

# Mid-term Evaluation of Addressing Climate Change Risks on Water Resources and Food Security in the Dry Zone of Myanmar

Project ID: MMR/MIE/Rural/2011/1 Adaptation Fund/UNDP, PIMS # 4703

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## EXECUTIVE SUMMARY

### Mid-term Evaluation of Addressing Climate Change Risks on Water Resources and Food Security in the Dry Zone of Myanmar

<b>Atlas Award ID:</b>	00079682	<b>AF funds</b>	US\$ 7,289,425
<b>Project ID:</b>	00089618		
<b>Start date:</b>	Original April 2014 (revised Feb 2015)	<b>Co-finance:</b>	
		<b>UNDP</b>	US\$ 624,998
<b>End Date</b>	Original Sept 2018 (revised Feb 2019)	<b>Government of Myanmar</b>	US\$ 554,181 (in-kind)
<b>Management Arrangements</b>	UNDP DIM		
<b>PAC Meeting Date</b>	Apr 30, 2014		

The Mid-Term Evaluation was undertaken in December 2017 in accordance with terms of reference specified by the Adaptation Fund and UNDP. The MTE team interviewed 107 individuals in government, UNDP, Implementing Partners and communities who have been directly involved in the project, had 6 village meetings (over 300 local people attended MTE village meetings), and visited 14 project sites to consult with local beneficiaries, residents and officials. The team also visited several other government tree plantations and community water systems to observe comparable practices.

The project has completed an impressive range of small-scale climate change adaptation activities related to water supply, watershed management, community forestry, natural forest conservation, soil and water conservation, agroforestry, agriculture, livestock, disaster risk reduction, weather forecasting and early warning systems. There remain issues of (i) trade-offs in quality to meet project targets, (ii) spread of the demonstrated innovations, (iii) capacity to sustain the demonstrated activities/rehabilitated infrastructure and to utilize improved climate risk information and tools, and (iv) some communication challenges with government.

The project strategy aims for integrated adaptation measures in various sectors in five townships in the Sagaing, Mandalay and Magway Regions of Myanmar. The scale and variety of outputs in 280 villages are extraordinary but this diversity and the dispersed locations also diminishes the overall focus and clarity of a climate change adaptation strategy for the Dry Zone.

The water supply work, to date - 75 ponds and 45 canals including renovation of the major Shwebo canal system, have been important contributions to community needs, although many of the pond renovations may not be sufficient to extend water availability into the dry season (Feb-June). The forest protection and plantation have been effective at mobilizing community participation although the survival rate of

seedlings has been a key concern. Difficulty acquiring land and budget constraints relative to targets limits the resources available for better quality planting and for follow-up management (weeding, patching, tree guarding). Some consolidation of the tree planting activities and sites, especially around community water supplies, and strategic division of labour between IPs, would help to generate more effective and efficient results from the tree planting combined with soil and water conservation.

The agricultural activities including drought-tolerant crop varieties, inter-cropping and other farming methods, thresher equipment, improved seed storage and multiplication have provided clear benefits to the participating farmers. Dissemination and replication and sustainability of equipment, facilities and groups will be key concerns in the remainder of the project. The livestock distribution and development component has also been very successful. There remain some risks in the capacity of Livestock Farmer Groups to control diseases and to effectively manage the loan payback system.

The climate risk analysis and mapping, the improved weather forecasting through SESAME and Agro-advisories, and the new Disaster Alert Notification tool have been important contributions. They have benefited from strong support from DMH and RIMES. But so far, only some of the government staff and few farmers consulted during the MTE interviews were aware of the technologies.

The project has been in constant adaptive management mode due to surprises over lengthy government approval processes, the need to synchronize inputs of many organisations in government and Implementing Partners, lack of available land, physical conditions of the Dry Zone environment (water scarcity, distant markets, etc.), and limited budgets to address them. Given the particular circumstances of the project – many different activities across many locations and difficulties in collaboration with some parts of government, management of the project has been generally effective. There have been technical deficiencies in some of the forestry and water activities but these are primarily due to low budgets and unrealistic targets in the project design.

<b>Rec #</b>	<b>Recommendations</b>	<b>Responsibility</b>
1	More flexibility should be permitted to adjust locations, targets and methods for afforestation, agroforestry, soil and water conservation and pond renovation where appropriate to achieve specific objectives at project sites and ensure cost-effective, sustainable investments, even if overall project output targets need to be reduced.	Project Steering Committee
2	New plantation should be limited only to lands that are available and secured by February 28, 2018, and no significant tree planting should be undertaken outside of the monsoon season. If land and other inputs are not available in advance of the planting period to allow for adequate plantation preparations, the planting proposals should be abandoned.	Project Steering Committee

3	The project should develop a back-up plan in case the lands for afforestation, agroforestry and enhanced pond rehabilitation are not available by February 28, 2018. In the absence of new plantations, savings could be redirected to patching and other measures that will increase productivity of the 2016 and 2017 plantations, and additional measures to improve catchment area water inputs for the pond renovation projects, or other water supply enhancements.	Project Office
4	The project should review the pond restoration projects completed to date to identify lessons from the current 75 projects that can improve results for the next phase of projects, and where feasible, to expand the approach from community ponds to rehabilitation of community water supply catchment areas.	Project Office and IP
5	Where opportunities exist, the project should concentrate afforestation, agroforestry, soil and water conservation and related micro-watershed rehabilitation activities in common areas, preferably in conjunction with community pond rehabilitation, to provide examples of the combined effects of these climate change adaptation measures on a landscape and community.	Project Office and IPs
6	The project should prepare and apply a <i>quality assurance checklist</i> for tree planting activities that will guide plantation implementation and management standards, and facilitate performance assessment during regular inspections by project staff and Dry Zone Greening Departments and Forest Departments.	Project Office, IPs, DZGD, DOF
7	The project should combine the tree plantation, forest conservation, agroforestry, homestead and other tree planting activities into one workplan to improve coordination and delivery efficiency, and harmonize or consolidate the contracts of the two IPs accordingly.	Project Office and IPs
8	The project should review and refine the agro-forestry strategy to focus on larger sites to model and showcase demonstrations of introducing trees into cropping and inter-cropping systems and alternatively introducing cover crops into existing tree farms.	Project Office and IPs
9	The project should appoint a qualified consultant to review and advise Shwebo and Khin Oo Townships on (i) operating rules and responsibilities, (ii) maintenance procedures and schedule, (iii) a multi-year maintenance budget and (iv) any other O&M requirements needed for sustainability of the renovated Kin Tat canal, control gates and Kantawmin escape gate. The results of this review should be part of the formal hand-over to the Sagaing regional government.	Project Office and IP and IWUMD
10	The project should prepare and implement a dissemination plan for the main agronomic innovations that have proven effective in the demonstration plots under Output 2.1, with the aim of expanding the uptake of these new methods to the majority of active farmers in each project village where the innovations have been successful at a demonstration scale.	Project Office and IP
11	The TAG should be requested to further review the implications of the risk assessments and hazard maps produced under Outcome 3, and to facilitate	Project Office, IP (RIMES) and

	communications with the local and regional authorities on community-based disaster risk management.	Township GADs
12	The project should provide concise quarterly progress summaries for distribution directly to Regional Directors and Township General Administration Departments to enhance communications.	Project Office
13	The project should strengthen the monitoring database by compiling and collating key information from field visits and surveys on the status of and results from physical assets created by the project.	Project Office

**MTE Ratings & Achievement Summary Table**

Measure	MTR Rating	Achievement Description
<b>Project Strategy</b>	N/A	
<b>Progress Towards Results</b>	Objective Achievement Rating: <b>Satisfactory</b>	Significant output progress has occurred in the last two years given the slow start, with some issues on quality of some outputs, and budgets that are generally spread too thin across many sectors and communities. <b>Achieved some targets; On- target to achieve others. Tree plantation needs realistic budgets and targets and better quality.</b>
	Outcome 1 Achievement Rating: <b>Moderately Satisfactory</b>	<p>Outcome 1 seeks “<i>continuous freshwater availability is ensured during the dry seasons in 280 villages in the Dry Zone</i>”, but the increases in water holding capacity of the ponds are relatively small due to budgets and the measures to enhance water yield through watershed soil and water conservation are very limited. Even with the modest renovation (excavation) assistance from the project, many of the ponds do not have enough water to last to or into the dry period (Feb-June).</p> <p>Output 1.2 focuses on watershed management through community-based afforestation, reforestation and regeneration practices, but the budgets for tree planting are much lower than government norms and this affects quality of the plantation; targets are too high or budgets are too low and therefore adjustments need to be made.</p> <p><b>MODERATELY SATISFACTORY. On-target to be achieved in terms of increased water availability and number of ponds renovated; so far little increase in water supply during the dry season.</b></p>
	Outcome 2 Achievement Rating: <b>Satisfactory</b>	<p>The agricultural and livestock adaptation activities are being effectively implemented and should have an important impact on increasing climate resilience for marginal farming households. Replication and sustainability are concerns.</p> <p><b>SATISFACTORY; on-target to be achieved</b></p>

	<p>Outcome 3 Achievement Rating: <b>Satisfactory</b></p>	<p>The climate risk assessment, mapping and information technologies development are developing the initial framework for improved weather forecasting, agro-advisories and disaster notification/management. Progress is good but further alignment with township authorities is needed.</p> <p><b>SATISFACTORY; on-target to be achieved.</b></p>
<p><b>Project Implementation &amp; Adaptive Management</b></p>	<p><b>Satisfactory</b></p>	<p>Given the scope and complexities of the project design and the slow start-up and long inception due to lack of experience in working with the government procedures along with unrealistic budgets and high targets, the implementation has been satisfactory despite low quality in some of the outputs and the need to re-set many of the project targets associated with the ambitious project design. Active management has been required and provided on the part of all parties.</p>
<p><b>Sustainability</b></p>	<p><b>Moderately Likely</b></p>	<p>Some of the agricultural and livestock activities have high likelihood of being sustained due to improved yields and incomes from the new practices. But ensuring community and government capacity to manage new assets (e.g. seed storage, livestock lending, water structures) will be a key to long term sustainability.</p>

## Acknowledgements

The MTE consultants are grateful to the project team for taking the time to organize our field mission and to provide information and presentations about the project. We also want to express our appreciation to the many government staff and officials and to the local participants in project activities who kindly provided their inputs in response to our questions. Special thanks to our driver, Ko Ye, for our safe travels.

### List of Abbreviations

AF	Adaptation Fund
ALM	Adaptation Learning Mechanism
ATLAS	UN project information management system
AWD	alternate wet/dry' Water Saving Technology for rice farming
CBDRM	Community based disaster risk management
CBO	Community-based organisation
CDAc	Community Development Action
Cesvi	Cesvi Foundation (Onlus)
GAD	General Administration Departments
DAN	Disaster Alert Notification
DMH	Department of Meteorology and Hydrology
DoA	Department of Agriculture
DOAR	Department of Agriculture Research
DRD	Department of Rural Development
DZDG	Dry Zone Greening Department
ECD	Environmental Conservation Department
FD	Forest Department
GEF	Global Environment Facility
INGO	International non-governmental organisation
IWUMD	Irrigation and Water Utilization Management Department
LBVD	Livestock Breeding and Veterinary Department
LNGO	Local non-governmental organisation
LIFT	Livelihoods and Food Security Trust Fund
M&E	Monitoring and evaluation
MTE	Mid Term Evaluation
NGO	Non-governmental organisation
PPR	Project Performance Report
PSC	Project Steering Committee
RIMES	Regional Integrated Multi-Hazard Early Warning System
RRD	Relief and Resettlement Department
TAG	Technical Advisory Group
UNDP	United Nations Development Programme
UNOPS	UN Office of Project Services

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# 1. INTRODUCTION

## 1.1 Purpose

*Addressing Climate Change Risks on Water Resources and Food Security in the Dry Zone of Myanmar* is an Adaptation Fund project that aims to reduce the increasing impacts of climate change on agricultural and livestock production cycles in the dry zone of Myanmar. The climate change impacts include the increasing temperature and evaporation, declining water availability, and intensifying weather events, especially flash floods and cyclones.

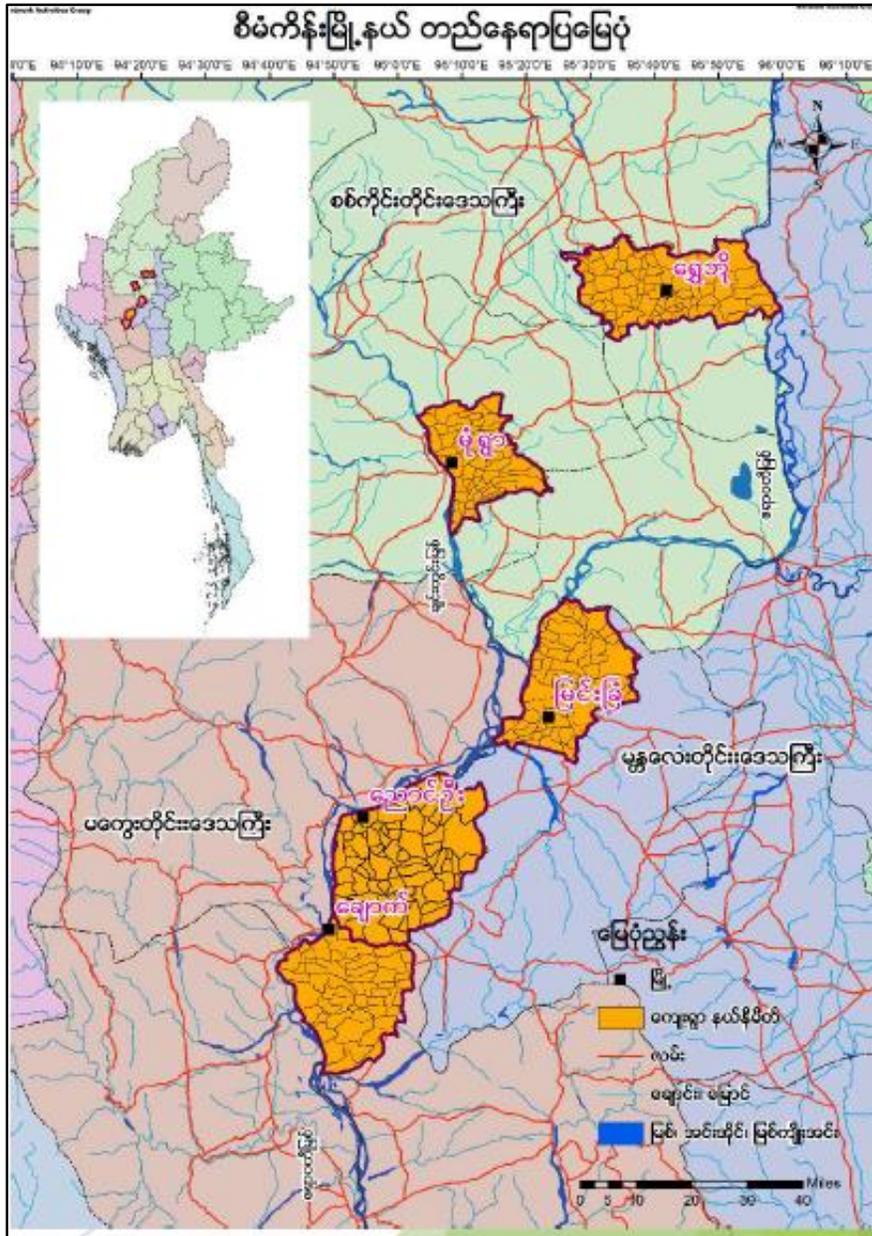
The project has been operating in five townships in the Sagaing, Mandalay and Magway Regions – Shwebo and Moneywa townships in the Sagaing region, Myingyan and Nyaung Oo townships in the Mandalay Region, and Chauk Township in the Magway Region (**Figure 1**). The project target sites consist of approximately 50,000 households from 280 villages with a high percentage of landless households and marginal/small farmers.

