is of a similar order of magnitude.

conferences to school children presenting Agro-theatre productions to their communities. The outputs recorded by the project do not cover all the information produced and shared but do represent the diversity of outputs.[99]

112. Much of the information is available for download through the Web Portal if the web address is known. Some of the English language publications, in particular, are also available on international websites, for example that of Bioversity International.

113. An informal analysis of the prodigious list of outputs provided in Annex 2 of the Terminal Report, corroborates the data included in PIRs.

114. The proportion of outputs listed per country is about equal with slightly fewer listed from Tajikistan and about half the average of outputs listed for Turkmenistan. The reasons for the differences lie to some extent in the numbers of technical leaflets produced for local use by each country.

Table 6: Analysis of Printed and other Information Outputs

TYPE OF OUTPUT	A*	B*	Total	NOTES
Technical and training information			**255**	
Technical publications	71	28		
Technical brochures	20			
Technical leaflets	89			
Officially recognised registers of FVs	5			
Training documents	4			Many more training aids were produced
Information and training videos	27	10		The 10 in col [B] were videos in [A] shown on TV
Media outputs			**325**	
Newspaper articles		71		
Public awareness documents	7	10		
Media releases/press conference	1	5		
TV interviews etc.		196		Including about Agrotheatre productions
Radio interviews		35		
Scientific and research papers			**280**	
Guidelines	2			
Technical / research posters	18	4		
Proceedings of conferences	7			
Research publications		128		
Scientific papers		121		
Website materials		**5**	**5**	Not including material in project websites
Revised total			**854**	Less the 10 videos shown on TV

**** A= printed materials; B = technical / public information materials and media outputs***

Source: Table derived from project data by the Consultant

[99] The evaluator was repeatedly advised by interviewees about other documents, media briefs, and presentations (including very many PowerPoint presentations) to groups of interested people and authorities, and information exchanges with farmers, forest users and their communities. For example, many meetings at local levels at which information was shared were not recorded in writing yet formed an essential bedrock of the information provision of the project for, e.g., disseminating important findings about the production of endemic varieties.

Image 3: Display of some of the Project's publications in the Project Coordination Office

Photo: PMM

115. The list of information outputs has been re-classified under different headings in Table 8 showing the number of outputs produced by project partners during the extended life of the project. The sub-headings in the table relate to different types of output produced for different purposes and different audiences. The majority of the material was written initially in Russian and local languages with only some in English. Many were translated into at least one other language. Much of the information classified under Technical Information was produced for farmers, forest users and technicians, providing them with information about production and processing methods, marketing, conservation, and so on.

116. The output of technical and scientific papers, in particular, is a significant addition to the world's agricultural biodiversity literature about the plant genetic resources of the target species (especially because these are perennial species), the importance of the region and the participatory methodologies used. It has afforded the opportunity for many scientists in the region to contribute to peer-reviewed publications.[100] It has helped to raise the profile of the issues not only within the agricultural biodiversity community but also with decision makers in the region.[101]

117. A display of some of the Project's publications in the Regional Office of Bioversity in Tashkent is shown in Image 2. The printed publications, in many of the national languages of the region, as well as Russian and English, are still much in demand. Other related projects in the region, and new projects in development, are also users of this information and the capacities developed by the project upon which these documents are based.[102]

3.2.2.3 Demonstration plots and nurseries[103]

118. Having identified that the shortage of planting materials of local, endemic varieties of the target species was a key reason why the diversity on-farm and *in situ* was not being sustained, one of the most innovative approaches developed by the project was facilitating the establishment of local nurseries and demonstration plots with many varieties of the target species.[104] The demonstration

[100] An important feature of the project, and its agreement on information use (see Section 3.2.1) is the requirement to recognise in print and credit the data providers, contributors and those who provided analyses of data etc.. The names of those who were involved can be found in most publications produced by or related to the project.

[101] As an example, the beautifully presented, limited edition, book "Apricots of Tajikistan" is a rich compendium of information about the species and its uses in Tajikistan. It was printed in a single volume with Tajik, Russian and English text – reaching out to a potentially wide audience.

[102] USAID, IFAD and GIZ are among the donors in the region that are using the results of the project including the technical guidelines, training capacities, demonstration plots and fruit tree nurseries, capacity of researchers and lead farmers

[103] The context, as described above in Section 1, was a rapid loss of diversity on-farm, accelerated since the collapse of the Soviet Union, with imports of exogenous planting material displacing local varieties. Further, the reduction in controls over forest access and use was leading to the erosion of diversity of 'wild' species and varieties and crop wild relatives (CWR).

[104] As cited in para 2.2.2, the number of target species was expanded from 12 to 14 during project development and execution to include Currants in Kyrgyzstan and Mulberries in Tajikistan. Not all countries included all the target species, with the numbers of species prioritised in demonstration

plots and nurseries were managed locally by lead farmers on the land they access to. The demonstration plots and nurseries provided local farmers and forest users with the opportunity to see the different varieties, learn about their cultivation and conservation, use them as a source of planting materials (either as saplings or as materials for grafting), and they often provided the project with a local venue for training sessions, meetings and so on.

Demonstration plots

119. The varieties planted in the demonstration plots or nurseries were carefully selected and in many cases were identified as varieties with economically valuable features. In the uncultivated demonstration plots[105] with 'wild' varieties of the target species, some re-planting was practised, some regeneration was facilitated and a careful monitoring of all the species in the plot, including crop wild relatives, was undertaken.

120. Not only did farmers set up these plots and manage them, the work of the monitoring of the demonstration plots was undertaken by the farmers and forest users themselves who, with technical assistance, maintained detailed registers of the varieties and their characteristics, and listed the people who came to make use of the materials.[106]

Table 7: Number of Demonstration Plots and Nurseries

	Demonstration Plots			Nurseries		
	No. Plots	Area (ha)	No. Varieties	No. Nurseries	Area (ha)	No. Varieties
Kazakhstan	15	31.07	81	14	29.50	68
Kyrgyzstan	7	15.40	69	7	18.42	43
Tajikistan	18	32.38	162	11	3.37	87
Turkmenistan	11	8.10	121	10	1.75	88
Uzbekistan	22	18.40	155	16	0.26	122
TOTALS	**73**	**105.35**	**588**	**58**	**53.30**	**408**

Table derived from project data by the Consultant

121. In Table 7 the number of demonstration plots, their total area and the number of varieties of the target species to be found in them are presented in the left hand side of the Table. The importance of these plots was highlighted by many interviewees, in part for the reasons of the services they provide, outlined above, but also in part for the essential task of conserving endangered varieties of potential economic value.

plots and nurseries varying between 4 and 8. Of the species, Apple, Apricot, Grape were included by all countries, and Almond, Alycha/Cherry Plum, Fig, Peach, Pistachio, Pomegranate, Pear, Sea Buckthorn, Walnut, Currants, Mulberries were included by at least one country.

[105] In all, there were 12 plots formed in forests in which many 'wild' varieties of the target species were present and their crop wild relatives.

[106] All countries maintained "Registers of demonstration plots" including information about the local varieties to be found in them, including some 437 varieties of target fruit species (plus 34 varieties of wild apple, walnut and pistachio in Uzbekistan) and a further 117 varieties of wild nut-bearing and fruit species, which were assessed to have commercial potential. Moreover in other countries, additional endemic wild varieties and some Crop Wild Relatives (CWR) were also conserved in plots.

122. In some cases the 'demonstration plots' were more 'conservation plots' where identified trees of 'wild' varieties of the target species could be preserved. They were also useful as sources of genetic material.[107]

123. The project's direct contributions to the lead farmers and their families and communities, apart from information exchange and training[108] on a wide range of relevant topics and techniques, included the provision of specialist equipment, e.g. for grafting, pruning and pest and disease control. Knowledge on the later was especially sought after, but there was a need for a greater focus on safety.

Nurseries

124. Nurseries for the propagation and distribution of grafted saplings and seedlings of local, endemic varieties of the target fruit and nut bearing species were set up in each country to meet some of the demand for planting material. This was both for local varieties of the target fruits to be grown on-farm as well as for valuable 'wild' fruit and nut-bearing species for planting in forests and peri-forest regions. In particular, in the non-irrigated, drier parts of each country, some of the endemic fruit tree varieties are especially well adapted. These varieties can also be the earliest to ripen, providing welcome supplies for local markets of these fruits.[109]

Image 4: Demonstration Plots as sources of material for grafting and propagation

The founder of the Kulyab Botanical Gardens, a unique botanic garden in south Tajikistan, has collected, before they died out, valuable early-ripening varieties of fruits from abandoned villages, cleared during the Soviet era.

125. The right hand side of Table 7 shows the number of nurseries that were set up in each country through the project, the number of varieties they were growing and the area covered by the nurseries. It has been said by several informants that had it not been for the project, the availability of these varieties would have continued to decline, and thus the number and/or the diversity of the varieties on-farm, in commercial orchards and in forests would have dwindled.[110]

126. The numbers produced are significant.[111] The project has monitored the numbers sold or otherwise distributed by each nursery and has reported that in total, "*1,500,000 saplings of local varieties of target fruit crops and 100,000 saplings of promising forms of wild fruit and nut-bearing species*"

[107] As reported, three plots totalling 3.0 ha, were established in forest sites in the Sidjak and Faiziabad forestry enterprises to conserve *in situ* 34 varieties of the target species including wild apple (6 vars.), wild walnut (14 vars.) and pistachio (14 vars.).

[108] Lunches were provided by the project and were always receipted!

[109] The consultant was in the region at the time of the early harvest and found abundant supplies of these highly sought after small, local fruits in the market in Tashkent.

[110] It is debateable if the diversity in Home Gardens would also have reduced without the project, but it seems clear that sustaining diversity across large areas could only be achieved by keeping the commercial orchards diverse.

[111] It is important to note that nearly all of the saplings and plants were grafted onto appropriate rootstocks with implications for the large-scale availability of both good quality rootstocks and sources of healthy planting material as well as highly trained people.

were distributed annually.[112] On visits to nurseries in three of the countries, some two years after the end of the project, it was clear that this initiative by the project was spreading and was having lasting impact. The project can justifiably claim that it has been responsible for triggering a significant increase in production of saplings and seedlings of the target species across the region.

127. As an example, in Rugund village, Istravshan District, Sughd Province in Tajikistan in May 2016, the project's lead farmer, who had been a Brigade Leader in Soviet times,[113] and some members of the local site committee, met with the consultant to discuss their experiences in engaging with the project. Among several issues, that of the propagation and sale of saplings was one of the most important to them. It was claimed that the lead farmer, and each member of the 16 person local committee, were distributing between 15,000 and 30,000 saplings each year. Moreover, many other members of the wider community– maybe twice as many again, they claimed – were also doing the same. The assessment made by the people interviewed was that this village alone had produced and distributed more than a million saplings since the end of the project. Even if that is an exaggeration by as much as an order of magnitude, if the response overall has been even modestly similar across a proportion of the communities in which the other 58 nurseries are located, it can be concluded that the project has stimulated a highly productive and biodiverse response to the lack of planting materials in the region; and, given that the work was still expanding two years after the project ended, one can conclude that the process has become sustainable and will remain so for as long as there is an unsatisfied demand for local varieties.

128. The nurseries were not just producing saplings for orchards and plants for commercial vineyards but also trees for reforestation projects and for 'regenerating' 'wild' species and varieties *in situ* in. for example, the climax walnut forests, which, although they have existed since the Eocene Epoch and cover large areas in the mountains, were becoming degraded, increasingly so since independence, through over-grazing, firewood collection, unsustainable harvesting of fruits and nuts, timber and walnut 'burr' extraction, and fire.

Image 5: Nursery production of valuable nut-bearing walnut trees

Project partner,,a former government forester, in his walnut tree nursery in Uchbulak, Karalma Forestry Enterprise, Suzak District, Jalalabad, Kyrgystan.

129. For example, in Kyrgyzstan, a forest user (see Image 3) working with the project, was producing in his local nurseries, large numbers of walnut trees grown from the seed of selected, high quality 'wild' trees in the forest. These saplings were (and continue to be) in much demand not only in the country but also in neighbouring Kazakhstan, for which an order of 100,000 saplings had been fulfilled. [114]

130. While nurseries have existed for many years, perhaps millennia, at a domestic level[115] as a way of multiplying and distributing planting material and saplings to the neighbourhood, the project

[112] As recorded in the project's PIR and confirmed anecdotally with some nursery owners, these numbers would seem to be valid for the final years of the project.

[113] The lead farmer in Rugund Village, on 9 ha of land,, with his family manages an orchard, a vegetable garden, a demonstration plot and nursery (his farm has more than a dozen varieties of local fruit trees and grapes; and his farmhouse was a venue for training and meetings of the local committee.

[114] A skilled technician who produces high quality walnut saplings and other trees, e.g. junipers, high up in the mountains, said he found this way of life rewarding with prospects of a growing demand.

significantly increased the production and availability of endemic varieties – grafted mainly onto local rootstocks, when appropriate. [116]

[115] It is relevant to note that propagation of local fruit trees and grapevines is an age-old practise in the region. In Soviet times it was done by individual householders to produce the fruits in their gardens that provided for much of the domestic demand.

[116] In the countries visited by the Consultant, expanded local nurseries have significantly increased availability of endemic varieties. Reports indicate that the same is also the case in the other two countries. Although some M9 rootstocks were being used by some farmers, most rootstocks were from local, usually 'wild' varieties.

131. Project partners organised 'diversity fairs' at which farmers and scientists met to exchange knowledge about local varieties[117] and skills for propagation, cultivation and processing of the target species and to distribute planting material of selected local varieties. These events proved popular and also helped raise the awareness of the issues. Press releases and information posters for the fairs were produced.[118]

Image 6: Farmer innovation - High-level grafting, Kyrgyzstan

132. With the increase in awareness of their value, engendered by the project and its partners, and a strong demand for the saplings and their fruits in the market, it can be concluded that the diversity on-farm could be sustained for a foreseeable future.[119]

3.2.2.4 Knowledge and skills

133. As summarised above in this Section, the project stimulated the documenting of much valuable knowledge and the sharing of skills and methodologies.[120] Some of this is recorded in the project's database accessible through the web portal to those who know the web address and/or the specific name of the document. A more limited range of this knowledge is available through other websites, for example the websites of Bioversity International or the CGIAR, and, to a limited extent, via Search Engines.[121]

134. An example of the quality and breadth of knowledge shared through the project and made available internationally (in English at least – the Russian language version is less easy to find online) is in the Proceedings of the project's International Conference held in Tashkent in 2011.[122] This document, printed in English and Russian, provides a comprehensive summary of the work of the first five years of the project. It encapsulates very clearly the rationale for the project and provides excellent context and background to the work being undertaken with useful reviews of progress to date.[123]

135. Some of the knowledge shared between farmers/forest users and scientists has also been captured in the technical publications of the project. More was shared orally and through practise. For

[117] In some cases this information helped in the preparation of officially recognised registers of local varieties.

[118] These activities were planned as part of the project's partnership building and participation process. See Section 3.3.3

[119] This is likely to continue unless the currently established market for the fruits of these varieties weakens or the demand becomes focused on few varieties.

[120] The list of more than a 100 scientific papers recorded by the project includes articles and papers in national scientific journals and bulletins in both Russian and English. Access to these papers is limited. Few have been published in internationally accessible peer-reviewed journals, though this is still an important work in progress.

[121] Some of the papers, especially conference proceedings, are available via the project web portal http://centralasia.bioversityinternational.org/en/ (also in Russian) but links to the project's scientific papers have not been uploaded. Some of these papers can be accessed through academic search engines and some institutional web sites e.g. CGIAR https://cgspace.cgiar.org/ or Bioversity International www.bioversityinternational.org/e-library/publications/ . Other academic or specialist information websites such as ResearchGate www.researchgate.net or Google Scholar www.scholar.google.com have few references to this literature and some relevant sites lack any significant references to the region with its endemic species and almost none to the work of the project, for example the Open Directory resource www.dmoz.org/Science/Environment/Biodiversity/Agricultural/ or the Biodiversity Heritage Library (BHL) www.biodiversitylibrary.org/

[122] The publication is titled " Conservation and sustainable use of biodiversity of fruit crops and wild fruit [and nut bearing] species. Proceedings of International scientific and practical conference, 23-26 August 2011, Tashkent, Uzbekistan" and is available via web searches, the web portal and the site of Bioversity International www.bioversityinternational.org/e-library/publications/detail/conservation-and-sustainable-use-of-biodiversity-of-fruit-crops-and-wild-fruit-species/ . Available in Russian via the webportal. http://centralasia.bioversityinternational.org/fileadmin/templates/centralasia.net/upload/Resources/Proceedings_Conservation_and_Use_rus.pdf

[123] It was said by one of the national project coordinators that if there were one short document to share with policy makers and opinion formers about why policy and scientific endeavour in the region should support this type of work, it would be the Foreword to these conference proceedings.

example a technique for grafting fruit trees about 1.5m from the ground was developed and shared by farmers as an experiment for protecting the emerging graft from animal damage (see Image 4). This innovation has not been widely taken up but it is an example of farmer innovation which was spread through local networks.

136. The methodologies developed by the project covered the research process, implementation and practical activities.

137. Methodologies for developing the surveys using participatory methods, the participatory assessment of diversity,[124] the protocol for sharing information (see Section 3.2.1), research methodologies, conducting impact studies,[125] and so on were developed by project staff assisted by technical staff from Bioversity International. Some were summarised in Guidelines.[126] The effect of this work is seen not only in the way in which the project was carried out but also in the increased capacity of scientific and technical staff to do similar work in the future.

138. Guidelines on techniques for farmers and forest users were a key output of the project. In Kyrgyzstan, for example, more than 25 publications of practical 'recommendations' were produced, many in Kyrgyz. These built on good practices supplemented and validated by scientific knowledge.

139. New technologies developed by project partners for enhancing fruit production and processing were published. These included: solar drying of apricots and grapes (raisins); storage of fruit, especially grapes; production and processing of Sea Buckthorn; and so on.[127]

Image 7: Solar drying of white mulberries (*Morus alba*), Tajikistan

Photo: PMM

140. In the project's assessment of varieties of the target species identified in the field surveys and subsequent testing in research stations, a number were found to have particular potential in production. These were developed further and about half a dozen guidelines were produced, which identified adaptive and economically valuable genotypes of the target species for use in conservation and breeding programmes.[128] Interviewees from scientific institutions were especially pleased with the results of this work, which appears to have increased the credibility of the work within their institutions.

141. Further recommendations were produced on the use of the target species in environmental protection measures such as soil and water retention, especially in sloping lands. For the latter, the use of walnut, pistachio and mulberry in conserving soil and water and restoring degraded landscapes was shown to have significant economic as well as environmental benefits, and was appreciated by the participating farmers and forest users. These outputs were valued by project partners interviewed and provided scientific and practical validation of the productivity and agronomic and environmental-protection utility of local endemic varieties.

[124] Guidelines on participatory assessment of fruit tree diversity on-farm and *in situ* in the wild were developed by Bioversity International, in collaboration with national partners, and tested in the field.

[125] Post-project impact study was carried out in Uzbekistan by staff of Bioversity International in conjunction with project partners to assess livelihood benefits. See: Elisabetta Gotor and Francesco Caracciolo 'Livelihood implications of *in situ*-on farm conservation strategies of wild fruit species in Uzbekistan, Bioversity International 2015. There was also a complementary study to examine the gender impacts of the interventions. www.bioversityinternational.org/e-library/publications/detail/livelihood-implications-of-in-situ-conservation-strategies-of-wild-fruit-tree-species-in-uzbekistan/ .

[126] For example: "Guidelines on Access and benefit sharing in research projects" cited above.

[127] As noted above, these were made available in Russian and national languages.

[128] These national guidelines were produced between 2010 and 2013. They included recommendations on local fruit varieties with valuable traits, as well as the selection, evaluation and use of local walnut and pistachio varieties.

142. The ways in which the project assisted with technological developments were not only constrained to formally designed technologies, these scientifically validated ones were the ones promoted by the project. In the innovative context of the project, farmers experimented with new ways of production and processing. For example, farmers visited were using new drying methods in greenhouses (see Image 5), or growing seedlings in small containers for distribution throughout the growing season, or the new high-level grafting method illustrated above (see Image 4). It was a mark of the project that it recognised farmer innovation.

143. Beyond the local technological developments on-farm, the project organised 15 regional and national workshops on processing, value addition and marketing. The regional and international conferences were also important forums for exchange of knowledge and skills.

144. However, as many respondents commented, a principal way in which new knowledge and skills seems to have been developed within the context of the project is through direct contact between and among farmers/forest users, especially locally; between and among scientists and technicians within countries, intra-regionally and internationally; and, in particular, between scientists and farmers/forest users. This knowledge formed the basis of the information used to nurture the enabling environment that would sustain the project.

3.2.3 Component 3: Broad Participation and Strong Partnerships

145. The relevance of the project interventions to key stakeholder groups (Section 3.1.5) summarises the effects of the strong and inclusive partnerships: "*The project's focus on developing broad participation and strong partnerships nationally and across the region was welcomed by all participants interviewed and these partnerships have endured beyond the funded life of the project."* This effect was the result of a focus in planning and implementation on identifying influential leaders and institutions that promoted engagement of a wide range of actors in project activities, heightened awareness and stimulated the project's influence on policy and practices.

146. It was important that the project incorporated partnership and participation activities in a specific component, rather than as a side activity of project management. As has been validated by the extended life of the project, it has been this inclusive approach that has grounded the project in an institutional framework embracing local, national and regional partnerships.

147. The inclusion of farmers and forest users in the governance of the project was welcomed by all those participating. Given that in some countries civil society organisations are limited and in others there is a more liberal and inclusive attitude to NGOs, no single style of inclusion of farmers and forest users and their organisations in the structure of the project was possible in reality. In all countries, representatives of farmers and of forest enterprises and forest users participated in structures designed by the project, in some cases nationally, in others locally.

148. In all the countries visited, local farmers and forest users met, whether formally or informally, to discuss matters concerning the issues covered by the project. With notable exceptions,[129] in most cases no formal minutes were taken but records of the events taking place could be traced through visit reports, receipts for lunches and the testaments of those interviewed.

149. The purpose of these meetings was to facilitate the execution of the project and help negotiate local arrangements with authorities, plan activities and awareness-raising events including local exhibitions and fairs (and Agrotheatre productions in some cases) and encourage the distribution of planting material of local varieties.

[129] In Kyrgyzstan, the consultant was provided with formal minutes of local committee meetings held in Baktuu-Dolonotu, Issyk-Kul region (including farmers from 6 communities), and in Jalal-Abad (including 2 farmers from Karalma).

150. The key feature of the formation of the local multidisciplinary site committees and other coordination committees that were encouraged by the project was their autonomy, self-organisation and the absence of any project-imposed hierarchy with paid officers, a point that was important to establish and was sometimes raised by hesitant participants.

151. The project helped forge improved links among and between farmers /forest users and their communities. A feature of this effort seems not to have been so much the 'surveys of farmers' included in the project design but more the selection by locally knowledgeable people of credible and influential individuals who could convene like-minded farmers and forest users.[130] The important outcome is the continued presence of committed groups of farmers and forest users, with their extended families, in all the area visited, two years after the end of the project.

152. At national levels, the judicious selection of project partners (see Section 2.7) established the credibility of the project and the importance of the issues addressed. In nearly all cases, interviewees from, for example, senior university staff to representatives of GEF to directors of national institutions, the project was welcomed, in particular because it was inclusive and it was leading towards further collaborations at both local (farmer/forest user) and regional levels up to the possibilities of new international projects.

153. The strong partnerships and broad participation across the region must be one of the particular successes of the project, allowing continued interactions between people and institutions that will continue to tackle the common issues present across the region.

Image 8: Four generations of a project farmers' family in southern Tajikistan

Photo: PMM

3.2.4 Component 4: Capacity Building

154. In order for the project to be able to deliver its outputs, including its ability to build and retain strong and inclusive partnerships, the capacities and capabilities of the project partners needed strengthening. As noted above, this is in the context, since the collapse of the Soviet empire, of disrupted institutions, loss of regulatory capacities, unfamiliarity with market economies and decentralised land tenure, and, most relevant to the project, limited technical capacities for research and outreach.

[130] A possible weakness in this approach is that a gender bias could inadvertently occur. Also, the links made locally might become biased towards closer allies in the community. But it was the recognition by the project partners of the importance of locally strong groups of people and their families (such as the welcoming family of Abdusattor Barotov in Siyova village, Vosse District, Khatlon Province, Tajikistan in Image 6 – with the consultant) that helped realise effective project execution and lasting impacts.

155. The capacity building activities centred on: 1) forming training centres and 2) delivering training to, and producing training manuals for, farmers and forest users, scientists and technicians (in both research institutes and universities), and policy makers and legal advisers. Part of the mix of training included developing specific technological skills, facilitating information gathering and analysis, and developing training methodologies for the above and for carrying out assessments etc., using, where possible, participatory approaches.[131]

Training Centres

156. Project partners' institutions were able to designate existing physical spaces for use as training centres.[132] More were formed as needs arose so that, in the end, there were 5 regional training centres and 8 national training centres,[133] located in different parts of the countries. The project provided the necessary equipment and consumables and financed the expenses incurred by training courses.

Image 9: Apricot Regional Training Centre, Tajikistan

Photo: PMM

157. While national training centres provided a focus for institution-based training, it was the regional training centres that provided particular added-value by bringing participants together from across the region. All those interviewed who had participated in regional training workshops valued them highly as much for the content as for the opportunity to meet with partners and collaborators from other countries in the region. Together with other types of regional meetings (e.g. International Steering Committee meetings, Regional Roundtables and Workshops) it cemented the partnerships across the region and facilitated exchange of views and experiences about the common regional challenges, purposes and responses of the project.

158. The training centre facilities were still available and used in 2016 when the consultant visited. One particular centre visited in Khudjand, in the north of Tajikistan (see Image 6 for a partial view of the training room), was located in the Sughd branch of Tajik Institute of Horticulture in a pleasant room large enough for intensive training sessions. It had purchased, in 2004 during the PDF B preparatory phase, a (then modern) computer[134] to provide training for participants and also improve the centre's capacity to input, analyse and upload data.

[131] The work relating to assessments, including PRA, is covered under other components.

[132] This formed part of the in-kind support provided by the partners.

[133] The regional training centres provided specialised training for project partners in all countries as follows: Kazakhstan – Socio-Economic issues; Kyrgyzstan – Walnut; Tajikistan – Apricot; Turkmenistan – Pomegranate; Uzbekistan – Molecular Technologies. The national training centres, set up in the first years of the project, covered all aspects of work related to the project and its target species. (NB in Kyrgyzstan the regional walnut training centre was moved to the National Agrarian University in 2010).

[134] The computer in this centre (see image 6) was a Pentium 1 model with limited power and capacity. In 2016 it was not fit for purpose in a modern training facility. This raises an aspect of project budgeting. With projects that are more than four years in length, it should be possible to build-in upgrades and renewal of computer and similar equipment into the budget. A depreciation of such equipment of 25% original value per year, and replacement after 4 years, should be acceptable practice, and should also be factored into project extension budgeting. Sustainability of electronic services should be built into budgets.

159. Among other skills imparted by the centre, the drying and processing of diverse local apricot varieties was a particular topic. The centre had developed innovative solar drying equipment for apricots and it also kept the national *ex situ* reference collection of apricots – 139 varieties of many different colours, tastes and textures. It proved an ideal location for the regional training centre.

Delivering Training

160. Training in the centres, in participating institutes' facilities, in local communities, on the farms of participating farmers, and in the locations of forest enterprises, provided opportunities to extend the capacities of all actors in the conservation, regeneration, production, processing and marketing (including economic aspects) of the target species, as well as in related assessments, validation of data and so on.

161. The training was as participative as possible, in formats such as 'roundtables', 'focus group discussions', 'workshops', practical 'hands-on training' etc.. Both scientists and farmers improved their skills (as already mentioned above). Some of the training methods were summarised in manuals and guidelines and were provided in leaflets and on posters. In addition to the formal training sessions, informally, 'training' or mutual learning was achieved in every encounter, especially between and among scientists and farmers.

162. For technicians and scientists, training specifically in assessments and analysis of data, laboratory skills including the use of molecular marker technologies, computer skills, project management, as well as the development of training packages themselves, were built into the programme. For some of the younger staff and students, many of whom were women, in the institutes and related universities, the project provided the opportunities to complete degrees, often focused on the target species while providing services to the project at the same time.[135]

Image 10: Developing and using participatory methods for policy issues and assessments

Photo: I. Lopez

163. The 'training' for policy and legal advisers was most often conducted through workshops at national and regional levels. This work was equally important, as was noted above in the Section on legislation, as for many, the legal and policy issues surrounding the conservation, sustainable use and benefit sharing of PGRFA, as well as Farmers' Rights, were not well understood and many international commitments had not been implemented nationally. The project had managed to engage some of the most informed individuals in each country to work with international specialists to help draft workable proposals for enhancing legislation.

3.2.5 Component 5: Project implementation

164. The activities included in this component are best addressed in the subsequent sections which deal with the efficiency and effectiveness of the project's implementation, among other criteria. That said, a common refrain by all interviewees was the excellence of the coordination provided by Bioversity International's sub-regional office and their staff and, especially, by the regional project

[135] For one staff member in Kyrgyzstan, who had joined the project as a computer-illiterate student more than 10 years ago, the project provided him with opportunities to learn new skills that not only enabled him to take the lead in providing computer services from data analysis to web design but also helped him achieve his doctorate work on one of the target species. He remains working on similar issues.

coordinator. The way in which she provided the necessary guidance, oversight, accountability, technical expertise and outreach helped to ensure successful outcomes.[136]

165. The interpretation and translation burden of the project was significant, for both project implementation and dissemination of project results and methodologies, and much of it was not costed, putting additional burdens on project staff, especially the Regional Coordination. The project operated mainly in Russian and reported to UN Environment and Bioversity International's HQ in English. Many scientific papers were also published in English. Information leaflets were often published in local languages. Working languages of project teams were usually the national languages of the participating countries i.e. Kyrgyz, Kazakh, Tajik, Turkmen and Uzbek and interpretation was often required for researchers from other countries. In the list of reports of meetings organised by the project (submitted as part of Annex 2 to the Terminal Report) 228 were available in 1 language and 86 were translated into 2 languages, with four of these translated into a third language. About half the reports were available in Russian and/or English and about half in national languages. While some translation and interpretation was budgeted for and was done by hired translators, many of these reports were translated by project staff, often, they said, in their own time.

