ICARDA

Science for resilient livelihoods in dry areas

# Monitoring and Evaluation Plan

Multiplication of Crop Wild Relatives (CWR)

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**Project**

Multiplication of Crop Wild Relatives (CWR)

**Funded by**

Norwegian Development Cooperation (NORAD) through the Global Crop Diversity Trust (GCDT-Crop Trust)

**Prepared by**

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**About "Multiplication of Crop Wild Relatives (CWR)"**
Within the Crop Wild Relatives project "Adapting Agriculture to Climate Change: Collecting, Protecting and Preparing Crop Wild Relatives" managed by the Crop Trust and funded by NORAD and with the support from two partners: the Millennium Seed Bank at Kew's and the Svalbard Global Seed Vault, The genebank of ICARDA in Lebanon will undertake multiplication, characterization, Long and Medium Term Storage, safety duplication, documentation and distribution of accessions that were collected within the framework of the CWR project for the period of 2017 to 2020.

**About Crop Trust**
Founded in 2004, the Crop Trust provides financial support for the key international genebanks that make the diversity of our most important food crops available to all under the International Treaty on Plant Genetic Resources for Food and Agriculture; tools and support for the efficient management of genebanks; coordination between conserving institutions to ensure that all crop diversity is protected, accessible and used; and final backup of crop seeds in the Svalbard Global Seed Vault.

**About NORAD**
NORAD provides financial support to the project "Adapting Agriculture to Climate Change: Collecting, Protecting and Preparing Crop Wild Relatives" managed by Crop Trust in partnership with the Millennium Seed Bank of the Royal Botanic Gardens at Kew, United Kingdom.

**About ICARDA**
Established in 1977, the International Center for Agricultural Research in the Dry Areas (ICARDA) is a non-profit, CGIAR Research Center that focusses on delivering innovative solutions for sustainable agricultural development in the nontropical dry areas of the developing world.
We provide innovative, science-based solutions to improve the livelihoods and resilience of resource-poor smallholder farmers. We do this through strategic partnerships, linking research to development, and capacity development, and by taking into account gender equality and the role of youth in transforming the non-tropical dry areas.

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## Acronyms

| | |
|---|---|
| CCT | Cross-Cutting Theme |
| CRP | CGIAR Research Program |
| CWR | Crop Wild Relatives |
| DO | Development Outcome |
| ICARDA | International Center for Agricultural Research in the Dry Areas |
| ICT | Information and communications technology |
| ISO | Intermediate Strategic Objective |
| M&E | Monitoring and Evaluation |
| MEL | Monitoring, Evaluation, & Learning |
| MSB | Millennium Seed Bank |
| OA | Open Access |
| ORT | Online Reporting Tool |
| DO | Development Outcome |
| RO | Research Outcome |
| SGSV | Svalbard Global Seed Vault |
| SHU | Seed Health Unit |
| SMTA | Standard Material Transfer Agreement |
| SRP | Strategic Research Priority |
| SO | Strategic Objective |
| ToC | Theory of Change |

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Table of Contents

# 1. Introduction

This document provides an overview of the monitoring and evaluation (M&E) plan for the project, "Multplication of Crop Wild Relatives." Implementation of M&E in research for development projects ensures that the results are accurately reported, analyzed, and shared. This process is essential for donor reporting and accountability. Yet, it equally works to ensure that the investment translates into sound research outcomes and shared learning. This establishes stronger, results-based projects, which together work to improve development outcomes.

## 1.1. Project Overview

### 1.1.1. Project Goals and Objectives

The project is a collaboration between ICARDA, the Millennium Seed Bank (MSB) and the Global Crop Diversity Trust, to ensure the long-term conservation and distribution of 746 Crop Wild Relatives (CWR) accessions collected by CWR project partners within the framework of the CWR project. ICARDA has the facilities and expertise in the multiplication, characterization and conservation of the target accessions.

**Goal**

To ensure food security by adapting agriculture to climate change: collecting important species of crop wild relatives, ensuring their long-term conservation, and facilitating their use in breeding new and improved crops.

**Objectives**

ICARDA is aiming at integrating the newly collected CWR material into their collection and will also safety duplicate to the Svalbard Global Seed Vault. All materials and their corresponding data will be made publicly available via Genesys. Seeds will be made legally (Standard Material Transfer Agreement SMTA) and physically available for distribution upon requests.

### 1.1.2. Project Phases

The project is implemented along 3 main phases.

**Phase 1.** Acquisition and multiplication of seeds of each of the accessions of various CWR and forage and range species.

**Phase 2.** Acquisition of another set of seeds of each of the accessions to be multiplied in the following season.

**Phase 3.** Pooling of seeds produced in the two seasons for each accession to ensure the proper representation of the genetic diversity of these collected accessions.

Some accessions will need 2-3 cycles of multiplication to obtain the required number of seeds considering the low number of seeds starting from.

### 1.2. Purpose of the Project M&E Plan

The goal of an M&E plan is to establish the goals, objectives, and outcomes of the project in relation to the indicators and corresponding data collection methods. The M&E plan outlines the steps to translate the initial logical framework into project results and reporting. In addition, the M&E plan provides a timeline for the implementation of M&E, as well as the corresponding parties responsible.

## 2. Project Results Framework

This section outlines the logical and theoretical frameworks for the development of the project. The theory of change (section 2.2) describes how research outputs can lead to larger development outcomes and the logical framework (section 2.1) discusses the project results by phase. This section also analyses the project outcomes alignment with the goals of Crop Trust, the ICARDA Strategic Plan 2017-2026 and the CGIAR Strategic Results Framework 2016-2030.

### 2.1. Project Logical Framework

The project doesn't have a logical framework and this M&E plan attempts to develop one. As discussed in section 1.1.2, the work performed during this project falls into three main phases elaborated in this section.

**Phase 1.** Acquisition and multiplication of only 100 seeds of each of 746 accessions of various CWR and forage and range species to be multiplied in the 2017-2018 season.

**Phase 2.** Acquisition of another set of 100 seeds (or more) of each of the 746 accessions to be multiplied in the 2018-2019 season.

**Phase 3.** Pooling of seeds produced in the two seasons 2017-2018 and 2018-2019 for each accession to ensure the proper representation of the genetic diversity of these collected accessions.

### 2.2. Theory of Change

#### 2.2.1. Impact Pathway

The current project falls under the conservation component of the project *Adapting Agriculture to Climate Change: Collecting, Protecting and Preparing Crop Wild Relatives* (https://www.cwrdiversity.org/project/) which succeeds the collection component and precedes the pre-breeding component. Activities performed under this project mainly constitute the practices leading to germplasm conservation in

genebanks and making material acquired via the CWR project available for usage by researchers and other users worldwide. The project is a bridge to pre-breeding activities that are a first step in using CWR in crop improvement which will eventually have a direct impact at socioeconomic level for the farmers, by adopting and applying the new varieties. The description below outlines the linkages between activities, outputs, and outcomes. The assumptions, risks, explanatory factors, and unintended effects are also discussed.

*Figure 1.Project Impact linkages between outputs, research outcomes (RO) and development outcomes (DO)*