The Mid Term Evaluation (MTE) is an independent review, prepared in accordance with Adaptation Fund and UNDP guidelines, of the progress made in achieving expected project outcomes; the relevance, effectiveness, efficiency and timeliness of project implementation; the issues requiring decisions and actions; and the lessons learned about project design, implementation and management. The evaluation provides recommendations to guide the second half of the project implementation.

## 1.2 Scope of work and methodology

The evaluation began by having the project team prepare a summary of achievements to date (**Annex 1**). The Terms of Reference (**Annex 2**) outline the scope of the Mid Term Evaluation. The evaluation was guided by a customized Evaluation Matrix (**Annex 3**) based on the criteria set out in the Terms of Reference. The evaluation questions, indicators, data sources and methods of analysis for each of the key evaluation questions are summarized in the matrix.

The MTE is a balanced, evidence-based review of the project activities, outputs and performance to date, drawing upon review of available reports and compiling quantitative and qualitative information through interviews, group discussions and site visits. The evaluation process principally focused on the project's Logical Framework and Results Framework as a yardstick in assessing progress related to the approved project Indicators.



**Figure 1 – Project townships locations**

The evaluation was undertaken in accordance with UNDP and GEF principles and guidelines. These emphasize an independent, objective, evidence-based and participatory process for mid-course review and, where necessary, adjustment of the project strategy and operations. The MTE complies with the *GEF and UNDP Monitoring and Evaluation Policy*, and *UNDP Evaluation Guidance for GEF-Financed Projects* (2011). A collaborative and consensus-based approach involving self-assessment by project staff and participants was used in the MTE. Along with the Evaluation Matrix, an Interview Guide (**Annex 4**) was used as a general guide for the MTE consultants along with a Results Data Checklist to provide a quick reminder during interviews and site visits.

The MTE methodology was based on

- (a) Review of documents, reports and monitoring information that describe progress on project outputs, outcomes and objectives as per indicators in the project design,
- (b) Self-assessment of project achievements by project staff,
- (c) Interviews with project participants and stakeholders to verify achievements and to identify issues related to project design and implementation,
- (d) Where feasible, group discussions to review project experiences and lessons learned,
- (e) Field observations at selected project sites and
- (f) Triangulation and corroboration of comments by project participants regarding project results, implementation and lessons.

The general sequence of evaluation tasks contained the following steps:

- Project management identify the key issues affecting project implementation to date
- Evaluation itinerary designed to provide a representative set of interviews and site visits
- Evaluation Criteria (key questions) and data collection instruments and formats developed (matrix)
- Interview guide that will facilitate discussions related to the evaluation criteria
- Data compiled by project on outputs generated to date under each Outcome
- Interviews with project stakeholders
- Site visits to interview beneficiaries and observe performance of field interventions
- Triangulation and cross-checking of reported results
- Counter-factual information where available (results at nearby sites in the absence of the project) compiled to the extent possible within the mission
- Rating of project performance in relation to the Evaluation Criteria and UNDP rating scale
- Preparation of preliminary observations debriefing note at the end of the field mission
- Preparation and finalization of the mid-term evaluation report

The field mission took place Dec 3 – 20, 2017. (See Itinerary in **Annex 5**.) The project team, the implementing partners, key participating organisations, and project beneficiaries were interviewed. Site visits to the target communities were strategically selected to provide a representative, though limited, sample of the project interventions within the available time and logistics. The interview and site visit notes along with project progress and other reports were then used to analyze responses to the evaluation questions.

### 1.3 Key issues for the evaluation

In addition to the scope of work outlined in the Terms of Reference, the initial review of the design, monitoring and other information identified several key issues which helped to focus the evaluation. These issues have been drawn from various project progress reporting documents and initial discussions with UNDP.

- (a) **Delays in the project schedule** – Six month delay at start up, time required to secure land for forestry and watershed rehabilitation, and long delays in recruitment of staff and timing of field activities are the main reasons for an overall delay of many months in the schedule (estimated at 10-11 mths in the PPR).
- (b) **Government ownership and adoption of adaptation strategies** – Extent of commitment of participating agencies and integration with government systems to encourage capacity building and acceptance of proven adaptation methods. Support from agencies in the implementation of project activities and management participation.
- (c) **Low involvement of women in project activities** – The reasons for limited engagement of women in the project need to be examined and strategies to enhance participation considered.
- (d) **Comparative performance and impacts of adaptation measures** – Are certain project interventions more successful or cost-effective than others and therefore worthy of scaling-up? Do some combinations of interventions lead to higher levels of climate change resilience?
- (e) **Uptake of adaptation by marginal, subsistence farmers** – The shift to alternative farming systems, small scale irrigation, livestock husbandry, etc., can be difficult for marginal and landless farmers, often having the highest levels of vulnerability and the least resources, and high population out-migration that limits farm labour availability. The capacity of certain beneficiaries to adopt adaptation practices may be a key issue.
- (f) **Quality and reliability of implementing partners** – The effectiveness of the project delivery partners and the quality of outputs and results data from a large numbers of sites and implementing partners is an important aspect of the mid-term evaluation.
- (g) **Sustainability and exit strategy** – The potential to maintain the adaptation practices after the project (e.g. functional water user groups, post-harvest technologies) will depend upon the capacity and mechanisms that drive sustainability. The extent to which project results can be self-sustaining is a key question.

## **2. PROJECT CONTEXT**

### **2.1 Background to the project**

Drought and water scarcity are the dominant climate-related hazards in Myanmar's Dry Zone. The Dry Zone has turned into the most food insecure region in the country. Irregular dry spells and drought have resulted in recurring extreme water shortages which in turn constitute a constant threat to the livelihoods of the rural poor.

This is one of the most climate sensitive and natural resource poor regions in Myanmar. It is situated in the rain shadow area of the Yakhaing Yoma and obtains most of its rainfall from the southwest monsoon. The Dry Zone covers about 13% of Myanmar's land area but is home to nearly one-third of its population of over 50 million. Across the Dry Zone, water is scarce, vegetation cover is thin, and soil is degraded due to severe erosion. The region is characterized by low annual rainfall that ranges between 508 and 1,016 mm per annum with high variability and uneven distribution. The monsoon rain is bimodal with a dry period during July when dry desiccating winds blow from the south. In addition to a trend of shorter monsoon periods, the duration of rainfall events is decreasing while rainfall intensity in the Dry Zone has been recorded to increase. These trends of shorter, more intensive cloudbursts increase risks of flooding and farmland erosion.

The undulating land, composed mainly of sandy loam with low fertility, is subjected to severe erosion under rain and strong winds. The average mean temperature in the Dry Zone is about 27° C and the temperature often rises to about 43° C in the summer period. This dry environment with its other natural limiting factors has led to conditions of growing food insecurity and severe environmental degradation.

The present population in the Dry Zone is estimated at 18 million people. It constitutes 34% of the country's total population of about 53 million. The population density is 123 people per square kilometer, making it the third most densely populated region in Myanmar. The majority of the population are marginal/small farmers and landless people.

The project concept was approved in 2011 and a full project designed in 2012-2013, and endorsed by the government and UNDP/GEF in February 2014. The project agreement was signed between UNDP and Adaptation Fund on August 6, 2014. However, actual implementation started only in 2015. This was due to time taken in mobilizing the project, as well as delays in recruitment of key project personnel. The project was officially launched on 17 February 2015 and an Inception Workshop was held on 26 August 2015. Consultations with local people to identify priorities for the selected villages took place in September 2015. The project is planned for closure on 28 February 2019.

## **2.2 Problems to be addressed**

The 'climate change-induced problem' as defined in the Project Document, centers on the impacts of increasing temperature and evaporation, declining water availability, and intensifying weather events especially flash floods and cyclones. The underlying causes behind the problems are listed as:

- Inherent physical vulnerability of Myanmar's Dry Zone including low rainfall, shallow and poor soils and sparse natural vegetation, high temperatures during the dry season;
- Anthropogenic pressure on fragile ecosystems due to high population density and poverty levels placing pressure on natural resources;
- Widespread mono-crop practices in the Dry Zone, with a focus on peas, beans, maize, sesame and groundnuts;
- Poorly managed livestock rearing practices undermining ecosystems; fragile ecosystems rendering livestock rearing a high risk activity.

The key barriers to achieving climate change resilience were also noted in the Project Document:

- a) Insufficient diffusion of climate-resilient irrigation and water management measures and practices;
- b) Insufficient knowledge of, and access to, climate-resilient crop and livestock rearing practices;
- c) Access to relevant climate information that enables Dry Zone farmers to prepare for climate change and reap benefits from adaptation measures.

## **2.3 Project description and strategy**

By the end of the four-year period, the project aims to (a) ensure continuous freshwater resource during the dry seasons in 280 villages in the Dry Zone, (b) promote and enhance climate-resilient agricultural and livestock practices and (c) ensure timely and quality dissemination of climate risk information through use of short-term weather forecasts, medium-term seasonal forecasts, and longer-term climate scenario planning.

The project is focussed on delivering the following key outputs to build community resilience to climate change:

1. Enhancing water capture and storage capacities in 280 villages to augment irrigation and domestic water supply during the dry periods
2. Protecting and rehabilitating 6,141 hectares of micro-watersheds through Farmer-Managed Natural Regeneration (FMNR) to increase natural water retention and reduce erosion
3. Establishing 3,983 hectares of community-based agro-forestry plots in private and communal lands to conserve soil and water
4. Introducing drought-resilient farming methods
5. Introducing resilient post-harvest processing and storage systems
6. Introducing diversified livestock production systems targeting landless households

7. Develop climate hazard maps and risk scenarios in each township to support community-based climate risk management and preparedness planning
8. Strengthen local level climate and disaster risk management framework for timely and effective communication of climate risk and early warning information.

**Table 1** outlines the main components of the project.

Table 1: Project Overview		
To reduce the vulnerability of farmers in Myanmar's Dry Zone to increasing drought and rainfall variability, and enhance the capacity of farmers to plan for and respond to future impacts of Climate Change on food security		
<b>Continuous freshwater availability is ensured during the dry seasons in 280 villages in the Dry Zone</b>	<b>Climate-resilient agricultural and livestock practices enhanced in Myanmar's Dry Zone</b>	<b>Timeliness and quality of climate risk information disseminated to Dry Zone farmers enhanced</b>
Water capture and storage capacities in 280 villages enhanced to ensure sufficient irrigation and potable water supply during dry periods	Drought-resilient farming methods introduced to farmers to enhance the resilience of subsistent agriculture in the Dry Zone	Climate hazard maps and risk scenarios developed in each township to support community-based climate risk management and preparedness planning
6,141 hectares of micro-watersheds protected and rehabilitated through Farmer-Managed Natural Regeneration (FMNR) to increase natural water retention and reduce erosion	Resilient post-harvest processing and storage systems introduced to reduce climate-induced post-harvest losses (drought and floods)	Local level climate and disaster risk management framework strengthened for timely and effective communication of climate risk and early warning information
Community-based agro-forestry plots established on 3,983 hectares of lands to conserve soil and water	Climate resilient livestock production systems introduced in 6,300 landless households to buffer the effects of flooding and drought on rural livelihoods	
\$4,084,642	\$2,316,760	\$782,000

The project focus is to increase the resilience of livelihood options and underlying ecosystems to climate variability and change. Approximately 60% of the target population is landless; among the farmers with land access, approximately 63% owns only 0.4-0.8 hectares. An important element of the proposed project is to strengthen the participation and stakes of landless people in Community-based Organizations, especially Forest User Groups. Landless people will benefit from diversified livestock assets, improved ecosystem services (such as greater availability of non-forest products and more reliable freshwater supply), as well as through greater opportunities for manual labor in water-, forestry- and agroforestry-related components of the project.

The project sites consist of approximately 50,000 households from 280 villages with a high percentage of landless households and marginal/small farmers. Many of these landless and marginal/small farmers will benefit directly from the proposed project. Approximately 85% of the population is estimated to be impoverished landless and marginal farmers' households on rain-fed lands who are prone to critical losses of livelihood assets from recurring droughts and crop failures. Impoverished and marginal farmers with land-use rights will benefit from the project through additional investments in natural and productive capital (such as improved water supply on drought-prone fields; access to diversified and improved crops for fields and home gardens; expanded agro-forestry services; diversified livestock rearing; arrested soil erosion and watershed protection).

The townships were selected on the basis of observed temperature extremes, frequency of drought per year, and the impacts of climatic parameters on food security. An additional criterion for township selection was the potential to access ground and surface water resources – vital prerequisites for small irrigation and water management schemes.