166. Financial and narrative reporting was also found to be the cause of much work for the coordinators at national and regional levels, as well as in the supervisory systems at international levels. The requirement for quarterly financial reports and potentially duplicative semi-annual narrative reports was burdensome.[137]

167. In this region, with its complex recent history, having clear, apolitical and even-handed coordination, with a scrupulous eye for detail, proved a decisive element in the project's success.

Image 11: Regional Project Coordinator with Project Partners.

Photo: PMM

Regional Project Coordinator, Lead farmer, National Project Coordinator in Uzbekistan, Farmer's son in Kirpichniy village, Parkent district, Tashkent province, Uzbekistan

In the context of the realities of implementation, the overall rating for Achievement of Outputs is Highly Satisfactory

[136] The Regional Project Coordinator was welcome in every place she visited with the consultant during the evaluation. While one would expect some level of polite reception, in this consultant's experience, it is rare to find, so many years after the conclusion of a project, such overwhelming support for the coordinator. The project partners and Bioversity are lucky to have had such a skilled person supporting their work. Her contribution was significantly strengthened by the backup she had from Bioversity's international staff and from the UN Environment GEF Task Manager, both of whom were often cited warmly by interviewees.

[137] The consultant reviewed most of the PIRs and Technical Reports and found a lot of duplication that could have been avoided if different, and less frequent reporting had been required. It would not, the TE assessed after interviewing the key players in the reporting hierarchy, have affected the outcome of the project but it might have enabled more time to have been invested in producing even more publications and information resources, which would have further enhanced the project results.

Table 8: Summary of contribution of Outputs to realising Outcomes

Component	Expected Immediate Outcome[138]	Key Outputs	Contribution to Outcomes
1 Legislation & Policy	Policy options for supporting farmers and local communities to conserve *in situ*/on-farm local varieties of horticultural crops and wild fruit species are available and used	• Policy recommendations • Farmers' Rights proposals • Benefit Sharing mechanisms • Public awareness materials	• Relevant laws and programmes influenced by project • Farmers' Rights, to be recognised, participate and benefit, improved • Mechanisms developed, tested and used Guide published by CBD • Awareness increased by project materials, shared widely • Engagement at heart of project; Interactions with institutions improved markedly
2 Knowledge & Methodologies	Knowledge and methodologies on *in situ*/on farm conservation and utilization of horticultural crops and wild fruit species are available, disseminated and used.	• Assessments of diversity and adaptability + socio-economic status of farms • Demonstration plots and nurseries established and best varieties identified • Network of databases on species and varieties • New Technologies, Scientific Guidelines and recommendations on non-breeding uses of varieties	• Complex assessments across region completed twice; data processed; analyses contributed to understanding • Farmer innovation contributed to improved use; interactions with scientists validated and improved knowledge and skills • Information on, and increased availability of, useful varieties through many new nurseries in all countries provided the basis for the sustainable increase in diverse plantings • Sharing of information, aided by a clear protocol, improved knowledge about and use of diverse varieties across the region • Scientifically validated technologies, reinforcing farmers' skills, for propagating, growing, protecting and processing, with improved information about markets, added value to farmers' incomes and use of varieties in regeneration of degraded environments, improvements in soil and water conservation, contributing to sustainability
3 Broad Participation & Strong Partnerships	Broad participation and strong partnership/links among farmers, among farmers and institutions, between farmers and institutions, and the private sector, and among countries are established	• Setting up local committees and Farmer Associations • PRA methods used to assess strengths and weaknesses, and constraints and solutions, of linkages at national and regional levels • Collaboration agreements on access to, and exchange of, information, among all partner institutions	• Different types of formal and informal associations help coordination in Oblasts; feedback to, and farmer and forest-user participation in, NSCs help guide the project • The resulting support for respected and influential actors and institutions, and their linkages at all levels within each country and across the region, became the basis for sustainability beyond the project • Data collection and exchange among all actors enhanced by the agreements, providing options for long-term use of the information to support conservation of

[138] The wording of the Outcomes has been edited for clarity of planned intentions

Component	Expected Immediate Outcome[138]	Key Outputs	Contribution to Outcomes
		• Information on farmers' achievements and activities documented and farmer contacts shared • Annual diversity fairs • National and Regional scientific and practical conferences organised	varieties of the target species • Farmer knowledge, skills and innovations recorded and shared Farmer and forest user interactions improved, with benefits for conservation and use of target species • Diversity fairs showcase varieties, skills, technologies and associated information, increasing interest in issues and dissemination of varieties of target species • Conferences bring together key actors from within the region at which consolidated project information presented and shared widely through reports
4 Capacity Building	Capacity for training and support activities on *in situ*/on-farm conservation and use of fruit species genetic resources is established	• National and regional training centres established • Training programmes developed and manuals produced • Facilities for training, farm/diversity surveys, data analysis available; appropriate tools for cultivation provided • Participatory workshops and exchange visits organised • National and regions ICT networks established	• Training centres setup in existing institutions; also provide opportunities for increased interactions between partners, contributing to sustainability • Methodologies and information made available for current and future trainees, ensuring capacities can be retained • Facilities beyond the centres provided outreach into farms and forests; tools improved quality of propagation, cultivation and processing • Exchange visits and workshops expand and embed capacity and associated knowledge, developed by the project, of benefit beyond the project • ICT networks improved capacity to record and exchange information and help to retain relevant knowledge for future use
5 Project Implementation	Establish an executive organization structure that assures an effective execution and monitoring of the project (an administrative outcome – not part of the project logic)	• Ensure regional and national level project implementation infrastructure in place and in operation and that project implementation was administrated properly • Progress and financial reports completed on time, although burdensome; Annual work plans prepared and implemented and M&E carried out • Required personnel available • NSCs and ISC established	• Project structure established, personnel appointed and project implemented efficiently and effectively, leading to impacts, in accordance with its objectives, through effective execution and monitoring of the project; the mid-term evaluation contributed to project development

3.3 Effectiveness

168. This section identifies the extent to which the project's objectives were effectively achieved, considering 1) the achievement of immediate outcomes; 2) the likelihood of achieving impact; and 3) the extent to which it achieved its development objective and goal. It is reinforced by the findings in Section 3.6 that evaluate the factors and processes affecting project performance.

169. A key aspect of effectiveness was the regional approach taken by the project. This provided an overarching reason for the effective achievement of the project's outcomes and is mentioned here as a preamble to the consideration of the detail about the achievement of the immediate outcomes.

170. The regional approach provided an effective way of addressing the conservation and sustainable use, on-farm and *in situ*, of the high diversity of the economically important perennial, fruit and nut bearing species endemic to the Central Asian countries.

171. The design of this project as a regional one made it strategically relevant as it was therefore able to address the common issues across the transboundary ecosystems of the region, issues that are recognised of strategic importance internationally e.g. by UN Environment, GEF and the CBD.

172. This regional project was able to develop policy and practices across the region that can help reverse the decline in the agricultural biodiversity of the target species. In the project, each country addressed in detail a sub-set of the target species for the project's activities in conservation and use on-farm. The work, *in situ*, with the target species in the 'wild' was similarly selective, based mainly on the prevalence of the species in the wild in each country. Taken as a whole in all countries, however, the project was able to provide coverage of all the target species across the trans-boundary ecosystems.

173. The style of regional coordination provided by Bioversity International was key to the effectiveness of the project. While regional in its mandate, the coordination was driven by national requirements and demands. It facilitated the necessary linkages, regional training, information dissemination, data collection and exchange, policy formation, the platform for agreeing regional priorities to address common issues, and identification of high quality backstopping, all of which were essential elements for success.

174. The logic of the project was rooted in identifying lead institutions and key actors, the development of the knowledge and skills needed and the preparation of policy proposals that would support the development of the project and the realisation of its impact and goal (see Section 2.8.1). The following section on Immediate Outcomes will be presented in that order.

3.3.1 Immediate outcomes

3.3.1.1 Outcome 3:

"Broad participation and strong partnerships/links are established among farmers, among institutions, between farmers and institutions, and with the private sector, and among countries."

175. From its outset, the developers of the project, which became its Regional Coordination, drew on the expertise in each country to identify leading institutions which worked together to prepare the project through the PDF A and PDF B processes (see Section 2.7). These institutions then identified lead farmers and forest users with whom the project could work in each country.

176. Together these steps were, perhaps, the main reason the project was effective; identifying the institutions and people that would drive the project led to successful outcomes.

177. Because this process then became embedded in the project structure (Component 3) the work continued, drawing in more organisations and people in strong partnerships with a broad

participation of key actors (see Annex 7 for a list of key stakeholders). This approach was regarded as very effective and led to a continuation of the partnerships beyond the project.

178. Effective partnerships increased the cultivation of local endemic varieties and extended the conservation of varieties of the target species in the wild. They were dependent on the inclusion of influential leaders and institutions that promoted engagement of a wide range of other institutions and actors.

179. The influence of the project's lead actors from local farming communities as well as forestry enterprises, some of whom were also in the National Steering Committees, developed and promoted good practises, advised by scientific and technical institutions.

180. This approach to inclusive participation reinforced all project activities, heightened awareness of the importance of the project and stimulated the project's influence on policy and practices. The influence of this leadership, as well as that in the lead institutions at national levels, grounded the project in an enduring institutional framework embracing local, national and regional partnerships that have lasted beyond the funded life of the project.

181. The institutional leadership of effective partnerships, ably assisted by the technical backstopping from Bioversity International, created a sense of trust by developing agreements about the collection and use of data, through participatory processes and free prior informed consent procedures. The resulting focus in policy issues on Farmers' Rights and Access and Benefit Sharing further increased the interest of lead actors and participants.

182. The project's deliberate incorporation of partnership and participation activities in a specific component of, rather than as a side activity of project management, resulted in an inclusive and trusting approach being embedded within the project, providing a focus on sustaining engagement and partnerships for the long term. It also increased the confidence of actors, at all levels, to carry out activities and secure benefits. These benefits were both in terms of recognition of their contributions to the issues addressed by the project as well as improved institutional recognition for their scientific enquiry and technical competence, and economic benefits for participating families and their communities.

183. Senior university staff to representatives of GEF and directors of national institutions welcomed the work of the project, in particular because it was inclusive, effective in delivering the planned results, and it was leading towards further collaborations at both local (farmer/forest user) and at national levels – and between both levels (see Section 3.2.3). It also opened up the possibilities of new regional and international projects that would continue the effort to support, develop and implement work on sustaining agricultural biodiversity on-farm and in-forest in the transboundary ecosystems of the region, with local, national and regional benefits (see Pathway 1, Section 2.8.1).

184. Farmers and Forest Users found the partnerships very supportive in the way they enabled an inclusive dialogue and the mutual exchange of information, knowledge and skills between themselves and scientists and technicians, partnerships that are lasting beyond the life of the project (see Section 3.2.3).

3.3.1.2 Outcomes 2 & 4:

"Knowledge and methodologies on in situ/on-farm conservation and utilisation of horticultural crops and wild fruit species are available, disseminated and used."

"Capacity for training and support activities on in situ/on-farm conservation and use of fruit species genetic resources is established."

185. The project was effective in identifying the knowledge and skills required to realise these outcomes and then finding ways of developing and delivering benefits for different actors – both scientists and local people.

186. The project was able to realise these outcomes (see Sections 3.2.2 and 3.2.4) by working with scientists, advisers and practitioners in developing and further disseminating the knowledge, methodologies and capacities that were enhanced through the project.

187. The innovations, varieties and practises of knowledgeable farmers and forest users, validated and supplemented by the contributions of scientific and technical institutions, underpinned the uptake of results in orchards and vineyards as well as in forests and other uncultivated areas.

188. The widespread uptake of the techniques for the protection, propagation and planting of endemic varieties of the target species, on-farm, in forests and in uncultivated areas, was the result of the use of their knowledge about these methods, supplemented by the identification of good varieties information about improved techniques and the provision of appropriate equipment. It was also driven by the demand for planting materials of these locally-valued varieties and their produce and the resulting benefits to nursery owners.

189. The opportunity for benefits to be derived from the use of 'farmers' varieties' (FVs) of the target species with traits of potential breeding value in the development of more productive new varieties, was facilitated by setting up officially-recognised registers of local varieties supported by related policies for realising Farmers' Rights.

190. Effective demand by farmers and forest users to scientific and technical institutions for information was engendered by the project and resulted, inter alia, in the development of demonstration plots and nurseries, the source of planting materials for widespread uptake.

191. This mutually-welcomed sharing, in a context of trust, of knowledge and expertise, was encouraged by the incentives provided by the project in terms of the recognition of skills, expertise, rights and knowledge. By developing agreements for the use of information collected and produced by the project, the systematic collection of data on local varieties found on-farm and *in situ*, in orchards, vineyards, on household plots and in forests and uncultivated areas in the region was enhanced.

192. This approach enabled the project to collect and share valuable data, which were used in the analyses that resulted in guidelines, methodologies, and policy proposals as well as public awareness materials and scientific papers. These project-developed agreements or protocols required that the providers of the data /information – local farmers and forest users, and national researchers working with materials and information derived from local production, local forests and local knowledge – were recognised in project-related documents, reports and papers.

193. Environmental and related improvements were achieved through the planting and/or conservation of endemic varieties of the project's target species as they also provided economic benefits to the participating farmers and forest users through improving production and processing, regenerating degraded lands and from the large-scale sale of saplings of endemic varieties of the target species. This was a further stimulus for ongoing increases in the area planted with endemic varieties of the target species.

194. The effectiveness of this approach can be seen in the quality of the results and the uptake they have achieved. For example, the methodologies developed for data collection and sharing created the trust needed to ensure information was shared and used widely. These methodologies helped identify, among other things, the varieties of the target species with special value that could be propagated in large quantities in farmers' nurseries, a key result of the project ensuring sustained use of endemic varieties over larger areas of land than the project sites (see also Pathway 2). For farmers and forest users, and the success of the project, this outcome was, perhaps, the most valuable result, providing sustained benefits.

195. For institutions, the development of regional-level training capacities was perceived as an especially effective way of delivering the necessary skills with which to implement their

contributions to the project; they were also effective in avoiding duplication at national levels. Demand for training continues beyond the life of the project using national resources.

196. The outputs of the project have been shared widely through scientific conferences beyond those organised by the project itself. For example, in 2013 alone, scientists from the project participated in the following conferences and workshops: "Conservation and management of the gene pool of wild fruit forests of Kazakhstan" (Kazakhstan); Conference of Young Scientists "Start in Science" (Kyrgyzstan); "Using Genetic Biodiversity to Increase the Quality of Organically Grown Fruit" (Poland); Inter-agency Committee on Cooperation between Kyrgyzstan and the Global Environment Facility (GEF) (Kyrgyzstan); Regional workshop for Aral Sea Action Site within CGIAR Research Program on Dryland Systems (Karakalpakstan, Uzbekistan); Inception workshop for the project "Conservation for diversified and sustainable use of fruit tree genetic resources in Central Asia" funded by Luxembourg Centre de Recherche Public - Gabriel Lippmann (CRP-GL) (Uzbekistan); "Fruit Cultures and their Traditional Knowledge Along The Silk Road Countries" (Armenia-Georgia); Regional workshop on Sentinel Sites within CGIAR Research Program on Food, Trees and Agroforestry in Central Asia (Uzbekistan).

3.3.1.3 Outcome 1:

"*Policy options are available and used for supporting farmers and local communities to conserve, in situ/on-farm, local varieties of horticultural crops and wild fruit species."*

197. The development of policy proposals to support local farmers and forest users, especially the focus on Farmers' Rights and ABS, was effective in increasing the interest and engagement by project actors at local levels. Together with the participatory and inclusive approach and the agreement on data access and use, it built the trust that was effective in enabling the project to gather and share information.

198. The influence of the lead actors at all levels was embedded in the design of the project: it was found that both scientists and technical staff in institutions and farmers influenced policy makers. This resulted in increased awareness of the need to find appropriate ways of securing effective measures for sustaining agricultural biodiversity in all the countries across the region.

199. National obligations resulting from international agreements also provided a stimulus for interactions by policy advisers with project staff and consultants on policy development in order to enact required laws and regulations in each country.

200. In the process of providing policy advice, project actors were able to propose the promotion of measures at local and national levels, which could support project-determined practises that foster diversity in the production of fruit and nut bearing species and an extension of the area planted to these species, including endemic varieties of walnut, almond and pistachio. The latter was further improved through proposals to encourage supportive land tenure arrangements. Inter alia, these measures would also encourage equitable access to resources and benefits, help towards the realisation of Farmers' Rights (FRs) and improve Access and Benefit Sharing (ABS), measures found to be necessary for sustaining the biodiversity of the target species.

201. Policy advice was strengthened by the multiple information outputs of the project.

202. The project reached out to other areas of the administration beyond agriculture and the environment, for example, education. One result, beyond the scope of the project was the inclusion of relevant studies on fruit and nut bearing species in a national university.

203. Farmers and forest users welcomed the interest shown by the project in ensuring their rights were fulfilled.

204. For government and national institutions it was also effective in ensuring national legislation incorporated these measures, derived from international obligations. It proved an effective way of

informing the development of national policies, norms and programmes, which include the project's recommended approaches which are expected to lead to an improved policy environment for sustaining agricultural biodiversity and securing benefits for society (see Pathway 3).

205. At international levels, the policy work was effective in making the experiences accessible to a wide audience. For example, the "Guidelines on Access and Benefit Sharing in research projects" produced by the project was selected for posting on the CBD website as a model approach to this type of work (see Section 3.2.1.1).

The rating for realising Immediate Outcomes is Highly Satisfactory

3.3.2 Impact

206. The Theory of Change (ToC) of the project depicts the causal pathways from project outputs through outcomes towards impact i.e. long term changes in environmental benefits and well-being. It identifies the pathways from outcomes to intermediate state that need to be achieved if impacts are to be realised (see Section 2.8).

207. The drivers described in the ToC were instrumental in stimulating and sustaining the project's interventions by project partners at all levels. The leading partners were able to build upon these to secure positive outcomes and also mitigate potential negative effects. For example, in Uzbekistan, through engagement by a lead project partner with decision makers, interest in expanding the area of non-irrigated perennial fruit tree crops was achieved and resulted in a positive policy change. In Kyrgyzstan, a required change in the coordination at national level was achieved with minimal impact on the project through the strength of the local partnerships.

208. An assessment of the ToC with the Regional Coordinator confirmed that the project, two years after funding had ended, had almost reached the intermediate state towards its impacts.

209. The project had developed and tested proven methodologies, *in situ* and on-farm, to enhance the conservation and sustainable use of endemic, perennial, cultivated and wild fruit and nut-bearing species of the target species and their wild relatives.

210. The project had also demonstrated that these methodologies can provide improved agricultural and forest development, food security, livelihoods and environmental resilience.

211. The evaluation has confirmed that the achievement of outcomes have indeed improved conditions, at least in the areas in which there were project sites, for the continued realisation of all the four operative outcomes (see, for example, Section 3.6.3 (strong partnerships) and 3.6.4 (public awareness)).

212. The TE confirmed that the outcomes are well-embedded in local realities and, two years after the end of the project, work is continuing with every expectation that desired impacts could be achieved, subject to continued expansion of the practices and there being no adverse changes in the social, environmental, economic and political contexts.

213. A particular driver for reaching impact is the project's strong engagement with significant actors at all levels. They have benefitted from the project and because of this, and the way in which the relationships developed, the outcomes of the project will be sustained towards impact (see also Section 3.4).

214. While the evidence for the above from interviews and site visits attested to widespread uptake of some of the project's key outputs, as the project had limited capacity for formal monitoring of key factors beyond the project sites. Evidence for confirming project-derived outcomes leading to attributable changes in widespread conservation of the PGRFA of the target species and the land

and water resources upon which they depend, as well as for benefits derived from the improved environment and for human well-being among the wider community, is mostly anecdotal. Such formal monitoring could be done over subsequent years but would be dependent on resources being available to national institutions and authorities over the long-term.[139]

The rating for achieving Impact is Likely

3.3.3 Formal project objectives

215. For the reasons described in the Section 3.3.2, the project is on track to realise the project's stated aim 'to conserve the high diversity of horticultural crops and wild fruit species found in the Central Asian countries, a resource of global significance'. By working in countries across the region, it was able to develop methodologies that addressed the challenges in the transboundary ecosystems.

216. These methodologies demonstrated that *in situ*/on-farm conservation and use of endemic varieties of the target perennial fruit and nut bearing species contribute to "sustainable agricultural development, food security, and environmental stability".

217. As elaborated in Section 3.2 the results are especially positive in terms of engaging lead actors at all levels whose advocacy and example has driven the extension of the methodologies for widespread propagation and use of endemic varieties of crops by local farmers.

218. The methodologies have also demonstrated that, through inclusive engagement with forest users, measures to improve the regeneration of forests and uncultivated areas can lead to environmental stability.

219. A continuation of the activities (see Section 3.4.2), perhaps supported by other projects, will be necessary to extend these methods in ecosystems across the whole region.

The rating for realising the Formal Project Objectives is Satisfactory

The overall rating for Effectiveness is Satisfactory

3.4 Sustainability and Replication

3.4.1 Sustainability

220. An overall comment is that the no-cost extensions of the project were crucial in enabling the effects of the project to become fully established so that activities could continue with on-going backing from national institutions. The evidence of sustainability is shown in many of the evaluative findings in section 3.2. Many informants contributed their views on how the project had been able to become embedded in policy and practice and these are reflected in this TE and the lessons learned: effective partnerships and influential leadership; knowledge and skills underpinning uptake; the development of supportive policy; and the efficiencies of a regional approach (see Section 4.2). They also pointed out that had the project ended in 2011, it might not have had such an impact and sustainability would not have been assured. This raises questions about timescales for implementation and the reality that this type of project, working across several countries and transboundary ecosystems in a region, requires more time to fully attain its outcomes.

[139] This observation was made by some of the technical backstopping staff.

3.4.2 Socio-political sustainability

221. The project has engendered sustainability in both national institutions and at local levels by establishing ways of working that are mutually supportive. The policy environment has also improved with legislation and norms more supportive of the purposes of the project and increasingly in line with international obligations.

222. The project's deliberate incorporation of partnership and participation activities in a specific component, rather than as a side activity, of project management, resulted in an inclusive and trusting approach being embedded within the project, providing a focus on sustaining engagement and partnerships for the long term. Senior opinion formers welcomed the project and could see that was leading towards further collaborations at both local (farmer/forest user) and at national levels – and between both levels. Farmers and Forest Users found the partnerships very supportive in the way they enabled an inclusive dialogue and the mutual exchange of information. Because of this strong socio-political support at all levels, the project also opened up the possibilities of similar new regional and international projects (see Sections 3.2.3, 3.3.3.1).

223. These strong partnerships also strengthen the likelihood of socio-political sustainability at all levels including with the international agricultural biodiversity community (see section 3.6.3).

224. Socio-political sustainability in terms of systemic policy engagement in advising on laws, regulations, it was found that there was important progress. Project participants regularly reported on and informed the consultant that state-level programmes are increasingly favouring the local production of fruits and nuts and can be supportive of the use of local endemic varieties. Specifically, for example, Kyrgyzstan adopted a law on the inclusion of addenda and changes in the Forest Code of the Kyrgyz Republic dated July 2, 2007, no. 94, to include in the list of valuable tree species (art. 57-1) Pistachio and Wild Almonds. And in Uzbekistan, the project advised successfully on strengthening the monitoring of the implementation of existing laws and regulations relevant to the conservation of fruit crops and their wild relatives (see section 3.2.1.1). The consultant was informed anecdotally that there is, however, pressure from suppliers of planting material produced from outside of the region to have these used in some new projects.

225. The engagement of governments in the progress of the project was achieved, as appropriate, by project partners at national levels. As reported above, the specific work on policy and legislation was welcomed in particular. In addition, planned and unplanned interactions with government representatives and politicians achieved important results for the work and the broader context in which it was set e.g. policy on land and water allocation, prioritisation of planting material from endemic varieties etc.

226. The over-riding reason for success in achieving this criterion is, perhaps, the embedded country driven-ness in the development, management and execution of the project. Project partners in each country have reported to the consultant a feeling of ownership of the project and a desire to see the fruits of the project benefitting many more people. This strong systemic institutional basis of the project provides for a high likelihood of it being sustained.

The rating for Socio-political Sustainability is Likely

3.4.3 Sustainability of financial resources

227. An important evaluative finding in section 3.2 was the sustainability of the project resulting from the economic benefits realised by participating farmers and forest users. The economy of many people associated with or benefitting from the project improved during its implementation.

Surveys showed significant improvements in income and well-being. For example in the project's socio-economic assessments carried out three years apart in Uzbekistan, they identified 30% improvements in incomes of project farmers (see Sections 3.2.2.1 and 3.6.3). The lead farmers that the consultant visited have continued to increase benefits derived from project-initiated activities, which have also contributed to the objectives of the project.

228. As noted in Section 3.2, this indicator of financial sustainability is the result of the increasing demand for saplings of endemic varieties of the project's target species. Durable economic benefits for the participating farmers and forest users are likely to continue and will ensure further increases in the area planted to these varieties in coming years.

229. In terms of the financial sustainability of the scientific and technical institutions involved in the project, the evidence from reports and interviews is that the reputation of these institutes has been enhanced by the project. Furthermore, the issues addressed by the project now have greater relevancy and improved the status of the institutions in official circles. These effects are leading to new projects in some countries in the region seeking to learn from and use the results of the project and the resources of the institutes, including the national and regional training facilities. These initiatives will bring new resources to bear on the issues addressed by the project and help with the financial sustainability of the institutions (also, see Section 3.4.2).

The rating for Financial Sustainability is Likely

..

3.4.4 A sustainable institutional framework

230. As evaluated in section 3.2, the institutional framework, with its embedded strong partnerships and broad participation, has been key to the success of the project. All the key institutes involved in the project have been strengthened through the project process and continue to work on similar issues on their own account and in new, related projects. A cohort of young male and female scientists has been trained through the lifetime of the project and is now spread across many institutes and universities in the region. One young scientist expressed his gratitude to the project which he joined as a student and has now completed his PhD - the project provided the environment in which he could develop; he now supports work related to the project in a number of institutes (see Section 3.2.4).

231. Training facilities developed by the project continue to be available for the benefit of scientists, farmers and forest users across the region. For example, in Kyrgyzstan the walnut training centre, supported by the project up until 2013 with minimal inputs, continues to provide training to practitioners in the production and processing of walnuts and the associated methods for sustaining and regenerating the walnut forests of the region. The regional apricot training facility was set up by the project in an agricultural institute in Khudjand, Tajikistan and it continues to work on promoting best practices for apricot growing, drying and processing; they are holding an international apricot conference this year.

232. At local levels, lead farmers and their colleagues in communities, many of whom were members of the SCCs and MSCs, have continued informal relationships especially for purposes of increasing the availability of endemic varieties of the target species. Some of these relationships are formally recognised and national, Oblast or local levels, others are more informal but have similar impacts. The key to the strength of these relationships is, the consultant observed, the increased confidence of the lead farmers and their strong relationships with formal institutions and policy makers, engendered through the project.

233. Regional activities, although somewhat diminished since the end of funding still continue. For instance, there continues to be sharing of information across the region. The common electronic information resources and databases are accessible to people in all countries. There is a desire to continue working together across the region and multi-country projects are still being developed, dependent on the restricted availability of funds.

The rating for Sustainability of the Institutional Framework is Likely

3.4.5 Environmental sustainability

234. As evidenced in the evaluative findings described in Section 3.2, by showing the added benefits of using endemic varieties of the target species in environmental improvement activities, such as soil and water conservation or regeneration of forests, the use of these species has increased, covering wider areas, providing the basis for further environmental sustainability across the region.

235. The environmental benefits from conserving and using a wide range of species, was the result of organising this work as a regional project. The advantage of a regional project is that it facilitated the inclusion of more species than would have been possible if the work were only carried out by only one country. This is due to the distribution of the species and different ecologies, capacities, demands and opportunities in different countries.

236. While the number of target species was expanded from 12 to 14 during project development and execution to include Currants in Kyrgyzstan and Mulberries in Tajikistan, not all countries included all the target species. For example, the numbers of species prioritised in demonstration plots and nurseries varied between 4 and 8 per country. Of the species, Apple, Apricot, Grape were included by all countries, and Almond, Alycha/Cherry Plum, Fig, Peach, Pistachio, Pomegranate, Pear, Sea Buckthorn, Walnut, Currants and Mulberries were included by at least one country (see Section 3.2.2). The regional approach allowed complete coverage of all the species, enabling appropriate use of the endemic varieties in improving the environment. For example, in several countries in the course of the project, improvements in the productivity of steeply-sloped, degraded and arid lands using endemic varieties of the target species were transformative (see section 3.2.2.1). The learning from this work provides a basis for further replication across the region's transboundary ecosystems.

The rating for Environmental Sustainability is Likely

3.4.6 Catalytic role and replication

237. The project created an enabling environment that facilitated further extension of project results, especially at local levels, but backed by institutional support and policy changes. Details about the project's achievements in creating this are evaluated in Section 3.2 and Section 3.3.

238. Two years after the completion of the project, project-initiated activities appeared to be increasing at local levels (see 3.2.2). For example:

a. in one community in Tajikistan the project's lead farmer, a former brigade leader in Soviet times, is currently producing up to 30,000 saplings of local endemic varieties of fruit trees per year. His 16 local associates, who had been members of the local project committee, are producing similar numbers and others in the community are following their lead. It has been said, though no surveys have been conducted to corroborate this, that since the end of the project in 2013 they have produced some two million saplings and have sold and distributed these throughout the country and to neighbouring Uzbekistan and Afghanistan;

b. also in Tajikistan the region's rich diversity of apples and pears is being recovered and propagated for commercial use including, for example, the propagation of cuttings from the last surviving tree of an exceptional variety of early ripening red apple, which was in a village that was forcibly evacuated in Soviet times; this variety is now grown in orchards;

c. in Kyrgyzstan, a forest user – a former forestry officer – has set up a nursery producing walnut saplings grown from the nuts of selected trees in the local natural walnut forest in Karalma. Since the end of the project he has sold many saplings including 100,000 to a discerning buyer in Kazakhstan who is developing a commercial plantation;

d. in Uzbekistan, the ongoing restoration of pistachio 'forests' in arid lands (pistachio plants are usually widely spaced in these plantings) is enabling households to harvest from plants nearer to their homes, leaving the 'wild' plants to regenerate naturally;

e. Similar examples abound in these and the other countries for the sustainable production and processing of endemic varieties of apricots, grapes, currants and other target species.