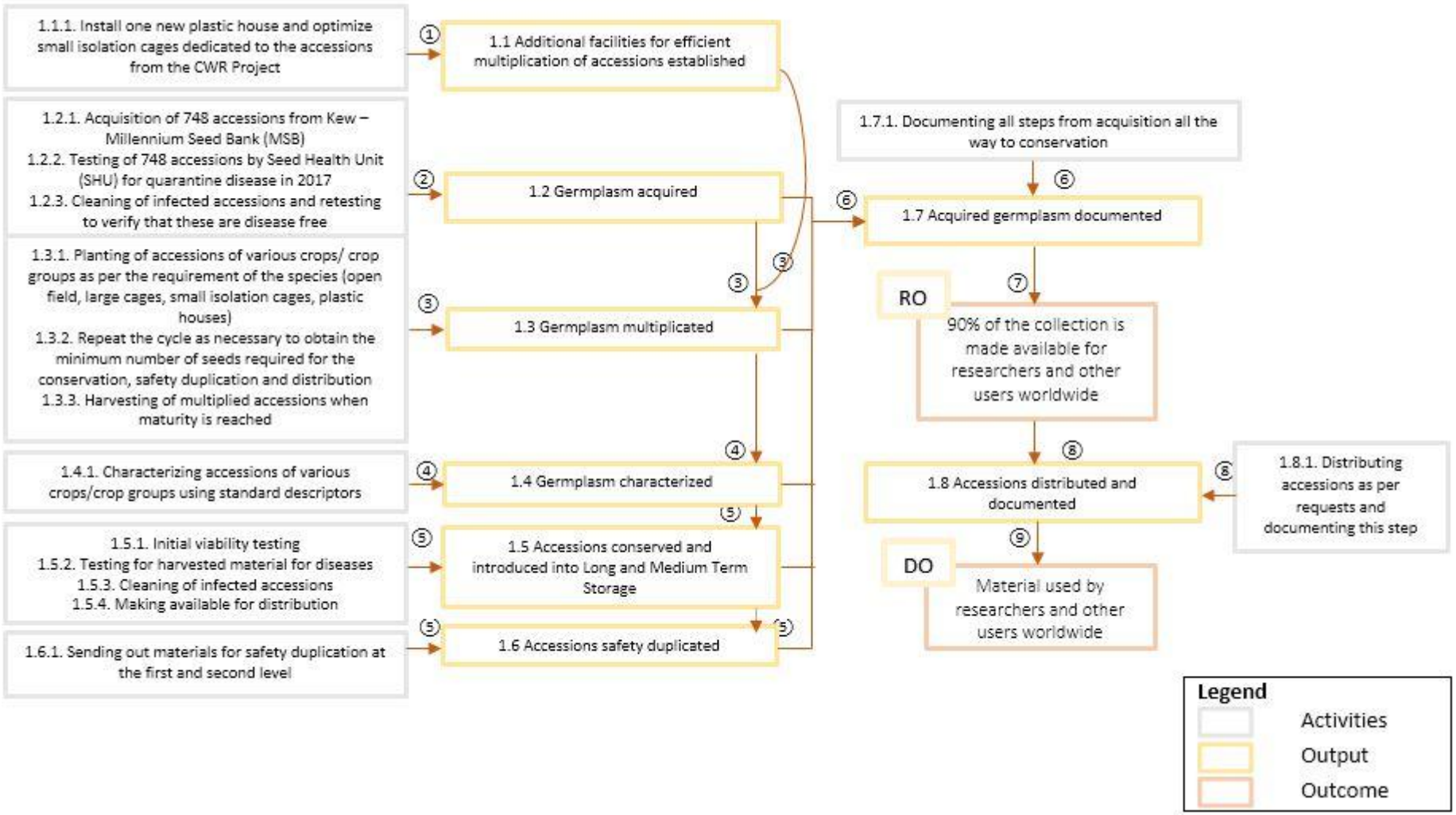


*Table 2-1: Project activities, outputs, and outcomes*

| Activities | Outputs | Outcome |
|---|---|---|
| 1.1.1. Install one new plastic house and optimize small isolation cages dedicated to the accessions from the CWR Project | 1.1 Additional facilities for efficient multiplication of accessions established | Novel and threatened diversity of CWR conserved, safety duplicated and made available for researchers and other users worldwide |
| 1.2.1. Acquisition of 748 accessions from Kew – Millennium Seed Bank (MSB) | 1.2 Germplasm acquired | |
| 1.2.2. Testing of 748 accessions by Seed Health Unit (SHU) for quarantine disease in 2017 | | |
| 1.2.3. Cleaning of infected accessions and retesting to verify that these are disease free | | |
| 1.3.1. Planting of accessions of various crops/ crop groups as per the requirement of the species (open field, large cages, small isolation cages, plastic houses) | 1.3 Germplasm multiplicated | |
| 1.3.2. Repeat the cycle as necessary to obtain the minimum number of seeds required for the conservation, safety duplication and distribution | | |
| 1.3.3. Harvesting of multiplied accessions when maturity is reached | | |
| 1.4.1. Characterizing accessions of various crops/crop groups using standard descriptors | 1.4 Germplasm characterized | |
| 1.5.1. Initial viability testing | 1.5 Accessions conservation and introduced into Long and Medium Term Storage | |
| 1.5.2. Testing for harvested material for diseases | | |
| 1.5.3. Cleaning of infected accessions | | |
| 1.5.4. Making available for distribution | | |
| 1.6.1. Sending out materials for safety duplication at the first and second level | 1.6 Accessions safety duplicated | |
| 1.7.1. Documenting all steps from acquisition all the way to conservation and distribution | 1.7 Acquired germplasm documented | |
| 1.8.1. Distributing accessions as per requests | 1.8 Accessions distributed | Material used by researchers and other users worldwide |

**① Link between activities 1.1.1 and output 1.1**

*Figure 2: Activities 1.1.1 and Output 1.1*


Facilities planned to be established under output 1.1 will be a necessary addition to an existing infrastructure dedicated for this project.

- **Assumptions:**
  - Allocated budget is sufficient.
- **Risks:**
  - Delay in delivering the new facilities.
- **Other explanatory factors:**
  - Falling behind schedule can lead to missing planting seasons because of not having enough resources (space) to carry out the project activities.
- **Unintended effects:**
  - N/A

**② Link between activities 1.2.1-1.2.3 and output 1.2**

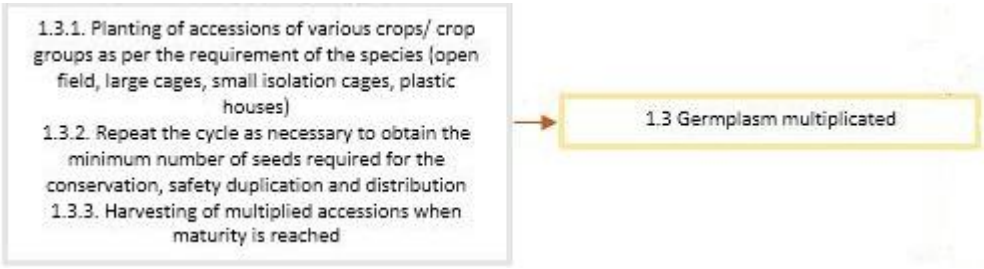
*Figure 3: Activities 1.2.1-1.2.3 and Output 1.2*


Material collected within the collection component of the CWR project will be used in this project and will be provided by the donor.

- **Assumptions:**
  - All accessions acquired have their relevant passport data.
  - The SHU has sufficient human resources capacity (quantity and quality).
  - Timely availability of accessions at Kew-Millennium Seed Bank (MSB)
- **Risks:**
  - Delay in receiving accessions from donor.
  - Seed quality of received material is deteriorated.
- **Other explanatory factors:**
  - Falling behind schedule can lead to missing planting seasons.
- **Unintended effects:**
  - N/A

**③ Link between output 1.1, output 1.2, activities 1.3.1-1.3.3 and output 1.3**

*Figure 4: Activities 1.3.1-1.3.3 and Output 1.3*




Outputs 1.1 and 1.2 form the capital and material of the project; both outputs are therefore planned to be achieved at the beginning of the project. Afterwards, multiplication takes place with activity 1.3.1 happening first.

- **Assumptions:**
  - The new facilities are sufficient to facilitate the operation of the project.
  - Necessary pre-planting preparations made to save time.
  - Arrangements for irrigation.
  - Pre-planting seed treatment with fungicides and appropriate field management of diseases.
  - Working closely with specialized curator to ensure best practices are applied to maximize germination.
  - The field genebank is located in a secure site so as to minimize risks from natural and manmade disasters and hazards.
- **Risks:**
  - Lack of resources and space.
  - Accessions affected by drought.
  - Accessions affected by diseases.
  - Unexpected natural and/or man-made disasters.
- **Other explanatory factors:**
  - Lack of pre-planting preparations can have a negative effect on the seed quality.
- **Unintended effects:**
  - Many accessions will require several rounds of multiplication to ensure having a representative sample size; this might slow down achieving immediate results.

**④ Link between output 1.3, activities 1.4.1 and output 1.4**

*Figure 5: Activities 1.4.1 and Output 1.4*


Harvested material in activity 1.3.3 needs to be characterized using standard descriptors.

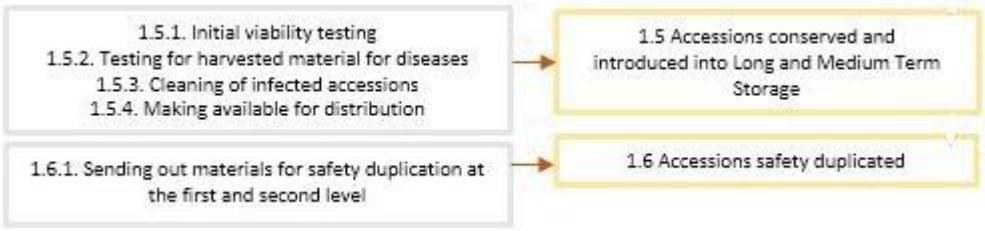
- **Assumptions:**

- Successful germination
- Sufficient numbers of seeds to sample
- Skilled staff

- **Risks:**
  - The incidence of pests and diseases can limit the characterization process
- **Other explanatory factors:**
  - N/A
- **Unintended effects:**
  - N/A

**⑤ Link between output 1.4, activities 1.5.1-1.6.1, output 1.5 and output 1.6.**

*Figure 6: Activities 1.5.1-1.6.1, Output 1.5 and Output 1.6.*

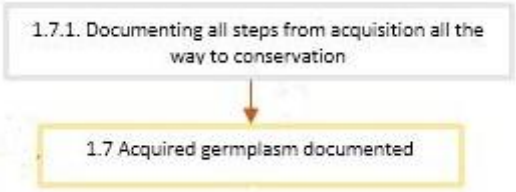



Seed samples need to be conserved under medium-term conditions, long-term conditions and safety duplicated at two levels.

- **Assumptions:**
  - Sufficient number of seeds.
  - High quality material.
  - Skilled staff
  - Secured storage sites.
  - Maintaining seed viability through monitoring practices.
  - A risk management strategy implemented and updated as required that addresses physical and biological risks.
  - For safety duplication in particular: Samples are safely shipped, deposited and each safety duplicate sample is accompanied by relevant associated information
- **Risks:**
  - Physical and biological risks: extreme weather conditions like drought, freezing, hail, cyclones, typhoons, hurricanes. Other extreme events such as fire outbreaks or earthquakes. Other threats to field collections relate to biotic factors including pests and diseases, predators etc. Vandalism or theft of planting material can also be major problem to the security of collections.
- **Other explanatory factors:**
  - N/A
- **Unintended effects:**
  - N/A

**⑥ Link between outputs 1.2-1.6 and output 1.7**

*Figure 7: Activities 1.7.1 and Output 1.7*

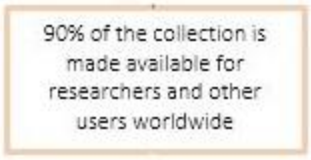



Activities of output 1.7 are nested in all other outputs since data documentation is performed in parallel with other activities.