For the purpose of identifying target villages, selection criterion were developed to cover the eight outputs of the project under three components and scoring of villages was based on the following:

- Are there noticeable impacts of CC – e.g. Observed temperature extremes, frequency of droughts/year, lack of soil and water conservation measures, forest degradation, declining livestock population/productivity?
- Is there the potential to access surface and ground water resources, river water-pumped irrigation, community forestry, soil and water conservation activities?
- Is the community willing to participate in project interventions and is there a well-established community engagement mechanism?
- Are there incidences of extreme poverty and food insecurity in the village?
- Are there significant numbers of women-headed households in the village?
- Are the intended project interventions aligned with needs of the village, as well as based on local, regional and national priorities?
- Are other development partners/INGOs/NGOs/CSOs operating in the village on similar interventions as intended under the project?

**Table 2** shows the targeted townships and the sizes of selected villages.<sup>1</sup>

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<sup>1</sup> Table.2: Household status of targeted townships (updated during project preparation phase, June 2012), ProDoc, 2014, p. 16

**Table 2: Project Locations and Populations**

<b>Regions</b>	<b>Townships</b>	<b>Villages</b>	<b>Households</b>	<b>Population</b>
Sagaing	Shwebo	60	12,318	64,906
	Moneywa	50	8,347	48,759
Mandalay	Myin Chan	60	12,447	51,579
	Nyaung Oo	70	12,455	63,140
Magway	Chauk	40	5,072	26,176
Total		280	50,639	254,560

Over 250,000 people in more than 50,000 households are included in the 280 targeted villages.

#### **2.4 Implementation arrangements**

The project is managed by the following bodies:

**Project Steering Committee (PSC)** - oversees progress and facilitate implementation of the project in partnership with co-financing institutions. The PSC is chaired by the Country Director of UNDP and the Director General of Dry Zone Greening Department (DZGD). The DZGD is also the principle counterpart agency for the project. Other members of the PSC include representatives from Environmental Conservation Department, Irrigation and Water Utilization Management Department, Department of Meteorology and Hydrology, Department of Agriculture, Relief and Resettlement Department, Livestock Breeding and Veterinary Department, Watershed Management Section, Forest Department, Department of Rural Development and Foreign Economic Relations Department.

**UNDP** – is the Executing Entity for this project, and under the overall direction of the PSC, is responsible for the execution of the proposed AF project in collaboration with the relevant agencies, local NGOs and CBOs, including the administration and delivery of inputs and financial management related to Project Execution and Management.

**Technical Advisory Group (TAG)** - provides guidance and advice on technical questions related to water management, agriculture, forestry, food security and risk information/communication. The main objective of the TAG is to identify technical strengths and weaknesses of the project, take stock of available and required technical know-how under different project components, and provide technical backstopping and quality control throughout the project period. The TAG includes representatives from Dry Zone Greening Department, Environmental Conservation Department, Irrigation and Water Utilization Management Department, Department of Meteorology and Hydrology, Department of Agriculture, Relief and Resettlement Department, Livestock Breeding and Veterinary Department, Watershed Management Section of Forest Department and Department of Rural Development.

**Project team** – comprises the National Project Manager, Technical Specialist (International), Soil Conservation and Water Harvesting Specialist (Nyaung U-based), Agricultural Specialist, Environmental Conservation and Forestry Specialist (Nyaung U-based), Livestock Specialist, Monitoring and Evaluation Officer, Project Assistant and a Project Driver. The project has two locations – one main office within the Dry Zone Greening Department compound in Patheingyi, Mandalay Region and the other in Nyaung U, Mandalay region. Under the overall guidance of PSC and TAG, the Project Team is responsible for the day-to-day management and implementation, oversight, reporting and monitoring of project activities.

**Local NGOs, INGOs, CBOs and Farmer’s Groups** – act as service providers, community organizers, and repositories of knowledge and lessons learned from the project. These ‘implementing partners’ (**Table 3**) are the main delivery agents for the project, working in conjunction with the relevant government agencies. They were selected based on a competitive procurement process; some IPs were engaged as Responsible Parties based on the NGO/CSO engagement policy of UNDP.

The main agencies and Project Implementing Partners are listed on **Table 3**.

**Table 3: List of Project Agencies and Implementing Partners**

	<b>Agency</b>	<b>Description of role in project implementation</b>
<b>Government Departments</b>		
DZDG	Dry Zone Greening Department	-Main government counterpart of the project. The project office is co-located with DZGD. -Member of Project Steering Committee (PSC) -Member of Technical Advisory Group (TAG) -Letter of Agreement on the supply of forestry & agroforestry seedlings for the project
DMH	Department of Meteorology and Hydrology	-Member of Project Steering Committee (PSC) -Member of Technical Advisory Group (TAG) -DMH is the primary contributor with regard to climate change projection data and provides technical expertise on enhancing climate risk information management -Focal institutions for risk/vulnerability assessment and hazard mapping -Focal agency for the development and dissemination of agro advisories/bulletins (SESAME mobile application) -RIMES governing institution in Myanmar
ECD	Environmental Conservation Department	-The DG of ECD is the Designated National Agency for Adaptation Fund in Myanmar. He is also the GEF OFP. -Member of Project Steering Committee (PSC) -Member of Technical Advisory Group (TAG) -Provides technical inputs/suggestions for project implementation
RRD	Relief and Resettlement Department	-Member of Project Steering Committee (PSC) -Member of Technical Advisory Group (TAG) -Provides technical inputs/suggestions for project implementation

		-focal agency for DRR and climate risk information dissemination. The AF project supported development of a mobile application for Disaster Alert Notification (DAN Myanmar)
DoA	Department of Agriculture	-Member of Project Steering Committee (PSC) -Member of Technical Advisory Group (TAG) -Provides technical inputs/suggestions for project implementation -Principle counterpart for the implementation of the component on climate-resilient agriculture practices
IWUMD	Irrigation and Water Utilization Management Department	-Member of Project Steering Committee (PSC) -Member of Technical Advisory Group (TAG) -Provides technical inputs/suggestions for project implementation – mainly in the areas of water harvesting activities.
FD	Forest Department	-Member of Project Steering Committee (PSC) -Member of Technical Advisory Group (TAG) -Provides technical inputs/suggestions for project implementation
DRD	Department of Rural Development	-Member of Project Steering Committee (PSC) -Member of Technical Advisory Group (TAG) -Provides technical inputs/suggestions for project implementation – mainly in water harvesting and soil conservation activities.
LBVD	Livestock Breeding and Veterinary Department	-Member of Project Steering Committee (PSC) -Member of Technical Advisory Group (TAG) -Provides technical inputs/suggestions for project implementation -Focal agency for the implementation of the component on climate-resilient livestock practices.
FERD	Foreign Economic Relations Department	-Member of Project Steering Committee (PSC) -Member of Technical Advisory Group (TAG)
GAD	Townships General Administration Departments and line agencies	-main coordinating agency at township level - Nyaung U, Chauk, Myingyan, Shwebo, Monywa townships -GAD is involved in almost all activities under the project – as a coordination body in the townships -Actively involved in the CBDRM roll out process
<b>Project's Implementing Partners</b>		
FBD	Farm Business Development	-Capacity building and demonstrations of soil and water conservation activities -Construction/renovation of water retention ponds and diversion canals to enhance water availability during dry periods
Aung Zeyar	Aung Zay Yar Social Compassioners Assoc	Renovation of Shwebo Irrigation System (Kin Tat Canal)
HU	Hydroconseil	Assessment, Identification and Monitoring of small-scale water infrastructure needs for drinking and irrigation water in the Dry Zone
Well Done	Well Done Engineering	Installation of small-scale water infrastructure in the Dry Zone of Myanmar
NAG	Network Activities Group	Support for Executing Watershed Management and Agroforestry Activities
CDAc	Community Development Action	Strengthening Watershed Management through rehabilitation and reforestation of denuded community areas (public land) and Farm boundaries
Cesvi	Cesvi Foundation (Onlus)	Climate-resilient farming methods through capacity building, farmer-managed seed multiplication, participatory demonstration plots, exchange visits and resilient postharvest processing and storage systems

CDAs	Community Development Association	Introduction of climate-resilient livestock practices through capacity development and provision of drought resilient livestock species
RIMES	Regional Integrated Multi-Hazard Early Warning System	Provide technical services to build capacity on generation and application of multi-timescale climate information for managing resources and risks in the Dry Zone Implement Community Based Disaster Risk Management (CBDRM) in the Dry Zone
C&S	Chalk & Slate	Development of Disaster Alert Notification (DAN) mobile application for RRD in 2016 Update of DAN mobile application in 2017
MSR	Myanmar Survey Research	Preparation of Baseline Survey and Impact Assessment Report. They will also be involved in the end-line survey at the end of the project.

## 2.5 Project stakeholders

The main stakeholders in the project are the direct beneficiaries in the 280 project villages, the local CBOs and NGOs and the Project Implementing Partners who are involved in project implementation activities, and the many government agencies that support project implementation. See **Table 3** above.

**Table 4** shows the distribution of project activities within the Dry Zone regions. In 2016-2017, Forestry & Environmental Conservation and Climate-resilient farming systems each comprised about 30% of the total 698 individual activities, while Water and Soil conservation and Climate-resilient Livestock Production systems each made up about 20% of activities.

**Table 4: Number and distribution of project activities**

Township	No. of villages	Water and soil conservation	Forestry & Environmental Conservation	Climate-resilient farming system	Climate-resilient livestock production	Total
Shwebo	60	25	43	37	25	130
Monywa	50	23	42	46	36	148
Myingyan	60	24	40	44	36	144
Nyaung U	70	28	49	48	33	158
Chauk	40	27	33	39	19	118
<b>Total</b>	280	127 (18%)	208 (30%)	214 (31%) <sup>2</sup>	149 (21%)	698

Source: Consolidation of Project Activities (2016 - 2017), AF Activities in the Dry Zone, 2017

The direct beneficiaries include marginal farmers and landless people. Special emphasis is placed on women and female-headed households within this vulnerable group. Among them, approximately 85% of the total population is estimated to be impoverished landless and marginal farmers' households on rain-fed lands who are prone to critical losses of livelihood assets from recurring droughts and crop failures.

<sup>2</sup> CESVI statement: "214 which was early of Dec. We have 234 villages have been covered by Cesvi in 2017 both climate resilient farm + climate resilient postharvest at the end of Dec."

### **3. EVALUATION FINDINGS**

#### **3.1 Project Strategy**

##### **3.1.1 Theory of change and key assumptions**

The central premise of the project is that the key barriers to climate resilience in the Dry Zone of Myanmar - lack of knowledge, capacity and resources to implement irrigation and water management and climate-resilient crop and livestock rearing practices, and lack of farmer access to useful climate information, can be effectively overcome by mobilizing, training and supporting communities to adopt climate resilient livelihoods and early warning systems. The theory is that a very large number of adaptation methods related to water supply, watershed management, forestry, agroforestry, and agronomy and livestock management can be introduced and adopted at many sites; that these will become embedded in local practices and climate risk and disaster risk management frameworks, which will in turn lead to a broad shift toward community-based climate resilience.

The assumptions inherent in the theory include:

- Impoverished and marginal farmers with and without land-use rights will be able to benefit from the project and will have the inclination and incentive to adopt the adaptation practices. This is dependent upon evidence of individual and household benefits in terms of crop yields, livestock productivity, increased and diversified food security and incomes, water supply benefits, etc.
- The climate risk information provides useful advice to farmers and households that directly contributes to risk reduction and adaptation actions by local people and government. This depends upon the accessibility and extent of utilization of the information in making farming decisions and drought and flooding preparedness, and the willingness of local authorities to integrate climate risk and vulnerability into planning and decision making processes.
- The relevant government departments, local authorities and communities cooperate and facilitate the implementation and ongoing replication of the project adaptation measures and collaborate the NGOs/INGOs/CBOs in the delivery of the project activities, as highlighted in the Results Framework.

#### **MTE Observations on the project strategy:**

- The spatial aspects of the strategy – widespread project sites with many small interventions versus an alternative approach of smaller areas with multiple, concentrated interventions, present strategic questions related to the design. The issue is whether, within the time frame available,

the scale of positive results from many individual, dispersed interventions will be sufficient to create an impact at a township and regional Dry Zone level.<sup>3</sup>

- The level of actual uptake by local people of the adaptation methods that are being demonstrated and promoted within the targeted sites and outside of the project, and the reasons behind their acceptance or rejection by farmers and households is a key challenge for the M&E system. The baseline and monitoring should be able to isolate the relative degree of acceptance and adoption of the methods being promoted and the parameters affecting replication viability.
- The start-up delays indicate a significant issue in mobilizing multiple levels of government cooperation. The arrangements for cooperation with government agencies and integration of proven adaptation measures into ongoing government programs is a concern.
- The ‘mainstreaming’ of adaptation innovations into government systems is facilitated by the wide consultative processes and exposing stakeholders to new methods. But the limited presence of extension staff in many of the Dry Zone villages may constrain the level of potential technical support and uptake. The relevant agencies have very limited extension staff and presence in remote locations; there is high staff turn-over, and there are few incentives for extending assistance to a ‘UNDP project’ unless individual officers have a special interest or directive to facilitate the field activities.

### **3.1.2 Project results framework and indicators**

The Results Framework, modified during the inception phase, provides a coherent, if ambitious, basis for work planning and monitoring progress toward targets. However, at least 15 targets had to be adjusted to accommodate the realities on the ground and the available budget, and monitoring progress toward outcome has not been easy.

The project was developed with limited specific information on the Dry Zone conditions and especially the requirements and standards needed to establish forest plantations and to renovate and develop enhanced water supply. The indicators are reviewed in **Annex 8** and suggestions provided. There have been difficulties applying the indicators for progress monitoring and reporting since they are primarily designed to be used in the baseline and end-of-project impact assessment.

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<sup>3</sup> The problem of ‘spreading too thin’ has been noted in other projects, leading to a mid-term shift in strategy toward more multi-sector, ‘whole village’ approaches. See for example, Mid Term Review, *Promoting Climate-Resilient Water Management and Agricultural Practices in Rural Cambodia*, GEF/UNDP, 2012.