239. New projects, some backstopped by Bioversity International, are using the learning from this project in developing their project plans, thereby not only extending learning but also the modus operandi of the project, which contributes to sustainability. These include climate-adaptation projects using perennial fruit and nut bearing species as well as more commercially-focused projects wanting to disseminate good practises in the production of fruit from endemic varieties of the project's target species.

240. Other projects using the results and learning from the project include: Research Program on Forests, Trees and Agroforestry (CGIAR); Research Program on Dryland Systems (CGIAR); Research Program on Water, Land and Ecosystems (CGIAR); Conservation for diversified and sustainable use of fruit tree genetic resources in Central Asia (CRP-GL); and the GEF project "Conservation and sustainable use of agricultural biodiversity to improve regulating and supporting ecosystem services in agriculture production in Uzbekistan"; as well as new projects supported by USAID, IFAD and GIZ.

241. While indicators show the project to have contributed to sustainability and that the project has catalysed replication of activities across all countries, especially in relation to the production and dissemination of saplings of endemic varieties of the target species, which, in turn may be used for environmental as well as economic purposes (see Section 3.2.2), there are two concerns, highlighted in the ToC that could have a negative impact on this:

a. Production practises by participating farmers tend to be monocultural within their specific areas of production (their orchards and vineyards)[140] and they are increasingly dependent on agrochemicals for pest and disease control, with implications for human health and wider agricultural biodiversity in the growing environment.

b. While the market is currently vibrant for the early-ripening local endogenous varieties of, for example, apples, there is significant negative pressure from the market for local production of late-ripening exogenous varieties and from imported fruits later in the season. Equally, the export market makes demands for uniform produce of few varieties, often exogenous, which would further erode the agricultural biodiversity of the endemic varieties of the target species.

242. The policy activities have also had a catalytic effect on other work, as cited in Section 3.2.1; for example, the work on developing methodologies, protocols for data collection, sharing and use,

[140] Of course, for varieties that are not self-fertile (e.g. many apples and pear varieties), at least one other variety, flowering at the same time, is necessary nearby in the orchard to ensure successful pollination. However, higher rates of varietal mixing can provide production benefits and disease and pest reduction. For perennial fruit trees and grape vines harvested manually, separation of the fruits harvested from individual plants is relatively straightforward.

policy advice on Farmers' Rights and ABS (taken up by the CBD). Equally, the scientific work developed capacities in institutions and training facilities that will endure, especially among a younger generation of scientists, with a prodigious output of information available for future scientific enquiry. New projects in the region will also continue similar work (see Sections 3.2.2 and 3.2.4).

243. The results of the project were presented at national and regional scientific conferences leading to increased interest in the work and how the project addressed the issues. They have impacted on national university curricula. They have been widely shared including at international meetings, for example in India and Europe, and at meetings of the CBD (see Section 3.1.3) and are available through the project web portal. Further dissemination of the results was achieved after the project ended and continues.

The rating for the project's Catalytic role and Replication is Highly Satisfactory

..

The overall rating for Sustainability and Replication is Likely

..

3.5 Efficiency

244. It was confirmed, through interviews with relevant staff at all levels that the project was carefully costed[141] and completed all tasks within budget (see 3.6.6). It was assisted by significant amounts of co-financing, much of it in-kind, (see Annex 4) which provided the necessary resources for the completion of the work, beyond the budget provided by UN Environment /GEF (see Table 1).

245. The project was granted no-cost extensions, extending the project by three years (see Section 2.4). This delay in completion proved positive in terms of providing additional time for some of the activities to contribute to sustainable outcomes, as observed in the TE (see Section 3.4).

246. The monitoring at all levels maintained the project's efficiency (see Section 3.6.8). This evaluation has not carried out any detailed reviews of other similar projects but, through interviews with members of the project team and the UN Environment -GEF Task Manager, it appears that this project is on a par with others in terms of efficiency. It has achieved its outcomes but the economic benefits of these have yet to be fully realised for at least two reasons. First, whilst arresting or slowing down environmental destruction has been achieved on a limited scale by the project, with associated benefits to biodiversity erosion, given the time needed to embed, for example, environmental improvements, the benefits of these may not be seen for many years. Secondly, while plantings of endemic species have been increasing, the long life cycle to full economic production of the target perennial fruit and nut bearing species being grown means that widespread benefits are not to be expected for some years to come. An *ex post* assessment in a decade or more could be instructive.[142]

247. The project's attention to inclusion was remarkable and efforts were made to ensure equitable engagement with both women and men. In the context of the cultures emerging since independence, the project succeeded in using its resources to promote the inclusion and interest of women at all levels, from senior scientists to project management and coordination to the involvement of women in most project activities at local levels (see Section 3.1.1.1). As noted above in Section 3.4, the number of young women involved in and benefitting from the work of the

[141] But see also the Footnote in 3.2.4 about building in increased equipment budgets and renewal of the same.

[142] See Gotor E., Caracciolo F., Elias M., Trincia C. (2015) Livelihood implications of *in situ*-on farm conservation strategies of wild fruit species in Uzbekistan. Bioversity International series of Impact Assessment Briefs no. 16. Bioversity International, 6 p

national institutions on this project is laudable and promises a continuing influx of female scientists and technicians for future work on these issues.

248. Human Rights (HR) issues, other than those of Farmers' Rights and access to genetic resources and land, were not addressed by the project.[143]

249. The project was efficient in its (often uncosted) use of existing resources of the project partners at both institutional and field levels. Its purpose to strengthen partnerships and improve participation, built into Component 3, included the relationships with other institutions, programmes and agencies beyond the project, exchanging information and expertise.

250. The linkages the project had with the wide network of CGIAR centres and their global programmes was one example of how the project used and shared information efficiently.[144]

251. The capacities of project partners were improved through the project with a focus on what was required for the delivery of the outcomes both in terms of improved policy as well better practices.

252. The sharing of facilities, information, data, methodologies and training across all countries, and the agreement on a regional approach to information dissemination, were approaches used which demonstrated the efficiency of this regional project, thereby limiting the need for duplication at national levels.

The overall rating for Efficiency is Satisfactory

3.6 Factors and processes affecting project performance[145]

3.6.1 Preparation and readiness

253. It is worth recalling that the project was designed in the context of the former GEF's Operational Programme 13 on Agricultural Biodiversity (OP 13), which provided the framework for the preparatory process and links with many similar projects (see Section 3.1.2). It is also relevant to note that as IPGRI/Bioversity International was the executing agency, many links with other related projects in the region and beyond were easily achieved – in fact these became an important feature for mutual learning. It is also important to recognise the significance of a credible regional coordination to facilitate good management of the project across all countries (see Section 3.2.5).

254. The preparatory process over some five years, including both a PDF A phase and a PDF B phase, was thorough. It made it possible to research, develop and test the proposed activities and formulate these into logical outcomes in the full Project Document. It engaged key actors in processes that were manageable at local, national and regional levels, and achieved agreement which among these should be involved in the National Steering Committees (NSC).

255. The Optional Annexes[146] to the Project Document detail the result of research and activities carried out during the PDF A/B process. These included: listing relevant Legislation and Policy (Annex E);

[143] Implicitly, according to the ultimate goal of the project to improve food security, it was also concerned about the Right to Food but the impact of the project on this at national and regional level was not monitored, so far as the evaluator knows.

[144] For example, the follow-up work, which focuses especially on the use of the perennial target species in adaptation and mitigation to climate change, and for improved nutrition, as well as the realisation of conservation goals (such as Aichi Target 13), through projects with other CGIAR programmes and with other donors, is testament to the efficient way in which the project prepared its human, intellectual and information resources for ongoing use by others.

[145] In addition to the evidence described earlier, and especially in the evaluative findings described in Section 3.2, and referenced in this section, much of the evidence of the factors and processes affecting project performance was provided by interviewees, whose accounts were cross-checked, with corroboration found in correspondence and reports. Sources have not been individually identified.

[146] The Project Document's Optional Annexes were nearly 150 pages in length and, although they were only summaries of the preparatory work carried out, they contained significant detail of the work done and the proposed actions that were agreed should be undertaken by the project.

detailing the proposed management structure and partners (Annex F); descriptions of survey procedures to assess the diversity of important crop species (Annex H); criteria for the selection 'target' species for the project at national levels, agroecosystems at regional level, and specific sites for project activities (Annex I); development of a strategy for developing the required information and communication technology (Annex J); a strategy for the application of a participatory approach (Annex K); a training strategy (Annex L); and a monitoring and evaluation plan (Annex M).

256. These preparatory processes involved actors at all levels and were supported by the technical backstopping from IPGRI (now Bioversity International).

257. The PDF A/B process allowed time to achieve agreement, across all countries, on the main challenges and required responses, the selection of the target species, the identification of necessary institutional support, the identification and inclusion of influential key actors in the preparatory process, and the definition of practical, policy and legal processes that would need to be undertaken, many of which, identified in the PDF A phase, were tested during the PDF B stage, including the selection of target species, project sites, partners, modalities of operation etc..

258. The inclusion of all key actors was a feature of the preparatory process (see Section 2.3) and those interviewed were satisfied by the process, especially as it had involved them in, and many had benefitted from, the PDF A and PDF B activities.[147] The time available for preparation allowed careful selection, mainly by partners in-country, of the range of actors with opportunity for assessment of their capacities. In almost all cases the choices withstood the test of the implementation phase (see Section 2.7). They brought with them significant in-kind counterpart funding and helped with the identification of, and acceptance by, other donor requests for support. Their connections with ministries and important policy advisers and policy makers were a factor in their selection, facilitating the necessary connections with government for identified changes in legislation (see Section 3.2.1). Embedding partnership and participation in the outcomes was advantageous to securing sustainability, as evidenced by continuation of work after the project.

259. The final design of the project, building on the activities during the PDF A and PDF B processes, was approved by the actors which formed the NSCs in the full project.

260. In retrospect, even with the long preparatory phase, the proposed timeframe for the project was ambitious. The no-cost extensions of the project, agreed by all parties, proved, in the end, to be an advantage. Indeed, the further delay in the Terminal Evaluation has also been advantageous. Because of the nature of the principal resource with which the project was working – perennial fruit and nut bearing species – and the time it takes to establish or regenerate these plants, first of all in nurseries or protected forest areas and then in farmers' orchards and re-forestation plots, and then derive harvests, it was always ambitious to believe it could be achieved within a 5 year project. The no-cost extensions to 2013 and the further embedding of the activities in the subsequent 3 years allowed firm evidence of sustainable benefits to be realised and, with the delay until 2016 of the TE, the steps towards impacts could be verified.

261. The timing of the design of the project pre-dated any requirement to have it reviewed by UN Environment's institutional level Project Review Committee, a later addition to the planning processes of such projects. However, the project proposal underwent a review for STAP[148] and various members of the GEF Council commented on the draft project document. The project design team responded to these satisfactorily,[149] in addition to the review comments from the UN

[147] In order for there to be full engagement by key actors, many documents, including the project document itself, were translated into Russian – a significant task.

[148] The STAP Review was undertaken by Stephen Brush, University of California, 23 August, 2004 and the project responded satisfactorily. See Project Document Annex C and C1.

[149] Comments were received from the France, Germany, Switzerland and the United State of America. For full details of members' comments and the responses from the project design team, see Project Document, Annex D

Environment former Division of GEF Coordination (DGEF) internal proposal review process that was operational at that time.[150]

262. What is remarkable is that, 12 years after the STAP review, one can see the extent to which the project's responses to those comments had been internalised. In the outcomes achieved by the project, they reflect closely the intentions of the project designers as articulated in their responses to the reviewers.

263. For example, with respect to sustainability, there were concerns about the ways in which this would be achieved. The project design team responded by saying that sustainability would depend especially on the realisation of both monetary and non-monetary benefits at local levels as well as achieving solid institutional support, measures for both of which were central to the project design (see Section 3.4) and have proved effective in implementation.

264. Another comment, by the STAP reviewer, concerned "a possible tension between *ex situ* and *in situ* parties". As can be seen after the project has ended, the way the project included people and institutions responsible for *ex situ* collections was notable; it facilitated links between them and farmers and forest users. They were encouraged to open their *ex situ* collections to farmers, as 'demonstration plots', and make available cuttings of high quality local varieties of the target species to 'nurseries' for multiplication and distribution. They were also directly involved in the surveys of resources *in situ* and in people's gardens and orchards, identifying varieties that could be economically useful and assisting with their multiplication (see for example the work with the Kulyab Botanical Garden in Tajikistan Section 3.2.2.3).

265. A further concern was that some of the social and policy dimensions of the project were not included clearly enough in the project design. As can be seen after the event, they were prominent in implementation – for example the introduction of participatory methods, and, in some cases, more was achieved than could have been expected. For example, the approaches developed by the project on the complex and, for some of the countries, novel issue of Access and Benefit Sharing (ABS) were published prominently by the CBD as an example of good practice (see Section 3.2.1).

266. An area identified by several of the commentators was the institutional framework for the linkages with farmers, civil society and NGOs. The project design team responded adequately and planned this process carefully (see Section 2.3) but, in practice, it was handled in different ways as appropriate for each country's realities (also see 3.6.3).

The rating for the project's Preparation and Readiness is Highly Satisfactory

3.6.2 Project implementation and management

267. Project management was in good hands, as evidenced by the effective execution of the project over its extended lifetime. The role of the sub-regional office of IPGRI/Bioversity International, supported by the UN Environment-GEF Task Manager and backstopping staff, was decisive in facilitating good and fully accountable management and implementation in all countries. Although the main lines of the project proceeded as planned (with adjustments to timing as necessary) the detailed coordination of activities, including assessments, training, roundtables etc., reporting and the management of and accountability for financial flows, was a massive task in its own right,

[150] Divisional Review and Oversight Committee (DROC)

outwith the demands of IPGRI/Bioversity International, UN Environment and donors for frequent reports (all translated into English).[151]

268. The management of personnel involved in the project was devolved to national levels with the exception of those in the regional coordination, managed regionally and by the executing agency, and the appointment of backstopping advisers, many of whom were staff and consultants from Bioversity International. A remarkable feature of the project was its engagement of people and institutions many of whom stayed with the project for most of its long life. Some young scientists, recruited as students, were still working on project-related issues two years after the end of the project.

269. As the project had a long preparatory phase, the segue into full implementation was relatively smooth. The fully functioning ISC operated effectively. It met 7 times in different countries and included not just representatives of the national and regional coordination and the regional advisers, when appropriate, but also usually the UN Environment -GEF Task Manager and representatives from IPGRI / Bioversity International attended, together with key people from the national programme in the country in which the ISC was held. It received information from the National coordinators and NSCs and commented when necessary. It had a key role in monitoring the overall progress of the project and also in providing guidance. For example, when difficulties arose in implementation within the planned timeframe it decided how the timing of achievement of the milestones should be adjusted. It also helped with guiding the project on some of the regional matters raised by the regional advisers.

270. The Mid-Term Review/Evaluation proved a useful process.[152] After a detailed evaluation of the progress of the project, it produced 34 recommendations, which were considered by the ISC. These were all noted and many of them informed implementation in the later part of the project.

271. The NSCs, led by the national coordinators, were arguably the most important project implementation bodies. Because of the decentralised and country-driven approach adopted by the project, it was they who provided the necessary governance of the project at national levels. It was commendable the way in which the membership of the NSCs was inclusive of not only research and other national institutions but also usually had one or more farmers / forest users participating as a member. Mostly, their task was one of oversight of the plans and activities being coordinated nationally. When problems arose, they were resolved ultimately at this level.[153]

272. The assessment is that this national level of organisation, with the guidance of the ISC (and especially the Regional Coordinator and the UN Environment-GEF Task Manager),[154] was crucial for the success of the project; the project benefitted from having a broad enough range of individually significant actors as members of the NSC that enabled it to act I ways that were accepted by all concerned.

273. At local levels, the planned formality of local structures was perhaps not the most appropriate way to ensure good implementation. While in some countries, the local multidisciplinary site

[151] Planning does not always give sufficient attention to the time all this takes; the transaction costs of such projects can be considerable and can depend on the goodwill of coordinators, as in this case, if the tasks of coordination are not to displace project activities.

[152] MTR was done in 2008. He visited Turkmenistan and Uzbekistan and also met with most of the National Coordinators

[153] For example, in Kyrgyzstan, it became necessary to change the national-level implementing organisation and national coordinator in 2009 (see Section 2.5), which was achieved with minimal disturbance to the project because of the concerted approach taken by the NSC, backed by significant assistance from, among others, the Regional Coordinator and the UNEP-GEF task manager. A related action was taken at around the same time to move the regional training centre on Walnuts to another institution in Bishkek (see foot note in Section 3.3.4)

[154] In relation to some sensitive issues, the consultant has interviewed both the Regional Coordinator and the UNEP-GEF task manager and followed the email trails. What seems to have been crucial is the knowledge of both people about the local situations in each country, their ability to communicate easily with all parties (in Russian) and their willingness to intercede as needed, especially by phone. The amount of work to do this should not be underestimated.

committees (MSC) and site coordination committees (SCC) may have had some formality but, in practise, it was often more informal.[155]

274. A feature of the project (as described in sub-Section 3.3.3) was its ability to recruit influential individuals to lead activities at local levels. It was they who convened other farmers and forest users for project-related discussions and training sessions, for roundtables and other workshops and for collective actions, such as the development of nurseries. But, crucially, the project decided early on not to impose formal structures with stipends or other remuneration for the chairperson and secretary, and so on. As pointed out by interviewees, if that model had been adopted it would have engendered a dependency and would have limited the life of those bodies - and project-related activities – to the period for which there were funds to pay for their officials. Additionally, it could have caused ill-feeling among other farmers if some of their number were being paid to participate and others were not. That did not, however, limit the project's goodwill towards the local groups by providing them with good lunches when they met. [156]

275. As a result of this form of organisation locally, the informal associations between farmers and forest users continue, as reported by the project organisers and witnessed by the consultant in visits to project sites in Kyrgyzstan and Tajikistan. Similarly, with regard to the formation of Farmers' Organisations, the requirement was implemented differently in each country: different national realities and attitudes towards CSOs required different approaches.[157]

    a. In Uzbekistan there is a government-sanctioned Republican Farmers' Association and a representative from that body participated in the NSC. Individual influential individuals, bringing the views of farmers in their locality (but not necessarily representatives of a formal organisation), also attended from time to time. There was also collaboration with a farmers' innovation association.

    b. In Kazakhstan, Kyrgyzstan and Tajikistan farmers' organisations[158] were formed and in Turkmenistan, the project collaborated with local authorities who were actively working with farmers.

    c. In Kyrgyzstan the planned local committees met formally a few times and recorded their discussions in written reports. However, the people involved, including local government officials and influential individuals who had returned to rural areas from national level politics, continued to keep in contact and contribute to the success of the project and its follow-up.[159]

276. It should be noted that the interpretation and translation burden of the project was significant, for both project implementation and dissemination of project results and methodologies, and much of it was not costed putting additional burdens on project staff, especially the Regional Coordination.

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[155] 15 Site Coordination Committees (SCC) were established on a **provincial** basis in partner countries: Kazakhstan (3), Kyrgyzstan (2), Tajikistan (4) and Uzbekistan (6). In addition, 43 Multidisciplinary Site Committees (MSC) were set up in **project sites** to facilitate the project activities at site level: Kazakhstan (6), Kyrgyzstan (7), Tajikistan (9) and Uzbekistan (21). In Turkmenistan national partners, in consultation with local authorities (archins, khyakims) identified local focal points to coordinate and facilitate the project activities in the sites instead of establishing MSCs. Even when there were no written records of these meetings and related training and information exchange sessions, receipts for the lunches were kept and reported in detail. Given that in some countries civil society organisations are limited and in others there is a more liberal and inclusive attitude to NGOs, no single style of inclusion of farmers and forest users and their organisations in the structure of the project was possible in reality.

[156] See similar comment and in Section 3.3.2.3 when describing project support for demonstration plots.

[157] Across the region there are very different levels of organisation among civil society with many Non-Commercial Organizations (NCOs) registered in some countries: Kazakhstan (over 38,000); Kyrgyzstan (14,880 but fewer than 5,000 are estimated to be operational); and Tajikistan (around 3,000); and relatively fewer CSOs independent from government control in the others (ref: www.icnl.org/).

[158] In Kazakhstan, three farmer associations growing fruit crops have been established within the project framework and are operational: in Bayseit village in Enbekshikazakh District, in Karatalsk village in Eskeldi District and in Chunja village in Uygur District in Almaty Province. In Kyrgyzstan, the project set up two Associations of Farmers in the South (Jalal-Abad) and the North (Issyk-Kul) of the country. In Tajikistan the project established Associations of farmers, gardeners and nursery- keepers in Rasut District and the Istravshan District in Sughd Province.

[159] The consultant met with many of these people in Karalma, Jalal-Abad Province.

277. The TE can confirm that the management at all levels was very effective and adapted appropriately, especially at local levels, to ensure proper implementation of activities.

The rating for Project Implementation and Management is Highly Satisfactory

3.6.3 Stakeholder participation, cooperation and partnerships

278. The project was designed through active stakeholder involvement (see Section 2.3): strengthening participation and partnerships became a well-achieved outcome of the project (see Section 3.2.3).

279. An analysis of the key actors identified six groups of people involved directly with the project or with whom the project interacted or had an interest in the issues addressed by the project: a) 'Project' farmers; b) 'Project' forest users; c) Wider public in locality; d) Partner Research Institutions and other national bodies; e) Government; and f) the International Agricultural Biodiversity Community.[160] Beyond these, there were a number of direct and indirect interactions with similar projects in the region and elsewhere which were mutually beneficial.

280. The sharing of information, both informally and through print, radio and TV media was excellent in all countries, reaching out to many citizens. A striking feature of the project was its ability to link people from national institutions with local farmers and forest users and the mutual learning that ensued (see Section 3.2.2). Both the interactions at national levels, through exchange of information, seminars, training and so on, as well as the regional interactions, especially the intra-regional workshops and the exchanges between the national coordinators and regional staff, provided the face-to face opportunities for discussions about the implementation of the project. These proved the most effective mechanism, supplemented by reports, email exchanges and phone calls etc..

281. As described above (see Section 3.6.2), the engagement of all those in the NSCs enabled them to participate directly in project decision making.

282. At local levels, the lead farmers and forest users and the local committees brought people together, often at times of project-organised events (roundtables, training, fairs etc.); also for visits by scientists and technicians as part of the assessment processes or for other purposes; and the visits by members of the ISC, evaluators and others who were learning about the project or monitoring its activities.

283. The examples of good practices by lead farmers and their families and communities resulting from their engagement in the project, observed by the evaluator in Kyrgyzstan and Tajikistan (see Section 3.2.2.3) – including the economic benefits, especially resulting from the production of planting materials of endemic varieties of the target species – have been some of the most relevant for ensuring sustainability (see Section 3.4) and contributing towards realising impacts.[161]

284. The engagement in the project by forest users and members of forestry enterprises has been especially mediated by specialist scientists from the participating institutes. The context for the work has been the changes in attitude and practices regarding the protection of forests. In this

[160] see Annex 7 for some of the indicative the questions raised by the evaluation concerning different stakeholders.

[161] While the project's socio-economic assessments carried out three years apart identified 30% improvements in incomes of project farmers in, for example, Uzbekistan, other impact assessments have been more modest in their claims (for example E. Gotor, 2016). Disaggregating benefits due to other processes, such as the growing economy, from those directly due to the production of fruits and nuts of local varieties is beyond the scope of this evaluation. However, what the evaluator noted was the improvements resulting simply from the engagement with the project and the refocusing of attention not only on fruit and nut production *per se* but also the sale of saplings, the regeneration of degraded lands, the installation or repair of irrigation systems and the renewal of vineyards, the improvements in technology for growing and processing fruits and nuts and so on, have led to improvements in income, infrastructure, housing and the well-being of the farmers' families.

regard the outreach of the project through these people to local communities and individuals, informing them about the need to use the forests sustainably are noted.

285. The engagement in this process by local institutions – local government for example – is critical; the context of the changes in national conservation legislation to incorporate a focus on the target species is decisive. [162]

286. Partner research institutions and other national bodies benefited from their ability to continue and further develop work on economically and socially important perennial fruit and nut bearing species. They were able to improve their links with interested local growers/forest users and other institutions and had the opportunity to develop new tools and methodologies and increase their scientific and technological capacities.

287. The project enabled them to contribute to the regional database and to improve their international links and output of publications, all of which have been sustained since the end of the project. Questions were raised by interviewees about the necessity for, what to them seemed, complicated UN Environment processes but all agreed that the rigorous accounting standards were important.

288. With hindsight, some interviewees would have increased the budget for equipment (and its renewal) and they would have found other ways, perhaps, of ensuring active participation by local farmers and forest users, rather than necessarily the hierarchy of committees and associations.

289. The collaborating partners interviewed were delighted by the attention given to the target species and the raised profile for this work both in their institutions and also, most importantly, in farmers' orchards and local forests. The project laid the basis for continued and sustained attention to the issues.

290. It was unfortunate, however, that the previously active Central Asian and Trans-Caucasian Network on Plant Genetic Resources (CATCN-PGR network),[163] set up in the mid-1990s has effectively shrunk through lack of funding and institutional support and is no longer functioning as before. Reviving this network could be helpful to strengthen links concerning the target perennial bearing species and it could serve as a useful promoter of the project's database, among other functions.

291. The project benefitted from the work by other UN Environment Implemented GEF and other projects in the region.[164] Some were operated by this project's partner institutions and some were provided with scientific and technical support from IPGRI/ Bioversity International. Through these contacts nationally and at the regional level, and with further information provided by UN Environment, both project design and implementation was able to learn from these other projects, especially with reference to *in situ* conservation measures for CWR and other species within forests and uncultivated areas and for the rehabilitation of degraded lands.

292. Governmental partners and key policy and legal advisers welcomed the attention given to the issues and for the opportunity to develop recommendations for policy changes and, in some cases, new laws. The introduction (to many) of the policy issues, which were essentially 'new' to legislators, although already agreed by some of the countries at international levels, was also welcomed.

[162] Although beyond the direct remit of the project, other than the occasional monitoring of genetic erosion pressures in specific districts, the extent to which the influences of local authorities and national legislation effected an attributable and sustainable impact on endemic fruit and nut consumption and on forest and land regeneration with benefits to the wider public in the community, and the resultant conservation of the target species beyond the specific demonstration plots and lands of participating forest users, was only observed anecdotally by the evaluator.

[163] CATCN-PGR was established during an international workshop held in Central Asia in Tashkent, Uzbekistan in 1996. CATCN-PGR member countries include Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Turkmenistan, Tajikistan and Uzbekistan. It was run in its early years by the project's Regional Coordinator. Although in decline, the national partners in Uzbekistan made a video about Acad. Abdusattor Abdukarimov, on the occasion of his 70th birthday, about his contribution to establishing CATCN-PGR and bringing countries in the region together in efforts for biodiversity conservation.

[164] See the Project Document, Project Description - Programming Context: National and International Policy and Action for the list of other projects in the region which were also under development during the PDFA/B phases of this project.

293. It was recognised that the work contributed to the realisation of commitments made, for example in FAO and CBD forums. The challenge of promoting better understanding between, for example, agriculture and environment ministries, was helped to some extent by the project; at political levels some politicians appreciated the need to keep diversity alive and some of the project's lead farmers built a strong reputation politically.

294. The international Agricultural Biodiversity Community has benefitted from the project. More is now known about the region and the globally-important target perennial species. For example: the work features, to some extent, in the publicity produced by Bioversity International and fits in to its new strategic priorities; the CBD has published the guidelines on ABS, CBD/COP 11 in Hyderabad, India held an event to report on progress in the project which was well received; through UN Environment (especially those projects supported by former GEF OP13 and subsequent GEF Biodiversity Strategic Objective Mainstreaming biodiversity conservation and sustainable use into production landscapes/seascapes and other sectors), the CGIAR and international donors the project is well linked with other similar projects; [165] through the active partnership with the Christensen Fund project partners and lead farmers have become engaged in some of their internationally-supported work and the networks, for example on Biocultural Heritage, and a lead farmer from Tajikistan participated in and hosted exchange visits with indigenous Andean farmers from the Parque de la Papa in Peru.

295. The learning shared with the international community about this successful regional approach to work in similar trans-boundary ecosystems has provided guidance on policy options. There were concerns expressed about ensuring sustainability, monitoring and follow-up because the widespread regeneration of the diversity of these globally-important fruit and nut bearing species in their centre of origin and diversity is a global challenge.

The rating for Stakeholder Participation, Cooperation and Partnerships is Highly Satisfactory

3.6.4 Communication and public awareness

296. The project had extensive outreach in all countries and internationally, using all available media, and through conferences and other meetings. Feedback on the effectiveness of this from all people interviewed was positive (see Section 3.2.2.2).

297. The analysis of the outputs shows a balanced coverage by each country with many technical leaflets produced for local use by farmers and forest users.

298. Public awareness was increased by numerous newspaper articles, posters, radio and TV programmes. Some TV channels hosted specialist programmes on related issues and the demand for print media was significant with whole magazines dedicated to the issues.