- **Assumptions:**
  - A documentation system is put in place and functional.
- **Risks:**
  - The main risk is the dysfunction of platforms planned to be used.
- **Other explanatory factors:**
  - Lack of documentation can lead to loss of genetic material if it compromises the optimal use of the seeds
  - Lack of seed viability documentation can lead to loss of genetic material if it prevents planning regeneration properly.
- **Unintended effects:**
  - N/A

**⑦ Link between output 1.7 and RO**

*Figure 8: Research Outcome*




The project aims at making available to users the accessions including their associated data. The assumptions, risks, explanatory factors and unintended effects are discussed in all the previous linkages.

**⑧ Link between RO, activity 1.8 and output 1.8**

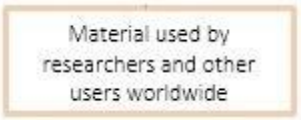
*Figure 9: Activity 1.8.1 and output 1.8*


Germplasm distribution is the supply of a representative sample of seed accessions from a genebank in response to requests from plant germplasm users. The project uses the SMTA for distribution.

- **Assumptions:**
  - Facilitated access to request germplasm
  - Distribution plan and documentation system put in place
- **Risks:**
  - The sample size isn't available at the time of request.
  - Crisis situation, natural or man-made disasters cause the cancelation/interruption of shipment activities.
- **Other explanatory factors:**
  - N/A
- **Unintended effects:** All documented data and conserved materiel are to be made publicly available worldwide. It is an unintended effect if requesters are not representative of different institutions or locations.

### ⑨ Link between output 1.8 and DO

*Figure 10: Development Outcome*




At this stage, accessions are distributed and can be used.

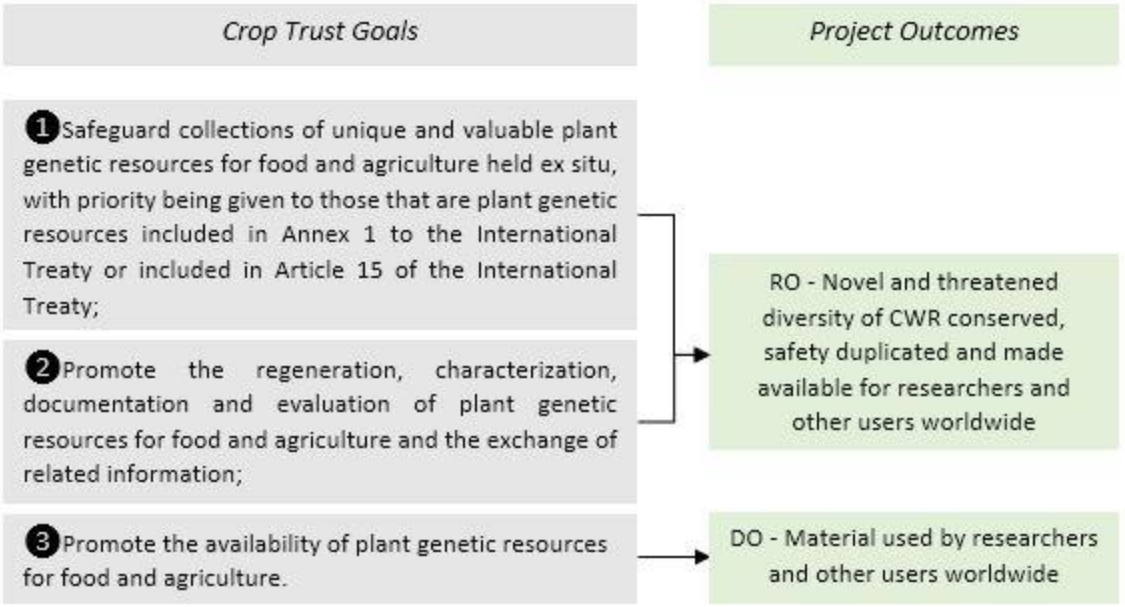
- **Assumptions:**
  - Germplasm reaches its destination in good condition
  - The material's associated information is provided to the user
- **Risks:**
  - The user doesn't have the expertise and/or infrastructure necessary to use the material
- **Other explanatory factors:**
  - N/A
- **Unintended effects:**
  - N/A

## 2.3. Project Alignment to Crop Trust, CGIAR and ICARDA Strategic Frameworks

The project outcomes align closely with the Crop Trust Goals (from the Global Crop Diversity Trust Strategic Work Plan 2014-2024), as well as with the CGIAR strategic-level outcomes (SLOs), intermediate development outcomes (IDOs) and sub-IDOs of the CGIAR Strategy and Results Framework 2016-2030 and the Strategic Research Priorities (SRPs) and Crosscutting Themes (CCTs) of the ICARDA Strategic Plan 2017-2026).

Three of the Crop Trust goals align with the project outcomes (Figure 11). The first goal "Safeguarding collections of unique and valuable plant genetic resources for food and agriculture held ex situ, with priority being given to those that are plant genetic resources included in Annex 1 to the International Treaty or included in Article 15 of the International Treaty" aligns with the research outcome in particular the part which states that novel and threatened crop wild relatives are conserved and safety duplicated. The second goal "Promote the regeneration, characterization, documentation and evaluation of plant genetic resources for food and agriculture and the exchange of related information" aligns well with the project outputs 1.3, 1.4, 1.7 contributing to the research outcome. The third goal "Promote the availability of plant genetic resources for food and agriculture" aligns well with the development outcome. Assumptions and risks are similar to the ones discussed in the impact pathway.

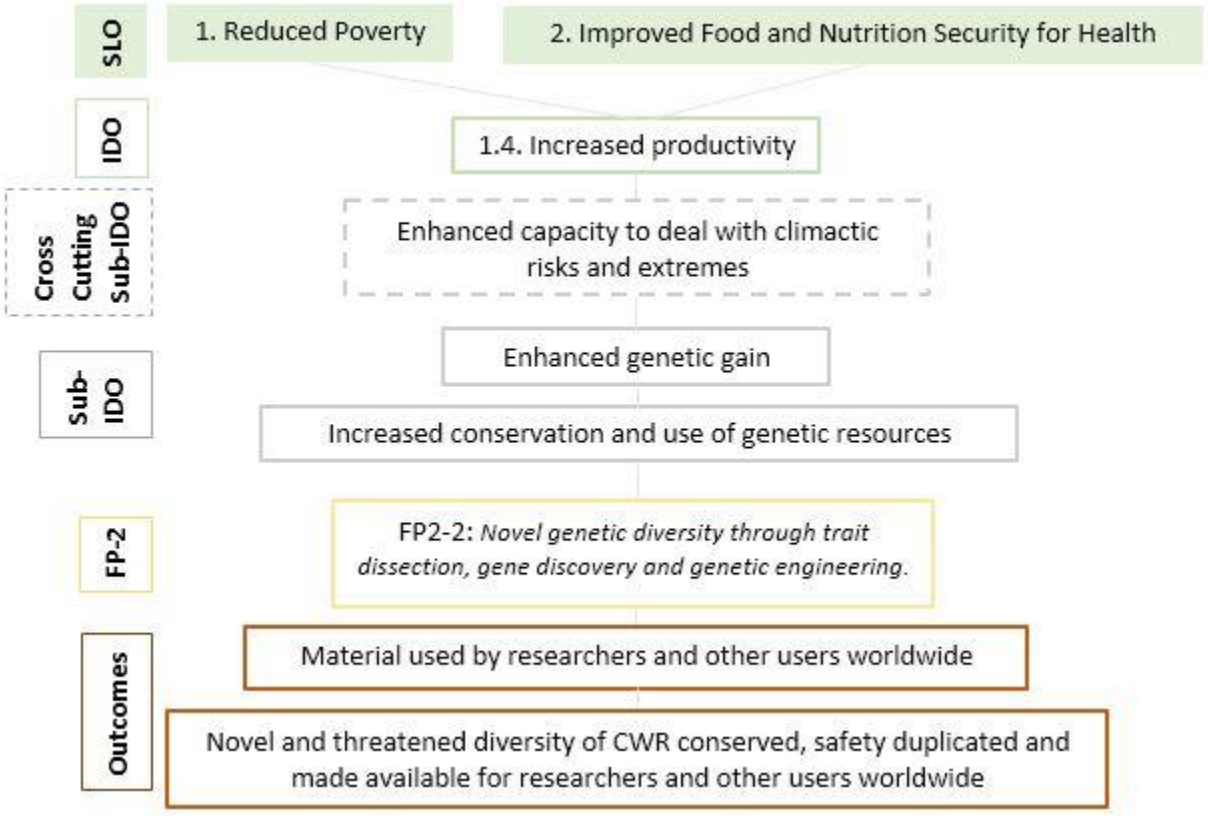
*Figure 11: Linkage between project outcomes and Crop Trust goals*




This project falls under the third phase of the project "Adapting Agriculture to Climate Change: Collecting, Protecting and Preparing Crop Wild Relatives". More specifically, it falls under the conservation component of the CWR project succeeding the collection component and preceding the pre-breeding component.

Within the CGIAR framework, this project supports SLO 1 Reduced Poverty and SLO 2 Improved Nutrition and Food Security for Health through increased conservation and use of genetic resources and enhanced genetic gains. Climate change is a cross cutting area, as genetic gains contribute to enhanced ability to deal with climactic risks and extremes. These pathways are shown in Figure 12 below, followed by pathway descriptions, risks, and assumptions.

*Figure 12. Linkage between project outcomes and the CGIAR strategic framework System Level Outcomes (SLOs), Intermediate Development Outcomes (IDOs), and sub-IDOs associated with the CRP Wheat Flagship 2: Novel diversity and tools for improving genetic gains and breeding efficiency*




**① Link between Project outcomes and FP-2-2 Novel genetic diversity through trait dissection, gene discovery and genetic engineering**

This project is a bridge to pre-breeding activities consisting of a wide range of activities that aim to isolate desired genetic traits (e.g., disease resistance) and introduce them into breeding lines that are more readily crossable with modern, elite varieties. This exact usage of conserved material is planned to fall under CRP Wheat FP-2-2: Novel genetic diversity through trait dissection, gene discovery and genetic engineering (Figure 8).