Reliable information on the level of adoption by farmers/HHs will depend upon the Impact Assessment survey. However, field data on the benefits – household, farming and income improvement, noted by beneficiaries (see **Annex 9**), would give some idea of the degree of success and potential for replication. Community members are usually able to informally identify where success and failure and spread (diffusion) have occurred. The monitoring should provide a profile of the outcome results to date.

**MTE Observations on the results framework:**

- The Results Framework has gone through substantial changes and is continuing to change, reflecting both the complexity of working in 280 villages and the realities of intervening in land and water management in the Dry Zone.
- The assumption that land would be readily available for plantation and watershed treatments was over-estimated, as reflected in the complicated approval processes and long delays that have occurred.
- The expectation that women would be major participants in the project was also over-estimated, although various adjustments have been made to respond to this issue.<sup>4</sup>
- The project interventions are relatively small-scale at many project villages and the impact assessment survey may have problems attributing changes to the project. The final survey should endeavor to capture details about the effectiveness and performance of specific adaptation methods.
- The effectiveness of enhanced weather forecasts should consider not only access to but also use of the forecasts in farming planting and maintenance decisions.
- M&E information in the final year of the project should be able to provide some indication of the ‘viability and acceptance’ of the project technologies by government and communities, their level of dissemination (e.g., reach to potential users of the information) and the practical user experience and comparative advantage of the new systems relative to the alternatives and status quo (e.g., in Outcome 3, web-based or SMS notification vs local broadcasting/loud haling/phone networks).

**3.1.3 Challenges and issues noted by the project teams**

In their presentations to the MTE on progress to date and in project progress reports, the key challenges and issues were described by the project team members from UNDP project staff and from the

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<sup>4</sup> It was noted that women give the names of their husbands in receiving livestock and other assets, which for some components has under-estimated their involvement.

implementing NGOs/CBOs. These are summarized below. They highlight some of the design and operational issues that the project has faced to date.

**Design issues identified:**

- Multi-sectoral project with a wide geographical coverage – integration of project activities have been a challenge
- Capacity of NGO/INGO/CSO/Government especially local NGOs is limited
- No flexibility to change of targets/approach of implementation, etc.
- Misunderstanding of roles and responsibilities (Gov. depts. think their role is just in monitoring/supervision)
- Identification of project target villages and sites for rehabilitation/reforestation could have been finalized during design stage.
- Land verification process is slow; community forests certification for vacant, fallow land is a long process within government
- No budget for follow up activities (Weeding, Soil working, adding fertilizer, Fire Protection, Patrolling)
- Labor/material rates of currency became higher than project formulation time. Exchange rate raised but it couldn't cover higher costs
- Alignment of Outcome 3 activities with other project activities is not clear

**Operational issues identified:**

- Bureaucratic procedures – delays in implementation and long approval and procurements processes
- Procurement process takes at least 4 months to award Implementing Partner
- Labor inputs and availability of beneficiaries - seasonal nature of projects/conflict with agriculture activities
- Information flow/reporting issues, inconsistency in participation in project events
- Coordination mechanisms are time-consuming and often require formal procedures for meetings
- Consultation and Coordination among stakeholders are a crucial to project success (Aung Zay Yar Association, Shwebo canal project completion report)
- Inconsistent and unreliable flow of information within the government organisations
- Availability of government staff for training of trainers was limited
- Time is a key factor affecting results (limited time for implementation, seasonal period)
- Some breakages of soil conservation measures while torrential rains fell
- Change of village administrators in project villages requires continual updating

- Climate risk management is cross-sectoral in nature – support from all stakeholders necessary
- There are several CBDRM approaches by multiple agencies; need for consolidation.

#### **3.1.4 Relevance and effectiveness of the project design**

The project is highly relevant for the Dry Zone of Myanmar. It is fully consistent with government, Adaptation Fund and UNDP climate change adaptation policies and programme priorities. The central problem for community climate change resilience is the lack of available water during the dry season which the project is addressing, along with a host of other climate change vulnerabilities in several sectors.

The MTE was asked to assess the effectiveness of the project design in terms of participants' understanding of the overall approach, and any gaps in project strategy implementation that may exist. There were some obvious issues related to not anticipating the time requirements for activity approvals and government commitments, and the burdens of managing such a wide and ambitious activity programme. Project staff have had to cope with various design issues within the context of political change in the government and unfamiliarity with Adaptation Fund (AF) projects and both UNDP and government processes. The project design provides a coherent structure of multi-sector activities and concrete results expected from AF projects. But the deeper changes required to sustain and scale-up such results and the institutional constraints to efficient delivery of the ambitious program within a four year period may have been under-estimated particularly given the broad range of adaptation issues and sectors that the project design has taken on.

In addition, it should be noted that the main project counterpart, DZGD, considers the direct involvement of UNDP in project implementation detracts from national ownership and is a strategic weakness in the project design.

#### **MTE Observations on the project design:**

- The 'Rapid Assessment' approach<sup>5</sup> for 280 villages gives only an overview of general water supply conditions and detailed diagnosis of site issues and options needed more rigorous treatment at the work (and site) planning stage, as well as budgets based on these site investigations. Similar limitations of the rapid assessments in other sectors such as livestock were also mentioned during interviews.<sup>6</sup>

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<sup>5</sup> Hydroconseil, Assessment, Identification & Monitoring of Small Scale Water Infrastructure Needs for Drinking and Irrigation Water in the Dry Zone of Myanmar, Rapid Needs Assessment Report, Dec 2016

<sup>6</sup> Dr. Than Naing, Community Development Association, Report On Rapid Needs Assessment & Beneficiary Selection (Climate Change Resilient Diversified Livestock Rearing Practices), 2016.

- Many of the project activities involve rehabilitation and upgrading of neglected or mis-managed water management structures, but the root cause reasons for the original decline and maintenance failures and the institutional reforms needed to avoid future weakness in water management may not have been given enough emphasis in the project design.
- Flexibility to adjust outputs and targets depending upon field circumstances and realities is typically allowed in AF/GEF/UNDP projects with appropriate rationale. But this is not consistent with the government practice and culture that insists on physical targets being met regardless of misjudgments in the original project design. The over-emphasis on physical targets detracts from the real purpose of the project – to demonstrate and promote a new approach or best practice for climate change adaptation.
- The project design included a broad range of adaptation interventions that aim to transform water management and agricultural practices in the Dry Zone. This is a large and ambitious undertaking with some aspects of technical innovation that provide an opportunity for significant learning about the factors that affect long term development of climate resilience throughout the dry zone region. But the ‘innovation testing and learning process’ needs to be built into the monitoring system and the management understanding of the longer term purpose of the project.

### **3.2 Progress towards Results**

#### **3.2.1 Outcome 1 – Continuous freshwater availability ensured during the dry season in 280 villages in the dry zone**

The approach under Outcome 1 so far has been to rehabilitate canals and ponds and to introduce soil bunding on farms to control overland flooding and soil erosion. Under this component, the project also held 26 training events for almost 900 participants, one third of whom were involved in the soil and water conservation training (Table 7). **Annex 1** lists the outputs to date. One half of the targeted ponds for rehabilitation have been completed.

#### **Output 1.1: Water capture and storage capacities in 280 villages enhanced to ensure sufficient irrigation and potable water supply during dry periods**

A Rapid Needs Assessment was completed by Hydroconseil through field surveys and township meetings held in Nyaung U, Myingyan, Chauk, Monywa and Shwebo. It identified the current status of access of water and the existing water infrastructure, the opportunities and possible priority actions for improving

water access, and priorities for implementation in 2017.<sup>7</sup> The study also identified 12 villages with no groundwater supply, 165 villages without sufficient drinking water supply, and 94 villages with at least one damaged tube well. Based on the available budget, it was proposed to complete 10 Deep Tube Wells, 40 Shallow Tube Wells, 70 Water Pumping Systems and 56 Communal Water Tanks.<sup>8</sup>

The project has completed 75 of the targeted 150 pond renovations. The main activity was to expand the holding capacity of the pond through excavation. Runoff water/ flush water diversion canals were also constructed/repared at 45 sites to increase the catchment area input of runoff. The 852 ha of completed soil and water conservation treatments that have been reported include some weir structures and other measures but extensive use of such techniques was not observed during brief field visits to a few sites. No comprehensive watershed management were observed on the pond rehabilitation projects.

There are three possible strategies for extending pond water storage: expand pond capacity, expand catchment area inputs through diversions, and increase water yield and groundwater infiltration through intensive watershed soil and water conservation measures. The latter was not used at any sites visited.

Interviews with farmers and government staff highlighted the importance of rainwater and surface water because the groundwater and soils have high pH (and high iron content in some villages), creating difficulty for domestic water supply and for suitability of crops. Many of the shallow aquifers have high levels of salinity, and one site visited had very high levels of iron in the solar-powered community well.

The discussions in Monywa Township (15 community pond projects) suggested an estimated average 10% increase in water holding capacity which in theory might increase water availability in the 4-5 month dry season (Feb-May/June) by about 1 month. The project has had the great advantage to build upon the works and capacity building of previous water supply projects (e.g., in one half of the Monywa community pond projects) including significant contributions by the water user groups who have collected fees from the existing water supply systems and had money to invest further through the Dry Zone project.

One conspicuous observation was that many of the ponds have limited catchment areas and storage capacity expansion does not often ensure much or any water availability during the dry season. Some of the ponds visited did not have water in early December. It was also noted that watershed management improvements, which can significantly improve water yield and conservation from the catchment area,

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<sup>7</sup> Hydroconseil, Assessment, Identification & Monitoring of Small Scale Water Infrastructure Needs for Drinking and Irrigation Water in the Dry Zone of Myanmar, Rapid Needs Assessment Report, Dec 2016

<sup>8</sup> Deep Tube Well (DTW) is defined as a well of more than 200ft in depth; Shallow Tube Well (STW) defined as a well of less than 200ft in depth equipped with a handpump; Water Pumping System (WPS), is portable and can be used to irrigate a field from a canal, a pond, or river, etc.; Communal Water Tank (CWT) stores the water from the DTW and rainwater.

are not a direct part of most of the pond renovation projects due to budget and land constraints. Some of the ponds seem to have high rates of seepage, and some local people have moved water from the pond to concrete tanks at their homes before the pond dries up in October. Planting around pond boundaries is proposed but was not observed, although this is now being emphasized with the IPs.

The *Shwebo Irrigation System (Kin Tat Canal)* was a major project completed in early 2017. It involved restoring an old diversion canal that had become completely overgrown within a wetland but originally served to divert water from one side of the Shwebo Township (high flood risk) to another side that can use the water for irrigation purposes. The return of this canal served to provide new irrigation water to ten villages on the west side of the town while reducing waterlogging, flood and pollution levels on the east side. The project also included a new set of control gates on the diversion canal and improvements to the dam that discharges into the west side river. The project was designed and proposed by the Irrigation Dept. of the township but organized and managed by the CSO – Aung Zay Yar. This is a remarkable achievement of government design, community leadership and modest (\$50,000) funds from Adaptation Fund. The main concern at this stage is about sustainability. The canal guard supervising the operations is well experienced at managing the control gates, but long term maintenance (removing aquatic growth in the canals) relies upon budgets of the Irrigation Department which have some level of uncertainty.<sup>9</sup>

In 2018, the project will be investing in tube wells and other infrastructure as listed in the project document. This needs to consider similar experiences in the region; IUWMD would also like to see more water quality data collected.

**Output 1.2: 6,141 hectares of micro-watersheds are protected and rehabilitated through Farmer Managed Natural Regeneration (FMNR) to increase natural water retention and reduce erosion**

The project has completed 4008 ha including 2625 ha of Natural Forest conservation with some gap patching, 843 ha of Community Forest and 540 ha of public land planting. The respective project targets are 3913 ha, 1458 ha and 770 ha. In 2017, the project planted 736, 640 seedlings in Community Forests, Natural Forest Conservation areas, Demonstration plots, Watershed and Homestead gardens, and 236, 296 seedlings on public land and farm boundary.

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<sup>9</sup> Dec. 13, 2017 interview with U Tun Tun Oo, Irrigation Dept., Maharnandar Lake; and with Dr. Tin Win, President, Social Compassioners Association, Shwebo.

The soil and water conservation activities have been guided by a *SCWH Technical Manual*, prepared by the project in collaboration with government. A rapid assessment report was also completed to develop the targeted project outputs.<sup>10</sup> The major part of this component - forest conservation, has included protection, construction of fire breaks, and gap filling – planting trees where appropriate within the forest.

In addition to the difficulties securing land and the long, complicated processes for certifying land use for such conservation and tree plantation, the MTE noted that project standards and cost norms are significantly lower than similar activities within government. The following comparable data in **Table 5** were collected from government and project contractor interviews at several sites:

**Table 5: Standards and cost norms for preparation of tree pits**

	<b>Dimensions</b>	<b>Volume</b>	<b>Cost norm</b>	<b>Dec. survival*</b>
<b>DZG Dept.</b>	3'x 3' x1' Revised in 2017 to 4.5' x 1.5 x 1.5 (1'x1' inside)	10 cu ft.	550-600 kyat	80-90%
<b>Dept. of Forests</b> ( Village supply fuelwood plantation, Dry zone)	2' x 2' x 2' (1'x1' inside)	9 cu ft.	270 kyat	≥70%
<b>Adaptation Fund Project</b>	1.5'x 1.5' x 1.5	3.375 cu ft.	200 kyat	35-70% in 2016 & 2017

\* Not official; based on MTE interviews

The table shows that volume of material excavated for the tree pit and average costs for pit preparation in the project are 30% those of the DZGD standards and norms and three-quarters the Forest Dept. cost norms. The budgets that are available for site preparation of tree pits are significant because they determine how much effort goes into capturing and utilizing available rainfall around the plant.<sup>11</sup> The project currently budgets 200 kyat for preparation and planting, 50 kyat for delivery, 10 kyat for patching and at least 300 for purchase of one seedling. Survival of seedlings for the project varies but appears to

<sup>10</sup> a. Appropriate SCWH measures and a Technical Manual, b. (300) SCWH activists from 280 project villages and government staff trained on SCWH technologies, c. (1156) hectares of Agricultural land will be treated with SCWH measures to control soil erosion/ land degradation, d. (150) village ponds will be renovated or newly constructed, e. (44) Water diversion canals, f. at least (100) project villages will be covered by SCWH activities, and g. at least (5) Field days will be conducted for awareness raising of villagers on “climate risks and resilient management of soil and water conservation”. U Nay Wun Paw, Addressing Climate Change Risks on Water Resources and Food Security in the Dry Zone of Myanmar, Assessment/Field Survey Report, FBD Technical Group, 2016.