299. A large number of the communications outputs are still available via the project web portal http://centralasia.bioversityinternational.org/en/ (also in Russian) but links to the project's scientific papers could be improved. Many of the English language publications are also available via international websites. Some of these papers can be accessed through academic search engines and some institutional web sites e.g. CGIAR https://cgspace.cgiar.org/ or Bioversity International www.bioversityinternational.org/e-library/publications/ . Other academic or specialist information

[165] Other projects in the Region with which the project is sharing information and results include: Research Program on Forests, Trees and Agroforestry (CGIAR); Research Program on Dryland Systems (CGIAR); Research Program on Water, Land and Ecosystems (CGIAR); Conservation for diversified and sustainable use of fruit tree genetic resources in Central Asia (Luxembourg); Conservation and sustainable use of agricultural biodiversity to improve regulating and supporting ecosystem services in agriculture production in Uzbekistan (GEF)

websites such as ResearchGate www.researchgate.net or Google Scholar www.scholar.google.com have few references to this literature and some relevant sites lack any significant references to the region with its endemic species and almost none to the work of the project, for example the Biodiversity Heritage Library (BHL) www.biodiversitylibrary.org/ or the Open Directory resource www.dmoz.org/Science/Environment/Biodiversity/Agricultural/ .

300. The output of technical and scientific papers, in particular, is an important addition to the world's agricultural biodiversity literature about the target perennial plant genetic resources endemic to the region and the participatory methodologies used and will benefit the wider agricultural biodiversity community.

301. The TE confirmed that awareness of the issues, the importance and value of local endemic varieties of the target species, the need to provide planting materials of these varieties, and the need for supportive policy, was all increased by the project. And one of the main reasons why this occurred was due to the promotion by the respected and influential project partners at all levels.

The rating for Communications and Public Awareness is Highly Satisfactory

3.6.5 Country ownership and driven-ness

302. The project was rooted in national realities with ownership of the process from planning through to implementation led by national partners.

303. The evidence of continuing work on project-initiated activities towards realising impacts, several years after the end of the project, is testament to the 'ownership' of the project and its purposes at national levels. These activities included widespread propagation of the target species, continuing work on regeneration of forests, use of the training centres, on-going research on the target species, shared use of project data and so on (see section 3.2). These activities were mostly funded from national budgets, by the farmers and forest users themselves and, to some extent, by new projects.

304. Beyond national implementation, a key feature of the project was its regional approach and national partners were the main drivers of this aspect of the project, essential for realising project objectives, which could not have been achieved otherwise.

305. As noted above (see Section 3.6.3), it was the quality of people involved in the project, and their networks, which maintained it in high esteem nationally. Among senior participants were academicians; lead farmers were highly respected individuals in their communities; the research institutes had excellent track records in delivering high quality results; the national PGRFA communities were very supportive of the project.

306. 'Country driven-ness' was a *modus operandi* of the regional coordination which, wherever possible, devolved decision making to the national level and respected their priorities.

The rating for Country Ownership and Drivenness is Highly Satisfactory

3.6.6 Financial planning and management

307. The TE has not included an audit nor a financial or cost/benefit assessment of the project. The TE also looked at some of the financial reports and some of the specific transactions that backed these up in order to verify that the reports were soundly based. Details of the finances are included in Annex 4.

308. The total cost of the project was planned to be US$ 11,513,698. Of that amount, GEF approved US$ 5,718,070 (with an additional US$ 379,000 for the PDF preparatory phase), or 22% of the total costs of the approved project. By the end of the project it had leveraged an additional US$ 8,858,290 to bring the total co-financing to US$ 14,653,918 split between 'Grant' and 'In-kind' funds

309. The TE questioned staff responsible for the control and oversight of the project's finances from project development to implementation. The informants included national staff in-country who handled day-to-day financial transactions and reporting; national coordinators; the regional coordination staff; the directors of the Executing Agency; the UN Environment-GEF Task Manager and the UN Environment-GEF Fund Management Officer.

310. After interviewing people at all the relevant levels, the financial planning and management of the project appears to have been carried through with great diligence, and in accordance with the requirements of UNEP and the intermediary agencies, as well as national requirements.

311. The TE confirmed that all levels of the project submitted quarterly financial reports; that these were verified and consolidated by the Regional coordination and were submitted to the Executing agency for approval and thence to UNEP where they were verified; that regular reports were also submitted to the co-financing agencies, as necessary; that the NSCs and the ISC had regular oversight of the finances; and that the Executing agency's annual audit included a review of the expenditure of the project. The conclusion is, therefore, that there was thorough oversight of expenditure.

312. As noted elsewhere in this report (see Section 3.2.5), financial management was done with great professionalism and precision. Many issues had to be dealt with. These included: the complexity of the process; transfers via a variety of institutional routes to different countries; the absence, in some cases, of project bank accounts; the scrupulous oversight of all transactions and any changes in allocations by coordination staff at all levels and by the UN Environment-GEF Task Manager and the PIU; financial accountability – dependent on the forensic attention to precise accounting, by the regional coordination, and sanctions threatened if irregularities occurred; the requirement for quarterly financial reports and (potentially duplicative) semi-annual narrative reports was burdensome; the continual changes in UN Environment accounting systems, which delayed final closure of the project; and many other complications too numerous to recount.

313. While, financial management was the cause of much day to day work for the coordinators at national and regional levels, as well as in the supervisory systems at international levels, the TE can confirm within the limitations of the evaluation that proper standards appear to have been applied according to the requirements of national authorities, the EA and UN Environment, as well as those of intermediary agencies involved in financial transfers; no issue were raised that had not been satisfactorily resolved.

The rating for Financial Planning and Management is Satisfactory

3.6.7 Supervision, guidance and technical backstopping

314. The context for the assessment of the quality of the supervision, guidance and technical backstopping is the successful achievements of the project as recorded in the TE. The purpose of the evaluation of performance was to learn how the quality of support had been maintained consistently over nearly 15 years. An indicator of the effectiveness of the support was the high regard that project partners had, some three years after the end of the project, for the individuals who had supported the project throughout its life – especially the Regional Project Coordinator, the UN Environment GEF Task Manager and the Principal Scientist who coordinated the technical backstopping from Bioversity International.

315. As part of the process for evaluating this aspect of the project, the Consultant was provided with full documentation on the project from its 5 year preparatory phase through to the development and approval of the project document in 2006 to the plethora of reports generated by the project until 2014. In addition, access was made available during field visits to local reports, correspondence, financial records and email trails, on request. Detailed interviews were conducted with project staff in all the countries visited as well as with representatives of the National coordinators of Kazakhstan and Turkmenistan who attend the meeting in Bishkek. The purpose of the interviews was to gain insights not only into what the project had achieved in terms of outputs and outcomes but also how this was done, with whom, and how any difficulties in achieving the desired results were overcome, including the role of the International and National Steering Committees (ISC and NSCs). By triangulating responses from a range of interviewees, it was possible to build a picture of the effectiveness of the supervision, technical guidance and backstopping provided by project staff and the support given by Bioversity International.

316. The oversight role of the ISC was fulfilled efficiently, providing guidance to the effective coordination of the project at regional and national levels (see, especially, the minutes of the ISC meetings informed by reports which are summarised in the annual Project Implementation Reports and the semi-annual Technical Reports).

317. The membership of the ISC was relatively stable over the whole period of the project (see ISC minutes).[166] As the project had been developed with many who then became members of the ISC, they had a deep knowledge of what was planned, the inputs required, outputs expected and the context in which outcomes were to be delivered.

318. There were a few problems that required careful supervision and guidance (see Section 3.6.2); these were dealt with in an orderly manner at the National level by the NSCs, guided by the Regional Coordinator, the UN Environment -GEF Task Manager and with careful oversight by the ISC and its members.

319. The supervision by the UN Environment -GEF Task Manager was effective in ensuring the project complied with the requirements of UN Environment and the GEF. Much of the supervision was done informally but her formal participation in the ISC meetings, and any required follow-up, was the key point for accountability. She also visited the region frequently at other times to provide support, something that was welcomed by project staff. Backstopping by the UN Environment-GEF Task Manager was provided as necessary, aided by her language skills. From interviews with the Task Manager and review of some of her correspondence with the project, both of which were corroborated in interviews with the Regional Project Coordinator and some of the National Project

[166] Minutes of the 7 ISC meetings were made available to the Consultant. They include a list of the participants in the meeting and notes of the discussions including any issues that may have arisen which require attention. The presentations by each participant, all of which are normally translated into English, are also usually included. The ISC reviewed progress at regional and national levels. The detail of these reports are partly in the annual PIRs, each of which is up to about 100 pages long and provides, in great detail, information about the progress of the project and its finances. Partly they are also in the semi-annual Technical Reports each of which may have up to 10 annexes (sometimes prepared in both Russian and English).

Coordinators, the Consultant was satisfied that key issues concerning, *inter alia,* the execution of the project, its management, financing and monitoring, were being addressed in detail. The Task Manager was available whenever possible and, often, supervision and support was conducted by phone, especially when there were urgent matters to deal with.

320. At the regional level, the coordination and guidance provided by the Regional Project Coordinator was reported by many to be exemplary (see Section 3.2.5 and confirmed by all the people interviewed (see Annex 2)) Through the careful management by the National Coordinators and office staff, activities in each country were completed to agreed schedules and within budget, with reports supplied on time, in the majority of cases.

321. The potentially duplicative reporting semi-annually, however, created a reporting burden, especially for coordinators (see Section 3.2.5).

322. The technical backstopping role of Bioversity International was crucial and provided the project and its participants with helpful and welcome advice, new skills, development of methodologies, perceptive analyses of assessment, scientific papers, and so on with important links to international networks and processes. All project partners interviewed in the TE appreciated this support. The Principal Scientist assigned to the project together with many of her colleagues provided consistent support to the project throughout its whole life. This was, from the outset, assistance with the development of the original project concept through to the technical assistance provided in the preparatory phase and then technical support and training throughout the project implementation phase. They also provided assistance to national staff with publication of the scientific findings of, and methodologies developed by, the project. Bioversity International also hosted some of the international meetings in Rome as well as managing the regional database and webportal from its Rome headquarters.

323. A limitation to supervision and technical backstopping might have been language but the project had access to many translators and interpreters who provided services in all the languages used in the project i.e. Russian, English, Kazakh, Kyrgyz, Tajik, Turkmen and Uzbek. Even with these services contracted within the available budget, a significant burden of translation and some of the interpretation was dependent upon the goodwill of the regional coordination for which project partners were very grateful[167] (also, see Section 1.3).

The rating for Supervision, Guidance and Technical Backstopping is Highly Satisfactory

3.6.8 Monitoring and evaluation

324. The TE examined most of the half-yearly Technical Reports, the annual PIR reports and the numerous annexes and discussed many issues raised with the project team. On finance and budgeting, as reported in 3.6.6, the examination of reports in the TE was more cursory, substituted by interviews with those responsible for the finances at different levels, all of which confirmed proper management.

3.6.8.1 M&E design

325. The M&E plan incorporated into the project, with indicators identified in the logframe, was designed to help the project provide all planned outputs. Milestones were established to provide markers that would help ensure activities were completed in a timely manner.

[167] The consultant was constantly reminded by project participants of the amount of materials that had been translated for the project. These included project documents and reports (both from English to Russian and Russian to English) to project publications to ad hoc interpretation.

326. The M&E plan required careful reporting of activities and outputs, as appropriate, and the contribution these made to outcomes, but specific baseline information for each outcome level indicator was not planned for; that information was mainly provided in the background information about the context and rationale for the project.

327. Responsibilities for the M&E plan were clearly designated, with oversight to be provided, principally by the NSCs and ISC, with regular reports provided to UN Environment-GEF and included in the annual PIRs and the semi-annual Technical Reports.

328. The indicators were SMART in that they were realistic in the timeframe (as perceived when the project was being developed), and they described what was expected and by when. The plan was clear about who was responsible for collecting the information.

329. HR and GE monitoring was not specifically included in the indicators but the project did keep track of women's involvement in the activities and reported on this.

330. For a few of the indicators, for example for the assessment of some of the socio-economic conditions, the collection of baseline data was needed. For these indicators, surveys were to be devised in a participatory manner, and then carried out in the first years of the project as an integral part of the assessments built in to the project.

331. With hindsight, it might have been advantageous to have collected more information for validating some of the indicators at the project design stage, allowing opportunities for adjustments if required. This might have helped towards providing a baseline nearer to the start of the project and helped with subsequent monitoring and evaluation of the progress of the project over a longer period of time. This would have been especially relevant if the project had only lasted for five years.

332. The M&E plan was designed by the project development team in consultation with national partners and the budget provided was sufficient (see annual PIRs), though additional resources for post-project monitoring towards impact would have been useful.

The rating for M&E design is Satisfactory

3.6.8.2 M&E plan implementation

333. Monitoring at all levels was done inclusively and participatively where possible – especially at local levels – in a way that promoted good practises and the achievement of expected results. The participatory approaches developed by the project for purposes of assessments, policy development, training and implementation (see Sections 3.2.1, 3.2.2.4, 3.6.1) were extended to include an inclusive approach to monitoring. As reported to the consultant by project partners at local levels and confirmed by the regional and national coordinator's quantitative and qualitative information about activities were collected on a regular basis and then reviewed and summarised at national levels in their reports to the regional coordinator, usually in Russian. These reports were eventually consolidated into the PIRs and the semi-annual Technical Reports with details of activities across the region and with information about milestones achieved and progress realised towards outcomes.

334. Supervision and guidance by the NSCs was carried out with careful monitoring of their reports by the ISC, including the UN Environment Task Manager, who reviewed the technical reports in detail and provided feedback in the ISC meetings and subsequently, as needed.

335. Project reports, which were aggregated from local to national and then to the regional Technical Reports and annual PIR reports, were reviewed in detail by the ISC each of the 7 times it met.[168] The reports were exhaustive in detail, especially about the numbers of activities carried out, the specific species and varieties being included in the work, and the identification of all the achievements resulting from training sessions, roundtables and so on. Contribution to outcomes was regularly assessed. Specific reports of many of these activities were also annexed to the main technical and progress reports. [169]

336. The project's progress towards reaching its outcomes was monitored carefully at the regional level by the ISC – not just the physical activities but also the environment in which the project was being implemented were considerations that the ISC took into account and acted upon the reports when necessary. For example, when it became clear from monitoring the progress of the project that in order to reach the planned milestones and complete all activities more time was needed, the ISC decided to ask for no-cost extensions of the project.

337. The process of monitoring was thorough and the minutes of each ISC meeting summarise the key issues that were decided as a result of their deliberations as well as those which needed further attention.

338. Reporting was regular, timely and complete. The quarterly financial reports summarising expenditure and co-financing, and the semi-annual technical reports and annual PIRs together with full annexes summarising project activities, achievements of outcomes, detailed monitoring and evaluation of outputs provided a wealth of information for the ISC to consider. The quality and completeness of these reports gave confidence to ISC members that the project was proceeding effectively and that where actions were needed to address issues, particularly raised in the M&E reports, the ISC was in a position to advise as needed. For example, when countries were falling behind schedule, the ISC was able to discuss with the National Coordinator the reasons for this and how it could be remedied. In the last resort, no-cost extensions to the project were requested to enable all outcomes to be realised by every country.

339. The MTR/MTE provided a helpful reflection, after three years, on what had been achieved and what needed to be done in order to reach the planned outcomes; the ISC considered these carefully and took note of the recommendations, where deemed necessary (see Section 3.6.2).

The rating for Monitoring and Evaluation is Satisfactory

340. The evaluation finds this project to have attained a highly satisfactory (HS) rating overall. Even though there are some criteria that are not rated 'HS' in themselves, overall this was a very good project that has evidence of continued implementation of project results many years after funding ceased, and it appears it will continue to do so with impact likely to be achieved over time.

The overall project rating is Highly Satisfactory

[168] As noted above, the reports were mostly written in Russian and then the regional reports were translated into English.

[169] The reporting formats required by UNEP did lead to a lot of almost duplicated entries within and between reports. The Evaluator can confirm this after reviewing more than 200 regional-level reports. Other formats and a review of the frequency of reports might decrease the administrative burden without reducing their function.

4 CONCLUSIONS, LESSONS LEARNT AND RECOMMENDATIONS

4.1 Conclusions

4.1.1 Achieving planned results

341. The Terminal Evaluation (TE), carried out some two years after the end of the project, confirmed that the project has successfully completed its planned activities and achieved all its planned outcomes (see Table 8), through excellent coordination, effective management of both processes and finances, with full reporting monitored properly by the project's structures and its executive organisation and task manager (see Section 3.6).

342. The results of the project have contributed to pathways towards realising the project's objectives to conserve and utilise sustainably, on-farm and *in situ*, the high diversity of the economically important perennial, cultivated and wild, fruit and nut bearing species endemic to the Central Asian countries, a resource of global significance, so that sustainable agricultural development, food security, and environmental stability are ensured (see Table 5). The Target species included predominately Apple, Apricot and Grape as well as Almond, Alycha/Cherry Plum, Fig, Peach, Pistachio, Pomegranate, Pear, Sea Buckthorn, Walnut, Currants and Mulberries (see, for example, Section 3.2.2 and 3.4). The numbers of distinct varieties surveyed was up to 1,000, the majority being apple, apricot and grape varieties (se section 3.2.1).

343. The TE found that the project has been effective in developing policy and practices that can help reverse the decline in the agricultural biodiversity of the target species in the transboundary ecosystems of the region and has contributed to the planned development objectives. Its results are informing the work of further projects addressing similar issues (see Section 3.4).

4.1.2 Regional design strategically relevant

344. The design of this project as a regional one made it strategically relevant as it was therefore able to address the common issues across the transboundary ecosystems of the region. It was also able to facilitate collaboration and the development of common methodologies, training, data collection, information sharing and policy formation. Though regional in design, this was a country-driven process, followed through to implementation. It was driven by national institutions, people and processes in the five participating countries – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan – and facilitated by effective regional coordination (see, for example, Section 3.6.2).

345. The project development phase, funded through PDF A and PDF B processes, was decisive in framing this regional project so that it could be implemented successfully (see Section 3.6.1).

346. The preparatory process allowed time and resources to achieve agreement, across all countries, on the main challenges and required responses, the selection of the target species, the identification of necessary institutional support, the identification and inclusion of influential key actors in the project, and clarity on the practical, policy and legal processes that would need to be undertaken, many of which, identified in the PDF A phase, were tested during the PDF B stage, especially the selection of target species (see Section 3.6.1).

347. The formulation of the project in the framework of GEF OP13, rooted it in the wider priorities, at the time, of UN Environment and the CBD. This provided the project with a basis for strategic relevance, especially at regional and international levels. Its design proved relevant to subsequent internationally agreed strategies, for example, the realisation of the CBD's 2011-2020 Strategic Plan and its Aichi Biodiversity Targets, especially Target 13 (genetic resources of cultivated plants and farmed and domesticated animals and of wild relatives), Target 7 (sustainable agriculture, aquaculture and forestry), and Target 5 (natural habitats including forests) (see Section 3.1.3). The

project has contributed to UN Environment MTS 2014-2017 and it was also found that post-project activities could also contribute to UN Environment MTS 2014-2017, especially the aim that "UNEP will strengthen the enabling environment for ecosystem management, including transboundary ecosystems, at the request of concerned countries" (see Section 3.1.1). The project's outcomes fit well with GEF-6 strategic priorities, including its biodiversity focal area strategy objective to "mainstream conservation and sustainable use of biodiversity into production landscapes/seascapes and sectors" (see Section 3.1.2).

348. It was found, that Human Rights (HR), for example the focus on Farmers' Rights, and Gender Equity (GE), for example the inclusion of women in training and implementation at local levels, were embedded in the design of the project and were also addressed in implementation, to the extent possible within national contexts. (See Sections 3.1.1.2 and 3.3.1.3)

4.1.3 Effective partnerships – successful outcomes

349. The TE found that the identification of influential leaders and institutions that promoted engagement of a wide range of other institutions and actors in effective partnerships was important for achieving successful results. It reinforced all project activities, heightened awareness of the value of the project and stimulated the project's influence on policy and practices (see Section 3.2.3).

350. By incorporating partnership and participation activities in a specific component of the project's design, rather than as a side activity of project management, this resulted in an inclusive approach embedded within the project and a focus on sustaining engagement and partnerships for the long term and has influenced the design of other similar projects in the region (see Section 3.1.5).

351. This sustainability has been validated by the continuation and expansion of project-initiated and similar activities, resulting from the influence of the project's lead actors at all levels, including local farmers whose activities in increasing the availability of saplings of endemic varieties of perennial fruit and nut-bearing species has continued after the project (see Section 3.2.2.3).

352. Effective partnerships with local farmers and their communities as well as forestry enterprises, sometimes formally coordinated through MSCs and SCCs and sometimes through less formal coordination, as appropriate to the local contexts (see Section 3.6.2), and backed by influential and competent technical and scientific institutions, developed and promoted good practises, which increased the cultivation of local endemic varieties and extended the conservation of varieties of the target species in the wild. These actors were represented in the NSCs and the leadership of the NSCs participated in the ISC, which provided oversight of the activities (see Sections 3.3.3 and 3.6.2).

353. The leadership of effective partnerships among project actors, by national coordinators and the Regional Project Coordinator, ably assisted by the high-quality technical backstopping from within the region and internationally, created a sense of trust by developing agreements about the collection and use of data, through participatory processes (PRA) and emphasising the need for Free Prior Informed Consent (FPIC). The focus on Farmers' Rights and Access and Benefit Sharing (ABS) reinforced relations with participating farmers and local communities. This process was summarised in a document which was well received by the CBD (see Section 3.2.1).

354. The influence of the leadership grounded the project in an enduring institutional framework embracing local, national and regional partnerships that have lasted beyond the funded life of the project (see section 3.6.1). The lasting effect is also seen in the next generation of farmers and scientists, both women and men, who have developed their capacities through their engagement in project activities (see Section 3.2.4). This framework was welcomed by all participants interviewed and was said to be one of the main reasons why the project succeeded.

355. Another reason for success was the way in which the project increased the confidence of actors to carry out activities and secure benefits – both in terms of recognition of their contributions to the issues addressed by the project as well as improved institutional recognition for their scientific enquiry and technical competence, and in terms of economic benefits for participating families and their communities (see, for example, Section 3.6.3).

356. Further evidence of their effectiveness was seen in a number of unexpected results, some of which started after the end of the project, but which stemmed from the project activities and, especially, promotion by the leadership. For example, Tashkent University recently started a new course, which teaches students about the biodiversity of fruit crops; and an Uzbek TV station initiated a gardening programme "Mening Bog" (My Garden), which included information about growing and caring for the project's target species (see, Section 3.2.1). Another example is in the direct spread of knowledge to other regions about the methods developed by the project for on-farm conservation and development of endemic varieties. A lead farmer from Tajikistan hosted, and participated in an exchange visit with, indigenous Andean farmers from the Parque de la Papa in Peru, as part of a Biocultural Heritage project of one of the project's co-financing organisations (see Section 3.6.3).

357. The project also facilitated participation by scientists in information sharing in international meetings – a further contribution to South-South Cooperation. For example, women scientists from four countries participated an international congress in India in 2012 (3.1.1.2) and national scientists and farmers from three countries 'cross-country and cross-regional Fruit Tree Knowledge Share Fair 2012' in Chiang Mai (see Section 3.1.1.4)

4.1.4 Knowledge and skills underpin uptake

358. The TE has confirmed that innovative farmers and forest users have driven results in orchards and vineyards and in forests and other uncultivated areas. Their knowledge, innovations and varieties, validated and complemented by scientific and technical institutions, provided the rich data that informed the policies and practises promoted by the project (see for example, Section 3.2.2).

359. The incentives provided by the project in terms of the recognition of skills, expertise, rights and knowledge, in a context of trust, permitted the project to collect and share valuable data, which were used in the analyses that resulted in guidelines, methodologies and policy proposals. These were summarised in a many scientific and technical publications (see Section 3.2).

360. The knowledge and skills identified and developed by the project resulted from effective demand by farmers and forest users to scientific and technical institutions, leading to mutually-welcomed sharing of expertise. The TE noted that demands for more information on pest and disease control would be welcome (see Section 3.4). However, support for research, development and training in growing multiple varieties and species in a single growing area, and in practises that do not use agrochemicals, needs to be further investigated and supported by new funding, in order to sustain agricultural biodiversity in the production environment and to improve health. Elements of this concern have resulted in the inclusion of relevant components in a new GEF project in Uzbekistan[170].

361. The widespread uptake of the techniques for the protection, propagation and planting of endemic varieties of the target species was the result of the use of their local knowledge about these methods, enhanced by the identification of good varieties, information about improved techniques, the provision of appropriate equipment, and the recognition of the potential demand for planting materials of these locally-valued endemic varieties (see Section 3.2.2).

[170] "Conservation and sustainable use of agricultural biodiversity to improve regulating and supporting ecosystem services in agriculture production in Uzbekistan". GEF Project ID: 5403

362. The systematic collection of data on local varieties found on-farm and *in situ*, in orchards, vineyards, on households plots and in forests in the region, many of which were recorded in officially-recognised registers of 'farmers' varieties' (FVs), enabled the project to identify varieties with traits of potential breeding value, using modern scientific techniques, in order to develop more productive new varieties (see Section 3.2.2).

363. The protocols for the use of data produced by the project facilitated the collection and sharing of data and information that led to successful outcomes. These were summarised in the Guidelines submitted to the CBD, which are available in five languages on their website. The Guidelines include the importance of naming and recognising the providers of the data /information, often local farmers and forest users, and local researchers who are working with materials and information derived from local production, local forests and local knowledge, in documents produced by researchers (see Section 3.2.1).

364. The planting and/or conservation of endemic varieties of the project's target species were found to be useful for improving the environment – when, for example, they were used in schemes for soil and water retention, regeneration of forests and so on – as they could also provide economic benefits derived from the produce to the participating farmers and forest users (see Section 3.2.2). These methods were taken up by other projects, some of which are still under development in 2016 (see Section 3.4.1).

365. The active engagement by interested and trained forest users, supported by their forestry enterprises or similar associations, in the maintenance and regeneration of plants in their natural habitat was found to be effective in the conservation of varieties *in situ*. They were able to identify and protect plants of the target species and their wild relatives, among others, from, for example, grazing animals, over-harvesting of fruits and nuts, and the poaching of walnut burls (see Section 3.2.2.3).

366. The information produced by the project has been valuable for realising the project's outcomes, informing wider audiences and stimulating expanded production and conservation of the endemic varieties of the target species but this information could be more easily accessible internationally for wider uptake of the methods and approaches by optimising the information for web searches (see Section 3.2).

367. As a result of these measures, the area planted with endemic varieties of the target species continues to increase on-farm and the protection of crop wild relatives and uncultivated plants of the target species in the 'wild' is improving, with benefits continuing to flow to former project participants (see Section 3.2.2.3).

4.1.5 Supportive policy sustains results

368. The success of increasing the awareness of policy makers of the need to find appropriate ways of securing effective measures for sustaining the agricultural biodiversity of the target species across the region was achieved through the design of the project and the influence of the lead actors at all levels. It was found that both scientists and farmers influenced policy makers. For example, in Uzbekistan and Tajikistan, changes in policy towards the preferential development of orchards, with specific proposals for those that grow local or old varieties of fruit crops and grapevine, were due, in part, to briefing relevant policy makers. Equally, in Kyrgyzstan and Uzbekistan, measures have been taken, as a result of the project, to strengthen laws and regulations relevant to the conservation and sustainable use of the project's target species (see Section 3.2.1.1)

369. The desire of countries and their policy makers to enact laws and regulations in support of international obligations provided a stimulus for interactions with project staff and consultants on policy development. This opened the way for the promotion of measures at local, national and regional levels, which could support project-determined practises that foster diversity in the

production of fruits and nuts, ensure equitable access to resources and benefits, and help towards the realisation of Farmers' Rights (FR) and help improve Access and Benefit Sharing (ABS). For example, the "Guidelines on Access and Benefit Sharing in research projects" produced by the project was selected for posting on the CBD website as a model approach to this type of work (see Section 3.2.1.1).

370. Interest from areas of the administration beyond agriculture and the environment, for example, the inclusion of studies on the biodiversity of regionally significant fruit and nut-bearing species in university curricula, provided wider consideration of policy proposals (see Section 3.2.1.2). However, more interaction with the formulation of trade policies, for example, might have been useful as the import and export regimes of the countries have tended not to recognise the social, economic and environmental importance of sustaining the biodiversity of the target species.

4.1.6 Regional, multi-country approach vital

371. The TE found that the regional, multi-country approach was essential in order to address the challenges of conservation and sustainable use of all of the target species of perennial fruit and nut bearing species in the region, which were identified as socially, economically and environmentally significant. In the project, each country addressed in detail a sub-set of these species for the project's conservation and use activities on-farm. The work with the target species in the 'wild' was similarly selective, based mainly on the prevalence of the species in the wild in each country. Three Regional Training Centres were set up to provide training across the region, thereby reducing duplication of effort. Taken as a whole, the project was able to provide coverage of all the target species across the trans-boundary ecosystem in this regional centre of origin and diversity.

372. The style of regional coordination provided by the Tashkent office of Bioversity International was key to the success of the project and was welcomed by all participants interviewed within and outside of the region. (It should be noted that Bioversity's CWANA office in Syria closed early in the life of the project and the sub-regional office for Central Asia, based in Tashkent, then reported directly to Bioversity International's HQ in Rome). While regional in its mandate, the coordination was driven by national requirements but facilitated the necessary linkages, regional training, information dissemination, data collection and exchange, and the platform for agreeing regional priorities to address common issues. It also assisted with the identification of donors that could support work across the transboundary ecosystem and it was pivotal in identifying capacity for technical backstopping and the promotion of the results of the work internationally.

373. The TE confirmed that it would be unlikely that any national institution would have the capacity or mandate to provide regional coordination of activities of future work across the transboundary ecosystem. The facilitation by an external agency would be welcomed in order to facilitate co-ordinated work, assist with the exchange and dissemination of information across borders, and to promote the regional importance of the conservation, development and sustainable use of these globally-significant species, and their wild relatives, in their centre of origin and diversity.