- **Assumptions:**

- An efficient conservation and documentation of germplasm ensures that the material is available and accessible.
- Seeds are distributed using the SMTA.
- Germplasm reach its destination in good conditions.

- **Risks:**
  - The sample size isn't available at the time of request.
  - Crisis situation, natural or man-made disasters cause the cancelation/interruption of shipment activities.
  - The pre-breeder doesn't have the necessary infrastructure and knowledge to carry successful pre-breeding activities.

**② Link between Project outcome, FP-2-2 and Sub-IDO Increased conservation and use of genetic resources**

The project outcome supports the sub-IDO Increased conservation and use of genetic resources contributing to SLO 2 Improved Food and nutrition security for health. Being part of the CWR initiative, the project leads to enhanced genetic gains once available conserved materiel are used by researchers or pre-breeders in particular, thereby increasing productivity and contributing to SLO 1 Reduced Poverty.

- **Assumptions:**
  - The project results in disease-free, viable and documented germplasm made accessible to enable the material usage.
  - Request and usage of material in other projects working on pre-breeding activities.
- **Risks:**
  - Discussed in section 2.2
  - Failure to achieving successful outcomes in pre-breeding projects.

**③ Link between Project outcome, FP-2-2 and Cross Cutting theme Enhanced ability to deal with climactic risks and extremes**

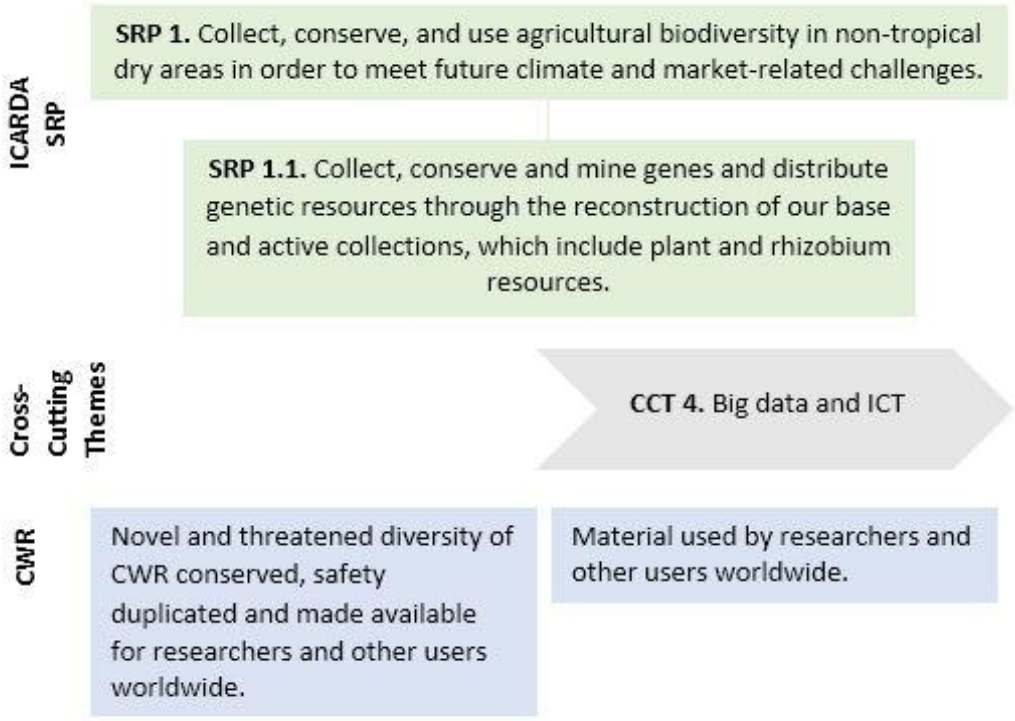
The objective of the project *Adapting Agriculture to Climate Change: Collecting, Protecting and Preparing Crop Wild Relatives* is to collect important species of crop wild relatives, ensure their long-term conservation, and facilitate their use in breeding new, improved crops. Therefore, the conservation of material under this project and its usage in succeeding pre-breeding projects aims at developing crops adaptive to climate change thus the contribution to the cross-cutting sub-IDO Enhanced ability to deal with climactic risks and extremes

- **Assumptions:**
  - An improved and efficient conservation and documentation of germplasm ensures that the material with traits essential for climate change mitigation and adaptation is available and accessible.
  - Material with traits essential for climate change mitigation is being used for pre-breeding and breeding purposes.
  - Availability of Infrastructure, knowledge and skilled staff

- **Risks:**
  - Discussed in previous linkages.

The project is also aligned with the ICARDA framework. Figure 13 shows the alignment between the project outcomes and ICARDA SRP 1: "Collect, conserve, and use agricultural biodiversity in non-tropical dry areas in order to meet future climate and market-related challenges." The figure also highlights the relation to the cross-cutting theme "Big Data" as the project promotes information integration between genebanks and breeding programs by making all related data public through Genesys. Assumptions and Risks are discussed in section 2.2 and the precedent part of section 2.3.

*Figure 13. Linkage between project outcome and the ICARDA strategic framework (SRFs) and cross-cutting themes (CCTs).*



# 3. Performance Monitoring System

The project M&E system includes indicators to track the project's overall progress and provide measurable means of verifying whether or not the outputs and outcomes are achieved. Indicators will be collected on a routine (frequently collected, measured, and assessed throughout the project) or periodic (measured annually or at the end of the project) basis. The following sections include details on these indicators and how they will be collected. Table 3-1 provides an overview of all indicators, noting when an indicator has a matching or similar ICARDA indicator. Disaggregation of targets annually cannot be applied in the project given the nature of the activities (multiplication and regeneration).

*Table 3-1. Multiplication of CWR Project Indicators*

| No. | Indicator | Baseline | Target 2020 | Level | Source | Monitoring Type | Monitoring Frequency | Indicators Reference Manual (IRM) ICARDA |
|---|---|---|---|---|---|---|---|---|
| 1 | Number of plastic house installed | 0 | 1 | Output | Agreement | Routine | Month 1 | |
| 2 | Number of small isolation cages optimized | 0 | 185 | Output | Agreement | Routine | Month 1 | |
| 3 | Number of new acquisitions in the costed collection | 746 | 671 | Output | Genebank Platform | Routine | Annually | |
| 4 | Number of accessions multiplied | 746 | 671 | Output | Genebank Platform | Routine | Annually | |
| 5 | Number of accessions multiplied and have reached the target number of seeds | 746 | 671 | Output | Genebank Platform | Routine | Annually | |
| 6 | Number of accessions characterized | 746 | 671 | Output | Genebank Platform | Routine | Annually | |
| 7 | Number of seed accessions stored under long-term conditions | 746 | 671 | Output | Genebank Platform | Routine | Annually | PR-3 |

| No. | Indicator | Baseline | Target 2020 | Level | Source | Monitoring Type | Monitoring Frequency | Indicators Reference Manual (IRM) ICARDA |
|---|---|---|---|---|---|---|---|---|
| 8 | Number of seed accessions stored under medium-term conditions | 746 | 671 | Output | Genebank Platform | Routine | Annually | |
| 9 | Number of seed accessions with initial seed viability testing | 746 | 671 | Output | Genebank Platform | Routine | Annually | |
| 10 | Number of accessions free of quarantine high risk pathogens | 746 | 671 | Output | Genebank Platform | Routine | Annually | |
| 11 | Number of seed accessions safety duplicated in an off-site storage facility | 746 | 671 | Output | Genebank Platform | Routine | Annually | PR-3 |
| 12 | Number of seed accessions safety duplicated in Svalbard Global Seed Vault | 746 | 671 | Output | Genebank Platform | Routine | Annually | PR-3 |
| 13 | Number of accessions with passport data available from | 746 | 671 | Output | Genebank Platform | Routine | Annually | |

| No. | Indicator | Baseline | Target 2020 | Level | Source | Monitoring Type | Monitoring Frequency | Indicators Reference Manual (IRM) ICARDA |
|---|---|---|---|---|---|---|---|---|
| | ICARDA's database on the web | | | | | | | |
| 14 | Number of accessions with characterization data available from ICARDA's database on the web | 746 | 671 | Output | Genebank Platform | Routine | Annually | |
| 15 | Number of accessions conserved and available for distribution | 746 | 671 | Outcome | Genebank Platform | Routine | Annually | |
| 16 | Percentage of requests for germplasm met | NA | 90% | Output | Genebank Platform | Routine | Annually | PR-4 |
| 17 | Percentage of accessions distributed | NA | 90% | Outcome | Genebank Platform | Periodic | Annually | OP-5 |

## 3.1. Routine monitoring

The Genebank Project staff collects routine data regularly as part of project activities and ensures up-to-date documentation primarily in the ICARDA Genebank Database. The following documents/platforms are used for routine data collection and storage:

**ICARDA Genebank Database:** All information gathered from the acquisition, regeneration, characterization, storage, and distribution is documented in the ICARDA gene bank database. Noting that some of this information is released through the global platform GENESYS.

**Field Book Application:** This is an open-source Android app that is used to collect field data exported to the ICARDA Genebank Database.

**Hard Copy collection sheets:** These are also used to collect field data later entered to the ICARDA Genebank Database

**Documents/Reports:** For some activities, data are recorded in separate documents or reports.

**MEL:** Monitoring, evaluation and learning (MEL) platform (http://mel.cgiar.org ) utilized by all ICARDA projects. MEL will host the full M&E Plan, indicators, and impact pathway. Key data outputs related to the outlined indicators and project summary documents will be regularly uploaded into MEL.