<sup>11</sup> If the project was to raise the standards for tree pit preparation in 2018 to be consistent with government, it might cost about \$236,000 USD based on an additional 250 kyat per pit x proposed 942,686 seedlings for 2018 at 1360 kyat/USD exchange rate, and assuming that the lands are available for new plantations.

be in the 35-70% range, much higher in the DZGD plantations and slightly higher in the FD plantations based on the estimates provided by those interviewed.

Field observations at several of the project sites noted:

- The project tree plantations did not include much, if any, watershed soil and water conservation at the sites that were visited.
- Tree pits were generally low standard created by use of three holes created by power router, and in one cases, no basin at all was created, limiting the potential to capture rainfall around the seedling; no mulching was observed.
- Cow dung and in some cases, urea, are added to the tree pits. The DZGD digs the pits in December and adds cow dung in January which allows for better conditions by the time June/July planting occurs at first rain. The project has not been following the same timetable.
- Field staff indicated there was no budget for weeding, patching, and mulching or fire road construction; although there are obligations under the co-financing commitment for government involvement in this follow-up.<sup>12</sup>
- The main focus of tree plantation work in Myanmar seems to be on the trees with little substantive attention to related SWC or micro-watershed and larger scale watershed regeneration.

The lack of available, approved land for tree planting activities is a serious risk for the 2018 workplan. It is currently under discussion at high levels within the government.

### **Output 1.3: Community-based agroforestry plots established on 3,983 hectares of private and communal lands to conserve soil and water**

The agroforestry program has provided trees on agricultural lands, homesteads, farm boundaries and other sites involving 1378 ha (Annex 1) out of a project target of 3983 ha. Like other components, the land availability has been a problem and the project has been forced to shift some of the targets to the Output 1.2 above.

There are 14 species that farmers can choose from, although not all are always available. Only about 35% of the 'community-based agro-forestry plots' which includes a variety of homestead (fruit trees and timber species), farm boundary and other plantings (Annex 1) has been completed. Some of the activities involve planting a variety of species on private farmlands owned by village leaders. For example, 9.5 acres owned by one farmer in Ke Tete area involved planting trees on vacant farmland located adjacent to other farmers who have planted Thanakha trees on their own. The owner has a vague plan to plant maize

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<sup>12</sup> Project Document, 2014, p. 155, ANNEX- J.

between the trees, although this is not recommended by Cesvi advisors (IP agronomy) who suggest nitrogen-fixing cover crops. (They are proposing such intercropping in the wide rows on the adjacent Thanakha plantations). This site emerged from a desperate search for land to demonstrate agroforestry.

***MTE summary comments on Outcome 1:***

- The community pond expansion projects may have increased water availability in the 4-5 month dry season by up to one month. It has been mostly based on excavation of the pond boundaries for more storage capacity rather than enhanced catchment area treatment to produce more water.
- The communities that have had major domestic water supply projects previously (with the help of international NGOs) present a model for future communities and staged investment in water system using community funds generated from water use fees. The project has leveraged as much as 50% cash contributions from some of these communities.
- The Outcome 1 budgets and proposals from local communities have determined the scope of work for each project, limiting the use of more integrated catchment area options which may, depending on the site conditions, offer greater potential to expand water availability to some of the ponds.
- The project budgets for tree planting are one-third the government norms and a limiting factor in the survival rate of seedling and the quality of plantation.
- Absence of micro-basin and catchment area (micro and macro-watershed) treatments to facilitate tree plantation and natural regeneration are a conspicuous feature of the project (and government) tree plantations compared to international practices in dry land areas.
- A cut-off date sometime soon for decisions about land availability will be necessary to meet the planting window at first monsoon rain which typically occurs in early July. Missing the planting window would have major implications for the project. The land approval has been waiting up to six months for field inspection for land clearance and various comments from townships and line agency staff and authorizations from Department of Agricultural Land Management and Statistics (DALMS) and others.<sup>13</sup>

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<sup>13</sup> UNDP project staff, Land Approval Process in Project Townships (9<sup>th</sup> November, 2017)

- The progress under Outcome 1 is summarized in Annex 1, indicating a rating of **MODERATELY SATISFACTORY**. On-target to be achieved in terms of increased water availability and number of ponds renovated; but so far little increase is evident in water supply *during the Feb-May dry season*. Nevertheless, the target of assisting 22,000 water-scarce households<sup>14</sup> may be near achievement at the end of 2017.

### **3.2.2 Outcome 2 – Climate-resilient agriculture and livestock practices enhanced in Myanmar’s dry zone**

The approach under Outcome 2 has been to introduce and support an array of climate-resilient farming and livestock raising methods, including participatory demonstration plots (usually two in each village) and varietal selection of drought-resistant crops, use of Farmer Field School (FFS), development of farmer-managed seed multiplication and introduction of various technologies (e.g., threshers) to assist farmers. A close working relationship with the township Livestock Breeding and Veterinary Departments (LBVD) served to expand the distribution and diversification of livestock.

#### **Output 2.1: Drought-resilient farming methods introduced to farmers to enhance the resilience of subsistent agriculture in the Dry Zone**

To date, the climate-resilient farming methods have been introduced to over 6000 farmers and government staff and engaged about 4500 farmers in the Farmer Field Schools (**Annex 1**). The interventions include a wide array of innovations, including inter-cropping groundnut, pigeon pea and green gram, and adding gypsum to groundnut crops to enhance yield. There have been 875 demonstration plots and 910 participants in seed multiplication training. The ‘alternate wet/dry’ Water Saving Technology (AWD) was introduced for 740 rice farmers and DOA staff. Exchange visits were sponsored for 130 farmers and government staff.

The field visits indicated a generally high level of appreciation and positive results from the participating farmers, although they only represent a small portion of all farmers. Other farmers at village meetings did express support for the new seeds and methods but it is hard to gauge the level of acceptance until follow-up surveys are completed by Cesvi. Reported improvements in crop yields have been significant (25-50% in Annex 9 although it may be too early to have reliable data following from 2017 growing season) and having three types of crops rather than one was viewed as a distinct benefit.

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<sup>14</sup> An estimated 74% of the 50,000 projects HHs face shortage =37,000 HHs with a project target of 60% = 22,000 targeted HHs. The project is estimated to have improved water supply for 10,000 HHs using ponds and 10,000 HHs benefiting from the Shwebo canal improvement project.

## **Output 2.2: Resilient post-harvest processing and storage systems introduced to reduce climate induced post-harvest losses (drought and floods)**

A survey post-harvest losses revealed major problems in the losses.<sup>15</sup> Food losses were estimated as high as 50% and more in groundnut and pulses (pigeon pea and green gram), and 38% in rice paddy, mostly during the harvesting and field drying stages. Economic loss can also occur if the product is subsequently restricted to a lower value market. Here, food loss is a subset of post-harvest and represents the part of the edible share of food that is available for consumption at either the retail or consumer levels but not consumed for any reason.<sup>16</sup> Road conditions affect post-harvest losses especially during the transportation of the farm products to the market. The survey indicated that only 32% of total villages can access to market only in dry and wet conditions. According to the survey, farmers prefer mostly threshers to take action quickly before erratic rain occurs (this information is usually received via radio). Their second need is to improve their post-harvest techniques and management practices. The third priority is public storage facility.

In response, the project has, to date, provided 107 multi-crop threshers for use by 5,550 members of thresher user groups, training on postharvest processing and handling techniques to 280 direct and 2,670 indirect beneficiaries and 20 DOA Staff (Annex 1). It has so far, provided post-harvest storage facilities at 36 locations for 720 farm households. The field visits indicated a high level of appreciation and optimism about the recent addition of these equipment and facilities.

## **Output 2.3: Climate resilient livestock production systems introduced in 6,300 landless households to buffer the effects of flooding and drought on rural livelihoods**

A Rapid Needs Assessment and Beneficiary Selection on Livestock Breeding was undertaken to assist in selection of 253 villages. The assessment was conducted in villages with the active participation of the Community and the facilitation of LBVD Field Staffs and CDA Staff Members.<sup>17</sup> Some landless and marginal households and women-headed households who are interested in the livestock rearing were not able to participate in the process due to other daily work commitments.<sup>18</sup>

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<sup>15</sup> Cesvi Fondazione (Onlus), Participatory Assessment on Crop Loss Patterns from Current Post Harvest Practices in Five Townships: Nyaung U, Myingyan, Chauk, Monywa and Shwero Final Report, March 2017.

<sup>16</sup> Ibid., 2017, P. 18.

<sup>17</sup> Dr. Than Naing, Community Development Association, Report On Rapid Needs Assessment & Beneficiary Selection (Climate Change Resilient Diversified Livestock Rearing Practices), 2016.

<sup>18</sup> "In October and November 2017 when the Assessment and Beneficiary Selection happened, the communities were very busy harvesting their crops and being engaged with their religious festivals, and traditional and social ceremonies. Due to this, the community meeting dates had to be changed at least 2-3 times.", Dr. Than Naing, op. cit, 2016, Lessons Learned, p. 14

To date, about 3200 households have received livestock from the project and another 748 are on the waiting list as of December 2017 (**Annex 1**). Landless and marginal households participated in 113 livestock raising demonstration. Training in livestock-related activities has been given to 8,936 farmers (**Table 6**), or 78% of all project trainees to date. The project also helped to establish 253 Livestock Farmers Groups (LFGs) with over 11,000 members. The largest portion of members occurs in Nyaung U Township, or 43% of all members.

**Table 6: Livestock Farmer Groups (LFGs) and LFG Committee Members**

Township	Village No.	Livestock Farmer Group No.	Livestock Farmer Group Committee Members			Livestock Farmers Group Members		
			Male	Female	Total	Male	Female	Total
Nyaung U	70	70	573	129	<b>702</b>	3827	927	<b>4754</b>
Myingyan	48	48	250	40	<b>290</b>	1225	398	<b>1623</b>
Chauk	39	39	280	65	<b>345</b>	1372	366	<b>1738</b>
Shwebo	49	49	1007	314	<b>1321</b>	993	329	<b>1322</b>
Monywa	47	47	219	48	<b>267</b>	1244	374	<b>1618</b>
<b>Total</b>	<b>253</b>	<b>253</b>	<b>2,329</b>	<b>596</b>	<b>2,925</b>	<b>8661</b>	<b>2394</b>	<b>11055</b>

source: Dr.Than Naing, Community Development Association, *Report On Rapid Needs Assessment & Beneficiary Selection (Climate Change Resilient Diversified Livestock Rearing Practices)*, 2016.

The field visits highlighted the popularity and income benefits for participants in the livestock component. Net profits from the sale of pigs after eight months might be about 80-100% of the 60,000 kyat investment (**Annex 9**). But some farmers also had questions about disease controls, access to supplementary feed and organising the selling arrangements. No problems on loan payback were reported during the brief MTE visits.

**MTE summary comments on Outcome 2:**

- During site visits, farmers responded positively to the improved seed varieties that provide more yield and drought resistance and to the inter-cropping methods that diversify crops;
- The multiple methods of reducing food losses could have significant benefits given the current high estimates of post-harvest losses but managing and maintaining the equipment and storage facilities and user groups will be a key factor;
- 90% of the project villages participated livestock loans and animal raising involving about 3200 households and over 11,000 participants. The project has benefitted from the capacity developed

in the LBVD ‘Emerald Green’ livestock program, which may also help to manage ongoing risks of this component of the project;

- The scale of training outputs is remarkable: 488 events in two years, with 38% participants (under-estimate due to reporting based on male head of household) being female.
- The progress under Outcome 2 is summarized in Annex 1, indicating a rating of **SATISFACTORY**; on-target to be achieved. At least six climate resilient farming methods have been demonstrated and some, most notably intercropping with improved seeds and ‘wet and dry’ rice farming system, appear to have good levels of interest and acceptance.

### 3.2.3 Training Programs

As of December 2017, the project had sponsored 488 training events for 11,415 participants, as shown on **Table 7**. Outcome 2 activities were involved in 87% of all the participants in training events. Community Level, climate resilient livestock rearing and Book keeping hands on training for LFG committee were by far, the largest number of events and participants.