Table 9: Summary of Assessment Ratings

Criterion	Summary Assessment of Achievements	Rating
A. Strategic relevance	The project developed a regional approach to addressing a strategically important issue in the transboundary ecosystems of the region, namely, reversing the loss of endemic varieties of globally-significant perennial species that are economically important and can help regenerate the environment. The project was aligned with UN Environment priorities, the BSP, South-South cooperation, and UN Environment MTSs. It made contributions to food security and the realisation of Farmers' Rights (HR) and the recognition of women in this work (GA) and contributed to biodiversity conservation and environmental resilience in line with international agreements and with GEF priorities (initially OP13) and subsequent GEF strategic priorities related to mainstreaming Biodiversity Conservation and Sustainable Use in Production Landscapes/Seascapes and Sectors especially to support the realisation of the CBD's 2011-2020 Strategic Plan and its Aichi Biodiversity Targets. It contributed to relevant regional and national priorities. Its post-project activities could contribute to UNEP MTS 2014-2017. ***(See 3.1.4)***	**HS**
B. Achievement of outputs	All outputs were completed as planned ***(see Table 8)*** including Legislation and Policy recommendations ***(see 3.2.1)***, the development of Knowledge, Skills and Capacities ***(see 3.2.2 & 3.2.4)***, securing Broad Participation and Strong Partnerships ***(see 3.2.3)***, and effective Project implementation ***(see 3.2.5)***. The project exceeded expectations in many cases (e.g. the provision of planting materials of endemic varieties ***(see 3.2.2.3)*** and the production of ABS guidelines, promoted internationally by the CBD ***(see 3.2.2.1)***) and in others was able to achieve effective workarounds for the best possible results in local contexts (e.g. the formation of MSCs, SCCs ***(see 3.6.2)***)	**HS**
C. Effectiveness: Attainment of project objectives and results	The design and implementation of the project was effective in ensuring the activities led towards results that would contribute to realising the project's development objective and aim. It was especially effective in identifying influential project actors at all levels who were able to ensure the project was properly executed and that the learning would be available for the benefit of future work ***(see 3.2.3).***	**S**
1. Achievement of direct outcomes	All direct outcomes were achieved ***(see Table 8)*** In most cases the planned outcomes were a minimum target. For example, the improvement in capacities of farmers, supported by scientists, was greater than planned, leading to, among others, a well-embedded system for the propagation of endemic varieties ***(see 3.4)***; effective knowledge development and widespread dissemination produced more than planned and heightened the awareness of the issues at all levels ***(see 3.2)***; and the creation of a new cadre of young male and female scientists with improved skills provided, perhaps greater, capacity than was anticipated in the project document ***(see 3.4)***	**HS**
2. Likelihood of impact	All three pathways to impact are observed to be functioning some two years after the end of project funding ***(see Figure 3).*** The assessment of the project team is that the work is progressing post-project towards the Intermediate State. The project has also influenced the design and content of new projects in the region, which are using the project's results ***(see 3.2.2.2).***	**L**
3. Achievement of proje goal and planned objectives	The results of the project have catalysed a move towards realising the project's goal and objectives. Additionally, new work with some of the same project partners, for example, using the project's results for adaptation to climate change will increase the contribution towards realising the project objectives ***(see 3.5)***	**S**
D. Sustainability and replication	Two years after the completion of the project, highly relevant project-initiated activities appear to be increasing and spreading at local levels demonstrating the sustainability of the project. Uptake of project results by other agencies and projects provide evidence of replication at institutional levels.	**L**
1. Financial	The project was extended on a no additional cost basis for three years during which time activities were embedded in the structures and practices of institutions (including training centres) and farmers and forest users, allowing further similar work to continue. Some new projects have added funding to similar types of activities. Investment in renewal of equipment during the lifetime of the project would have helped sustain some aspects of the project.	**L**
2. Socio-political	Improvements in the socio-economic status of farm families involved in the project, as evidenced by surveys and interviews, although not all directly attributable to the project, provide a basis for sustainability.	**L**
3. Institutional framewo	Institutional support is enduring beyond the project at national and local levels. Regional coordination is dependent on new resources.	**L**
4. Environmental	The project has demonstrated the benefits of using endemic varieties of some of the target species as beneficial for regeneration of landscapes and for soil and water conservation, with improvements recorded in project sites. Measures to improve the regeneration and protection of forests are more likely to be respected in areas where the project was active; improved legislation, including reference to the types of species focused on by the project, will further embed these measures. Further attention to the use of agrochemicals may be necessary if conservation of all agricultural biodiversity is to become rooted in policy and practice.	**L**
5. Catalytic role and replication	The project, through its identification of respected and influential lead actors and institutions, the robust interlinked relationships of institutions promoting the results of the project at regional, national and local levels, its focus on facilitating the propagation	**HL**

Criterion	Summary Assessment of Achievements	Rating
	and widespread planting of endemic varieties of the target species, the measures taken to demonstrate the economic and environmental benefits from regenerating forests, and the influence it has had on the development of new projects with focus on strategically important issues including adaptation to climate change, give this project an excellent assessment for sustainability and its catalytic role in encouraging uptake of the processes and methodologies which have provided the positive results of this project	
E. Efficiency	The efficient use of all the resources available to the project, accompanied by further unfunded commitments of time and energy, due to the ethos of project implementation, made for cost-effective and efficient use of project resources. HR and GA issues were addressed as effectively as local contexts allowed. The agreement to share facilities, information, data, methodologies and training across all countries, and the agreement on a regional approach to information dissemination, were approaches used which demonstrated the efficiency of this regional project, thereby limiting the need for duplication at national levels	**S**
F. Factors affecting project performance	Project performance was highly satisfactory in most cases as detailed in subsequent entries and, overall the performance was satisfactory	**S**
1. Preparation and readiness	The in-depth preparation of the project, which lasted for more than five years from conception, including its decisive PDF A/B phases, in which proposed actions were formulated, tested and agreed across all countries, provided the basis for excellent project performance. The assessment is that without this preparation the results of the project would have been less sustainable	**HS**
2. Project implementation and management	The coordination was excellent at national and regional levels resulting in rigorous implementation of all the project activities and monitoring of outputs and their contribution to outcomes	**HS**
3. Stakeholder participation	The embedded outcome – to ensure broad participation and strong partnerships – resulted in much attention given to the successful recruiting of influential leaders and institutions that promoted engagement by a wide range of actors and contributed to heightened public awareness and the project's influence on policy and practices	**HS**
4. Communication and public awareness	The project engaged effectively in a broad range of communications which heightened awareness of the importance and value of local endemic varieties of the target species, the need to provide planting materials of these varieties, and the need for supportive policy. One of the main reasons why this occurred was due to the promotion by respected and influential project partners at all levels.	**HS**
5. Country ownership and driven-ness	The project was rooted in national realities with ownership of the process from planning through to implementation driven by national partners and NSCs. National partners were the main drivers of the regional approach, essential for realising project objectives, which could not have been achieved otherwise. The national PGRFA communities were supportive of the project.	**HS**
6. Financial planning and management	The financial planning was thorough, though with hindsight some items could have been allocated more funding in order to renew equipment over the extended lifetime of the project. Financial management of the project appears to have been carried through with great diligence, efficiently managed by the Regional Coordinator and overseen by the NSCs, ISC and the financial controller of Bioversity International, in accordance with the requirements of UNEP/GEF and the intermediary agencies, as well as national obligations. Final sign-off of the project accounts delayed for internal UNEP/GEF reasons.	**S**
7. Supervision, guidance and technical backstopping	The supervision by the UN Environment-GEF Task Manager ensured the project complied with the requirements of UN Environment and GEF . Much of the supervision was done informally with formal engagement in the ISC meetings and their follow-up being the key point for accountability. Backstopping by the UN Environment -GEF Task Manager was provided as necessary, aided by the language skills of the Task Manager. Technical backstopping, provided by Bioversity International, was key to the successful outcomes of the project and had a key role in underpinning sustainability. At the regional level, the coordination, guidance and technical advice provided by the Regional Coordinator and her colleagues was exemplary.	**HS**
8. Monitoring and evaluation: design, execution, budgeting, implementation	The design of the M&E system was based on project reports. These were aggregated from local to national and then to the regional Technical Reports and PIRs, which were reviewed in detail, against the agreed M&E indicators, by the ISC at each of the 7 meetings when it met. This M&E process built on the monitoring at all levels, done participatively where possible, especially at local levels, in a way that promoted good practises and the achievement of expected results. Supervision and guidance by the NSCs was crucial with careful monitoring of their reports by the ISC, supported by the regional coordination. The MTE/MTR provided a valued M&E review after three years of project activity. The results of the MTR/MTE were considered carefully by the ISC and informed the development of the work over the subsequent five years. Adequate funding was available. The main indicator of the usefulness of the M&E system was its contribution to the successful achievement of all the planned outcomes.	**S**
Overall project rating	Overall the evaluation concludes that this was a well-executed project that has continued implementing project results many years after funding ceased and it appears it will continue to do so with impact likely to be achieved in time	**HS**

4.2 Lessons Learnt

4.2.1 Project planning

374. **Context:** The preparatory process over some five years, including both a PDF A phase and a PDF B phase, was thorough and contributed to its success, though the inclusion of baseline M&E surveys in this process would have been advantageous. It allowed time to achieve agreement on the main challenges and required responses, the necessary institutional support, the identification and inclusion of influential key actors in the preparatory process, and the definition of practical, policy and legal processes that would need to be undertaken, many of which, identified in the PDF A phase, were tested during the PDF B stage. Unplanned delays in implementation improved the realisation of outcomes and improved the sustainability of the project. Ongoing monitoring would be helpful in order to assess progress towards achieving impact. (See Sections 2.4, 3.3.2, 3.4.1, 3.6.1, 3.6.2 and 3.6.8)

375. **Lesson Learnt:** For future projects of a similar type, funding should be provided for preparatory phases including baseline surveys for M&E. In these phases, the project's purpose, modalities, design, structure, key actors, target species and ecosystems can be determined, tested and refined for incorporation in the project document, ensuring the structure for project execution, especially at farm/forest and community levels, can be as responsive as necessary over time in order to achieve desired results. Flexibility should be built into the phasing of such projects to enable them to respond to local realities and be extended, as needed, on a no-cost basis. Furthermore, additional funding could be built in to the project design for post-project monitoring of outcomes towards impact.

4.2.2 Dissemination of approaches

376. **Context:** In the context of the globally-recognised imperative for improved conservation, development and sustainable use of agricultural biodiversity on-farm and *in situ* in the transboundary ecosystems across the region (see Section 3.1.4), the project's approach was effective in achieving this for the project's target species, ensuring sustainability (see Sections 3.2, 3.3 and 3.4).

377. **Lesson Learnt:** There is a need to build in further dissemination of project results and approaches, especially in relation to the effectiveness of: taking a regional approach to work in transboundary ecosystems; incorporating systemic linkages between institutions and farmers and forest users, nationally and across the region; and building upon the innovative skills of resource conservers and users.

4.2.3 Budgeting

378. **Context:** The project, while budgeted carefully and implemented with forensic attention to precise accounting of all financial transactions (see Section 3.6.6), with the benefit of hindsight, it could have provided more resources to ensure equipment renewal (see Section 3.2.4) and translation of all necessary documents for both project implementation and dissemination of project results and methodologies (see Section 3.5.2).

379. **Lesson Learnt:** When developing similar long-term projects, it is important to ensure that there is sufficient funding for the renewal of equipment (for example computers) to ensure that at the end of the project the equipment needed to support the sustainability of project results is up to date. Also consider including a realistic estimate of the needs for translation of documents to ensure the effective management of the project, including local community actors, and enable effective dissemination of project results at all levels. If there is a project extension these costs should also be factored into the reorganised budget for the period of extension.

4.2.4 Reporting

380. **Context:** Financial and narrative reporting was the cause of much work for the coordinators at national and regional levels (see Section 3.2.5), as well as in the supervisory systems at international levels. The requirement for quarterly financial reports and potentially duplicative semi-annual narrative reports is burdensome and perhaps excessive (see Section 3.6.6.).

381. **Lesson Learnt:** The burden of frequent, sometimes duplicative, reporting on the efficient execution of such projects needs to be reviewed.

4.2.5 Regional approach

382. **Context:** The conservation, development and sustainable use of the project's prioritised globally-significant species, and their wild relatives, in their centre of origin and diversity requires a coordinated approach across the transboundary ecosystems in the region (see 2.1.1).

383. **Lesson Learnt:** For this type of project there is a need for a regional approach. It is unlikely that any national institution could have the capacity or mandate to provide the necessary regional coordination. An external agency is likely to be the most effective in facilitating co-ordinated work, assist with the exchange and dissemination of information across borders, and to promote, within the region and internationally, the regional importance of the issues, and required policies and practices to address these.

4.2.6 Inclusive, national governance in a regional context

384. **Context:** Within the agreed regional framework, the NSCs, led by the national coordinators, were arguably the most important project implementation bodies. Because of the decentralised and country-driven style of operation adopted by the project, it was the NSCs which provided the necessary governance of the project at national levels. It was commendable the way in which the membership of the NSCs was inclusive of not only research and other national institutions but also usually had one or more farmers / forest users participating as a member. Mostly, their task was one of oversight of the plans and activities being coordinated nationally. When problems arose, they were resolved ultimately at this level. (See Section 3.6.2)

385. **Lesson Learnt:** In similar projects addressing regional issues, once agreement on the common purposes, activities and outcomes has been achieved, strengthening the governance at national and sub-national levels can contribute to efficient operation of the project.

4.2.7 Effective Partnerships

386. **Context:** The institutional leadership of the project, achieved through the effective partnerships and inclusive participation secured by the project, reinforced all project activities, heightened awareness of the importance of the project and the issues it addressed and stimulated the project's influence on policy and practices. The partnerships were reinforced through the trust engendered by the participatory way in which the technical backstopping from Bioversity International was implemented, including through developing agreements about the collection and use of data and the use of free prior informed consent procedures. The resulting focus on policy issues concerning Farmers' Rights and Access and Benefit Sharing agreements further increased the interest of lead actors and participants. The influence of this leadership grounded the project in an enduring institutional framework embracing local, national and regional partnerships that have lasted beyond the funded life of the project (see Section 4.1.3).

387. **Lesson Learnt:** The deliberate incorporation in the project document of partnership and participation activities, as a specific component, rather than an implicit activity of project management, can result in an inclusive and trusting approach being embedded within the project.

This approach can be enhanced by the way in which technical backstopping is implemented and the agreements on data collection and use. This can sustain engagement and partnerships for the long term and also increase the confidence of actors, at all levels, to carry out activities and secure benefits including improved institutional recognition for their scientific enquiry and technical competence, and economic benefits for participating families and their communities.

4.2.8 Knowledge and skills

388. **Context:** Through recognising and enhancing the knowledge and skills of project participants, the project achieved significant uptake of results, especially in terms of increased planting of endemic varieties of the target species in orchards and vineyards as well as in forests and other uncultivated areas. This was due in part to the project's process of scientific validation of the effectiveness of farmers' and forest users' varieties, innovations and practises, supplemented by the contributions of scientific and technical institutions (see Section 3.3.1.2)

389. **Lesson Learnt:** The development of demonstration plots and nurseries in local farms, orchards and forests, which can then become the source of planting materials for widespread uptake, together with appropriate training and information dissemination by scientific and technical institutions for information, can stimulate the uptake of improved practices and increase the area planted to the target species on-farm and *in situ*

4.2.9 Policy advice

390. **Context:** National obligations resulting from international agreements provided a stimulus for interactions by policy advisers with project staff and consultants on policy development in order to enact required laws and regulations in each country. In this process, project actors were able to propose the promotion of measures at local and national levels, which could support project-determined practises that foster diversity in the production of fruit and nut bearing species and an extension of the area planted to these species, including endemic varieties of walnut, almond and pistachio. Policy advice also included proposals to encourage supportive land tenure arrangements, encourage equitable access to resources and benefits, help towards the realisation of Farmers' Rights (FRs) and improve Access and Benefit Sharing (ABS) (see Section 3.3.1.1).

391. **Lesson Learnt:** Mechanisms for improving the potential for policy influence by the lead actors, including both those in institutions and lead farmers at all levels, need to be embedded in the design of the project and have a sufficiently flexible approach to engage opportunely with related areas of policy that could impact favourably on the systemic uptake of project proposals. This project not only influenced policy processes in agriculture and the environment but the approach taken enabled project actors to reach out to other areas of the administration, for example, to education with the inclusion of relevant studies on fruit and nut bearing species in a national university.

Table 10: Key Findings

The Project has achieved a number of important results:

- **Endemic Variety Planting Increasing**: Planting of endemic varieties of the economically and culturally important fruit and nut-bearing species has increased in the region and are now more readily available. These 'target' species include Almond, Alycha/Cherry Plum, Apple, Apricot, Currants, Fig, Grape, Mulberries, Peach, Pistachio, Pomegranate, Pear, Sea Buckthorn and Walnut. Conservation of the wild relatives of these species, and the local environment in which they grow, has improved in the transboundary ecosystems across the region.
- **Planting Materials Now More Readily Available**: The project's recognition that the lack of planting materials of these varieties was a severe hindrance to realising its goals, and the consequent project-initiated activities of supporting the development of nurseries by local farmers, has resulted in a thriving and expanding provision, in each country, of hundreds of thousands of saplings and other grafted plants of local endemic varieties for planting across the region and in neighbouring countries.
- **Endemic Varieties Used in Regeneration Activities:** The use of endemic varieties of the target species in ecosystem and forest regeneration activities as well as for restoration of production, especially on degraded slopes, has increased. Equally, the increased use of these varieties, which are suited for drier zones without irrigation, has extended their production.
- **Climate Change Resilience Opportunities:** The project has increased recognition of the contribution that the planting of a diversity of these varieties can make to production systems which can adapt to climate change and future disease and pest stresses. Lessons learned from the project are now included in relevant new projects in the region.
- **Project Information Widely Available**: The project has generated hundreds of technical, scientific and information products including papers, leaflets, posters, videos etc. Most of these are available online. Some are posted prominently on international websites including the CBD. The project's approach to data collection and use, recognising among other things the need for Free Prior and Informed Consent, was instrumental in achieving high-quality participation by data providers.
- **Effective Regional Approach**: The project's design, developed during a long and thorough preparatory phase, as a country-driven regional approach to tackling common problems in the transboundary ecosystems across the region, has proved effective and efficient, improving co-operation and reducing duplication of effort.
- **Strong Partnerships and Good Leadership sustaining Momentum**: The project benefitted from the designed identification of good institutional leadership and excellent lead farmers and forest users, which enabled activities to be embedded in policy and practice and hence leading to greater possibilities of impact being achieved.
- **Policies Benefitting Producers:** The project's focus on policies that have more direct bearing on benefitting farmers and forest users increased the engagement by all project actors, from local to national levels, in advocating for needed changes. These were not only for changes in agricultural and environmental policies but also in education.

4.3 Recommendations

392. While funding is no longer available for follow-up activities within the project, activities are continuing and the following recommendations are offered as possible actions that could be incorporated into the design of new projects or could be implemented using existing resources within partner institutions or UN Environment.

4.3.1 For: UN Environment

4.3.1.1 Project information dissemination

393. **FINDING:** UN Environment /GEF has provided catalytic support to work that has enhanced the conservation, development and sustainable use of agricultural biodiversity on-farm and *in situ* in the transboundary ecosystems across the region (see Section 3.1.4).

394. **RECOMMENDATION:** Using its websites, publications and other means of communication, for example Side Events at international meetings, further disseminate the project's results and approaches, especially in relation to the regional approach across transboundary ecosystems, the importance of systemic linkages between, especially research, institutions and farmers and forest users, nationally and across the region, and the successes that can be derived from building upon the innovative skills of resource conservers and users.

4.3.2 For: Bioversity International

4.3.2.1 Access to project-derived information

395. **FINDING**: The project's information outputs in all languages are still available via the project web portal http://centralasia.bioversityinternational.org/en/ (also in Russian) but some of the links to the project's scientific papers have not been uploaded. English language publications are sometimes available via international websites, for example that of Bioversity International and the website of the CBD, but easy access to most materials via search engines is patchy (see Section 3.6.4).

396. **RECOMMENDATION**: Ensure the information produced by the project and its methodologies, guidelines and protocols are more easily accessible through web search engines. Through making the web-portal documents search-engine friendly, ensuring all PDFs are machine-readable and making direct links in other information services, access to the materials could be improved. Links to the project websites / web portal and project outputs could be inserted within other websites e.g. bioversityinternational.org and relevant Russian-language sites, and relevant web directories could be populated with project information, e.g. researchgate.org, biodiversitylibrary.org, dmoz.org, etc., . To ensure the long-term availability of the information, the regional web portal and project-related websites at national level should be secured with domain name registrations and website hosting packages resourced for the long-term.

4.3.2.2 Research outputs

397. **FINDING**: The output of technical and scientific papers is already a significant addition to: the world's literature on agricultural biodiversity, especially on the plant genetic resources of the target perennial species; the importance of the region; and the participatory methodologies used (see Section 3.2.2.2).

398. **RECOMMENDATION**: Bioversity staff to continue encouragement to national researchers, in full compliance with the project's data exchange and access agreement, to use the project's data, information and results to prepare further research papers that will contribute towards realising the project's objectives.

4.3.2.3 Increase outreach

399. **FINDING**: The project was successful in finding regional approaches – built on effective national approaches, given the project's context (see Section 2.1.1) – for the conservation, development and sustainable use of endemic varieties of the target perennial species, in the transboundary ecosystems and the biocultural heritage of the region (see Section 3.4). All three Pathways identified in the ROtI provide an indication of how the project's impact could be realised (see Section 2.8.2).

400. **RECOMMENDATION**: Consider, in collaboration with national partners, developing links with projects that build on the success of the project, the biocultural heritage of the region, its globally-significant agricultural biodiversity and the region's geo-political significance, how it might be possible to catalyse the development of a new regional 'Silk Road' project (perhaps, building on the interest generated by the 2013 international symposium "Fruit Cultures and their Traditional Knowledge along The Silk Road countries" and other activities that raise awareness). Equally, building on increasing interest in the production of diverse fruit and nut-bearing species, especially in the context of climate change, water stress and salinization, could stimulate resource mobilisation for new activities. Such a project could further increase recognition of the importance of, and demand for, sustainably grown and harvested produce of diverse local varieties of the endemic perennial fruit and nut bearing species of Central Asia, thereby increasing the outreach of the project results towards realising its expected impact.

4.3.3 For: National Partners

4.3.3.1 New collaborative initiatives

401. **FINDING**: As described in the paragraph above, the project, built on effective national approaches, has achieved its planned outcomes and has potential to realise its expected impact.

402. **RECOMMENDATION**: Continue to seek new collaborative initiatives at national levels, with national institutions and local famers and forest users, which can link with partners in the region, that will build on the results of the project within wider programmes that address not only the conservation, development and sustainable use of agricultural biodiversity but also its contribution to food security, livelihoods, soil and water management, environmental conservation and regeneration, and the resilience and adaption of production systems to, and mitigation of, climate change in the transboundary ecosystems across the region. Such initiatives and partnerships should be sought beyond the agricultural and forestry sectors, *per se*, within environmental, educational and other sectors.

4.3.3.2 Policy changes

403. **FINDING**: Policy changes in support of the objectives of the project have been achieved. In addition to the key policies on Conservation and Sustainable Use, Access and Benefit Sharing and Farmers' Rights, there have been policy gains beyond those that were planned, aided by the qualities of the people working on the project and their leadership in their institutions and communities (see Section 3.2.1.1).

404. **RECOMMENDATION**: Using the influence of project actors, find ways to continue to advocate for inclusion of project results in policy and practices at national and local levels, including the full implementation of Farmers' Rights, as well as other measures that extend the area planted to endemic varieties of the target species and increase benefits to farmers and forest users.

4.3.3.3 Maintain partnerships

405. **FINDING**: The effective partnerships and broad participation across the region is a particular success of the project, allowing ongoing interactions between people and institutions that will

continue to tackle the common issues present across the region, which will help with the realisation of the project's objectives (see Section 3.2.3).

406. **RECOMMENDATION**: Sustain the effective partnerships and broad participation of committed actors, including women and young people, developed through the project to support further innovation and dissemination of practises that improve the conservation, development and sustainable use of agricultural biodiversity.

4.3.3.4 Pests & diseases

407. **FINDING**: A common issue expressed by participating farmers and forest users was how to tackle pests and diseases. Their current production practises, which tend to be monocultural within their orchards and vineyards, are increasingly dependent on agrochemicals for pest and disease control, with implications for human health and wider agricultural biodiversity in the growing environment (see Section 3.4).

408. **RECOMMENDATION**: Attention could be given to prioritising, in any new project, further research in institutions and on-farm on the role of agricultural biodiversity, including through multi-variety plantings and integrated pest management techniques, in reducing pests and diseases, while recognising and reducing the negative impacts of agrochemicals on wider agricultural biodiversity.

4.3.3.5 Information

409. **FINDING**: As a result of the scientific, technical and practical work undertaken by the project, a large quantity of information was produced in national languages, Russian and English resulting from assessments, the development of policies, knowledge and skills and capacity building for the conservation, development and sustainable use of the project's target species, and was made available through national databases, registers and websites (see Section 3.2).

410. **RECOMMENDATION**: Find resources to maintain accessibility to, and further translate and update, the information generated by the project, including maintaining project websites, databases and variety registers. The next generation of scientists and producers could benefit especially from this activity.

4.3.3.6 Markets

411. **FINDING**: With the increase in awareness, engendered by the project and its partners, of the value of, and a strong demand for, the saplings of the endemic varieties of the target species and their fruits and nuts in the market, it was found that the diversity of these species on-farm and *in situ* could be sustained for a foreseeable future (see Section 3.2.2.3).

412. **RECOMMENDATION**: In any new project or programme, project partners should continue to promote as favourable a market for the saplings and produce of these varieties as possible; additionally, learning from other similar projects, the project could promote novel ways of selling diverse produce e.g. through the production of packs of fruit for export which contain different varieties of fresh or dried fruits of endemic varieties of the target species, as a way to counter the dominance of the market for the produce of single, often exotic, varieties.

ANNEXES

ANNEX 1. Evaluation TORs (abridged version, without annexes)

PART II: TERMS OF REFERENCE FOR THE EVALUATION

Objective and Scope of the Evaluation

58. In line with the UNEP Evaluation Policy[171] and the UNEP Programme Manual[172], the Terminal Evaluation is undertaken at completion of the project to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability. The evaluation has two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote operational improvement, learning and knowledge sharing through results and lessons learned among UNEP, Biodiversity International and their main project partners;

Kazakhstan:

1. National Academic Centre of Agrarian Researches (NACAR)
2. Ministry of Agriculture
3. Ministry of Natural Resources and Environmental Protection
4. Ministry of Science and High Education
5. National Private Farmers' Federation

Kyrgyzstan:

1. Agrarian Academy
2. Ministry of Environment Protection
3. State Forestry Agency
4. NGO "Fauna and Flora International"
5. Research Institute on Forest & Nut

Tajikistan:

1. Academy of Agricultural Sciences
2. Production Association on Forestry "Tajikles"

Turkmenistan:

1. Ministry of Agriculture and Water Management
2. Ministry of Nature
3. Ecological Club "Caten"

Uzbekistan:

1. Institute of Genetics and Plant Experimental Biology
2. Scientific and Production Agriculture Centre
3. Ministry of Agriculture
4. NGO "Ecoles"

[171] http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationPolicy/tabid/3050/language/en-US/Default.aspx

[172] http://www.unep.org/QAS/Documents/UNEP_Programme_Manual_May_2013.pdf

As well as the global Crop Diversity Trust, The Christensen Fund, Mountain Development Program of Aga Khan Foundation, Public Foundation "HARVEST.

59. Therefore, the evaluation will identify lessons of operational relevance for future project formulation and implementation. It will focus on the following sets of **key questions**, based on the project's intended outcomes, which may be expanded by the consultants as deemed appropriate:

1. To what extent have the project's activities:
    a. contributed to ecologically sustainable livelihood improvements in target areas,
    b. permitted stakeholders to work in improved collaboration and partnership
    c. increased the conservation areas that produce *in situ*/on-farm horticultural crops and wild fruit species in Central Asia,
    d. increased knowledge and skills in conservation and utilization of *in situ*/on farm conservation and utilization of horticultural crops and wild fruit species,
    e. increased capacity of local communities to develop *in situ*/on-farm conservation and use of fruit species genetic resources.
2. To what extent have the policy and institutional frameworks supported by the project been successful in ensuring a sustainable conservation and utilization of the specified horticultural crops and wild fruit species in the project's target areas? How effective the legislative and policy options have been in strengthening national systems on conservation of horticultural and wild fruit species genetic diversity?
3. To what extent and how, have the methods and guidelines developed by the project been instrumental in the analysis, documentation and management of horticultural crops and wild fruit species?
4. To what extent have the effort improved partnerships between key stakeholders to better manage the conservation and utilisation of *in situ*/on-farm horticultural crops and wild fruit species in Central Asia?

Overall Approach and Methods

60. The Evaluation of the Project will be conducted by an independent consultant under the overall responsibility and management of the UNEP Evaluation Office in consultation with the UNEP Task Manager and the Sub-programme Coordinator of the Ecosystem Management Sub-Programme.

61. It will be an in-depth evaluation using a participatory approach whereby key stakeholders are kept informed and consulted throughout the evaluation process. Both quantitative and qualitative evaluation methods will be used to determine project achievements against the expected outputs, outcomes and impacts. It is highly recommended that the consultant(s) maintains close communication with the project team and promotes information exchange throughout the evaluation implementation phase in order to increase their (and other stakeholder) ownership of the evaluation findings.