### 3.1.1. Routine Indicator Definitions

| **1. Number of plastic houses installed** |
|---|
| **Description** |
| **Definition:** A new plastic house is part of the project infrastructure that will facilitate the multiplication and regeneration activities.<br>**Result level:** Output<br>**Unit of Measure:** Count<br>**Method of Calculation**: Summation of count<br>**Disaggregated by:** Location<br>**Target**: 1<br>**Rationale**: Plastic houses are dedicated to the multiplication and regeneration of accessions of self-pollinated species in case they were small seeded and shattering. |
| **Data Collection and Analysis** |
| **Data sources:** Image<br>**Data collection method:** Image captured to demonstrate the installation of the plastic house<br>**Data collection and reporting frequency:** one time at completion of task, reported annually<br>**Data collection responsibility**: Genebank/Project staff<br>**Evidence required:** Image reporting the proper installation of PH<br>**Comments and limitations:** For a more solid reporting, it is advised to also provide the plastic house layout and its asset number registered at ICARDA. |

## 2. Number of small isolation cages optimized

### Description

**Definition:** Small isolation cages are part of the project infrastructure that will facilitate the multiplication and regeneration activities. A concrete base will be put for each isolation cage to attain an insect proof environment inside the cage.
**Result level:** Output
**Unit of Measure:** Count
**Method of Calculation**: Summation of count of isolation cages optimized
**Disaggregated by:** Location
**Target**: 185
**Rationale**: Small isolation cages are dedicated to the multiplication and regeneration of accessions of species that are cross-pollinated and self-incompatible. Bumble bees are used as pollinators. To be noted that capacity wise around 50 cages will be dedicated to the CWR given that the same isolation cage will include CWR and other crops from other projects.

### Data Collection and Analysis

**Data sources:** Images / Genebank Report
**Data collection method:** Images captured to demonstrate the optimization works of the isolation cages and documentation of the number of isolation cages optimized
**Data collection and reporting frequency:** at completion of task, annual reporting
**Data collection responsibility:** Genebank/Project staff
**Evidence required:** Images of the optimized isolation cages / Report
**Comments and limitations:**
- Few images will be representative of all isolation cages optimized.

## 3. Number of new acquisitions in the "costed collection"

### Description

**Definition:** The "costed collection" is ICARDA's collection that is available to the international community through the multilateral system.
**Result level:** Output
**Unit of Measure:** Count
**Method of Calculation**: Number of successfully regenerated accessions out of the Total number of accessions acquired
**Disaggregated by:** Crop
**Target**: 671
**Rationale**: Accessions in the costed collection are accessions that are legally obtained and have the necessary permission documents from the original country which allows the collection to be made available. It is also necessary to regenerate the seeds before including accessions in the costed collection since it is possible for the genebank to receive small numbers of seeds that don't become viable.

### Data Collection and Analysis

Data sources: Genebank
**Data collection method:** Recording in ICARDA Genebank Database
**Data collection and reporting frequency:** seasonal data collection, annual reporting
**Data collection responsibility:** Genebank/Project Staff
**Evidence required:** Each accession included in the costed collection has an IG number (Icarda germplasm number)
**Comments and limitations:** NA

## 4. Number of accessions multiplied

### Description

**Definition:** Good quality seeds – with high viability and no quarantine diseases – have to be produced prior to conservation.
**Result level:** Output
**Unit of Measure:** Count
**Method of Calculation**: Number of Accessions multiplied out of the Total number of accessions acquired
**Disaggregated by:** Crop
**Target**: 671

**Rationale**: The accessions are planted in fields, green houses, or isolation cages using the best techniques to ensure the conservation of genetic integrity.

### Data Collection and Analysis

**Data sources:** Genebank
**Data collection method:** Recording in ICARDA genebank database
**Data collection and reporting frequency:** seasonal data collection, annual reporting
**Data collection responsibility:** Genebank/Project staff
**Evidence required:** Field Book Application, Hard Copy collection sheets
**Comments and limitations:** NA

## 5. Number of accessions multiplied and have reached the target number of seeds

### Description

**Definition**: Good quality seeds – with high viability and no quarantine diseases – have to be produced prior to conservation. Multiplication is repeated until the target number of seeds is reached. This number varies among species and ranges between 2000 and 4000 seeds.
**Result level:** Output
**Unit of Measure:** Count
**Method of Calculation**: Number of Accessions reaching the target number of seeds out of the Total number of accessions multiplied
**Disaggregated by:** Crop
**Target**: 671
**Rationale**: The accessions are planted in fields, green houses, or isolation cages using the best techniques to ensure the conservation of genetic integrity. Some accessions require a second cycle of multiplication if they didn't produce enough seeds or if they did not germinate.

### Data Collection and Analysis

**Data sources:** Genebank
**Data collection method:** Recording in ICARDA Genebank Database
**Data collection and reporting frequency:** seasonal data collection, annual reporting
**Data collection responsibility:** Genebank/Project staff
**Evidence required:** Field Book Application, Hard Copy collection sheets
**Comments and limitations:** NA

## 6. Number of accessions characterized

### Description

**Definition**: The genebank has methodologies for characterizing accessions using standardized formats and recognized descriptors.
**Result level:** Output
**Unit of Measure:** Count
**Method of Calculation**: Summation of count: Number of accessions characterized out of the total number of accessions acquired
**Disaggregated by:** Crop
**Target**: 671
**Rationale**: Characterization provides vitally useful information to complement an accession's passport data.

### Data Collection and Analysis

**Data sources:** Genebank
**Data collection method:** Recording in ICARDA Genebank Database
**Data collection and reporting frequency:** seasonal data collection, annual reporting
**Data collection responsibility:** Genebank/Project staff
**Evidence required:** Field Book Application, Hard Copy collection sheets
**Comments and limitations:** This indicator doesn't take into consideration that characterization is repeated for material undergoing additional cycles of multiplication.

## 7. Number of seed accessions stored under long-term conditions

### Description

**Definition**: For long-term storage (base collection), the seeds are kept in vacuum-sealed aluminum-foil bags at -20 °C
**Result level:** Output
**Unit of Measure:** Count
**Method of Calculation**: Summation of count: Number of seed accessions stored under long-term conditions out of the total number of accessions acquired
**Disaggregated by:** Crop
**Target**: 671
**Rationale**: A base collection is a set of accessions in which each is distinct and as close as possible to the original sample in terms of genetic integrity. Normally, material is not distributed from base collections directly to users.

### Data Collection and Analysis

**Data sources:** Genebank
**Data collection method:** Recording in ICARDA Genebank Database
**Data collection and reporting frequency**: annually, reported annually
**Data collection responsibility:** Genebank/Project staff
**Evidence required:** ICARDA Genebank Database
**Comments and limitations:** NA

## 8. Number of seed accessions stored under medium-term conditions

### Description

**Definition**: For medium-term storage (active collection), the seeds are put in tightly closed plastic jars and kept at -4 °C and a relative humidity of less than 25 percent.
**Result level:** Output
**Unit of Measure:** Count
**Method of Calculation**: Summation of count: Number of seed accessions stored under medium-term conditions out of the total number of acquired accessions
**Disaggregated by:** Crop
**Target**: 671
**Rationale**: Active collections consist of accessions that are immediately available for distribution.

### Data Collection and Analysis

**Data sources:** Genebank
**Data collection method:** Recording in ICARDA Genebank Database
**Data collection and reporting frequency**: annually, reported annually
**Data collection responsibility:** Genebank/Project staff
**Evidence required:** ICARDA Genebank Database
**Comments and limitations:** NA

## 9. Number of seed accessions with initial seed viability testing

### Description

**Definition**: Seed or plant viability is the measure of how many seeds or how much plant material in a lot are alive and could develop into plants that will reproduce under appropriate field conditions.
**Result level:** Output
**Unit of Measure:** Count
**Method of Calculation**: Summation of count: number of seed accessions with initial seed viability testing out of the total number of acquired accessions
**Disaggregated by:** Crop
**Target**: 671
**Rationale**: Initial seed viability testing acts as the base line for monitoring of the viability of accessions under long-term and medium-term storage.

### Data Collection and Analysis

**Data sources:** Genetic Resources Section (GRS) - Genebank
**Data collection method:** Recording in ICARDA Genebank Database
**Data collection and reporting frequency**: seasonal data collection, reported annually
**Data collection responsibility:** Genebank/Project staff

**Evidence required:** Initial viability laboratory testing results
**Comments and limitations:** After performing the initial viability testing, the test will be carried on periodically for monitoring purposes.

## 10. Number of accessions free of quarantine high risk pathogens

### Description

**Definition:** Testing of seeds for quarantine high risk pathogens and performing cleaning activities if infected samples are found.
**Result level:** Output
**Unit of Measure:** Count
**Method of Calculation**: Number of accessions free of quarantine high risk pathogens
**Disaggregated by:** Crop
**Target**: 671
**Rationale**: Ensuring disease-free collections.

### Data Collection and Analysis

**Data sources:** Seed health laboratory – Genebank
**Data collection method:** Recording in ICARDA Genebank Database
**Data collection and reporting frequency**: seasonally after harvesting, reported annually
**Data collection responsibility:** Genebank/Project staff
**Evidence required:** Germplasm Heath Unit Testing Results
**Comments and limitations:** NA

## 11. Number of seed accessions safety duplicated in an off-site storage facility

### Description

**Definition**: A sample is packed in aluminum pouches and sent for long-term conservation as safety duplicate to a reliable gene bank.
**Result level:** Output
**Unit of Measure:** Count
**Method of Calculation**: Summation of count: number of seed accessions safety duplicated in an off-site storage facility out of the total number of seeds accessions acquired
**Disaggregated by:** Crop
**Target**: 671
**Rationale**: Duplication of a genetically identical sub-sample of the accession to mitigate the risk of its partial or total loss caused by natural or man-made catastrophes.