**Table 7: Training Activities Summary**

Dates	Events	No.	No. of participants		
		Events	Male	Female	Total
<b>Outcome 1: Continuous freshwater availability is ensured during the dry seasons in 280 villages in the Dry Zone</b>					
Nov 2016 – Feb 2017	Soil and water conservation training	8	293	11	304
May 2017	Community Mobilization training	1	24	1	25
May & July 2017	Community Forestry training	2	91	4	95
May 2017	Agro-forestry Management		24	1	25
June 2017	Seedling, Handling, Transport, Maintenance, Hardening and Planting training	5	118	16	134
June 2017	Agro-Forestry technology training	5	110	8	118
June 2017	Bookkeeping training	5	85	26	111
	Total Outcome 1	26	824 (92%)	73 (8%)	897
<b>Outcome 2: Climate-resilient agricultural and livestock practices enhanced in Myanmar’s Dry Zone</b>					
Mar 2017	Operation and Maintenance training for Thresher User Groups (TUGs)	5	211	67	278
May 2017	Farmer-managed seed multiplication training	5	189	43	232
May 2017	Participatory demonstration plots	5	155	49	181
June-Aug 2017	Establishment of perennial trees (Thanakha)	7	197	63	260
June 2017	Water saving technology (AWD)	4	71	48	119

Aug – Sept 2017	Farmer Field School concept training	5	101	43	144
Sept 2017	TOT training for climate resilient livestock rearing for LBVD field staff officers.	2	15	12	27
Sep 2016-May 2017	Community Level, climate resilient livestock rearing.	205	4304	3412	7716
Feb – Nov 2017	Book keeping hand on training for LFG committee	214	867	326	1193
	Total Outcome 2	452	6110 (60%)	4064 (40%)	10174
<b>Outcome 3: Timeliness and quality of climate risk information disseminated to dry zone farmers enhanced through use of short-term weather forecasts, medium-term seasonal forecasts, and longer-term climate scenario planning</b>					
Sep 2016	ToT on Community Based Disaster Risk Management	2	25	16	41
Mar-Apr 2017	Participatory Risk Assessment Training (introductory training on concepts, methods and tools)	2	31	82	113
Apr 2017	Risk Assessment Validation Workshop	1	18	11	29
Aug 2017	National Training on Forecast Translation and Application	1	15	28	43
Aug 2017	Regional Training on Forecast Translation and Application Training	2	52	33	85
Sep 2017	Capacity Building of Agro-met staff on SESAME application	1	5	10	15
Oct 2017	Capacity building of extension workers and farmer leaders from Myngiyan, Chauk, Shwebo	1	8	10	18
	Total Outcome 3	10	154 (45%)	190 (55%)	344
	<b>Overall Total</b>		<b>7,088 (62 %)</b>	<b>4,327 (38%)</b>	<b>11,415</b>

Source: Training activities excel database, Dec. 2017

### **3.2.4 Outcome 3 - Timeliness and quality of climate risk information disseminated to dry zone farmers enhanced through use of short-term weather forecasts, medium-term seasonal forecasts, and longer-term climate scenario planning**

#### ***Output 3.1: Climate hazard maps and risk scenarios are developed in each township to support community-based climate risk management and preparedness planning***

This output included several products with the assistance of RIMES: Draft Climate Analysis: Vulnerabilities, Extremes, Trends, Projections and Associated Risks in the Dry Zone of Myanmar, five Profiles on Climate Variability, Extremes, Trends and Projections (one for each township), Risk/vulnerability Assessments and Hazard maps (earthquake, floods and drought) for the five project townships. Ten training events were also held for 344 participants under this component (**Table 7**).

RIMES has two sub-projects linked to Outcome 3 – further advancement of the SESAME<sup>19</sup> app and its applications with DMH and DOAs, and development of the initial frameworks for Community-Based Disaster Risk Management (CBDRM) at the township and village cluster levels. They currently employ two Township Coordinators and five Community Facilitators to undertake work on CBDRM. This is a longer term RIMES program aimed at building government and community capacity to prepare for and respond to disasters. This outcome seeks to introduce the concepts and products (decision support tools) and generate awareness, support and basic capacity with the relevant stakeholders and users.

Interviews with township and line agency staff indicated that few in the three townships visited knew about the risk assessment and maps and even those who had attended the workshops were unclear about possible uses of the training they have received. The general conclusion was that the efforts under Output 3.1 are in the early stages of setting up the foundation for improved climate change and disaster risk management. One concern was that the hazard maps have not been adequately ground-truthed and formally validated and approved by government; this is being addressed by project staff. CBDRM development is only just being launched by the project so it will take time to establish a profile.

### **Output 3.2: Local level climate and disaster risk management framework strengthened for timely and effective communication of climate risk and early warning information**

Timely information is important for climate change responses. For example, the post-harvest survey indicated that 71% of village farmers used weather information for crop cultivation purposes, and 29% did not. Among the 71% of farmers using weather information for agriculture work, only 60% got some benefits such as adjustment for harvesting, field drying, storing and quick transport to market; i.e., only 42% of all farmers actually adjusted practices and benefited from weather forecast information.<sup>20</sup>

This output focused on further development of the DMH SESAME mobile application (English and Myanmar version) for improved weather forecasting, issuance of 295 Agro-met bulletins/ advisories, and advances in the DAN – Disaster Alert Notification application. The project provided for technical collaboration of Myanmar’s Department of Meteorology and Hydrology (DMH), the Regional Integrated Multi-Hazard Early Warning System (RIMES) and township departmental staff to undertake a series of workshops and analysis of climate variabilities, extremes, trends and projections for Chauk, Monywa, Myingyan, Nyaung Oo and Shwebo Townships.<sup>21</sup> This included:

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<sup>19</sup> [https://play.google.com/store/apps/details?id=int\\_.rimes.sesame&hl=en](https://play.google.com/store/apps/details?id=int_.rimes.sesame&hl=en)

<sup>20</sup> Cesvi Fondazione (Onlus), *Participatory Assessment on Crop Loss Patterns from Current Post Harvest Practices in Five Townships: Nyaung U, Myingyan, Chauk, Monywa and Shwebo Final Report*, March 2017, p. 22

<sup>21</sup> RIMES/DMH/ UNDP, *Climate Analysis: Variabilities, Extremes, Trends, Projections, and Associated Risks, Central Dry Zone., Myanmar, 2016*

- *Township Level Assessments*, involving interviews with key people from the relevant departments in each of the pilot townships.
- *Village Tract Level Assessments* comprising i) risk ranking, ii) risk mapping, iii) seasonal calendar, and iv) survey.<sup>22</sup>
- *Risk Analysis*, involving creation of risk maps as well as the assessment of risks and their potential impacts based on hazard and vulnerability data and identification of risks for priority action, and potential risk management and resource allocation recommendations for decision-makers.
- *Validation Workshop* presented outcomes of the hazard, vulnerability and risk assessments were key stakeholders for discussion and feedback. The served to validate preliminary conclusions, deepen the understanding of findings, and discuss recommendations for further actions that may be adopted by concerned agencies as a way forward.

Two-day trainings were conducted for the village tract level assessments. The first one, entitled *Participatory Risk Assessment Training*, was conducted prior to the village tract level activities to i) introduce the concepts of hazard, vulnerability, risk, and risk management, and ii) demonstrate the process for conducting and documenting the activities at the pilot village tracts. The second, a *Participatory Risk Assessment Workshop*, was held after the village tract level activities to i) gather outputs and feedback from field experience, and ii) discuss areas or ways to improve the assessment process, methods, and/or tools. The trainings and village tract level assessments involved 10 participants from each of the 5 pilot townships for a total of 50. Participants invited to the training and the village tract assessments were all connected with a government agency in the township they were representing. The majority were agriculture extension workers with background on farm risk management and/or community organizing work.

The recommendations of the risk assessment state that “Township RRD, GAD and village tract administrators are encouraged to make use of the maps together with early warning information in creating disaster risk reduction programs, emergency management/ contingency plans at the township as well as village tract levels.”<sup>23</sup> The project continues to work on local capacity development for such programs and plans, but so far, based on MTE interviews, the reports and maps have limited presence in the township administrations and official endorsement of hazard zones is still pending.

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<sup>22</sup> RIMES/UNDP, Enhancing Capacities for Climate Risk Management in Myanmar’s Dry Zone through Climate Information and Services, Risk Assessment Report, April 2017

<sup>23</sup> RIMES/UNDP, op. cit., April 2017.

### ***MTE summary comments on Outcome 3:***

- General Administration Departments of the townships are not very familiar with the climate risk assessment reports and mapping despite project workshops and discussions, and await further advice on how to use the information (under development for 2018).
- Farmers consulted during the MTE mission still depend mostly on the radio for weather forecasts; the DMH app and the agro-advisories do not yet have a significant presence at the village level, even though they are reportedly available in more than 100 townships and are now being translated into Myanmar language<sup>24</sup>;
- The Outcome 2 activities and knowledge may have useful inputs for the Outcome 3 component, (and vice versa) regarding farming and post-harvest risks and relevant farmer decision variables for risk reduction that could inform the risk management opportunities.
- The progress under Outcome 3 is summarized in Annex 1, indicating a rating of **SATISFACTORY**, on-target to be achieved (although the indicators do not assist progress monitoring). Outputs occurring on many fronts, are still under active development for 2018.

### **3.2.5 Overall progress toward achieving the project objective**

The project objective of reducing vulnerability and enhancing adaptive capacity of households to address climate-related food security issues has seen some definite, if small-scale, local progress relative to the climate vulnerabilities in the Dry Zone. The climate stress on food and water systems is getting worse for marginal, subsistence households in the Dry Zone. The progress has come in the form of a variety of small, localized agriculture, livestock, forestry and water supply developments that clearly strengthen adaptation resources and skills. These, along with proposed improvements in climate risk and weather forecasting information, are perceived by the beneficiaries as important, incremental contributions to their livelihoods and especially the ability to counter and cope with water scarcity. The progress relative to baseline conditions is rated as **SATISFACTORY**; achieved some targets and on- target to achieve the others, with tree plantation needing more realistic budgets and targets and better quality.

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<sup>24</sup> 4th PSC meeting, June 30, 2017.

### 3.3 Project Implementation and Adaptive Management

#### 3.3.1 Project management

The Project Inception report noted that “mobilization of the entire project team took some time due to limited staff capacities at the CO level, as well as due to limitations in expertise in the local market.”<sup>25</sup> The PPR 2016-17 report also stated that “The implementation of the project has been slow due to challenges in mobilizing the project and delays in organizing the inception workshop (26 Aug 2015), project steering committee meeting (9 Dec 2015) and the first technical advisory group meeting (18 Feb 2016). As this is one of the first projects of its kind that Myanmar is implementing, there is no prior experience and benchmarks. Also given the political context in Myanmar, there is also limited understanding of the roles and responsibilities in project management - on the part of the government.”

The Project Steering Committee first met in December 2015, ten months after the project launch; delayed due to the unavailability of government member of the committee. The PSC has however, since then met on a regular six-monthly schedule, reflecting a high level of attention to the project over the last two years.<sup>26</sup> Meetings are held with simultaneous translation and full report of discussions.

The management arrangements have been marked by the continual objection of DZGD to the UNDP DIM modality and UNDP control of the project. From the perspective of the MTE, this is primarily an internal government issue outside the scope of the evaluation, where the lead government agency is objecting to the terms of the project agreement signed by the Ministry of National Planning and Economic Development in August 2014. This objection to DIM is also shared by the Adaptation Fund focal point at Ministry of Natural Resources and Environmental Conservation. This has created a difficult management situation although it has reportedly evolved into a more productive process in the past year, and DZGD have been assisting the search for new land for project forestry activities. In 2016, DZGD was invited to implement a forestry component of the project but declined due to other commitments. They were explicit to the MTE mission that they assume no responsibility for the project other than to serve as counterpart agency and to provide tree seedlings that they have been contracted to deliver.

Fortunately, the working relationships with other departments are much more positive. There is also good participation in the Technical Work Group which meets quarterly and includes site visits to different project locations. The level of outreach and stakeholder consultation is exceptional compared to most AF/GEF projects, as evidenced by the elaborate reporting procedures (See Section 3.3.7).

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<sup>25</sup> Project Inception Report, 2015, p. 9.

<sup>26</sup> PSC meetings held Dec 9, 2015, Aug. 24, 2016, Dec 7 2016, June 30, 2017 and Dec 20, 2017.

The dependence on IPs to deliver project activities has been a concern to some government staff, along with reluctance to accept the overall project approach. There has been considerable variation in expertise and capabilities of the IPs. The international organisations have provided specialized skills while local NGOs/CSOs have provided local connections. The factors that contribute to effective use of this approach include:

- The additionality and expertise being provided that are not currently available in government and that serve to address particular government priorities and needs, such as the Hydroconseil water resource surveys and analyses that are appreciated as value-added by the agencies;
- The prior agreements and working relationships with the relevant government departments that allow for direct project integration into government operations (some local NGOs may not be fully accepted by some departments) such as RIMES-DMH collaboration;
- The technical capacity and track record of the IP in introducing new technologies and being able to adapt and deliver international best practices with potential for scale up (some IPs appear to be learning on the job);
- The project structure that could potentially allow for international IPs to mentor and guide national IPs;
- The expertise within the project team to supervise IPs and provide rigorous quality assurance.

### **3.3.2 Stakeholder engagement, communications and outreach**

The project was officially launched on 17 Feb 2015 at a ceremony attended by 165 participants from government departments, INGOs, LNGOs, CSOs, Universities and institutions. In February – March 2015, visits were made to local authorities, government technical departments and INGOs/CSOs in the five project townships, followed by community consultations for the selection of project villages involving 204 people including representatives from all of the five project townships.<sup>27</sup> Local consultation meetings in the townships were conducted from 9-18 June 2015 and an Inception Workshop was held, with approximately 67 people attending, on 26 August 2015 to review and endorse the project results framework and planned outcomes and outputs.<sup>28</sup>

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<sup>27</sup> UNDP, Summary Notes: Local Consultation and Selection of Target Villages Addressing Climate Change Risks on Water Resources and Food Security in the Dry Zone of Myanmar, June 2015

<sup>28</sup> Adaptation Fund, MOECA, UNDP, Inception Report, Sept. 2015.

Orientation meetings were held with selected Implementing Partners and the relevant departments at regional level to the meeting to inform them of project activities and solicit inputs on implementation. A Technical Advisory Committee was established to provide a level of technical supervision to the project activities. Terms of reference for work packages were circulated to TAG members to solicit comments and secure endorsement. Rapid assessment studies were completed by the IPs in consultation with government specialists and other technical consultants and these studies were sent to TAG members and presented to the relevant sectoral departments at the regional level. There have been eight quarterly TAG meetings to date, many of which involved site visits. DZGD also shares the monthly progress reports submitted by the project team to TAG members.

In April-May 2015, a communications strategy was prepared with the aim of highlighting project activities on the ground, including systematically documenting the project's evolution and progress through photo and video media and providing an internal communication guideline. The project published two photo essays on the UNDP/GEF Adaptation Learning Mechanism (ALM) website and several success stories/best practices on the UNDP corporate website. The strategy however, does not address a particular communication problem: the high staff turnover within government and the often uncertain circulation of project information sent to individual government participants. During the MTE mission, some government officials complained about lack of information on project activities and status, especially at the regional level, and sometimes new administrators and staff at the townships were unaware of the project activities.

There was a suggestion that township fire departments should be consulted about fire breaks/roads and other forest protection measures being proposed. There were also suggestions during the MTE discussions that more exchanges with other programs such as the Emerald Green Livestock program, the FAO animal disease control programme, the LIFT project (UNOPS), community-based drinking water projects with several NGOs in the Dry Zone (e.g., GRET, Solidarite, CARE Intl.) and others would contribute to joint learning about climate-resilient best practices in the Dry Zone.