62. The findings of the evaluation will be based on the following:

(a) A **desk review** of:

- Relevant background documentation, inter alia:
    2. Annexes
    3. Executive Summary (Revised)
    4. PDF-A Document
    5. PDF-B Document
    6. Project Appraisal Document (for CEO Endorsement)
    7. Project Document for WP (Revised)
    8. Mid-Term Evaluation
    9. Relevant material published on the project web-portal http://forum2.bioversity.cgiar.org/cwana/c.asia

- Project design documents (including minutes of the project design review meeting at approval); Annual Work Plans and Budgets or equivalent, revisions to the project (Project Document Supplement), the logical framework and its budget;
- Project reports such as six-monthly progress and financial reports, progress reports from collaborating partners, meeting minutes, relevant correspondence etc.;
- Documentation regarding project outputs:
  - Policy options for supporting farmers and local communities to conserve *in situ*/on-farm local varieties of horticultural crops and wild fruit species are available and used.
  - Knowledge and methodologies on *in situ*/on farm conservation and utilization of horticultural crops and wild fruit species are available, disseminated and used.
  - Broad participation and strong partnerships/links among farmers and institutions, between farmers, institutions, and private sector, and among countries are established.
  - Capacity for training and support activities on *in situ*/on-farm conservation and use of fruit species genetic resources is established.
- Evaluations/reviews of similar projects

(b) **Interviews (individual or in group) with**:

- UNEP Task Manager
- Project management team
- UNEP Fund Management Officer
- UNEP-GEF Portfolio Manager
- Project partners, including; The Academy of Agricultural Science, Almaty, Kazakhstan; Research Institute of Farming, Bishkek, Kyrgyzstan; Research and Production Association 'Bogparvar', Dushanbe, Tajikistan; Garrygala Research and Production Centre on Plant Genetic Resources of Research Institute of Farming, Garrygala, Turkmenistan; Institute of Genetics and Plant Experimental Biology, Tashkent, Uzbekistan; IPGRI (principally through the Regional Office for Central and West Asia and North Africa (CWANA), Aleppo, Syria and the Sub-Office, Tashkent, Uzbekistan), local communities, farmers and their associations and NGOs.
- Relevant resource persons;

For each evaluation question, the evaluators will define a method to address it data collection may involve:

(c) **Surveys:** Surveys in project areas using a combination of quantitative and qualitative methods to assess the change in the livelihood as a result of the improved *in-situ* conservation and utilization of local varieties of horticultural crops and wild spices. Regional-level assessment to evaluate coordination, partnership, knowledge sharing and management.

Field visits: The purpose of the country visits is to meet in-country partners, project staff and direct observation of project pilot areas. The country sample will cover 3 countries. The evaluator will spend 5 days of in each country. The evaluator will meet with the project staff in each country and national project coordinators representatives of the project executing agency, main partners, stakeholders and beneficiaries and evaluate the project component in each country.

Key Evaluation principles

63. Evaluation findings and judgements should be based on **sound evidence and analysis**, clearly documented in the evaluation report. Information will be triangulated (i.e. verified from different sources) to the extent possible, and when verification was not possible, the single source will be mentioned. Analysis leading to evaluative judgements should always be clearly spelled out.

64. The evaluation will assess the project with respect to **a minimum set of evaluation criteria** grouped in six categories: (1) Strategic Relevance; (2) Attainment of objectives and planned result, which comprises the assessment of outputs achieved, effectiveness and likelihood of impact; (3) Sustainability and replication; (4) Efficiency; (5) Factors and processes affecting project performance, including preparation and readiness, implementation and management, stakeholder participation and public awareness, country ownership and driven-ness, financial planning and management, UNEP supervision and backstopping, and project monitoring and evaluation; and (6) Complementarity with the UNEP strategies and programmes. The evaluation consultants can propose other evaluation criteria as deemed appropriate.

65. **Ratings.** All evaluation criteria will be rated on a six-point scale. However, complementarity of the project with the UNEP strategies and programmes is not rated. Annex 3 provides guidance on how the different criteria should be rated and how ratings should be aggregated for the different evaluation criterion categories.

66. In attempting to attribute any outcomes and impacts to the project intervention, the evaluators should consider the difference between *what has happened with, and what would have happened without, the project*. This implies that there should be consideration of the baseline conditions and trends in relation to the intended project outcomes and impacts. It also means that there should be plausible evidence to attribute such outcomes and impacts to the actions of the project. Sometimes, adequate information on baseline conditions and trends is lacking. In such cases this should be clearly highlighted by the evaluators, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

67. As this is a terminal evaluation and a follow-up project is likely [or similar interventions are envisaged for the future], particular attention should be given to learning from the experience. Therefore, the "*Why?*" question should be at front of the consultants' minds all through the evaluation exercise. This means that the consultants need to go beyond the assessment of "*what*" the project performance was, and make a serious effort to provide a deeper understanding of "*why*" the performance was as it was, i.e. of processes affecting attainment of project results (criteria under category F – see below). This should provide the basis for the lessons that can be drawn from the project. In fact, the usefulness of the evaluation will be determined to a large extent by the capacity of the consultants to explain "*why things happened*" as they happened and are likely to evolve in this or that direction, which goes well beyond the mere review of "*where things stand*" at the time of evaluation.

A key aim of the evaluation is to encourage reflection and learning by UNEP staff and key project stakeholders. The consultant should consider how reflection and learning can be promoted, both through the evaluation process and in the communication of evaluation findings and key lessons.

Communicating evaluation results. Once the consultant(s) has obtained evaluation findings, lessons and results, the Evaluation Office will share the findings and lessons with the key stakeholders. Evaluation results should be communicated to the key stakeholders in a brief and concise manner that encapsulates the evaluation exercise in its entirety. There may, however, be several intended audiences, each with different interests and preferences regarding the report. The Evaluation Manager will plan with the consultant(s) which audiences to target and the easiest and clearest way to communicate the key evaluation findings and lessons to them. This may include some or all of the following; a webinar, conference calls with relevant stakeholders, the preparation of an evaluation brief or interactive presentation.

Evaluation criteria

Strategic relevance

73. The evaluation will assess, in retrospect, whether the project's objectives and implementation strategies were consistent with global, regional and national environmental issues and needs.

74. The evaluation will assess whether the project was in-line with the GEF OP 13 'Conservation and sustainable use of biological diversity important to agriculture' focal area's strategic priorities and operational programme(s).

75. The evaluation will also assess the project's relevance in relation to UNEP's mandate and its alignment with UNEP's policies and strategies at the time of project approval. UNEP's Medium Term Strategy (MTS) is a document that guides UNEP's programme planning over a four-year period. It identifies UNEP's thematic priorities, known as Subprogrammes (SP), and sets out the desired outcomes [known as Expected Accomplishments (EAs)] of the SubProgrammes. The evaluation will assess whether the project makes a tangible/plausible contribution to any of the

EAs specified in the MTS 2010-2013. The magnitude and extent of any contributions and the causal linkages should be fully described.

The evaluation should assess the project's alignment / compliance with UNEP's policies and strategies. The evaluation should provide a brief narrative of the following:

b. *Alignment with the Bali Strategic Plan (BSP)*[173]. The outcomes and achievements of the project should be briefly discussed in relation to the objectives of the UNEP BSP.

c. *Gender balance*. Ascertain to what extent project design, implementation and monitoring have taken into consideration: (i) possible gender inequalities in access to and the control over natural resources; (ii) specific vulnerabilities of women and children to environmental degradation or disasters; and (iii) the role of women in mitigating or adapting to environmental changes and engaging in environmental protection and rehabilitation. Are the project intended results contributing to the realization of international GE (Gender Equality) norms and agreements as reflected in the UNEP Gender Policy and Strategy, as well as to regional, national and local strategies to advance HR & GE?

d. *Human rights based approach (HRBA) and inclusion of indigenous peoples issues, needs and concerns*. Ascertain to what extent the project has applied the UN Common Understanding on HRBA. Ascertain if the project is in line with the UN Declaration on the Rights of Indigenous People, and pursued the concept of free, prior and informed consent.

e. *South-South Cooperation.* This is regarded as the exchange of resources, technology, and knowledge between developing countries. Briefly describe any aspects of the project that could be considered as examples of South-South Cooperation.

76. Based on an analysis of project stakeholders, the evaluation should assess the relevance of the project intervention to key stakeholder groups.

Achievement of Outputs

77. The evaluation will assess, for each component, the project's success in producing the programmed outputs and milestones as presented in Table 2 above, both in quantity and quality, as well as their usefulness and timeliness.

78. Briefly explain the reasons behind the success (or failure) of the project in producing its different outputs and meeting expected quality standards, cross-referencing as needed to more detailed explanations provided under Section F (which covers the processes affecting attainment of project results). Were key stakeholders appropriately involved in producing the programmed outputs?

Effectiveness: Attainment of Objectives and Planned Results

79. The evaluation will assess the extent to which the project's objectives were effectively achieved or are expected to be achieved.

80. The **Theory of Change** (ToC) of a project depicts the causal pathways from project outputs (goods and services delivered by the project) through outcomes (changes resulting from the use made by key stakeholders of project outputs) towards impact (long term changes in environmental benefits and living conditions). The ToC will also depict any intermediate changes required between project outcomes and impact, called 'intermediate states'. The ToC further defines the external factors that influence change along the major pathways; i.e. factors that affect whether one result can lead to the next. These external factors are either drivers (when the project has a certain level of control) or assumptions (when the project has no control). The ToC also clearly identifies the main stakeholders involved in the change processes.

81. The evaluation will reconstruct the ToC of the project based on a review of project documentation and stakeholder interviews. The evaluator will be expected to discuss the reconstructed TOC with the stakeholders during evaluation missions and/or interviews in order to ascertain the causal pathways identified and the validity of impact drivers and assumptions described in the TOC. This exercise will also enable the consultant to address some of the key evaluation questions and make adjustments to the TOC as appropriate (the ToC of the intervention may have been modified / adapted from the original design during project implementation).

82. The assessment of effectiveness will be structured in three sub-sections:

[173] http://www.unep.org/GC/GC23/documents/GC23-6-add-1.pdf

(a) Evaluation of the **achievement of outcomes as defined in the reconstructed ToC**. These are the first-level outcomes expected to be achieved as an immediate result of project outputs. For this project, the main question will be to what extent the project has contributed to:

1) options to policy-makers for strengthening legal and policy frameworks;

2) assess, document, and manage local varieties of horticultural crops and wild fruit species in a sustainable way;

3) broader stakeholder participation, representative decision making, and strong partnerships among them

4) strengthened the capacity to implement all aspects of fruit species genetic diversity conservation at local, national and regional levels.

Additional questions:

1. To what extent has the project's supported information management systems and relevant networks and contributed to improving conservation and utilisation of *in situ*/on farm crops?

2. To what extent have the project activities strengthen policy and legislation as it relates to project objectives?

3. To what extent have the project activities been successful in expanding knowledge (institutional and local) of horticultural crops and wild fruit species in Central Asia? Which were some of the success stories and why?

4. Did the project bring about a positive change in the partnership and coordination level among farmers and institutions, among farmers and institutions and private sector and among selected countries?

(b) Assessment of the **likelihood of impact** using a Review of Outcomes to Impacts (ROtI) approach[174]. The evaluation will assess to what extent the project has to date contributed, and is likely in the future to further contribute, to [intermediate states], and the likelihood that those changes in turn to lead to positive changes in the natural resource base, benefits derived from the environment and human well-being.

(c) Evaluation of the **achievement of the formal project overall objective, overall purpose, goals and component outcomes** using the project's own results statements as presented in the Project Document[175]. This sub-section will refer back where applicable to the preceding sub-sections (a) and (b) to avoid repetition in the report. To measure achievement, the evaluation will use as much as appropriate the indicators for achievement proposed in the Logical Framework (Logframe) of the project, adding other relevant indicators as appropriate. Briefly explain what factors affected the project's success in achieving its objectives, cross-referencing as needed to more detailed explanations provided under Section F. Most commonly, the overall objective is a higher level result to which the project is intended to contribute. The section will describe the actual or likely **contribution** of the project to the objective.

(d) The evaluation should, where possible, disaggregate outcomes and impacts for the key project stakeholders. It should also assess the extent to which HR and GE were integrated in the Theory of Change and results framework of the intervention and to what degree participating institutions/organizations changed their policies or practices thereby leading to the fulfilment of HR and GE principles (e.g. new services, greater responsiveness, resource re-allocation, etc.)

[174] Guidance material on Theory of Change and the ROtI approach is available from the Evaluation Office.

[175] Or any subsequent **formally approved** revision of the project document or logical framework.

Sustainability and replication

83. Sustainability is understood as the probability of continued long-term project-derived results and impacts after the external project funding and assistance ends. The evaluation will identify and assess the key conditions or factors that are likely to undermine or contribute to the persistence of benefits. Some of these factors might be direct results of the project while others will include contextual circumstances or developments that are not under control of the project but that may condition the sustainability of benefits. The evaluation should ascertain to what extent follow-up work has been initiated and how project results will be sustained and enhanced over time. The reconstructed ToC will assist in the evaluation of sustainability, as the drivers and assumptions required to achieve higher-level results are often similar to the factors affecting sustainability of these changes.

84. Four aspects of sustainability will be addressed:

(a) *Socio-political sustainability.* Are there any social or political factors that may influence positively or negatively the sustenance of project results and progress towards impacts? Is the level of ownership by the main stakeholders sufficient to allow for the project results to be sustained? Are there sufficient government and other key stakeholder awareness, interests, commitment and incentives to financial, level of corruption, collaboration and cooperation among countries etc? Did the project conduct 'succession planning' and implement this during the life of the project? Was capacity building conducted for key stakeholders? Will the capacity building initiatives ensure a successful implementation and sustainability of project activities beyond the project life? Did the intervention activities aim to promote (and did they promote) positive sustainable changes in attitudes, behaviours and power relations between the different stakeholders? To what extent has the integration of HR and GE led to an increase in the likelihood of sustainability of project results?

(b) *Financial resources.* To what extent are the continuation of project results and the eventual impact of the project dependent on financial resources? What is the likelihood that adequate financial resources[176] will be or will become available to use capacities built by the project? Are there any financial risks that may jeopardize sustenance of project results and onward progress towards impact?

(c) *Institutional framework.* To what extent is the sustenance of the results and onward progress towards impact dependent on issues relating to institutional frameworks and governance? How robust are the institutional achievements such as governance structures and processes, policies, sub-regional agreements, legal and accountability frameworks etc. required to sustaining project results and to lead those to impact on human behaviour and environmental resources, goods or services?

(d) *Environmental sustainability.* Are there any environmental factors, positive or negative, that can influence the future flow of project benefits? Are there any project outputs or higher level results that are likely to affect the environment, which, in turn, might affect sustainability of project benefits? Are there any foreseeable negative environmental impacts that may occur as the project results are being up-scaled?

- To what extent will the methodologies developed by this project improve national agro-biodiversity conservation systems in Central Asia, in the future?
- Can we anticipate that the project's recommendations will be implemented and integrated in the protected area management and agriculture development national plans of the countries supported by the project?
- Did the knowledge and skills provided by the project, empowered farmers to make informed choices and participate actively in decision-making processes on assess and management of plan genetic resources?

85. **Catalytic role and replication**. The *catalytic role* of UNEP interventions is embodied in their approach of supporting the creation of an enabling environment and of investing in pilot activities which are innovative and showing how new approaches can work. UNEP also aims to support activities that upscale new

[176] Those resources can be from multiple sources, such as the national budget, public and private sectors, development assistance etc.

approaches to a national, regional or global level, with a view to achieve sustainable global environmental benefits. The evaluation will assess the catalytic role played by this project, namely to what extent the project has:

(a) *catalyzed behavioural changes* in terms of use and application, by the relevant stakeholders, of capacities developed;

(b) provided *incentives* (social, economic, market based, competencies etc.) to contribute to catalyzing changes in stakeholder behaviour;

(c) contributed to *institutional changes*, for instance institutional uptake of project-demonstrated technologies, practices or management approaches;

(d) contributed to *policy changes* (on paper and in implementation of policy);

(e) contributed to sustained follow-on financing (*catalytic financing*) from Governments, private sector, donors etc.;

(f) created opportunities for particular individuals or institutions ("*champions*") to catalyze change (without which the project would not have achieved all of its results).

(g) created new livelihood opportunities to farmers due to the high value of fruits and along with the simultaneous and first-time growth of private farms.

86. *Replication* is defined as lessons and experiences coming out of the project that are replicated (experiences are repeated and lessons applied in different geographic areas) or scaled up (experiences are repeated and lessons applied in the same geographic area but on a much larger scale and funded by other sources). The evaluation will assess the approach adopted by the project to promote replication effects and determine to what extent actual replication has already occurred, or is likely to occur in the near future. What are the factors that may influence replication and scaling up of project experiences and lessons?

Efficiency

87. The evaluation will assess the cost-effectiveness and timeliness of project execution. It will describe any cost- or time-saving measures put in place in attempting to bring the project as far as possible in achieving its results within its (severely constrained) secured budget and (extended) time. It will also analyse how delays, if any, have affected project execution, costs and effectiveness. Wherever possible, costs and time over results ratios of the project will be compared with that of other similar interventions. Evaluations/reviews of other large assessments may provide some comparative information on efficiency. The evaluation will also assess the extent to which HR and GE were allocated specific and adequate budget in relation to the results achieved.

88. The evaluation will give special attention to efforts by the project teams to make use of/build upon pre-existing institutions, agreements and partnerships, data sources, synergies and complementarities with other initiatives, programmes and projects etc. to increase project efficiency. For instance, the evaluation will consider how well other information sources (on global and regional environmental status and trends, and on the costs and benefits of different policy options) accessible to the different target audiences have been tapped, and how the project ensured the complementarity of its process and products to other assessment processes and information sources, to avoid duplication of efforts? Was there sufficient information about the assessment capacity of collaborating institutions and experts and about other capacity building initiatives, to limit and target training and technical support to what was really needed, avoiding duplication?

Additional question:

- To what extent had the executive organization structure of the project assured an effective monitoring of the project?

Factors and processes affecting project performance

89. **Preparation and readiness**. This criterion focusses on the quality of project design and preparation. Were project stakeholders[177] adequately identified and were they sufficiently involved in project development and

[177] Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or 'stake' in the outcome of the project. The term also applies to those potentially adversely affected by the project.

ground truthing e.g. of proposed timeframe and budget? Were the project's objectives and components clear, practicable and feasible within its timeframe? Were the capacities of executing agencies properly considered when the project was designed? Was the project document clear and realistic to enable effective and efficient implementation? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project implementation? Were counterpart resources (funding, staff, and facilities) and enabling legislation assured? Were adequate project management arrangements in place? Were lessons from other relevant projects properly incorporated in the project design? What factors influenced the quality-at-entry of the project design, choice of partners, allocation of financial resources etc.? Were any design weaknesses mentioned in the Project Review Committee minutes at the time of project approval adequately addressed?

90. **Project implementation and management**. This includes an analysis of implementation approaches used by the project, its management framework, the project's adaptation to changing conditions, the performance of the implementation arrangements and partnerships, relevance of changes in project design, and overall performance of project management. The evaluation will:

(a) Ascertain to what extent the project implementation mechanisms outlined in the project document have been followed and were effective in delivering project milestones, outputs and outcomes. Were pertinent adaptations made to the approaches originally proposed?

(b) Evaluate the effectiveness and efficiency of project management and how well the management was able to adapt to changes during the life of the project.

(c) Assess the role and performance of the teams and working groups established and the project execution arrangements at all levels.

(d) Assess the extent to which project management responded to direction and guidance provided by the UNEP Task Manager and project steering bodies including:

- International Steering Committee
- National Steering Committees
- Multidisciplinary Site Committees (MSC)
- Site Coordination Committee, etc

(e) Identify operational and political / institutional problems and constraints that influenced the effective implementation of the project, and how the project tried to overcome these problems.

91. **Stakeholder participation, cooperation and partnerships.** The Evaluation will assess the effectiveness of mechanisms for information sharing and cooperation with other UNEP projects and programmes, external stakeholders and partners. The term stakeholder should be considered in the broadest sense, encompassing both project partners and target users such as: research institutes, policy makers, agriculture extension workers, local communities, target farmers and their associations, NGO, private sector of project products in the selected countries. The TOC and stakeholder analysis should assist the evaluators in identifying the key stakeholders and their respective roles, capabilities and motivations in each step of the causal pathways from activities to achievement of outputs, outcomes and intermediate states towards impact. The assessment will look at three related and often overlapping processes: (1) information dissemination to and between stakeholders, (2) consultation with and between stakeholders, and (3) active engagement of stakeholders in project decision making and activities. The evaluation will specifically assess:

(a) the approach(es) and mechanisms used to identify and engage stakeholders (within and outside UNEP) in project design and at critical stages of project implementation. What were the strengths and weaknesses of these approaches with respect to the project's objectives and the stakeholders' motivations and capacities?

(b) How was the overall collaboration between different functional units of UNEP involved in the project? What coordination mechanisms were in place? Were the incentives for internal collaboration in UNEP adequate?

(c) Was the level of involvement of the Regional, Liaison and Out-posted Offices in project design, planning, decision-making and implementation of activities appropriate?

(d) Has the project made full use of opportunities for collaboration with other projects and programmes including opportunities not mentioned in the Project Document[178]? Have complementarities been sought, synergies been optimized and duplications avoided?

(e) What was the achieved degree and effectiveness of collaboration and interactions between the various project partners and stakeholders during design and implementation of the project? This should be disaggregated for the main stakeholder groups identified in the inception report.

(f) To what extent has the project been able to take up opportunities for joint activities, pooling of resources and mutual learning with other organizations and networks? In particular, how useful are partnership mechanisms and initiatives such as to build stronger coherence and collaboration between participating organisations?

- Has the project used the CATCN – PGR network to carry on project activities and promote their replication throughout their respective countries?
- Has the project shared and utilized the methodologies, data and strategies developed by UNDP/GEF project "*In situ* Conservation of Kazakhstan Mountain Agrobiodiversity"?
- Did the project collaborate with Magreb project or other similar project in Peru, Fertile Crescent and Vietnam?
- Did the project collaborate with other UNEP/GIF projects such as:
  - "*In situ* Conservation of Crop Wild Relatives through Enhanced Information Management and Field Application",
  - "Conservation of Kugitang Mountain Biodiversity in Turkmenistan" (PDF-A phase, 2003-2004)
  - "Sustainable Land Management in the High Pamir and Pamir-Alai Mountains - an Integrated and Transboundary Initiative in Central Asia" (2004-2006, PDF-B phase) and with the;
  - Asian Development Bank/GEF project "Central Asian Countries Initiative for Land Management (CACILM)" (2004-2005)
- Did the project utilise the existing formal sector distribution systems (extension services) and NGOs and farmer associations?

(g) How did the relationship between the project and the collaborating partners (institutions and individual experts) develop? Which benefits stemmed from their involvement for project performance, for UNEP and for the stakeholders and partners themselves? Do the results of the project (strategic programmes and plans, monitoring and management systems, sub-regional agreements etc.) promote participation of stakeholders, including users, in environmental decision making? Did the project enhanced as planned the capacities of stakeholders groups at all levels? If not, why, what were the limiting factors?

92. **Communication and public awareness**. The evaluation will assess the effectiveness of any public awareness activities that were undertaken during the course of implementation of the project to communicate the project's objective, progress, outcomes and lessons. This should be disaggregated for the main stakeholder groups identified in the inception report. Did the project identify and make us of existing communication channels and networks used by key stakeholders? Did the project provide feedback channels?

93. **Country ownership and driven-ness.** The evaluation will assess the degree and effectiveness of involvement of government / public sector agencies in the project, in particular those involved in project execution and those participating in National Steering Committees, agreements with Governments and respective Ministries.

[178] The PDF A and PDF B reports and the Project Document listed several opportunities for collaboration with other projects and programmes, especially those backstopped by Bioversity International. These were realised, in the main, and collaborations have continued beyond the project not only with CGIAR programmes but also with those supported by other funders e.g. GIZ, USAID.

(a) To what extent have Governments assumed responsibility for the project and provided adequate support to project execution, including the degree of cooperation received from the various public institutions involved in the project?

(b) How and how well did the project stimulate country ownership of project outputs and outcomes?

(c) To what extent the Ministries and Research Institutes are collaborating on *in-situ* conservation matters after the completion of the project?

(d) Is there evidence of continuous government(s) efforts to conduct planning, training, monitoring and evaluation for *in-situ* conservation and utilization?

94. **Financial planning and management**. Evaluation of financial planning requires assessment of the quality and effectiveness of financial planning and control of financial resources throughout the project's lifetime. The assessment will look at actual project costs by activities compared to budget (variances), financial management (including disbursement issues), and co-financing. The evaluation will:

(a) Verify the application of proper standards (clarity, transparency, audit etc.) and timeliness of financial planning, management and reporting to ensure that sufficient and timely financial resources were available to the project and its partners;

(b) Assess other administrative processes such as recruitment of staff, procurement of goods and services (including consultants), preparation and negotiation of cooperation agreements etc. to the extent that these might have influenced project performance;

(c) Present the extent to which co-financing has materialized as expected at project approval (see Table 1). Report country co-financing to the project overall, and to support project activities at the national level in particular. The evaluation will provide a breakdown of final actual costs and co-financing for the different project components (see tables in Annex 4).

(d) Describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective. Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO's, foundations, governments, communities or the private sector.

95. Analyse the effects on project performance of any irregularities in procurement, use of financial resources and human resource management, and the measures taken UNEP to prevent such irregularities in the future. Determine whether the measures taken were adequate.

96. **Supervision, guidance and technical backstopping.** The purpose of supervision is to verify the quality and timeliness of project execution in terms of finances, administration and achievement of outputs and outcomes, in order to identify and recommend ways to deal with problems which arise during project execution. Such problems may be related to project management but may also involve technical/institutional substantive issues in which UNEP has a major contribution to make.

97. The evaluators should assess the effectiveness of supervision, guidance and technical support provided by the different supervising/supporting bodies including:

(a) The adequacy of project supervision plans, inputs and processes;

(b) The realism and candour of project reporting and the emphasis given to outcome monitoring (results-based project management);

(c) How well did the different guidance and backstopping bodies play their role and how well did the guidance and backstopping mechanisms work? What were the strengths in guidance and backstopping and what were the limiting factors?

98. **Monitoring and evaluation**. The evaluation will include an assessment of the quality, application and effectiveness of project monitoring and evaluation plans and tools, including an assessment of risk

management based on the assumptions and risks identified in the project document. The evaluation will assess how information generated by the M&E system during project implementation was used to adapt and improve project execution, achievement of outcomes and ensuring sustainability. M&E is assessed on three levels:

(a) *M&E Design*. The evaluators should use the following questions to help assess the M&E design aspects:

- Arrangements for monitoring: Did the project have a sound M&E plan to monitor results and track progress towards achieving project objectives? Have the responsibilities for M&E activities been clearly defined? Were the data sources and data collection instruments appropriate? Was the time frame for various M&E activities specified? Was the frequency of various monitoring activities specified and adequate?
- How well was the project logical framework (original and possible updates) designed as a planning and monitoring instrument?
- SMART-ness of indicators: Are there specific indicators in the logframe for each of the project objectives? Are the indicators measurable, attainable (realistic) and relevant to the objectives? Are the indicators time-bound?
- Adequacy of baseline information: To what extent has baseline information on performance indicators been collected and presented in a clear manner? Was the methodology for the baseline data collection explicit and reliable? For instance, was there adequate baseline information on pre-existing accessible information on global and regional environmental status and trends, and on the costs and benefits of different policy options for the different target audiences? Was there sufficient information about the assessment capacity of collaborating institutions and experts etc. to determine their training and technical support needs?
- To what extent did the project engage key stakeholders in the design and implementation of monitoring? Which stakeholders (from groups identified in the inception report) were involved? If any stakeholders were excluded, what was the reason for this?
- Was sufficient information collected on specific indicators to measure progress on HR and GE (including sex-disaggregated data)?
- Arrangements for evaluation: Have specific targets been specified for project outputs? Has the desired level of achievement been specified for all indicators of objectives and outcomes? Were there adequate provisions in the legal instruments binding project partners to fully collaborate in evaluations?
- Budgeting and funding for M&E activities: Determine whether support for M&E was budgeted adequately and was funded in a timely fashion during implementation.

(b) *M&E Plan Implementation*. The evaluation will verify that:

- the M&E system was operational and facilitated timely tracking of results and progress towards projects objectives throughout the project implementation period;
- PIR reports were prepared (the realism of the Task Manager's assessments will be reviewed)
- Half-yearly Progress & Financial Reports were complete and accurate;
- the information provided by the M&E system was used during the project to improve project performance and to adapt to changing needs.

ANNEX 2. Evaluation programme and people consulted

TE Programme

- The TE started in March 2016.
- In March, a preliminary visit to see the Rome-based project team was undertaken.
- In April, a visit was made to the Regional Project Coordination team in Tashkent, with meetings of the National Project in Uzbekistan and visits to some farmers. The Inception Report was accepted at the end of April 2016.
- In May 2016, there was a visit to Kyrgyzstan to meet with all the National Project Coordinators from across the region, to participate in National Project meetings in Kyrgyzstan and Tajikistan and visit many farmers and a regional training centre, ending with final meetings at the regional Project Coordination office in Uzbekistan.
- From June 2016 onwards, final interviews were undertaken and the TE final report was prepared

Summary of Travel undertaken for the TE

Travel and purpose	Month
Evaluation mission – Rome – Interviews with Rome-based Project Team members and Bioversity International staff	8 - 12 March 2016
Evaluation mission – Uzbekistan (see below)	5 -11 April 2016
Brief visit to UNEP Evaluation Unit, Nairobi, to review the Inception Report and discuss plans and preliminary findings	29 April 2016
Evaluation mission – Kyrgyzstan, Tajikistan, Uzbekistan (see below)	15 -27 May 2016

Planned Programme for Terminal Evaluation visits in the region

Planned Programme for Terminal Evaluation in Uzbekistan, 5 - 11 April, 2016	
5 April 2016 Arrive and Informal meetings in afternoon/evening	
6 April 2016 – Wednesday	
9:30 – 13:00	Meeting of Patrick Mulvany with Devra Jarvis, Marieta Sakalian and Muhabbat Turdieva at Bioversity office in Tashkent
13:00 – 14:00	**Lunch**
14:00 – 15:00	Individual meeting with Abdikhalil Kayimov, national project coordinator, Shuhrat Axmedov, national consultant on documentation and Elena Dorokhova-Shreder, national expert on fruit trees
7 April 2016 - Thursday	
National partners workshop at Institute of Genetics and Plant Experimental Biology, Tashkent, Uzbekistan (in Russian with consecutive translation)	
9:30 - 9:35	Opening statement and introduction of Patrick Mulvany, consultant on terminal evaluation of the project to the participants. *Muhabbat Turdieva - regional project coordinator.*
9:35 - 9:40	Opening statement of *Alisher Abdullaev*, *Director General of Uzbek Institute of Genetics and Plant Experimental Biology*, national project executing agency
9:40 - 10:00	Objectives of terminal evaluation and its procedure. *Patrick Mulvany, consultant on terminal evaluation*

10:00 - 10:30	Main outcomes of *UNEP-GEF* project *"In situ/*on farm conservation and use of agrobiodiversity (horticultural crops and wild fruit species) in Central Asia" in Uzbekistan (2006-2013) *Abdikhalil Kayimov - national project coordinator.*
10:30 - 10:45	Managing agrobiodiversity of fruit crops **on farm** in Uzbekistan, including use of traditional knowledge and skills of farmers in its conservation. *Karim Baimetov - national consultant on agrobiodiversity.* *Elena Dorokhova – Expert in fruit crops.*
11:20 - 11:35	Study, ***in situ*** conservation and use of diversity of wild fruit and nut trees in Uzbekistan. *Evgeniy Butkov - national consultant on wild fruit species.*
11:00 - 11:20	**Coffee-break**
11:35 - 11:50	Strengthening national legislation to protect of intellectual farmers' right on their varieties. *Karim Baimetov - national consultant on agrobiodiversity.*
10:45 - 11:00	Capacity building and establishment of partnership - as a basis for ensuring sustainability of the project. *Ruslan Sultanov – curator of National Training Centre on Nut Trees*
11:50: - 12:05	Documentation and knowledge sharing *Shuhrat Axmedov – national consultant on documentation*
12:05 - 13:00	Questions and discussion
13:00 - 14:30	**Lunch**
14:30 – 14:50	Individual meeting with Alisher Abdullaev, General Director of Institute of Genetics and Plant Experimental Biology
14:50 – 16:00	Individual meeting with Karim Baymetov, national consultant on agrobiodiversity, Eugeniy Butkov, national consultant on agrobiodiversity and Ruslan Sultanov, curator of National Training Centre on Nut Trees
8 April 2016 - Friday	
9:00 - 18:00	Field trip to visit orchard and vineyard of farmer Abdulla Shodiev and nursery of farmer Umar Yuldashev - Zarkent village, Parkent district, Tashkent Province (travel by car)..
9 April 2016 - Saturday	
9:00 - 18:00	Field trip to visit walnut forest - Sidjak village, Sidjak Forestry, Burchmulla Forestry Enterprise, Bostanlyk district, Tashkent Province (travel by car).
10 April 2016 - Sunday	
7:00 - 19:00	Field trip to visit vineyard of farmer Ashrofhon Rahimov – Gus village, Urgut District, Samarkand Province and Shredder Institute, Samarquand – Director, Djamshed Ahmedjanov (travel by train and car).
11 April	Writing up and meetings in Tashkent office with administrative staff and others.