### Data Collection and Analysis

**Data sources:** Genebank
**Data collection method:** Recording in ICARDA Genebank Database
**Data collection and reporting frequency**: at completion of task, reported annually
**Data collection responsibility:** Genebank/Project staff
**Evidence required:** Confirmation of receipt email from the off-site genebank
**Comments and limitations:** NA

## 12. Number of seed accessions safety duplicated in Svalbard Global Seed Vault

### Description

**Definition**: An additional seed sample is packed in aluminum pouches and sent for long-term conservation as a safety duplicate to the Svalbard Global Seed Vault making the Seed Vault the second security back.
**Result level:** Output
**Unit of Measure:** Count
**Method of Calculation**: Summation of count: Number of seed accessions safety duplicated in SGSV out of the total number of seeds accessions acquired
**Disaggregated by:** Crop
**Target**: 671
**Rationale**: Duplication of a genetically identical sub-sample of the accession to mitigate the risk of its partial or total loss caused by natural or man-made catastrophes. The Svalbard Global Seed Vault in Norway is an example of a secure facility for safety duplication of crop genetic resources. Located far beyond the Arctic Circle and 130 m

deep inside a frozen mountain, permafrost provides an environmentally friendly solution to long-term secure conservation of crop diversity.

**Data Collection and Analysis**

**Data sources:** Genebank
**Data collection method:** Recording in ICARDA Genebank Database
**Data collection and reporting frequency**: at completion of task (the scheduled date depends on the dates of opening of SGSV), reported annually
**Data collection responsibility:** Genebank/Project staff
**Evidence required:** Depositor inventories of the material / NordGen confirmation email or SMS sent to the depositor institute confirming placement and placement in the Seed Vault
**Comments and limitations:** NA

## 13. Number of accessions with passport data available on ICARDA's database on the web

**Description**

**Definition**: Passport data provide basic information for identification and general management of individual accessions
**Result level:** Output
**Unit of Measure:** Count
**Method of Calculation**: Summation of count: Number of accessions with passport data available on the web out of the Total number of acquired accessions
**Disaggregated by:** Crop
**Target**: 671
**Rationale**: Samples without adequate passport data hamper their use.

**Data Collection and Analysis**

**Data sources:** Genebank
**Data collection method:** Recording in ICARDA Genebank Database
**Data collection and reporting frequency:** After receiving a shipment, annual reporting
**Data collection responsibility:** Genebank/Project staff
**Evidence required:** ICARDA Genebank Database / Genesys
**Comments and limitations:** NA

## 14. Number of accessions with characterization data available on ICARDA's database on the web

**Description**

**Definition:** Characterization is the description of plant germplasm.
**Result level:** Output
**Unit of Measure:** Count
**Method of Calculation**: Summation of count: Number of accessions with characterization data available on the web out of the total number of acquired accessions
**Disaggregated by:** Crop
**Target**: 671
**Rationale**: Characterization of germplasm assures the maximum utilization of the germplasm collection by the users.

**Data Collection and Analysis**

**Data sources:** Genebank
**Data collection method:** Recording in ICARDA Genebank Database
**Data collection and reporting frequency:** seasonal data collection, annual reporting
**Data collection responsibility:** Genebank/Project staff
**Evidence required:** ICARDA Genebank Database / Genesys
**Comments and limitations:** NA

## 16. Percentage of requests for germplasm met

**Description**

**Definition**: The indicator records the number of requests for germplasm met by ICARDA genebank from a wide range of users.
**Result level:** Output

| |
|---|
| **Unit of Measure:** Percentage<br>**Method of Calculation**: (Number of requests for germplasm met / Total number of requests for germplasm) x100<br>**Disaggregated by:** Crop<br>**Target**: 90%<br>**Rationale**: The indicator helps determine if there is an unmet demand for germplasm. |
| **Data Collection and Analysis** |
| **Data sources:** Genebank<br>**Data collection method:** Recording of requests received by direct emails or from genesys in a separate document/report<br>**Data collection and reporting frequency**: yearly data collection, annual reporting<br>**Data collection responsibility:** Genebank/Project staff<br>**Evidence required:** Emails<br>**Comments and limitations:** Given that the number of requests cannot be predicted and isn't a target in this project, we can't provide a numerical target of this indicator. |

### 3.1.2. Reporting planned and unplanned deliverables

All planned project deliverables will be configured in MEL to facilitate reporting by project staff. This will make it easier to report on the planned deliverables assigned to respective project staff. There will also be the option for staff to report unplanned deliverables. Research-related deliverables will go through internal controls to ensure that they meet the required standards (i.e. compliance with science quality standard, ensuring proper metadata fields, proper licenses applied etc.). Once this is done, each deliverable will be pushed on DSpace (Publications) and Dataverse (data). It is recommended that project staff make deliverables Open Access, however, where there is reason to restrict access, staff will have the option to save deliverables internally and fix an embargo period if needed.

### 3.1.3. Data access & privacy

Some of the data collected will be made publicly available through Genesys. This includes passport data, characterization data and availability of accessions to allow requests. Other types of data may be published at the end of project but this remains to be discussed with Crop Trust.

## 3.2. Periodic monitoring

This project will conduct periodic monitoring through annual reports. They will be used to assess project progress, and cover technical and financial aspects of the project.

If requested, the project staff will assist the Crop Trust and NORAD in conducting evaluations of the Project and its impact by providing technical and financial documentation, access to the project sites, cooperating with external reviewers, assisting with user surveys, and generally supporting monitoring and evaluations efforts and audits.

### 3.2.1. Periodic Indicators

| 15. Number of accessions conserved and available for distribution |
|---|
| **Description** |
| **Definition**: This indicator refers to the acquired CWR accessions that have successfully been multplicated, conserved, safety duplicated, documented and made available to the public. These accessions have enough seed number, are free from diseases and with viability above 75%.<br>**Result level:** Outcome<br>**Unit of Measure:** Count<br>**Method of Calculation**: Summation of count: number of accessions conserved and available for distribution out of the total number of acquired accessions<br>**Disaggregated by:** Crop<br>**Target**: 671<br>**Rationale**: These accessions can be used for CWR pre-breeding activities or for research purposes. |
| **Data Collection and Analysis** |
| **Data sources**: Genebank<br>**Data collection method:** Recording in ICARDA genebank database<br>**Data collection and reporting frequency:** annual data collection, annual reporting<br>**Data collection responsibility:** Genebank/Project staff<br>**Evidence required:** ICARDA genebank database, Genesys<br>**Comments and limitations:** NA |

| 17. Percentage of accessions distributed |
|---|
| **Description** |
| **Definition**: This indicator refers to the acquired CWR accessions that have been successfully distributed allowing its use by requesters.<br>**Result level:** Outcome<br>**Unit of Measure:** Percentage<br>**Method of Calculation**: (number of accessions distributed of the total number of acquired accessions) /100<br>**Disaggregated by:** Crop<br>**Target**: (90% of requests received)<br>**Rationale**: The indicator shows the contribution of the project in providing accessions that can be used for CWR pre-breeding activities or research purposes. Given that the number of requests cannot be predicted and isn't a target in this project, we can't provide a numerical target of this indicator. |
| **Data Collection and Analysis** |
| **Data sources**: Genebank<br>**Data collection method:** Recording in ICARDA genebank database<br>**Data collection and reporting frequency:** annual data collection, annual reporting<br>**Data collection responsibility:** Genebank/Project staff<br>**Evidence required:** ICARDA genebank database**,** Documents/reports<br>**Comments and limitations:** NA |

# 4. Learning and adaptive management

The project team will document, share, and make use of lessons learned for continuous project improvement. The project criteria for identifying learned will be as follows:

a) Lessons that are relevant/related to the project thematic areas;
b) Lessons that demonstrate a clear cause-effect relationship between project action and result realized;
c) Lessons whose recommendations have a bearing on project relevance, effectiveness, efficiency, sustainability and impact;

Learning and adaptive management will be based on 1) operational processes related lessons learned; and 2) research-based learning.

## 4.1. Operational processes related lessons learning

The following avenues will be used to capture lessons learned from project operational processes:

1. **Operational experience-based/ After-Action lessons learned identification**
   Project staff shall during their regular roles, identify operational experiences that are potential learning experiences. If the lesson learned is gathered from an off-station engagement, the staff will indicate this in the back-to-office report first, but in all cases the staff will complete the "lessons learned" section in the donor technical report and this should be enough.
2. **Staff Meeting and Project Review Meeting Pause-and-Reflect sessions:**
   The Project Manager will ensure that pause-and-reflect sessions are incorporated in regular staff meetings and periodic project review meetings. During this session, the chair of the meeting will seek to determine whether, from the meeting discussions and the associated brainstorming, there arose an experience that is worth documenting as a lesson learned. In such case, these comments will be included in the "lessons learned" section in the donor technical report.

## 4.2. Research-based lessons learning

### 4.2.1. ToC Review and adaptation

The project ToC (section 2.2) was developed during the final year of the project. Developing the ToC by the team, from the beginning of the project, would have served in documenting their understanding of how change may happen, and based upon multiple assumptions, hypotheses and linkages acknowledging that their understanding of, and/or the realities within which the project will be implemented are not static. For future projects, it is advised that the project team routinely test, revise and adapt the project ToC by annually organizing a one-day meeting to review and refine the ToC with field staff. Beginning with the highest-level outcomes, the meeting participants will ask key questions related to the: 1) relevance of objectives and outcomes in the ToC; and 2) the rationale of the objectives, outcomes and causal pathways.