### **3.3.3 Annual work planning**

Work plans are prepared at the end of each year in consultations between the project office, IPs and the relevant government departments. These are formally reviewed by DZGD during monthly meetings and TAG meetings. Disagreement sometimes occur, such as in the request to change some of the targets set out in the project Results Framework.<sup>29</sup> Other issues noted during the MTE mission was for more

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<sup>29</sup> E.g., DZGD indicated that they were unable to accept the reduction in targets from those established in the Project Document. Summary of meeting, Project Monthly Meeting held in Meeting Room of DG Office of DZGD, 22-3-2016.

discussion about annual workplans with regional level agencies to avoid any overlap between project activities and departmental programs.

### 3.3.4 Finance and co-financing

The project is funded through an Adaptation Fund grant of US\$ 7,289,425 and UNDP TRAC funds of US\$ 624,998 and in-kind co-financing by the government values at US\$ 554,181. To early December 2017, the project has expended 88% of the budgeted funds available for the years 2014-2017 (**Table 8**). Comparison of budgets to expenditures show delivery rates of 78%, 92% and 100% for the years 2014, 2015 and 2016. The 2017 expenditure to Dec. 3<sup>rd</sup> is 81% of the annual budget. Except for the first year of slow start-up, expenditures are in line with UNDP/GEF disbursement rates (>90%).

In total, 60% of the AF funds and 63% of the UNDP funds have been spent, totalling about \$4.76 M of the \$7.9 M project. At the 2017 budget and expenditure rate, the project would have funds available for 17 months. This leaves considerable room over the remaining 14 month of the project to upgrade the quality of land and water improvement outputs that have been under-financed in the first few years of the project.

The Project Document specifies that co-financing from the Government of Myanmar provide 17 specific services, including for example: plantation establishment, fire protection, weeding, survival counting, protection of remaining natural forests, recruitment of labours for watering, etc, valued at \$164,180, and parallel human resources from MoECAAF valued at \$554,181.<sup>30</sup> Office space has been provided by DZGD but considerable expense was encountered in upgrading the main office building and operational expenses are covered by the project rather than government. The project also provides government per diems for travel by government staff. The specific services that comprise the co-financing commitments of the government should be considered within the 2018 workplan since the obligations for tree plantation installation, weeding, protection and other duties have not been well-defined in previous years.

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<sup>30</sup> Project Document, 2014, p. 155, ANNEX- J: Parallel co-financing contribution from the Government of Myanmar; Note: current exchange rate 1USD= 850 Myanmar Kyat is applied.

**Table 8: Annual Budgets and Expenditures**

Outcome		2014		2015		2016		2017		Total	
		Budget	Expend.	Budget	Expend.	Budget	Expend.	Budget	Expend.*	Budget	Expend.
Outcome 1	AF	9,440	2,722.84	225,386	215,404.53	709,255	703,649.64	1,563,034	1,114,852.57	2,507,115	2,036,629.58
	UNDP	0	705.03	0	0	12,040	6,026.01	13,388	12,125.33	25,428	18,856.37
Outcome 2	AF	1,220	100	102,515	92,484.87	878,928	865,903.31	901,096	887,398.36	1,883,759	1,845,886.54
	UNDP	0	-8.23	0	29.93	6,760	3,367.23	7,589	6,873.88	14,349	10,262.81
Outcome 3	AF	0	0	49,945	39,754.97	115,235	116,958.98	336,121	258,622.42	501,301	415,336.37
	UNDP	0	0	0	190.26	40,034	50,387.24	2,557	2,312.38	42,591	52,889.88
Project Management	AF	0	2,421.58	31,846	22,066.04	21,124	26,034.55	23,534	21,347.66	76,504	71,869.83
	UNDP	75,130	61,513.64	131,334	128,335.34	68,735	67,788.16	76,466	51,978.02	351,665	309,615.16
Total	AF	10,660	5,244.42	409,692	369,710.41	1,724,542	1,712,546.48	2,823,785	2,282,221.01	4,968,679	4,369,722.32
	UNDP	75,130	62,210.44	131,334	128,555.53	127,569	127,568.64	100,000	73,289.61	434,033	391,624.22

\* Expenditures to Dec 5, 2017

### 3.3.5 Risk management

The Risk Log in ATLAS has been updated on a regular basis pointing out the role of non-climate drivers, extreme weather events, participatory approaches and technical capacity can play in the project. Risks with level 1 probability are: “Non-climate drivers undermine adaptation efforts under this project”, and “Political and social instability and lack of government engagement”.<sup>31</sup> From the perspective of the MTE mission, there are four types of current risks that may present a concern:

- **Land availability** – the lack of land for afforestation, forest conservation, and water supply pond renovation necessitates that a back-up plan be prepared to address the relevant objectives through other strategies (Recommendation 3);
- **Timing of activities** – the critical planting window at the start of the rainy season (Recommendation 2), and adjusting livestock distribution so as not to conflict with other farming labour and local customs<sup>32</sup> are important timing factors that affect project results.
- **Low capacity of some NGO/CSO partners** – the need to ensure IPs have the capacity and budgets to implement high quality plantations and soil and water conservation with adequate budgets is a risk that can be addressed (Recommendation 6).
- **Government communications** – recognition of high turnover of staff and limitation of internal communication and sharing of information within government organisations and between levels of government contributes to the lack of awareness of the project (Recommendation 13).

### 3.3.6 Gender and inclusiveness aspects

The 2016-2017 PPR report states that gender is considered in all project activities such as prioritization exercises, water user group formation, selection of labourers for project activities, beneficiary selection for livestock distribution and training activities, although female participation in project activities (labour inputs) has been low. The project has accorded priority to women-headed households in its livestock distribution programme and IPs have been requested to report using gender-disaggregated data.<sup>33</sup>

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<sup>31</sup> Quarterly Project Progress Review Report, July 2017.

<sup>32</sup> See advice in Dr. Than Naing, Community Development Association, Report On Rapid Needs Assessment & Beneficiary Selection (Climate Change Resilient Diversified Livestock Rearing Practices), 2016.

<sup>33</sup> UNDP, Project Performance Report (PPR), 01 Apr 2016 - 31 Mar 2017 PIMS 4703

The village selection consultations had 28% participation from women.<sup>34</sup> In the *Livestock Rapid Needs Assessment and Beneficiary Selection* in 253 villages 35% of the 13,329 participants were female. Only 20% of LFG Committee members are women, although this may be under-estimated.<sup>35</sup> The current project database records 23% of livestock user groups as female and 26% of committee members as female.<sup>36</sup> In the training activities (**Table 7**), 38% of the participants were female. Many of the primary beneficiaries on the water supply projects are women. The MTE mission noted that the project is making a visible effort to ensure women are a significant part of the project.

Is the project sufficiently targeting poor and marginal households? The maximum land holding criteria for qualification as a beneficiary had to be relaxed at the inception stage because there are many poor households that have lands greater than 0.8 ha. Further monitoring of project beneficiaries is needed.

### 3.3.7 Project monitoring and reporting

The AF Results Tracker rating of progress (Annex 1) is generally consistent with the progress review comments in the annual 2017 Project Performance Report (PPR), although there were some difficulties in tracking progress per the indicators (see below) and the precision for some approximate measurements, e.g., *households having increased freshwater availability during dry periods*, may be limited. The issues related to land acquisition noted in PPRs are reflected in slightly lower rating for progress on Outcome 1. Quality of plantation work due to low budgets was not noted in PPRs. The May 2017 PPR estimate of being 10-11 months behind schedule may be closer to 2-3 months at the end of 2017, although this depends upon upon land availability and budgets for the plantation targets, as discussed in the conclusions of this report.

The project M&E system is outlined on **Figure 2** and summarized in the following list:

#### Monthly

- Implementing partners submits monthly reports to the project team.
- Project team submits monthly reports to DZGD, UNDP Area Office in Mandalay and DoA in Sagaing Region (this is a specific request from Sagaing only).
- DZGD provides the monthly report in a modified format to Environment Conservation Dept. and all relevant departments.

#### Quarterly

- Implementing partners submit quarterly reports to the project team.
- Project team submit quarterly reports to UNDP Area Office in Mandalay, UNDP Country Office in Yangon and Bangkok Regional Hub.

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<sup>34</sup> UNDP, Summary Notes: Local Consultation and Selection of Target Villages Addressing Climate Change Risks on Water Resources and Food Security in the Dry Zone of Myanmar, June 2015.

<sup>35</sup> Dr. Than Naing, Community Development Association, Report On Rapid Needs Assessment & Beneficiary Selection (Climate Change Resilient Diversified Livestock Rearing Practices), 2016.

<sup>36</sup> Project Office, Excel spreadsheet, Output 2.3 Summary Data (livestock)

- Project team presents progress report to TAG along with a day-long site visit facilitated by implementing partners.

**Bi-annually**

- Project team submits reports to Country Office, who in turn reports progress/results to the Government of Myanmar.
- Project Team submits bi-annual progress reports to MONREC and 3 Regional Chief Ministers (Sagaing, Mandalay and Magwe).
- Project Team presents progress report to PSC along with a Joint Co-chairs field visit to project sites.

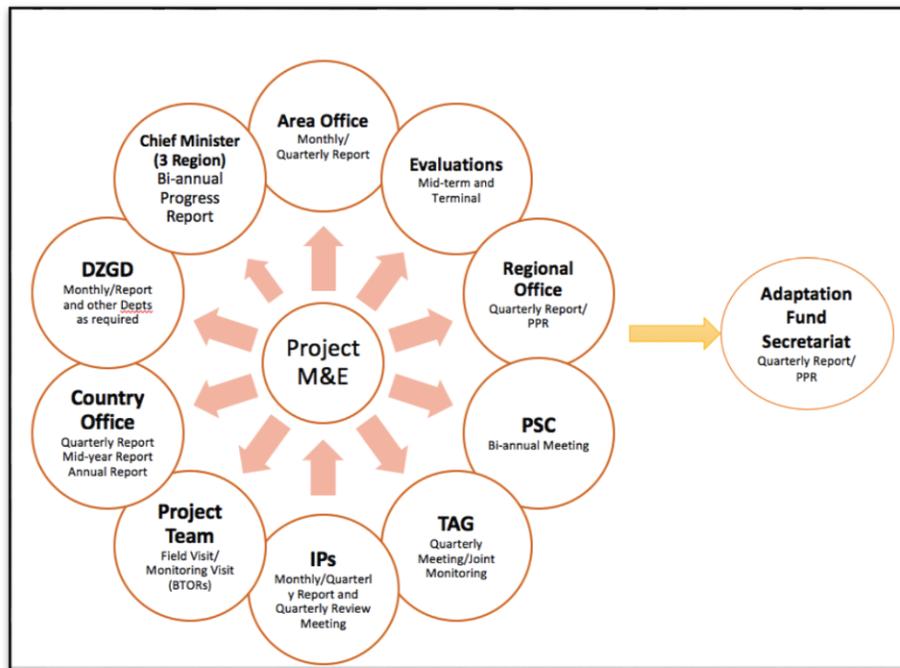
**Annually**

- Project Team submits reports to Country Office – who in turn submits and presents the report to the Government and UNDP HQ.
- Project Performance Report (PPR) is submitted on an annual basis/as and when funds are requested from the AF Secretariat
- Project progress presented in annual partners’ consultation meetings with the regional governments of Saigaing, Mandalay and Magwe.

**Back to Office Reports:**

- Project Staff submit Back to Office reports after every field visit. The reports are circulated within the team and staff based in Yangon.

**Figure 2: Project monitoring, evaluation and reporting**



Source: UNDP project office

The M&E system as outlined above provides a comprehensive framework for effective consultation and progress reporting. The project databases also provide a detailed compendium of activities and outputs that have been funded. Maps of project tree plantations have been transferred to DZGD. Also, some of

the rapid assessments provide detailed inventories of the status of infrastructure that may be useful for related government programs.<sup>37</sup>

The M&E system should also be used to assess and report on results.<sup>38</sup> For example, the relative quality of the tree plantation/forest conservation or the effectiveness of pond renovation in expanding the number of days water is available to the community. Not all of the indicators in the Results Framework (**Annex 1**) have been effective for reporting on such outcomes. Some of the questions related to outcome-level (results) monitoring focus on the use of project indicators which are reviewed in **Annex 8** of this report.

### **3.4 Project Sustainability**

#### **3.4.1 Outcome 1 water infrastructure sustainability**

Sustainability under this outcome focuses on (i) ensuring water user groups and fees are established and the groups functional to support maintenance of facilities, and (ii) that community and government institutions have the commitment and capacity to operate and maintain the systems. The need to renovate water supply infrastructure may mean that they have fallen into disrepair due to neglect. There are some good examples in the project villages of effective water user groups that can be used to model best practices for other communities. While many such groups have been established at the 75 ponds constructed, their operational status and effectiveness are not well known.

#### **3.4.2 Outcome 2 agricultural and livestock practices sustainability**

Sustainability under this outcome focuses on (i) improved crop yields and income from new farming systems and livestock rearing to provide the financial incentives to sustain, and (ii) the strength of user groups and community organisations to maintain equipment, facilities and good practices. Formal plans for handover and management need to be put in place.

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<sup>37</sup> For example, Hydroconseil, Assessment, Identification & Monitoring of Small Scale Water Infrastructure Needs for Drinking and Irrigation Water in the Dry Zone of Myanmar, Rapid Needs Assessment Report, 16/12/2016.

<sup>38</sup> The system should be able to answer three core questions: Are the adaptation measures (techniques and practices) being implemented as planned and to an acceptable quality or standard?, Are the expected benefits (physical, livelihood, income, food security, etc.) being achieved by the target groups, leading to a reduction in vulnerabilities?, Are there effective arrangements (user groups, government programs, markets, etc.) and capacity to ensure operation, maintenance and sustainability of the adaptation measures?

### **3.4.3 Outcome 3 climate risk information sustainability**

Sustainability under this outcome focuses on (i) usability of the information technologies and agro-advisories by targeted users, (ii) integration of these innovations into government extension programs, and (iii) institutional capacity to further develop and maintain effective CBDRM policies, plans and implementation mechanisms. The ongoing commitment of RIMES to assisting the government provides some support for these sustainability objectives, but integration into DMH and DOA programmes will be the main driver of sustainability.