Planned Programme for Terminal Evaluation in Kyrgyzstan 15 -21 May, 2016	
15, 16 May Arrive + Preliminary meetings with project participants and interpreter	
17 May 2016 – Tuesday	
Meeting of National Coordinators	
9.00 – 17.00	Meeting with national project coordinators for terminal evaluation of the project at the conference hall of the hotel "Asia Mountains-2" in Bishkek, Kyrgyzstan.
Opening Session, introduction of participants, agreement on agenda	
09:00-09:30	Opening statement *Kayirkul Shalpikov,* *National Project Coordinator in Kyrgyzstan,* *Director of Innovation Centre of Phytotechnologies of Kyrgyz National Academy of Sciences* Welcome statement by Bioversity International *Muhabbat Turdieva,* *Regional Project Coordinator, Bioversity International*

	Welcome statement by representative of National GEF Operational Focal Point in Kyrgyzstan *Sabir Atadjanov, Director of State Committee for Environment and Forestry*
09:30-10:00	• Introduction of participants *(Muhabbat Turdieva)* • Objectives of terminal evaluation and its procedure *(Patrick Mulvany, consultant on terminal evaluation)* • Discussion and agreement on the meeting agenda *(Muhabbat Turdieva)* • Logistics *(Kayirkul Shalpikov, National project coordinator in Kyrgyzstan)*
Session 1. Project outputs at regional level *Chairman: Kayirkul Shalpykov*	
10:00-10:30	Main outputs of the project at regional level*:* o Main results against project components, outcomes and milestones; o Use of project budget and securing co-financing from national and international partners; o Ensuring sustainability of project's activities at national and regional levels. *Muhabbat Turdieva, Regional project coordinator*
10:00-10:30	*Coffee/Tea break and group photo*
10:30 – 11:00	Conservation and use of fruit tree biodiversity in Central Asia: Progress and Prospects. *Karim Baymetov, Regional Consultant on Agrobiodiversity*
11:00 – 11:30	Achievements in capacity building to ensure project's sustainability beyond its life *Kubanichbek Turgunbaev, Regional Consultant on Trainings*
11:30 – 12:00	Partnership and collaboration among all stakeholders' groups is a core stone in conservation of fruit trees diversity *Elmira Kaparova, Regional Consultant on Participatory Approach*
Session 2. Presentations by national project coordinators on project implementation in countries of Central Asia. *Chairman: Kayirkul Shalpykov*	
12:00 – 12:30 12:30 – 13:00	Main results of the project in partner countries against project components, outcomes and outputs: • Kazakhstan *(Ramazan Makeyev);* • Kyrgyzstan *(Kayirkul Shalpykov**)***
13:00 – 14:00	***Lunch***
Session 2. Presentations by national project coordinators on project implementation in countries of Central Asia (continuation). *Chairman: Kayirkul Shalpykov*	
14:00 – 14:30 14:30 – 15:00 15:00 – 15:30	Main results of the project in partner countries against project components, outcomes and outputs: • Tajikistan (Tursun Ahmedov); • Turkmenistan (Maral Kasymova); • Uzbekistan (Abdikhalil Kayimov)
Session 3. Individual meetings of the consultant with national project coordinators and regional consultants	
15:30 – 16:00	Individual meeting of the consultant with *Ramazan Makeyev, National project coordinator in Kazakhstan.*
16:00 – 16:30	Individual meeting of the consultant with *Maral Kasymova, Assistant for National project coordinator in Turkmenistan.*
17:00 – 17:30	Individual meeting of the consultant with *Kayirkul Shalpykov, National project coordinator in Kyrgyzstan.*
17:30 – 18:00	Individual meeting of the consultant with *Karim Baymetov, Regional Consultant on Agrobiodiversity*
18:00 – 18:30	Individual meeting of the consultant with *Elmira Kaparova, Regional Consultant on Participatory Approach*
18:30 – 19:00	Individual meeting of the consultant with *Kubanichbek Turgunbaev, Regional Consultant on Trainings*

19:00	**Dinner at the hotel "Asia Mountains 2"**
18 May 2016 – Wednesday	
National partners workshop, Bishkek (Kyrgyz Agrarian University named after K.I. Skryabin)	
9:30 – 9:35	Opening statement by *Almazbek Irgashev,* Vice rector of *Kyrgyz National Agrarian University named after K.I. Skryabin*
9:35 – 9:40	[Opening statement by *Abdikalik Rustamov,* National GEF Operational Focal Point in Kyrgyzstan, *Director of State Committee for Environment and Forestry]*
9:40 - 9:50	Opening statement by *Kaiyrkul Shalpykov, Director of the Innovation Center for Phytotechnologies of the National Academy of Sciences,* national project executing agency in Kyrgyzstan
9:50 – 10:00	Opening statement and introduction of Patrick Mulvany, consultant on terminal evaluation of the project to the participants. *Muhabbat Turdieva - regional project coordinator.*
10:00 – 10:10	Objectives of terminal evaluation and its procedure. *Patrick Mulvany, consultant on terminal evaluation*
10:10 - 10:30	Managing agrobiodiversity of fruit crops **on farm** in Kyrgyzstan, including use of traditional knowledge and skills of farmers in its conservation. *Igor Soldatov – national consultant on agrobiodiversity*
10:30 - 10:50	Study, ***in situ*** conservation and use of diversity of wild fruit and nut trees in Kyrgyzstan. *Kubanychbek Turgunbaev – national consultant on wild fruit species.*
11:20 - 11:40	Strengthening national legislation on fruit trees agrobiodiversity conservation on farm and *in situ* in Kyrgyzstan and activities on raising public awareness. *Baktybek Koychumanov – national consultant on legislation*
11:10 - 11:20	**Coffee-break**
11:20 - 11:40	Capacity building and establishment of partnership - as a basis for ensuring sustainability of the project. *Elmira Kaparova – national consultant on participatory approach*
12:00 - 13:00	Questions and discussion
13:00 – 14:30	**Lunch**
14:30 – 14:40	Individual meeting with *Kaiyrkul Shalpykov, national project coordinator*
14:40 – 15:10	Individual meeting with *Baktybek Koychumanov, national consultant on legislation*
15:10 – 15:40	Individual meeting with *Igor Soldatov, national consultant on agrobiodiversity*
15:40 – 16:10	Individual meeting with *Elmira Kaparova, national consultant on participatory approach*
16:10 – 16:30	Individual meeting with *Elmira Amanova, assistant for national project coordinator*
16:30 - 16:50	Individual meeting with *Aybek Dolotbakov, national consultant on public awareness*
16:50 – 17:20	Individual meeting with *Muslim Radjabayev, curator of the Regional Training Centre for Walnut*
17:20 – 17:50	Meeting with *Pyotr Prokhorenko, national consultant on IT, Azamat Asanbaev* and *Maksadbek Beyshenbekov, national consultants on database*
17:50 – 18:20	Individual meeting *Kubanychbek Turgunbaev, national consultant on training*
19 May 2016 – Thursday	
7:00	Departure to visit the project site in Osh (by plane)
09:00	Arrival in Osh
11:30	Departure from Osh to Jalal-Abad (by car)
13:00 – 18:00	Visit to the project site in Zhalgyz-Jangak village, Suzak district, Jalal-Abad Province: • Demonstration orchard with traditional and local apple varieties of farmer Mr. Rashid Turgunbaev • Meeting with farmers - members of the association of farmers - fruit growers in Djalal-abad Province
19:30	Return to Jalal-Abad
20 May 2016 – Friday	
9:00 – 13:00	Visit to the project site in the walnut forest in Kara-Alma forestry enterprise, Suzak district, Jalal-Abad Province:

	• Demonstration site of walnut forest managed by tenant Mr. Baktiyar Baymuratov • Walnut nursery of farmer Mr. Japar Isakov
13:00	Return to Osh and departure to Bishkek (by plane)
21 May 2016	Meetings in Bishkek

Planned Programme for Terminal Evaluation in Tajikistan and Uzbekistan 22-27 May, 2016	
22 May 2016 – Sunday	
10:30	Arrival in Dushanbe, Tajikistan
13:00 – 14:00	**Lunch**
14:00 – 18:00	Field trip to visit vineyard and nursery of farmer Mr. Nemat Usmonov (Yangi-bog village, Tursunzade District, Regions of Republican Subordination).
23 May 2016 – Monday	
8:00 – 18:00	Field trip to Kulyab District of Khatlon Province (travel by car) to visit: • Nursery of farmer Mr. Abdusattor Barotov – "Rajabov's nursery" farm, Siyova village. • Mother orchard of wild apple and pear genotypes in Kulyab Botanical garden, Director: Tillo Boboev
24 May, 2016 – Tuesday	
National partners workshop (Tajik Institute of Horticulture, Dushanbe)	
9:30 – 9:35	Opening statement and introduction of Patrick Mulvany, consultant on terminal evaluation of the project to the participants. *Muhabbat Turdieva - regional project coordinator.*
9:35 - 9:40	Opening statement by *Acad. Izatullo Sattori, President of the Tajik Academy of Agricultural Sciences*
9:40 - 9:45	Opening statement by *Khukmatullo Nazirov, Director of the Tajik Institute of Horticulture,* national project executing agency
9:45 - 9:50	Objectives of terminal evaluation and its procedure. *Patrick Mulvany, Consultant on terminal evaluation*
9:50 - 10:30	Main outcomes of UNEP-GEF project "*In situ*/on farm conservation and use of agrobiodiversity (horticultural crops and wild fruit species) in Central Asia" in Tajikistan (2006-2013) *Tursunboy Akhmedov – national project coordinator.*
10:30 - 11:00	**Coffee-break**
11:00 - 11:20	Managing agrobiodiversity of fruit crops **on farm** in Tajikistan, including use of traditional knowledge and skills of farmers in its conservation. *Svetlana Shamuradova – national consultant on agrobiodiversity* *Tillo Boboev – head of expedition team in Khatlon region*
11:20 - 11:40	Study, ***in situ*** conservation and use of diversity of wild fruit and nut trees in Tajikistan. *Nurmuhammad Kamolov – national consultant on wild fruit species.*
11:40 - 12:00	Strengthening national legislation on fruit trees agrobiodiversity conservation on farm and *in situ* in Tajikistan and activities on raising public awareness. *Tuychiboy Samiev – national consultant on legislation*
12:00 - 12:20	Capacity building and establishment of partnership - as a basis for ensuring sustainability of the project. *Mavlyuda Ergasheva – curator of the Regional Training Centre for Apricot.*
12:20 - 12:40	Documentation and knowledge sharing *Khursandi Safaraliev – assistant for national project coordinator*
12:40 - 13:00	Questions and discussion
13:00 – 14:30	**Lunch**
14:30 – 14:50	Individual meeting with Tursunboy Akhmedov, national coordinator of the project
14:50 – 15:20	Individual meeting with Svetlana Shamuradova, national consultant on agrobiodiversity
15:20 – 15:40	Individual meeting with Nurmuhammad Kamolov, national consultant on wild fruit species
15:40 – 16:00	Individual meeting with Mavlyuda Ergasheva, curator of the Regional Training Centre for Apricot
16:00 – 16:20	Individual meeting with Khursandi Safaraliev, assistant for national project coordinator
16:20 – 16:40	Individual meeting with Khukmatullo Nazirov, director of the Tajik Institute of Horticulture,

	national executing agency of the project in Tajikistan
16:40 – 17:00	Individual meeting with Tuychiboy Samiev, national consultant on legislation
25 May, 2016 – Wednesday	
9:00	Departure to Khujand
13:00	Arrival in Khujand
13:00 – 14:00	**Lunch**
14:00 – 15:00	• Visit to demonstration orchard of farmer Mr. Askar Rakhimov in Rogund village, Istaravshan District, Sughd Province • Meeting with farmers - members of the association of farmers -fruit growers in Istravshan District
16:00 – 18:00	Meeting with staff of Sughd branch of the Tajik Institute of Horticulture and visit to the Regional Training Centre for Apricot
18:00	**Departure to Tashkent**
26, 27 May 2016 Meetings with regional project staff in Tashkent office	

People consulted

Table of some of the people consulted during the TE
Others included many farmers and forest users and families during the TE field visits, policy advisers and project team colleagues. (Names in alphabetical order by sub-section)

Name	Project-related Role	Designation	Contact
Project coordination			
Devra Jarvis	Bioversity International Project Leader	Principal Scientist, Bioversity International, Rome	d.jarvis@cgiar.org
Marieta Sakalian	UN Environment -GEF Task Manager	GEF Regional Programme Coordinator Europe and CIS, Rome	Marieta.Sakalian@unep.org
Muhabbat Turdieva	Regional Project Coordinator	Bioversity International, Tashkent, Uzbekistan	muhabbat.turdieva@cgiar.org
Regional assistance			
Rashid Azimov	Assists Regional Project Coordinator	Scientific Field Coordinator, Bioversity International, Tashkent, Uzbekistan	r.azimov@cgiar.org
Kubanychbek Turgunbaev	Regional Consultant (Training)	Department of Forestry, Faculty of Agriculture, Kyrgyz National Agrarian University after K.I. Scryabin	kuban_tur@hotbox.ru
Kazakhstan			
Ramazan Makeyev	(for) National Project Coordinator	Kazakhstan Research Institute of Horticulture and Viticulture	ramazan_makeev@mail.ru
Kyrgyzstan			

Name	Project-related Role	Designation	Contact
Azamat Asanbaev	Researcher	Innovation Center of Phytotechnologies, National Academy of Sciences, Kyrgyzstan	aza_akmus@mail.ru
Maksatbek Beyshenbekov	National Consultant (Database)	Laboratory of medicinal plant resources monitoring, Innovation Center of Phytotechnologies, National Academy of Sciences, Kyrgyzstan	M_karasyy@mail.ru
Sagynbaek Aaliev		Assistant, Forestry Department, Agronomy Faculty, Kyrgyz National Agrarian University after K.I. Scryabin	sagyn555@mail.ru
Elmira Amanova	Assistant to National Project Coordinator	Innovation Center of Phytotechnologies, National Academy of Sciences, Kyrgyzstan	abd_kyrgyz@mail.ru
Svetlana Batakanova		Vice Rector, Kyrgyz National Agrarian University after K.I. Scryabin	
Aibek Dolotbakov	National Consultant (Public Awareness)	Laboratory of medicinal plant resources ecology, Innovation Center of Phytotechnologies, National Academy of Sciences, Kyrgyzstan	dolotbakov82@mail.ru
Almazbek Irgashev		First Vice Rector, Kyrgyz National Agrarian University after K.I. Scryabin	+996 312 540435
Elmira Kaparova	National Consultant (Participatory Approach)	Department of Agricultural Products Processing Technology, Kyrgyz National Agrarian University after K.I. Scryabin	emkal2003@mail.ru
Baktybek Koychumanov	National Consultant (Legislation)		koichumanov_b@gmail.com
Pyotr Prokhorenko	ICT Expert		pyotrpro@mail.ru
Muslim Radjabaev	Curator of Regional Training Centre on Walnut	Academic Secretary, Institute of Forest and Nut Trees, National Academy of Sciences	institute@lesic.elcat.ru
Kaiyrkul Shalpykov	National Project Coordinator	Director, Innovation Center of Phytotechnologies, National Academy of Sciences, Kyrgyzstan	alhor6464@mail.ru

Name	Project-related Role	Designation	Contact
Igor Soldatov	National Consultant (Agrobiodiversity)	Head, Laboratory of fruit crops biology, Botanical Garden, National Academy of Sciences, Kyrgyzstan	bigarden@mail.ru
Kyrgyzstan - Farmers and Foresters			
Bakhtiyar Baymuratov	Walnut forester	Urunbash village, Suzak district, Jalalabad province	+996 772240455
Japar Isakov	Walnut sapling grower	Blagoveshenka village, Suzak district, Jalalabad province	+996 778066095
Rashid Turgunbaev	Chairman, Association of fruit growers of the Southern Kyrgyzstan	Jalgyz-Jangak village, Suzak District, Jalal-Abad Province, Kyrgyzstan	+996 779 694 795
Rashid Turgunbaev	Chairman, Association of fruit growers of the Southern Kyrgyzstan	Jalgyz-Jangak village, Suzak District, Jalal-Abad Province, Kyrgyzstan	+996 779 694 795
Tajikistan			
Khursandi Safaraliev	Assistant to National Project Coordinator	Tajik Academy of Agricultural Sciences	bogparvar@mail.ru
Tursunboy Akhmedov	National Project Coordinator	Tajik Academy of Agricultural Sciences	abd_tajik@mail.ru
Tillo Boboevich	Leader of expedition team in Khatlon region	Kulyab Botanical Gardens of the Academy of Sciences of the Republic of Tajikistan	+992 332 222 378
Mavlyuda Ergasheva	Curator of the Regional Training Centre for Apricot	Tajik Research Institute of Horticulture	
Nazirov Hikmatullo		Director, Institute of Horticulture and Vegetable Growing of Tajik Academy of Agricultural Sciences	hnazirov@mail.ru
Nurmakhmad Kamolov	National Consultant (Wild fruit species)	Tajik Research Institute of Horticulture of Tajik Academy of Agricultural Science	bogparvar@mail.ru
Tuychiboy Samiev	National Consultant (Legislation)	Tajik Academy of Agricultural Sciences	taskhn@tojikiston.com
Svetlana Shamuradova	National Consultant (Agrobiodiversity)	Head, Departmemt of Fruit Production, Tajik Institute of Horticulture and Vegetable Growing of Tajik Academy of Agricultural Sciences	shamuradova@mail.ru
Tajikistan - Farmers and Foresters			

Name	Project-related Role	Designation	Contact
Abdusattor Barotov	Nursery grower	Kuchabog village, Vossey district, Khatlon province	+992 985328270
Askar Rakhmonov	Fruit grower + nursery	Rugund village, Istaravshan district, Suhgd province	+992 927015008
Nemat Usmonov	Grape farmer	Bogi Nav village, Tursunzade district, Districts of Republican Subordination	+992 919142555
Turkmenistan			
Maral Kasimova	(for) National Project Coordinator	Academy of Sciences of Turkmenistan	abd_turkmen@mail.ru
Uzbekistan			
Alisher Abdullaev	National Project Executing Agency	Institute of Genetics and Experimental Plant Biology, Academy of Sciences of the Republic of Uzbekistan	abdullaev_alisher@yahoo.com
Djamshed Ahmedjanov		Director, The Shredder Institute for Fruit Growing, Viticulture and Winemaking, Samarkand, Uzbekistan	
Shurat Axmedov	National Consultant (Database)	Uzbek Research Institute of Horticulture, Viticulture and Winemaking named after Academician M. Mirzaev	shuhrataxmedov@gmail.com
Karim Baymetov	National Consultant (Agrobiodiversity)	Head, Fruits and Berry Crops Department, Uzbek Research Institute of Plant Industry	baymetov40@mail.ru
Evgeniy Butkov	National Consultant (Wild fruit and nut species)	Republican Scientific and Production Center of Ornamental Gardening and Forestry	+998 71 2257232
Elena Dorokhova	Expert (Fruit and Nut species)	Uzbek Research Institute of Horticulture, Viticulture and Winemaking named after Academician M. Mirzaev	+99871 2202442
Abdukhalil Kayimov	National Project Coordinator	Ecology and Forestry department, Tashkent State Agrarian University	a.kayimov@mail.ru
Ruslan Sultanov	Curator of National Training Centre on Nut Trees	Republican Scientific and Production Center of Ornamental Gardening and Forestry	+998 71 2257237
Uzbekistan - Farmers and Foresters			

Name	Project-related Role	Designation	Contact
Sultanov Hudoybergan	Forester	Burchmulla Forestry Enterprise, Bostanlyk district, Tashkent Province	
Zulimor Mukimbek	Forester	Sijak village, Bostanlik district, Tashkent province, Uzbekistan	+998 95 5127563
Ashrofhon Rahimov	Grape farmer	Gus village, Urgut District, Samarkand Province	
Nasirmatov Sobir	Forester	Burchmulla Forestry Enterprise, Bostanlyk district, Tashkent Province	
Umar Yuldashev	Fruit grower	Zarkent village, Parkent district, Tashkent province, Uzbekistan	+998 7104 225536
Bioversity International - Executing Agency + Technical Advisers			
Paola De Santis	Researcher	Bioversity International, Rome	p.desantis@cgiar.org
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Name	Project-related Role	Designation	Contact
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ANNEX 3. Documents consulted

The Consultant looked at a wide range of documents in the course of the TE.

All the project documents and their numerous Annexes were made available to the Consultant and were reviewed as part of the TE. These included, among others:

- Project Document
- Mid Term Evaluation / Review
- PIRs and Technical reports 2007 – 2014
- Project financial summaries including co-financing
- Project monitoring documents and relevant project correspondence
- Minutes of the meetings of the international steering committee
- Summaries (in English) of national steering committee meetings and formal or informal reports of local project committees
- Project Terminal Report

- Relevant handbooks and guidelines of UNEP and its Medium Term Strategies.

The Consultant also read many other official documents of UN Agencies related to the work in the region and relevant International Agreements and Conventions.

In addition, a selection of the 840 documents, available through the Project's Web Portal, were reviewed. These included: reports, technical briefs, posters, videos, books), databases, scientific papers etc., a few of which are listed below.

A sample of specific relevant documents, papers and books consulted is listed below:

Akhmedov T.A., Kamolova N.. Ergasheva M.A., Boymatov T. (2013) '*Apricots of Tajikistan.*' Publishing House "Azia Print", Tajikistan.

Akhmedov, T.A., Kamolov, N., Makhmadaminov, S., Imamkulova, Z.A (2011) '*Role of Household Orchards and Farm Enterprises in Agrobiodiversity Conservation.*' In the report of the project's international conference in 2011.

Al-Saghir, M.G. (2009) '*The Evolutionary History of the Genus Pistacia (Anacardiaceae)*'. International Journal of Botany 5 (3), 255-257.

Baboev S. and Kayimov A., (Eds.) (2009) 'Conservation and sustainable use of crop biodiversity and their wild relatives.' Proceedings of National Scientific and Practical Conference, Tashkent, Uzbekistan.

Bellon, M. R., E. Gotor, F. Caracciolo (2014) '*Conserving landraces and improving livelihoods: how to assess the success of on-farm conservation projects.*' International Journal of Agricultural Sustainability, 13:2, 167-182. Bioversity International, Italy.

Berry, E. (1912) '*Notes on the Geological History of the Walnuts and Hickories.*' The Plant World, Vol. 15, No. 10 (October, 1912), pp. 225-240.

CBD (2010) Strategic Plan for Biodiversity for 2011-2020. CBD, Montreal.

FAO (1996) '*Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture.*' ftp://ftp.fao.org/docrep/fao/meeting/015/aj631e.pdf

FAO (2001) '*The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)*' FAO, Rome.

FAO (2009): Global Agriculture Outlook. FAO Regional Office for Europe and Central Asia Policy Studies on Rural Transition No. 2009-3.

FAO and PAR (2010) '*Biodiversity for Food and Agriculture Contributing to food security and sustainability in a changing world.'* Outcomes of an Expert Workshop held by FAO and the Platform on Agrobiodiversity Research.14–16 April 2010. Rome, Italy.

Gotor E., Caracciolo F., Elias M., Trincia C. (2015) '*Livelihood implications of in situ-on farm conservation strategies of wild fruit species in Uzbekistan*'. Bioversity International series of Impact Assessment Briefs no. 16. Bioversity International, 6 p. www.bioversityinternational.org/e-library/publications/detail/livelihood-implications-of-in-situ-conservation-strategies-of-wild-fruit-tree-species-in-uzbekistan/

Harris, S.A., J.P. Robinson & B. E. Juniper (2002) *'Genetic clues to the origin of the apple'.* TRENDS in Genetics Vol.18 No.8 August 2002.

Heywood, V.H. & M.E. Dulloo (2006) 'In situ *conservation of wild plant species: a critical global review of good practices'.* Bioversity Technical Bulletin No. 11.

Hunter, D. & V. Heywood (Eds.) (2011).*'Crop wild relatives : a manual of* in situ *conservation.'* Earthscan, London.

Janick, J. (2005). '*The origins of fruits, fruit growing, and fruit breeding*'. Plant Breed. Rev. 25:255-320.

Jarvis, D.I. & D. M. Campilan (2007). *'Crop genetic diversity to reduce pests and diseases on-farm: Participatory diagnosis guidelines. Version 1'*. Bioversity Technical Bulletin No. 12. www.bioversityinternational.org/uploads/tx_news/Crop_genetic_diversity_to_reduce_pests_and_diseases_on-farm__Participatory_diagnosis_guidelines._Version_I_1224.pdf

Jarvis. D. I., C. Padoch & H. D. Cooper (Eds.) (2010) '*Managing Biodiversity in Agricultural Ecosystems.'* Columbia University Press.

Jarvis. D. I., T. Hodgkin et al. (2016) '*Crop Genetic Diversity in the Field and on the Farm: Principles and Applications in Research Practices*' Yale Agrarian Studies Series.

Kaparova, E. (Kyrgyz National Agrarian University), K. Musuraliev, R. Dujsheev & K. Shalpykov (Innovation Centre for Phytotechnologies of the Kyrgyz National Academy of Sciences)(2014). '*Making Research Gender-Responsive in Kyrgyzstan*'. Poster. Bioversity International.

Kayimov A.K. and Turdieva M.K., (Eds.) (2010) '*Conservation and sustainable use of biodiversity of forest and fruit tree species.*' Proceedings of Republican Conference of Young Researchers, Tashkent, Uzbekistan

Ken Mudge, K., J. Janick, S. Scofield, E. Goldschmidt (2009). *'A History of Grafting'.* Horticultural Reviews, Volume 35 Edited by Jules Janick. John Wiley & Sons, Inc.

Lapena, I., I. Lopez Noriega, M. Turdieva (2012) *'Guidelines on Access and Benefit-sharing in research projects.'* Publishing House "SealMag", Uzbekistan. Available via www.cbd.int/abs/instruments/

Lopez, I (2014). '*Conservation of fruit tree diversity in Central Asia: Policy options and challenges.*' www.bioversityinternational.org/e-library/publications/detail/conservation-of-fruit-tree-diversity-in-central-asia-policy-options-and-challenges/

Popov. M. G. (1935) '*Origin of fruit-growing in Tajikistan. Fruit crops of Middle Tajikistan.*' proceedings of expeditions of Vavilov Institute of Plant Industry. Moscow, Issue 13. pp. 3-30.

Sthapit, B. et al. (Editors) (2016) '*Tropical Fruit Tree Diversity: Good practices for in situ and on-farm conservation.'* Bioversity International

Turdieva, M.K., A.K. Kayimov, K.I. Baymetov, F.U. Mustafina, E.A. Butkov, (editors) (2011) *'Conservation and sustainable use of biodiversity of fruit crops and wild fruit species.'* Proceedings of International scientific and practical conference, 23-26 August 2011, Tashkent, Uzbekistan www.bioversityinternational.org/e-library/publications/detail/conservation-and-sustainable-use-of-biodiversity-of-fruit-crops-and-wild-fruit-species/

UNEP (2000). Global Environment Outlook (GEO 2000). http://web.unep.org/geo/assessments/global-assessments/geo-2000

Vavilov, N. I. (1931) '*The role of central Asia in the origin of cultivated plants.*' Bulletin of Applied Botany, Genetics and Plant Breeding 26:3-44, Leningrad.

Yoke Ling, C. (Third World Network) & B. Adams (Global Policy Forum) (2016) '*Farmers' Right to Participate in Decision-making – implementing Article 9.2 (c) of the International Treaty on Plant Genetic Resources for Food and Agriculture'*, Working Paper. Association for Plant Breeding for the Benefit of Society (APBREBES).