1. **Questions related with relevance of objectives and outcomes:**

   a) Are the higher-level objectives/results still relevant to the potential users? If Yes, maintain; If No, delete and document the irrelevant ones and include any new ones.

b) Is the outcome still achievable within ICARDA's technical and operational capability, and within the available project resources?

c) Is the 'lower-level' result critical for achieving the corresponding 'higher-level' result?

d) Is the project higher-level result (still) aligned to the ICARDA, Crop Trust and CRP Strategy and results framework (as earlier envisaged)?

**2. Questions related with rationale of objectives, outcomes, and causal pathways:**

a) Do the assumptions still hold? If Yes, no need to review them; If No, revise the assumptions and the associated risk analysis and risk mitigation measures.

b) Are there shifts in the risk profiles of the 'unchanged' assumptions?- document these and design appropriate risk mitigation actions.

c) Do we now have better or worse evidence for the assumptions made? If worse, how can we seek/generate better evidence? If better evidence, document it.

The donor technical report includes a section titled "Risks encountered and deviations from the project workplan" where the project staff can describe any internal and external risks (e.g., political, operational, natural disasters, weather events, organizational, financial, etc.) that have resulted or could result to deviations from the project workplan. Also the staff can explain briefly how activities, methods, strategies and collaborators have had to differ from the original workplan, explaining the consequences of deviations, any necessary additional actions and mitigation strategies that have to be taken as a result.

### 4.2.2. Identification and prioritization of learning outcomes

The ToC outcomes for which there is no sufficient evidence to support either the preconditions, assumptions, linkages, and activities will be considered to represent a knowledge gap. These will be the basis for the subsequent year's learning agenda during future projects when developing the ToC at the beginning of the project. The learning agenda would include the two outcomes identified and additional ones in case any were discovered later on.

### 4.2.3. Identification of learning questions and development of learning questions action plan

To ensure a broad and beneficial learning agenda, each ToC outcome will have only one to three learning questions associated with it. Each set of learning questions must have an associated action plan clearly stating the metrics that will be used to measure the different dimensions of the learning questions, the data collection mechanisms, the timing of data collection, and responsible parties. The Learning Question Action Plan should become an integral part of the subsequent year's MEL Annual Plan.

## 4.3. Documentation and format for lessons learned

The lessons learned will be collected and documented in the annual donor technical report. In this section is project staff is requested to reflect on how the project has engaged and strengthened national/institutional capacity in collecting, protecting, and preparing CWR. Also, summarize significant lessons learned, stating how these lessons could/will be used to improve project performance in the future.

## 4.4. Storage and Dissemination of Research-based Lessons Learned

Upon submission of the donor technical report with the "lessons learned" section completed, the MEL Officer will retrieve this section and upload it as a separated document onto the MEL Platform.

*Table 2: Knowledge products dissemination audiences and methods*

| Audience | Dissemination methods |
|---|---|
| **Internal**<br>• ICARDA staff<br>• Project staff and consultants | • MEL Platform<br>• Internal meeting |
| **External**<br>• Crop Trust & NORAD | • Technical reports can be found on the MEL Platform |

# 5. MEL Support Supervision

A MEL support supervision (MSS) was not considered during this project given that the presented M&E plan was developed towards the end of the project. The MEL support supervision (MSS) is supposed be conducted to continuously appraise the project-level MEL system, and the data collected and used for routine reporting. The general objective for the MSS section in the MEL plan is to guide MEL system and data quality checks at the project-level.

The specific objectives of MSS would be to:

1) Guide initial assessment of MEL systems established in partnership with the project manager for the collection, management and reporting of MEL data.
2) Periodically assess ICARDA's reporting systems and routine reporting data, to identify strengths and weaknesses so corrective action can be taken.

Supposedly, the first cycle of MSS should be completed within six months of project initiation and subsequent cycles conducted at least once every year. The general approach is explained in section 5.1, MSS of the data collection systems and the data collected are presented in sections 5.2 and 5.3 respectively. The list of the deliverables from an MSS is contained in section 5.4 and guidance on sharing MSS results is provided in section 5.5.

## 5.1. MSS approach

Each time MSS is conducted, an appreciative and supportive inquiry approach will be applied. After introducing the purpose of the MSS to the project staff at project, the assessment team shall discuss each evaluation criterion and create an understanding of the importance/scores attached to each criterion. Staff will be given ample opportunity to discuss the relevance, purpose and outcomes of each of the assessment criterion so as to ensure maximum benefit from the exercise. The following steps should be followed in the implementation of MSS.

1. Identification of the MSS team: The Institutional MEL leader will identify the team to conduct MSS at the project head office.
2. Developing a schedule for the MSS as a team: Whereas a tentative schedule may have been developed by the MSS leader, the schedule will be revisited and/or adopted collectively.
3. Identifying the MEL system components and/or indicators to be included in the MSS.
4. Selecting and refining the MSS templates.
5. Conducting MSS visits.
6. Preparing, presenting & sharing the MSS report and creation of an action plan.
7. Follow up on the implementation of the MSS recommendations.

## 5.2. MEL system assessment

Qualitative measures should be developed for each of the dimension set out below and an Excel spreadsheet template developed for use in the MEL system/ data management and reporting systems at different levels. The dimensions marked with an asterisk (*) are only applicable to project-level MEL system assessment.

### 5.2.1. MEL Governance/Leadership:

a) The project MEL function is led by a skilled and experienced MEL Officer*;
b) There is a clear linkage between the MEL plan and the MEL Platform, for recording MEL data*;
c) These is sufficient structural MEL oversight and process supervision to minimize errors such as data measurement, recording, transcription, and transmission.

### 5.2.2. MEL Plan*

a) All indicators are clearly linked to the objectives and/or outcomes and resultant outputs of the project;
b) All indicators have documented definitions (including numerators and denominators, when applicable);
c) All indicators have clearly defined disaggregation levels;
d) Indicators are linked to the ICARDA CRP indicators, where appropriate;
e) Each indicator has target value, and where appropriate milestone values that demonstrate a clear progression of results.
f) Technically sound data sources are identified for all indicators;
g) The frequency of data collection is stated for all indicators;
h) The frequency of data collection is feasible for all indicators (i.e., it will be possible to collect the data at the stated frequency);
i) Baseline values are available for all higher-level (outcome and impact) indicators (with clearly stated date of data collection, source, and method of analysis).
j) The same data sources will be used to measure indicators throughout the lifetime of the project(s) (i.e., identical measurement methodology for baseline and follow-up);
k) There is a clear linkage between the MEL plan and MEL Platform, for recording MEL data;
l) The project makes data easily accessible to Project Managers, Country Program Management and HQ staff through routine/timely entry into MEL Platform and any other relevant database;
m) The MEL Plan clearly demonstrates the avenues for critical reflection, lesson learning, project review and adaptation;
n) The MEL plan contains Annexes or web links to appropriate forms and templates for use in MEL and project management processes.

### 5.2.3. Standard Operating Procedures:

a) The project staff maintains updated indicators matrix (results tracking) table;
b) If outcome and output-level indicators do not have baseline values, there are plans to collect data for baseline values will be available during the first 12 months of the project*;
c) Data collection tools have all the required variables for indicator computation;
d) Data collection tools have clear instructions;
e) Data dissemination plans are developed and implemented (e.g., summary reports, newsletters, graphs, and maps);
f) The project's conformity to or deviation from the open access policy regarding the various project deliverables is documented and rationale provided for the later;
g) There are documented measures for ensuring the confidentiality of sensitive data and anonymity of evaluation respondents;
h) There are manuals or templates for electronic data analysis;
i) Data quality checks procedures: Routine data verification arrangements and checklists;

j) There are mechanism to address late, incomplete, inaccurate and missing data either through feedback or the use of carrot-and-stick measures to ensure compliance;
k) Procedures and avenues for data dissemination are in place.

### 5.2.4. MEL Plan of Work and Budget:

a) A MEL calendar/timeline is drafted as a part of this document
b) There is a designated MEL budget for all MEL activities, including but not limited to: Review MSS, support PM, collect/review baseline/achieve values, draft the MEL plan and virtual sharing meetings.
c) The share of MEL budget in total budget is computed and shared/discussed with management making clear reference to the institutionally mandated share and unfunded activities, if any;
d) The Project Manager is the controller of the MEL budget, and as such there is no risk of re-allocating the MEL budget without their knowledge/approval;
e) The procedures required to obtain money from the MEL budget are not bureaucratic and funds can be availed within reasonable time to ensure timely implementation of MEL activities.

### 5.2.5. Human Capacity for MEL

a) MEL capacity assessment is conducted regularly or at least once within 3 months of project inception or duration of work for new hires with significant MEL responsibilities, in areas related to:
   i. Understanding the MEL plan, indicator definitions, and mechanisms for data collection
   ii. Proficient in the use of the designated data collection tools and devices;
   iii. Data disaggregation/aggregation and computation of summary statistics;
   iv. Ability to query inconsistencies in reported numbers and take corrective action
b) There is a clear plan for MEL capacity building; i.e Clear mechanisms for operational training, mentoring and support supervision*.

### 5.2.6. MEL Information systems and knowledge Management

a) There is culture for routine recording of deliverables in the MEL Platform against project outputs as defined in the project work plan, and timely reporting of outcome values in the MEL Platform;
b) Project deliverables are uploaded to the MEL Platform with appropriate accessibility regimes (licenses);
c) There are no fragmented databases running in parallel that require duplication of effort in recording data in the databases;
d) MEL data management workflow are in place and functioning efficiently;
e) There is proper data storage and management system comprising of virtual storage space and manual filing system of paper-based data collection forms, summary tables, and reports. The manual records are serialized and safely stored;
f) There are appropriate data visualization dashboards developed either offline or online for purposes of increasing the understanding and use of project data.

## 5.3. Data Verification/Validation of Data

This will be done by tracing and verifying (recounting) data collected and used for reporting indicator results. This will help determine if the data was correctly recorded at the primary source and if there were no transcription and transmission errors.
The following steps would be followed in the implementation of the data verification/validation component of MSS.

a) Cross-check the data submitted/reported in the quarterly, semi-annual or annual reports and identify indicators that are:
   i. Key for overall project reporting,
   ii. Are problematic in measurement and reporting,
   iii. Have not been the subject of MSS before, or
   iv. Whose reported figures seem not to conform to expectations;
b) Ascertain whether the recorded output at the primary data source matches the indicator definition;
c) Check availability and review completeness of all indicator source documents/data collection forms and summary forms at all the data aggregation levels:
   i. Are some source documents missing? If Yes, determine how this might have affected reported numbers;
   ii. Are all available source documents complete? If no, determine how this might have affected reported numbers;
   iii. Review the dates on the source documents. Do all dates lie within the reporting period? If no, determine how this might have affected reported numbers;
d) Recount results from the source documents, compare the verified numbers to the reported numbers;
e) Conduct random verification of the records.
f) Calculate the ratio/percent of the verified numbers to reported numbers, and determine the level of discrepancies (if any);
g) Seek additional information regarding any discrepancies encountered;
h) Document the observed discrepancies (if any) and the reasons provided; and
i) Collegially discuss solutions to the discrepancies.

## 5.4. Deliverables

1. Completed MSS templates (to be developed based on the on dimensions stated in sections 5.2 and 5.3);
2. MSS report (https://hdl.handle.net/20.500.11766/12454 ).

## 5.5. Sharing MSS results

Upon completion of each assessment, a formal report of the results would be developed and shared. The report would be discussed in a formal meeting convened specifically for that purpose. An action plan to address the identified issues would then be developed and used as the basis for follow up to check on improvements.

# 6. Annual Project Review & Planning

The annual project review is envisioned to build a common understanding of performance of the project, create shared ownership for the achieved results, set the stage for entrenching corrective measures in sub-sequent project implementation cycles. Given that the presented M&E plan was developed towards the end of the project, this section serves as a reference for future projects.

For project review, the project team should annually conduct a reflective and evaluative project review meeting. A sample meeting agenda is presented in Annex 6.
The specific objectives of the project review meeting would be to:

1. Systematically review results, identify success stories, lessons learned and learn from the implementation process and results thereof.
2. Generate and share inputs (including lessons learned) that inform the planning for the subsequent project implementation cycle and for donor reporting.
3. Enhance team building, partners' and team ownership of strategies, implementation plans and results.

## 6.1. Planning for the Project Review & Planning Meeting

The annual project review meeting will be a key calendar event for the project team. The Project team plans to follow the arrangements and timelines set out in table xxx and table xxx, when planning for the annual project review workshop.
Table xxx: Implementation plan for the Annual Project Review Meeting

| Issues | Plan |
|---|---|
| **Timing of the Workshop** | At least one month before the scheduled annual donor report due date |
| **Duration** | 1 day |
| **Workshop facilitators** | Project Staff |
| **Participants** | • Project staff<br>• Selected ICARDA staff |

## 6.2. Reflection on progress results

Reflection on the results achieved by the project will be done by presenting progress results and reflecting on results with negative variance.

### 6.2.1. Progress results presentation

The following are the guiding principles for all presentations:

a) Start the presentation by celebrating team achievements. This is crucial to cultivate a positive team spirit.
b) The presentation should, as much as possible, relate to the project result areas, activities and targets.

Table xxx provides guidance on the presentation themes, content, presenters, and the required resources for the presentations.

**Table 3. Guidance on progress results presentations**

| Theme | Presenter | Content | Key resources |
|---|---|---|---|

| | | | |
|---|---|---|---|
| **The bigger picture- Setting the stage** | Country Director | - Highlight key sector and program trends;<br>- Strategic developments and frameworks | - Relevant and up-to-date national and international statistics and policy proclamations;<br>- ICARDA Strategy;<br>- Wheat CRP proposal and progress reports;<br>- Wheat, ICARDA, Flagship, Cluster and country program PoWBs;<br>- ICARDA policy announcements; |
| **Implementation progress and results** | Project leader | - Progress against PoWB and allocated output indicator targets<br>- Breakdown of funds allocation to deliverables in PoWB, including re-allocations made<br>- Consolidated status of project output and outcome indicators based on yearly progress data, highlighting the actual achievement per planned result area and pitfalls<br>- Lessons learned | - Project implementation records<br>- PoWB for the year-ending<br>- Implementation reports, evaluation reports, data from the MEL Platform<br>- Current and Previous year's lessons learned reports |
| **Finance report** | Finance and Procurement Officers | - Expenditure by project components and partner; the Finance Officer points out the variances from plan<br>- Unit cost of deliverables across the project implementation areas and implications thereof<br>- Financial compliance issues and highlight of project or related audit issues<br>- Regulatory developments that require budgetary changes | - Project budget<br>- Project-level and partner-level PoWBs<br>- Audit reports and correspondences<br>- National regulations, tax reforms etc. |

### 6.2.2. Reflection on results session

The project staff reflects on result areas that had negative variance as listed by the M&E Officer in the plenary presentation and works to answer the following questions:

a) What could we have done differently to achieve the planned targets? (Reflect on the planned processes, strategies, activities, partners, resources, etc.)
b) What are the key learning points from this under achievement and the reasons we have put forward?
c) Among the strategies, partners etc., what do we recommend to;
    i. Carry forward,
    ii. Drop/discontinue or,
    iii. Modify and continue, in the coming project implementation cycle (year).

The groups present their findings in 15 minutes and follow-up 10 minutes for questions and clarifications and a rapporteur takes notes.

## 6.3. Theory of Change review

Refer to sections 4.2.1, 4.2.2, and 4.2.3.

## 6.4. Action planning/ Plan for the next year

The project staff creates a PoWB for the upcoming project year/implementation cycle. In doing so they consider the output-level indicator targets that were allocated to them, the strategies that worked well in the just-ended year/project implementation cycle, the lessons learned, ToC modifications, and the key carry forwards, drop and modify items listed by the rapporteur of the group feedback session (section 6.2.2). The project staff accordingly label the strategies and actions for the upcoming year (i.e by rationale).

## 6.5. Deliverables

1. Meeting report
2. PoWB for the upcoming project implementation period (draft)
3. Lessons learned reports (drafts) for lessons generated from the meeting

# 7. Reporting

This section describes different types of reports that the project requires to produce at different time intervals for both internal and external results communication and accountability purposes. Section 7.1 addresses internal reporting requirements while section 7.2 addresses external (donor) reporting requirements.

## 7.1. Internal reporting

As previously discussed, the presented M&E plan was developed at the end of the project. For future reference, the internal reporting process would include:

1) **Yearly field team reporting on the status of planned tasks:** The M&E Officer will attend and take notes or minutes of the meeting and shall achieve these in an appropriate repository. The M&E Officer will ensure to probe deviations from the plan of work and provide timely advice to the Project Manager and field team on appropriate remedies and shall use the meetings as a platform to gather and record lessons learned from the operational processes. In addition, the M&E Officer will ensure that appropriate follow-up is made with the respective field/project team members to record reported deliverables in the MEL Platform.
2) **Yearly documentation of progress:** This will be achieved through detailed progress reports complemented with recording of output-level indicator values in the MEL Platform. The report will summarize all project activities, physical and financial progress over the previous three months showing targets and achievements, highlighting significant key issues and challenges identified, lessons learned and recommended solutions to overcome the challenges.
   The indicator values on the status of output-level results will be recorded in MEL following the pre-recorded indicators definitions as laid out in section 3.1.

## 7.2. Reporting to Crop Trust

**1)** **Annual Reports:** ICARDA shall submit technical and financial reports to the Crop Trust regarding the expenditure of the Project Funds and progress in achieving the outputs and outcomes for which the funding has been made, according to the Reporting Schedule set in the project agreement and following the reporting format provided by the Crop Trust.
   In order for the technical report to be deemed satisfactory, ICARDA must demonstrate achievement or meaningful progress towards the project outputs as set out in the project proposal. ICARDA will submit other reports at other times as the Crop Trust may reasonably request. Reports submitted to the Crop Trust can be shared with NORAD.
2) **Project Final Report:** At the end of the project a project completion report of the format provided by Crop Trust will be submitted to Crop Trust.

The completed donor reports will be uploaded to the MEL Platform under the 'Donor Reports' section.

## 7.3. Special cross-cutting reports

Special reports appropriate for both internal and external reporting and communication will also be generated by the project. These may be a result of a deliberately and systematically recorded case study/success story, or learning agenda implementation.

## 8. MEL Budget

| M&E Activity | Period | Description of cost | |
|---|---|---|---|
| M&E plan development | Year 4 | Professional time: Project Manager | |
| | | Professional time: MEL Leader | |
| | | Professional time: MEL Specialist | |
| | | Professional time: Research Fellow | |
| Collect, review baseline and target values. | Year 4 | Professional time: Project Manager | |
| | | Professional time: Research Fellow | |
| Virtual sharing meetings | Year 4 | Professional time: Project Manager | |
| | | Professional time: MEL Leader | |
| | | Professional time: Research Fellow | |
| Review MSS | NA | | |
| Annual Project Review | NA | | |