ANNEX 4. Summary co-finance information and a statement of project expenditure

Project Financing

Source	US$	%
GEF	**5,718,070**	28.1%
Co-financing (Grant)	**3,914,000**	19.2%
Co-financing (In-kind)	**10,739,000**	52.7%
Total Co-financing	**14,653,918**	71.9%
PROJECT TOTAL	**20,371,988**	

In more detail, the co-financing was split between government and other sources as shown in the Table below. This also confirms that only 'Grant' and 'In-kind' funds were included as co-financing.

Project Co-financing summary

Co financing Type / Source	Government (US$m)		Other Sources[179] (US$m)		Total Financing (US$m)		Total Disbursement (US$m)	
	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual
Grant	**0.477**	**2.141**	**2.266**	**1.773**	**2.744**	**3.914**	**2.744**	**3.914**
Credits								
Loans								
Equity								
In-kind	**2.386**	**8.968**	**0.667**	**1.771**	**3.053**	**10.739**	**3.053**	**10.739**
Non-grant Instruments								
Other Types								
TOTAL	**2.864**	**11.109**	**2.932**	**3.544**	**5.797**	**14.653**	**5.796**	**14.654**

[179] Co-financing was secured from Bioversity International, the Global Crop Diversity Trust, The Christensen Fund, Mountain Development Program of Agha Khan Foundation, Public Foundation "HARVEST". Anticipated funding for computer equipment from Quantech SAL was not realised.

ANNEX 5. Briefing on evaluation findings and lessons learnt (Available in English, Kazakh, Kyrgyz, Russian, Tajik, Turkmen and Uzbek)

The United Nations Environment Programme (UNEP) and the Global Environmental Facility (GEF) project "*In Situ*/On-Farm Conservation and Use of Agricultural Biodiversity (Horticultural Crops and Wild Fruit Species) in Central Asia"

Summary

- **At the end of the 20th century, the newly-independent Central Asian countries were facing a crisis of the systemic loss of diversity, habitats and production of locally popular fruit and nut-bearing species of global importance. These included Apple, Grape, Peach, Almond, Pistachio and Walnut, among many others, which originated and have diversified in this region over millennia.**
- **In response to the crisis, leading national scientific and technological institutions with local lead farmers and foresters developed a plan to reverse the losses on-farm as well as *in situ*, especially in forests.**
- **This project, over nearly 14 years from concept until it ended, with UNEP-GEF funds and substantial co-finance, and with technical back-stopping from Bioversity International, has had a catalytic effect. At the time of the Terminal Evaluation in 2016, some two to three years after the end of the project, activities were still expanding.**
- **The availability of planting materials of, and produce from, endemic varieties of these valuable crops was still increasing – with hundreds of thousands of saplings being produced and planted across the region.**
- **The project has also helped improve livelihoods, food availability and restore local environments; institutional and training capacities have been strengthened; and the legislative and policy environment is enhancing. There is every indication that this will continue.**
- **The thorough and careful design, inclusive management and participatory implementation of the project, driven by respected local leadership, were main reasons for its success.**
- **The results have provided a potential model for improved conservation, and sustainable use on-farm and *in situ*, of such perennial fruit and nut-bearing species, and how to use them in regenerating habitats while providing economic and social benefits.**

Context and Global Relevance

In the Central Asian countries of **Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan** there is a rich endemic diversity of many valuable perennial fruit and nut-bearing species such as **Apple, Grape, Peach, Almond, Pistachio and Walnut**, among many others. Over many centuries, these species spread westwards to Europe and beyond along the **'Silk Road' trade routes** as fruits, nuts and seeds, and grafted saplings, eventually to become common foods for the whole world.

Map of the project countries in Central Asia

The region is a recognised **centre of origin and diversity** of these globally-important cultivated and undomesticated perennial fruit and nut-bearing species and their crop wild relatives. It is **a unique source of a wealth of agricultural biodiversity**, which has been nurtured and developed by people in the region over millennia, through their dynamic management of plants and their habitats. **The diversity of these species is maintained by farmers and foresters on-farm and *in situ*** in the diverse transboundary ecosystems of the region.

Regional and National Importance of Perennial Fruit And Nut-Bearing Species

These species remain **economically and socially significant** in the region providing the current population with a **consistent supply of valuable foods and income**, especially in unirrigated and drier areas. They also **provide environmental benefits** from the soil-stabilising roots of these perennial plants, among other environmental functions. Each country derives direct benefits from these species and because of **the nature of the transboundary ecosystems**, they also **benefit from coordinated approaches** to sustain the diversity of the species and their habitats.

Threats

Over many years, waves of **social and economic pressures have undermined this diversity**. Most recently, due to the collapse of the Soviet Union and the transition from a centralised economy to a market-driven one, with changes in land tenure arrangements and the reduction in state support for services and research, the **Central Asian countries faced increasing losses of the diversity of these species**. It also led to **increased environmental degradation**, driven, in part, by food insecurity and poverty. Now independent, the countries **lost capacities to address these issues in a coordinated way across the transboundary ecosystems** of the region.

The Project's Focus

In this context, the project was designed to address the threats by **improving capacities and understanding at all levels, increasing availability of planting materials of endemic varieties** on a large scale and **providing a supportive policy environment**, locally, nationally and regionally for continuing benefits towards the project's **goal of conserving the high diversity of these species in the region**. To achieve this, using a **thorough and inclusive preparatory process**, integrated and participative approaches were developed by the project **bringing together a wide range of actors** from **scientists and policy makers** to **local farmers, foresters and users of forest products**. With these actors, the project chose to 'target' a few economically-important perennial fruit and nut-bearing species – **Almond, Alycha/Cherry Plum, Apple, Apricot, Currants, Fig, Grape, Mulberries, Peach, Pistachio, Pomegranate, Pear, Sea buckthorn and Walnut** – for in-depth work on **their conservation and sustainable use on-farm and *in situ***: While the project across the region covered all these species and their wild relatives, each country chose a nationally-appropriate sub-set. **The preparatory process importantly identified lead institutions and lead actors**, as well as **participatory methodologies, training and information needs and policy priorities**.

Rare, red, local apple variety, rescued, multiplied and distributed in southern Tajikistan

KEY PROJECT FINDINGS INCLUDE:

Project webportal: http://centralasia.bioversityinternational.org

- **Endemic Variety Planting Increasing:** Planting of endemic varieties of economically and culturally important fruit and nut-bearing species has increased in the region and are now more readily available. These 'target' species include Almond, Alycha/Cherry Plum, Apple, Apricot, Currants, Fig, Grape, Mulberries, Peach, Pistachio, Pomegranate, Pear, Sea Buckthorn and Walnut. Conservation of the wild relatives of these species, and the local environment in which they grow, has improved in the transboundary ecosystems across the region.
- **Planting Materials Now More Readily Available:** The project's recognition that the lack of planting materials of these varieties was a severe hindrance to realising its goals, and the consequent project-initiated activities of supporting the development of nurseries by local farmers, has resulted in a thriving and expanding provision, in each country, of hundreds of thousands of saplings and other grafted plants of local endemic varieties for planting across the region and in neighbouring countries.
- **Endemic Varieties Used in Regeneration Activities:** The use of endemic varieties of the target species in ecosystem and forest regeneration activities as well as for restoration of production, especially on degraded slopes, has increased. Equally, the increased use of these varieties, which are suited for drier zones without irrigation, has extended their production.
- **Climate Change Resilience Opportunities:** The project has increased recognition of the contribution that the planting of a diversity of these varieties can make to production systems which can adapt to climate change and future disease and pest stresses. Lessons learned from the project are now included in relevant new projects in the region.
- **Project Information Widely Available:** The project has generated hundreds of technical, scientific and information products including papers, leaflets, posters, videos etc. Most of these are available online. Some are posted prominently on international websites including the CBD. The project's approach to data collection and use, recognising among other things the need for Free Prior and Informed Consent, was instrumental in achieving high-quality participation by data providers.
- **Effective Regional Approach:** The project's design, developed during a long and thorough preparatory phase, as a country-driven regional approach to tackling common problems in the transboundary ecosystems across the region, has proved effective and efficient, improving co-operation and reducing duplication of effort.
- **Strong Partnerships and Good Leadership sustaining Momentum:** The project benefitted from strong partnerships with the designed identification of good institutional leadership and lead farmers and forest users, which enabled activities to be embedded in policy and practice. This has lead to greater possibilities of impact being achieved.
- **Policies Benefitting Producers:** The project's focus on policies that have more direct bearing on benefitting farmers and forest users increased the engagement by all project actors, from local to national levels, in advocating for needed changes. These were not only for changes in agricultural and environmental policies but also in education.

LESSONS LEARNT

Building on local skills embedded required capacities. In the context of the globally-recognised imperative for improved conservation, development and sustainable use of agricultural biodiversity on-farm and *in situ*, the project demonstrated how to build upon the innovative skills of resource conservers and users and improve their capacity so that they could provide planting materials of endemic varieties of the 'target' species. This crucial activity was strengthened by the project incorporating systemic linkages between key national and regional institutions and lead farmers and forest users.

Providing much-needed planting materials of diverse endemic varieties is reversing the losses of agricultural biodiversity on-farm and *in situ*. The development of demonstration plots and nurseries, in local farms, orchards and forests, then became the source of much-needed planting materials of diverse endemic varieties for widespread use across the region. Together with appropriate training, and information dissemination by scientific and technical institutions, lead farmers and forest users stimulated the uptake of improved practices and dramatically increased the production of varieties of the target species for planting on-farm and *in situ* across the region.

Embedding partnership and participation activities in the project design reinforced all project activities. The deliberate incorporation in the project document of partnership and participation activities, as a specific component, rather than an implicit activity of project management, helped identify lead actors, reinforced all project activities, heightened awareness of the importance of the project and the issues it addressed, and stimulated the project's influence on policy and practises. This approach was enhanced by the supportive way in which technical backstopping was implemented, and the development of agreements on data collection and use, which also built trust.

Walnut sapling production in Kyrgyzstan

Selecting pistachio seeds in Uzbekistan

National level governance within an agreed regional framework was decisive. Once agreement on the common purposes, activities and outcomes had been achieved regionally, it was the National Steering Committees (NSCs), led by the national coordinators, which were arguably the most important project implementation bodies. They provided the necessary governance of the project at national and local levels, with regular monitoring and reporting to the regional level.

Regional approach was essential to address the issues. This project showed the imperative for a regional approach to address the conservation and sustainable use, across the transboundary ecosystems of the region, of these globally-significant species, and their wild relatives, in their centre of origin and diversity. No national institution had the capacity or mandate to provide the necessary regional coordination and there would have been duplication of efforts at national levels, especially in policy development, training, methodological approaches, information exchange and data handling.

The Evaluator has provided the briefs on evaluation findings and lessons learnt in seven (7) languages: English, Kazakh, Kyrgyz, Russian, Tajik, Turkmen and Uzbek.

These may be accessed by clicking on the embedded files below

Briefing on evaluation findings and lessons learnt – English

English_Annex6_Two
oPager_23Aug2017_

Briefing on evaluation findings and lessons learnt - Kazakh

Kazakh_Annex6_Tw
oPager_23Aug2017_

Briefing on evaluation findings and lessons learnt - Kyrgyz

Kyrgyz_Annex6_Two
Pager_23Aug2017_U

Briefing on evaluation findings and lessons learnt - Russian

Russian_Annex6_Tw
oPager_23Aug2017.

Briefing on evaluation findings and lessons learnt - Tajik

Tajik_Annex 6_Two
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Briefing on evaluation findings and lessons learnt - Turkmen

Turkmen_Annex6_T
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Briefing on evaluation findings and lessons learnt - Uzbek

Uzbek_Annex6_Two
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ANNEX 6. Stakeholder matrix and analysis

	'Project' Farmers	'Project' Forest Users	Wider public in locality	Partner Research Institutions and other national bodies	Government	International Agricultural Biodiversity Community
Possible perceptions of positive utility of project to be examined in the TE	Increased access to supplies of grafted saplings of (local) varieties of fruit and nut bearing species; support and training for local production of planting materials, biodiverse orchards/cropping, value addition through processing; recognition of farmers' contributions and Farmers' Rights; improved benefits	Regeneration of tree species providing secure harvests for future; provision of support and training for demonstration plots; potential recognition of Rights and improved benefits; improved local environment	Increased availability of valued local varieties of fruit and nut bearing species, and derived products, in local markets; increased awareness of the issues	Ability to continue and further develop work on economically and socially important perennial fruit and nut bearing species, increased through access to interested local growers/institutions etc.; development of tools; increased capacities; regional database(s); international links; publications	Providing policy guidance on the issues, some of which will have been 'new' to officials; stimulus for development of markets for local varieties; evidence of benefits of conservation and sustainable use measures, in line with CBD and related targets, decisions, obligations etc.	Steps towards stemming losses of globally-significant agricultural biodiversity; partnerships with national institutions; access to local conservers of agricultural biodiversity; evidence of successful regional work in similar ecosystems across national boundaries; policy lessons for sharing internationally
Possible challenges to project implementation that will need to be considered in the TE	Understand how the complex local committee structure has been used in practice; understand how potential tendencies towards imported varieties are being addressed; how project benefits are being shared with more farmers.	Understand how potential conflict between conservation measures and use, driven by basic needs for food, fuel, fodder etc. are being addressed in practice; measures being taken to protect the resources.	Understand how local people are being engaged directly and indirectly in the project and why they respect the resources being protected.	Understand how local partners dealt with the sometimes complex requirements for a GEF project. How the planned hierarchy of committees etc., participatory approaches with local growers and forest dwellers are dealt with; and if and how authorities were	Understand how the National processes dealt with potential inter-ministerial challenges, e.g. between agriculture and environment; the extent to which discussions about policies such as ABS or Farmers' Rights were accepted, for example in the context of	Possible concerns about sustainability, monitoring and follow-up beyond the project if international interest and resourcing fades

	'Project' Farmers	'Project' Forest Users	Wider public in locality	Partner Research Institutions and other national bodies	Government	International Agricultural Biodiversity Community
				persuaded to give priority for planting with local diverse varieties	international forums such as the CBD	
Desired Long-term Impact for different stakeholders, to be verified in the TE	Secure access to productive (and diverse and economically viable) varieties suited to local conditions; market systems that sustain value of the produce	Increased and sustainable output of products from key fruit and nut bearing species supplied by forests.	Improved access to affordable food and other products based on diverse fruit and nut bearing species; improved access to productive resources and training, especially for youth	Sustained collaborative research programmes across all countries; maintained databases and information resources; secure links with international community; increased awareness	Improved policy on conservation and sustainable use across ministries and across the region; increased capacity for policy development on these issues; further integration with international policy forums	Regeneration of the diversity of globally-important fruit and nut bearing species in their centre of origin and diversity; learning about the successful execution of collaborative regional work; heightened awareness

List of Key Stakeholders by participating country

KAZAKHSTAN	KYRGYZSTAN	TAJIKISTAN	TURKMENISTAN	UZBEKISTAN
▪ The Academy of Agricultural Science; ▪ Research Institute of Botany and Phytointroduction; ▪ Research Institute of Plant Physiology, Genetics and Bioengineering; ▪ South-Western Kazakhstan Research Institute of Agriculture; ▪ Research Institute of Horticultural and Viticulture of the Kazakh Research and Production Center of Processing and Food Industry; ▪ Research Institute for Economy of Agroindustrial Complex and Development of Rural Territories; ▪ Kazakh National Agrarian University; ▪ National Academy of Sciences; ▪ Departments of Ministries of Agriculture & Environment Protection in the Almaty, Jambyl & South-Kazakhstan provinces; ▪ Agroindustrial Union of Kazakhstan; ▪ Farmer associations; ▪ Farmers and local communities; ▪ NGO "Society of Nature Protection".	▪ Innovation Centre of Phytotechnologies ; ▪ Research Institute of Farming; ▪ Institute of Forest and Nut Production named after P.A.Gan of National Academy of Sciences; ▪ Botanical Gardens named after E.Gareev of National Academy of Sciences; ▪ Biological and Soil Institute of National Academy of Sciences; ▪ Kyrgyz Agrarian University named after K.I. Skryabin; ▪ Kyrgyz State National University named after Zh. Balasagyn; ▪ Institute of Biosphere of Southern Department of National Academy of Sciences; ▪ State Commission on Crop Varieties Testing; ▪ Research Institute of Economy and Processing Industry; ▪ Research and Production Centre "Kyrgyzzhangak" under the National Academy of Sciences; ▪ Institute of Ecology and Nature Management under the Kyrgyz State Pedagogical University named after I. Arabaev; ▪ Naryn Base Station of Research Institute of Farming; ▪ Issyk-Kul Experimental- Breeding Station of Research Institute of Farming; ▪ Associations of Farmers; ▪ Community trust "Tokay"; ▪ NGOs "Ecoforest" and "Centre of Ecological Information and Training"; ▪ Public Foundation "Green World"	▪ Research and Production Association "Bogparvar"; ▪ Pamirs Scientific Centre of Tajik Academy of Agricultural Sciences; ▪ Tajik Institute of Forest Research and Management; ▪ Pamirs Institute of Biology named after Acad. K. Yusufbekov; ▪ Institute of Botany of Tajik Academy of Sciences; ▪ Tajik Research Institute of Economics and Agricultural Production; ▪ Tajik State National University; ▪ Tajik Agrarian University; ▪ Khorog State University named after Acad. M. Nazarshoev; ▪ Kuljab State University; ▪ Khodjent State University named after Acad. B. Gafurov; ▪ Kuljab Botanical Gardens; ▪ Pamirs Botanical Gardens named after Prof. A.Gurskiy; ▪ Tajik State Commission on Agricultural Crops' Varieties Testing and Variety Protection; ▪ National Centre on Biodiversity of Tajikistan; ▪ Republican Self-Sustained Association "Tajiknikholparvar"; ▪ Association of Dekhkans' (Farmers') Households and Agricultural Co-operatives of Tajikistan; ▪ Republican Society of Nature Protection; ▪ Republican Society of Horticulturist-Amateurs; ▪ NGO "Zumrad".	▪ Garrygala Research and Production Center of Plant Genetic Resources; ▪ National Institute of Deserts, Flora and Fauna; ▪ Research Institute of Farming; ▪ Inspection of Forest Seed Production and Nature Parks Protection; ▪ Botanical Gardens; ▪ Turkmen State University named after Makhtumguli; ▪ Turkmen Agricultural University named after S. Niyazov; ▪ Society of Patenting of Turkmenistan; ▪ National Institute of Statistics and Projection; ▪ State Inspection on Variety Testing of Agricultural Crops; ▪ Inspection on Plants Quarantine; ▪ Association of Farmers; ▪ Association of Food Industry of Turkmenistan; ▪ NGOs "Ecoforest", Catena", and "Turkmen Society of Nature Protection".	▪ Academy of Sciences; ▪ Institute of Genetics and Plant Experimental Biology; ▪ Research Institute of Market Economy and Reforms in Agriculture; ▪ Khorezm Academy of Mamun; ▪ Tashkent State Agrarian University; ▪ Research and Production Center "Botanica"; ▪ Research Institute of Plant Industry; ▪ Research Institute of Horticultural, Viticulture and Wine Making named after R.R. Shreder; ▪ Research Institute of Forestry; ▪ Institute of Bioecology of Karakalpak branch of Academy of Sciences; ▪ Samarkand State University; ▪ Samarkand Agriculture University; ▪ Karakalpak State University; ▪ Uzbek State National University; ▪ Association of Women-Scientists "Olima"; ▪ Association of Businesswomen of Uzbekistan; ▪ NGO 'Ecoforest'; ▪ Association of Farmers and Dekhkans of Uzbekistan.

ANNEX 7. Brief CV of the consultant

Name: Patrick Mowbray **MULVANY**
British 12/7/46

Profession: Agricultural biodiversity and food policy analyst

Specialisation: Agricultural biodiversity, environment and technology policy and practice

Key Skill Areas: Food production; Project appraisal and evaluation; Participatory training development; International governance of food, agriculture, agricultural research and agricultural biodiversity especially as they relate to rural livelihoods, a sustainable environment and food sovereignty; Conservation and sustainable use of agricultural biodiversity; Intellectual property; Trade; Biotechnology and biosafety; Agriculture, livestock including decentralised animal health systems, artisanal fisheries; Institutional development, especially of CSOs; Social aspects of technology change, technology democracy and technology policy especially for food, agriculture and environment.

Qualifications: Biochemistry (Prelims) 1967 and MA 1969, Agriculture, St John's College, Oxford University
CBiol, 1977 (Chartered Biologist – awarded for work in agricultural research)

Country Experience: all continents, including Europe, but especially: Honduras, Nicaragua, Peru, Jamaica, Ethiopia, Kenya, Malawi, Sudan, Zambia, Zimbabwe, India, Bangladesh, Sri Lanka, +++

Language Capability: English (mother tongue, fluent), Spanish (oral / reading – competent), French (reading - competent, oral - basic), German (v. basic)

Evaluations:

- **Evaluation Civil Society Mechanism of the Committee on World Food Security (CSM/CFS)**, the CSO platform interfacing with the CFS - Evaluator 2014
- **Evaluation Swiss Cooperation and Development-funded** Southern Africa Development Community Seed Security Network (SSSN), a 10yr funded programme, redirected as a result of the evaluation towards supporting agricultural biodiversity - Co-evaluator 2013
- **Evaluation La Via Campesina,** the global peasant network - Evaluator 2010/11
- **Evaluation Friends of the Earth International** – Co-evaluator 2007
- **Evaluation GRAIN's information services** – Co-evaluator 2007

EMPLOYMENT

2012 to date Director, Kamayoq, a consultancy company

1979 to 2012 **PracticalAction (formerly Intermediate Technology Development Group (ITDG))** on food, agriculture and biodiversity issues **–** Agricultural Project Officer; Senior Manager responsible for a) Agriculture and Fisheries, b) Policy and Institutions; Final post:

Senior Policy Adviser, 1997 to 2012: adviser, within organisation and externally, on a wide range of related rural development, natural resources, agricultural biodiversity technology and food sovereignty issues**;** Food security policy work especially advocacy and networking at UK, European and International levels, Research (esp. Zimbabwe, Kenya, Sri Lanka, Peru) particularly on On-farm agricultural biodiversity conservation and sustainable use, biotechnology and biosafety. Facilitator FAO/CBD workshops on agricultural biodiversity. Contributing to NGO work related to FAO and CBD processes. Formulating International Strategy on Agroecology for Heifer International. Adviser to many projects, organisations and institutions internationally.

1973 - 1979 **UK: Higher Scientific Officer, Dairy Husbandry, National Institute for Research in Dairying** Dairy husbandry research, especially nutrition and reproductivity. Developing computerised reproductive and milk record systems. Developing Condition Scoring methods, including participatory training modules, for UK dairy farmers.

1969 - 1973 **Honduras: Development Worker, Prelatura de Choluteca, CIIR. Facilitator, CENARS Peasant Farmer Training Centre,** Adviser, Peasant Promotion Programme including survey of agricultural producers and rural development, and a campesino development programme - Plan de Promoción Agrícola (PPA).

ADVISORY AND COMMITTEE POSTS

1977 to date **Trustee of and advisor to many NGOs in UK and internationally**

2014 **Visiting Fellow Warwick University**

2013 to date **BBSRC Bioscience and Society Strategy Panel**

2012 to date **FAO Technical Advisory Committee** for the CGRFA's State of the World's Biodiversity for Food and Agriculture (SoW-BFA)

2002 to 2008 **IAASTD:** CSO member of bureau over period of this international agriculture assessment (2002 – 2008). Participated in final plenary in Johannesburg, (April 2008)

2001 to 2003 **CGIAR - NGO Committee**
European Member. (Co-Chair from Oct 2002 – Mar 2003)

1998 to 2003 **ECP/GR**
NGO rep on European Cooperative Programme of genetic resource networks (ECP/GR) Steering committee

1996 **International Steering Committee**
NGO PGR conferences in Rome and Leipzig

ANNEX 8. Evaluation Report Quality Assessment

Evaluation Title: **Terminal Evaluation of UNEP-GEF Project "In Situ/On-Farm Conservation and Use of Agricultural Biodiversity (Horticultural Crops and Wild Fruit Species) in Central Asia"**

All UNEP evaluations are subject to a quality assessment by the Evaluation Office. The quality assessment is used as a tool for providing structured feedback to the evaluation consultants.

The quality of both the draft and final evaluation report is assessed and rated against the following criteria:

	UNEP Evaluation Office Comments	Draft Report Rating	Final Report Rating
Substantive report quality criteria			
A. **Quality of the Executive Summary**: Does the executive summary present the main findings of the report for each evaluation criterion and a good summary of recommendations and lessons learned? (Executive Summary not required for zero draft)	Draft report: No Executive Summary in the draft Final report: The Executive summary is satisfactory. It presents the main findings of the evaluation but does not include an overview of thw recommendations and lessons	N/R	5
B. **Project context and project description**: Does the report present an up-to-date description of the socio-economic, political, institutional and environmental context of the project, including the issues that the project is trying to address, their root causes and consequences on the environment and human well-being? Are any changes since the time of project design highlighted? Is all essential information about the project clearly presented in the report (objectives, target groups, institutional arrangements, budget, changes in design since approval etc.)?	Draft report: Very well presented; detailed and easy to comprehend. Final report: Same as above	6	6
C. **Strategic relevance**: Does the report present a well-reasoned, complete and evidence-based assessment of strategic relevance of the intervention in terms of relevance of the project to global, regional and national environmental issues and needs, and UNEP strategies and programmes?	Draft report: The section is covered in great detail and in accordance with the TOR. Sufficient examples are provided to support the claims made. Final report: Same as above	6	6

D. **Achievement of outputs**: Does the report present a well-reasoned, complete and evidence-based assessment of outputs delivered by the intervention (including their quality)?	Draft report: The section is complete. Outputs are discussed by component and sufficient evidence provided to support the claims. Qualitative aspects of the outputs are mentioned, including utility to project beneficiaries. Sources of data (e.g. presented in tables) need to be included in the final report Final report: Same as above	6	6
E. **Presentation of Theory of Change**: Is the Theory of Change of the intervention clearly presented? Are causal pathways logical and complete (including drivers, assumptions and key actors)?	Draft report: Some work needs to be done to improve the presentation of the ToC, its narrative, including reconsidering some of the drivers and assumptions presented Final report: The ToC diagram is complete and easy to comprehend. The accompanying narrative is satisfactory	4	5
F. **Effectiveness - Attainment of project objectives and results**: Does the report present a well-reasoned, complete and evidence-based assessment of the achievement of the relevant outcomes and project objectives?	Draft report: The section is covered relatively well; where necessary cross referencing has been used to refer to relevant sections of the report with more detailed information. Additional evidence to support some claims has however been requested of the consultant Final report: The section is greatly improved from the draft stage.	4.5	5
G. **Sustainability and replication**: Does the report present a well-reasoned and evidence-based assessment of sustainability of outcomes and replication / catalytic effects?	Draft report: Section can be improved further by citing more examples to support the claims made on sustainability, and to justify the ratings awarded under the sub-criteria. Final report: Some improvements noted in the use of examples and supporting information to corroborate findings	4.5	5
H. **Efficiency**: Does the report present a well-reasoned, complete and evidence-based assessment of efficiency? Does the report present any comparison with similar interventions?	Draft report: Assessment of the project's efficiency is sufficient; examples have been presented to support the overall rating given. Final report: Same as above	5	5
I. **Factors affecting project performance**: Does the report present a well-reasoned, complete and evidence-based	Draft report: Overall this section is generally well presented and for the most part sufficiently supported with evidence (within the section, annexes, or cross-	5	5.5

	assessment of all factors affecting project performance? In particular, does the report include the actual project costs (total and per activity) and actual co-financing used; and an assessment of the quality of the project M&E system and its use for project management?	references to other sections of the report). Only minor editing has been requested of the consultant especially in the assessment of supervision and backstopping. Final report: Amendments requested have for the most part been obseved		
J.	**Quality of the conclusions:** Do the conclusions highlight the main strengths and weaknesses of the project, and connect those in a compelling story line?	Draft report: The conclusions section is rigorously done, it gives detailed information on the project's strengths and challenges. Final report: Same as above	6	6
K.	**Quality and utility of the recommendations**: Are recommendations based on explicit evaluation findings? Do recommendations specify the actions necessary to correct existing conditions or improve operations ('who?' 'what?' 'where?' 'when?)'. Can they be implemented?	Draft report: The recommendations are well presented – categorised by target audience, accompanied by a summary of the relevant findings presented in the report, and for the most part they have been formulated as actionable proposals Final report: Same as above	6	6
L.	**Quality and utility of the lessons**: Are lessons based on explicit evaluation findings? Do they suggest prescriptive action? Do they specify in which contexts they are applicable?	Draft report: Indeed the lessons learned are grounded on findings already presented in the report. The consultant has however been requested to reformulate the lessons statements as they are "lost" within the context. The wider application of the lessons beyond the project setting is to a certain extent missing from the text. Final report: Sugestions provided to improve the presentations of lessons were not adopted satisfactorily.	4	4
Report structure quality criteria				
M.	**Structure and clarity of the report**: Does the report structure follow EO guidelines? Are all requested Annexes included?	Draft report: The report follows the recommended structure for the most part. Annexes are mostly inclomplete Final report: Great improvement noted in the report structure	3	5
N.	**Evaluation methods and information sources**: Are evaluation methods and information sources clearly described? Are data collection methods, the triangulation /	Draft report: The evaluation methods, information sources and limitations are clearly and sufficiently described. It is evident that the evaluator did an in-depth study and analysis of the	6	6

verification approach, details of stakeholder consultations provided? Are the limitations of evaluation methods and information sources described?	project as well as consulted widely to obtain information on the rpoject's performance. Final report: Same as above		
O. **Quality of writing**: Was the report well written? (clear English language and grammar)	Draft report: Clear language and good grammar used in the report. Final report: Same as above	6	6
P. **Report formatting**: Does the report follow EO guidelines using headings, numbered paragraphs etc.	Draft report: Yes it does. Final report:	6	6
	OVERALL REPORT QUALITY RATING	**5.2 HS**	**5.5 HS**

1 (Highly Unsatisfactory)	< 1.83	4 (Moderately Satisfactory)	>=3.5 <=4.33
2 (Unsatisfactory)	>= 1.83 < 2.66	5 (Satisfactory)	>4.33 <= 5.16
3 (Moderately Unsatisfactory)	>=2.66 <3.5	6 (Highly Satisfactory)	> 5.16