## **4.0 CONCLUSIONS AND RECOMMENDATIONS**

### **4.1 Conclusions**

#### **General**

1. The project has completed an impressive range of small-scale climate change adaptation activities related to water supply, watershed management, community forestry, natural forest conservation, soil and water conservation, agroforestry, agriculture, livestock, disaster risk reduction, weather forecasting and early warning systems. This included hundreds of adaptation activities in 280 villages in the Dry Zone of Myanmar and targeted skills and awareness training provided to thousands of participants.
2. The MTE discussions identified several key themes that need to be considered:
  - Trade-offs in meeting project targets with low quality outputs versus achieving higher quality outputs with lower targets;
  - Performance and dissemination of best practices and innovations spreading beyond the few demonstration farmers and sites and being fully adopted by farmers;
  - Need to ensure capacity to sustain the demonstrated activities/rehabilitated infrastructure and to utilize improved climate risk information and tools;
  - Communication challenges with the ten participating departments at various levels of government despite the strong field activity coordination efforts.
3. The project may be over-committed and under-budgeted in some areas. For example, the technical standards and cost norms for physical work such as tree plantation and community ponds are much lower than for similar government work because the budget is stretched to reach prescribed targets. The result is some physical works have slightly lower quality or incomplete results (plantation, pond rehabilitation) in the face of budget pressures and targets. This is a strategic question to be addressed

– whether the quantity of forestry and watershed work (targets) should be reduced in favour of quality, to produce more sustainable results.

## **Project Design**

4. The project strategy aims for integrated adaptation measures in various sectors in five townships in the Sagaing, Mandalay and Magway Regions of Myanmar. The scale and variety of outputs are extraordinary but this also diminishes the overall focus and clarity of a climate change adaptation strategy for the Dry Zone. Demonstration and promotion of best adaptation practices at many locations is the primary approach, yet strategic climate change vulnerabilities within the project townships are not prioritized and model practices intended for wider promotion are not always evident due to the effort to cover so many villages, activities and sites with a limited budget.
5. The project design made several questionable assumptions about (i) readiness of the government to mobilize for implementation, (ii) availability of land, (iii) availability of technical experts/capacity, (iv) the processes required to engage and coordinate with the relevant government agencies, and (v) the communication aspects given the high staff turnover in government. The project team and project implementing partners have worked hard to deliver a high volume of outputs in accordance with the Project Document and budgets. But the initial design specifications and cost estimates from 2012 should have been updated at inception based on site circumstances in the project locations.
6. The project is heavily driven by targets. At least 15 have had to be revised due to realities of the Dry Zone, especially the lack of available land for tree plantation and community ponds and lack of feasibility of some of the targets. For example, the definition of “marginal, impoverished farmers” needed to be changed from less than 0.8 ha to less than 2.5 ha, since the beneficiary targets on the original project design could not be met with the more narrow criteria; more flexibility was needed.
7. The number of sectors and agencies involved imposes high management requirements for relatively small scale activities. The dispersed locations limit the potential to demonstrate the combined effects of multiple adaptation measures on households, communities, and landscapes. Dry Zone conditions also require integrated measures; e.g., improved seeds with soil improvements/moisture conservation, tree planting with companion soil and water conservation, and groundwater use with supplementary rainwater to dilute high salinity levels. The dryland environment therefore, is physically limiting in the types of stand-alone interventions that can be truly effective.

## Project Results

8. The water supply work, to date - 75 ponds and 45 canals including renovation of the major Shwebo canal system, have been important contributions to community needs. Many of the pond renovations may not be sufficient to extend water availability into the dry season (Feb-June). Some of the projects visited provide water for an additional one month beyond the monsoon supply.<sup>39</sup> Some work is left unfinished due to small budgets. The project needs to look for opportunities to enhance the pond capacities, shoreline planting to provide shade and more catchment area rainwater capture where land agreements allow for this. Further attention to water inputs requires a shift in approach from community ponds to community watersheds.
9. The forest protection and plantation, 4008 ha and 1378 ha, respectively completed to date, have been effective at mobilizing community participation although the survival rate of seedlings has been a key concern. Difficulty acquiring land and budget constraints relative to targets limits the resources available for better quality planting and for follow-up management (weeding, patching, tree guarding). The patching and other activities and maintenance responsibilities for the 2016, 2017 and 2018 plantations by IPs need to be clarified and budgets re-considered, including the possible opportunities to go back to the 2016 and 2017 plantations to increase their productivity.
10. Some of the project plantations that were visited have technical quality deficiencies due to low budgets and/or limited experience of the IP staff. Many of the tree plantations observed in the project as well as in other government plantation sites do not sufficiently address the water management and watershed approach compared to dryland programmes in other countries. For a dry zone environment, there is generally too much emphasis on tree planting and not enough attention to rainfall capture, soil stabilization, drainage controls, farm ponds, livestock grazing /fodder alternatives and use of vegetative and other barriers to enhance rainfall infiltration.
11. The tree plantation activities are spread across many small/large and remote sites and implemented by two IPs, who are focussed more on meeting targets rather than strategic opportunities for landscape regeneration and sometimes without adequate technical supervision. In homestead plots, the desired tree species by farmers are not always available. Some consolidation of the tree planting activities and sites, especially around community water supplies, and strategic division of labour between IPs, would help to generate more effective and efficient results from the tree planting combined with soil and water conservation.

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<sup>39</sup> Estimated on the basis of excavation resulting in a 10-15% increase in water holding capacity of the pond.

12. The livestock distribution and development component has been very successful with local beneficiaries (Annex 1 & 9). Payback and revolving fund management appears to be good but this needs to be confirmed. The success may be attributable in part to the extensive training program. The project has sponsored 488 training events involving 11,415 trainees (Table 7); 86% of the events were for livestock management at the village level. There nevertheless remain some risks in the capacity of Livestock Farmer Groups to control diseases and to effectively manage the loan payback system, which are critical to sustainability.
13. The agricultural activities including drought-tolerant crop varieties, inter-cropping and other farming methods, thresher equipment, improved seed storage and multiplication have provided clear benefits to the participating farmers. The demonstration plots have generated considerable farmer interest. Increased crop yields were noted by farmers during site visits (Annex 9). Participating farmers expressed a high level of satisfaction and commitment to the improved seed varieties and inter-crop farming. In addition, new threshing equipment and seed storage facilities are greatly appreciated given the high rate of post-harvest losses.
14. The climate risk analysis and mapping, the improved weather forecasting through SESAME and Agro-advisories, and the new Disaster Alert Notification tool have been important contributions. They have benefited from strong support from DMH and RIMES. But so far, only some of the government staff and few farmers consulted during the MTE interviews were aware of the technologies. Authorities are uneasy about publishing risk maps. Very few township staff were aware of the risk assessment and maps let alone their future application even though considerable local consultation has occurred in the climate risk assessments.
15. The Swebo township Kin Tat canal and related irrigation system renovation project is a noteworthy example of a high return (57,000 beneficiaries), low cost (\$50,000) project that involved irrigation department design and community mobilisation to restore a water management system that diverts excess flows away from a flood prone area to a water deficient area where new irrigation water is now available. It is a good example of how Adaptation Fund resources can be used to re-activate and improve a neglected water management facility, provided the system can now be properly maintained.

## **Project Management**

16. Major delays in the start-up of the project led to pressure to commence activities with rapid assessments of sector and community needs by IPs and emphasis on lowest possible costs to meet given targets. The lack of readily available land for plantations required a search for smaller, dispersed

locations for tree planting with higher management costs. Pressure to make progress and to meet targets pushed the planting to a late date and caused a low survival rate in the planting, which in turn gave a poor initial impression of the project.

17. The project has been in constant adaptive management mode due to surprises over lengthy government approval processes, the need to synchronize inputs of many organisations in government and Implementing Partners, lack of available land, physical conditions of the Dry Zone environment (water scarcity, distant markets, etc.), and limited budgets to address them. In addition, reluctant support to the project by DZGD and short term IP contracts with little follow-up responsibilities (e.g., patching) created early problems for the project. These issues have been significantly reduced in the past year.
18. The project has created an exceptional structure for consultation with the government agencies, including the Technical Advisory Group (TAG) and the intensive reporting system (monthly, quarterly and annual reports) and six monthly PSC meetings. Yet there were still communication gaps reported during the MTE mission, due in part to high staff turnover and poor internal exchange of information in government, and perhaps limited regional liaison. Despite extensive consultation and distribution of progress reports, many officials interviewed were not aware of the project or current progress and requested input on workplans to avoid overlap with government programs.
19. Government staff have been actively involved in attending TAG meetings, and in some aspects of implementation particularly supply of seedlings, support for livestock distribution, trainings on climate change adaptation methods, helping to develop the new weather forecasting and agro-advisories, and the disaster early warning tool. DMH, LBVD, DOA and DOAR have made exceptional contributions to the project. Full consultation with DRD and IWUMD staff on the tube well installations in 2018 is needed, considering the water quality problems (high salinity/iron) that have been encountered with previous wells in some areas of the Dry Zone.
20. Given the particular circumstances of the project – many different activities across many locations and difficulties in collaboration with some parts of government, management of the project has been generally effective. There have been technical deficiencies in some of the forestry and water activities but these are primarily due to low budgets and unrealistic targets in the project design. Managing such an array of activities, stakeholders, partners and issues has required pro-active management by the project team, the Project Steering Committee and UNDP.

## Project Monitoring and Evaluation

21. The M&E system should be able to answer three key questions: Is there increased water availability for households in the dry season? Have climate-resilient agricultural and livestock practices been adopted by farmers? Has the timeliness and quality of climate risk information been enhanced for use by Dry Zone households? The current reporting, with an emphasis on outputs and targets, does not precisely address these outcome questions (although some answers may be forthcoming for example in Cesvi's monitoring survey). There is also currently little information on the operational status and performance of the physical works, most of which were only recently constructed or installed.

### 4.2 Recommendations

**Recommendation 1: More flexibility should be permitted to adjust locations, targets and methods for afforestation, agroforestry, soil and water conservation and pond renovation where appropriate to achieve specific objectives at project sites and ensure cost-effective, sustainable investments, even if overall project output targets need to be reduced.**

*Rationale:* There is a need to develop a realistic workplan for the remainder of the project that balances targets and quality, recognizing that the current high targets and low budgets for some components are not conducive to sustainable results. Adaptive management is appropriate and necessary to respond to issues of quality when the project design assumptions prove to have under-estimated the requirements and costs of meeting the original targets. The selection of sites for proposed tree and agroforestry plantation should be allowed anywhere where suitable land is available. The budgets for tree planting are too low, or targets are too high. Tree planting budgets should be consistent with government cost norms. This may require amendments to contracts with some Implementing Partners based on a scope of feasible, quality outputs in the remaining 14 months of the project.

**Recommendation 2: New plantation should be limited only to lands that are available and secured by February 28, 2018, and no significant tree planting should be undertaken outside of the monsoon season. If land and other inputs are not available in advance of the planting period to allow for adequate plantation preparations, the planting proposals should be abandoned.**

*Rationale:* The project needs to set a deadline for the current search for forestry land, so far unsuccessful, in order to avoid the inability to meet the 2018 monsoon planting window. Acquisition of land late in the year causes rushed decisions in plantation preparations and planting after the start of the rainy season which leads to low survival of seedlings and poor quality plantations.

**Recommendation 3: The project should develop a back-up plan in case the lands for afforestation, agroforestry and enhanced pond rehabilitation are not available by February 28, 2018. In the absence of new plantations, savings could be redirected to patching and other measures that will increase**

**productivity of the 2016 and 2017 plantations, and additional measures to improve catchment area water inputs for the pond renovation projects, or other water supply enhancements.**

*Rationale:* If new plantations cannot be installed as planned, the 2018 workplan should shift these planned forestry activities to other related options such as:

- enhancing the productivity and protection/conservation of the 2016 and 2017 plantations;
- adding soil and water conservation measures, where opportunities exist, to selected previous plantations as a demonstration of comparable afforestation with and without soil and water conservation; and
- undertaking watershed rehabilitation in the catchment areas of existing or proposed community pond projects where feasible.

**Recommendation 4: The project should review the pond restoration projects completed to date to identify lessons from the current 75 projects that can improve results for the next phase of projects, and where feasible, to expand the approach from community ponds to rehabilitation of community water supply catchment areas.**

*Rationale:* A follow-up survey of the results of a representative sample of the completed pond renovations in terms of increased water availability in the dry season would assist in refining the approach for the next phase. This brief review of the current projects could also identify opportunities for additional watershed interventions to increase water yield from the community water supply catchment areas. Survey design should aim to provide information on performance that contributes to the project results monitoring database. (See Recommendation 13)

**Recommendation 5: Where opportunities exist, the project should concentrate afforestation, agroforestry, soil and water conservation and related micro-watershed rehabilitation activities in common areas, preferably in conjunction with community pond rehabilitation, to provide examples of the combined effects of these climate change adaptation measures on a landscape and community.**

*Rationale:* Many of the project activities are small-scale and dispersed, which limits their potential to concentrate effects and observe results. In 2018, it would be preferable, where possible, to demonstrate the combined effects of multiple interventions on a local area, especially if they were used to assist groundwater recharge or pond water supply or address priority needs identified in the infrastructure survey.<sup>40</sup> This would also better reflect the project's integrated view of risk and vulnerability reduction through complementary strategies.

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<sup>40</sup> For example, 12 villages in the five townships have no access to groundwater, and 165 villages do not have sufficient drinking water. Hydroconseil, Assessment, Identification & Monitoring of Small Scale Water Infrastructure Needs for Drinking and Irrigation Water in the Dry Zone of Myanmar, Rapid Needs Assessment Report, Dec 2016.

**Recommendation 6: The project should prepare and apply a *quality assurance checklist* for tree planting activities that will guide plantation implementation and management standards, and facilitate performance assessment during regular inspections by project staff and Dry Zone Greening Departments and Forest Departments.**

*Rationale:* The field visits indicated that the quality of tree plantation is a concern due to the low budget allocation and possibly insufficient capacity or oversight for quality control. With the adoption of government cost norms, the quality of work will improve. However, to ensure that this occurs, a more rigorous approach to supervision and monitoring may be needed. A simple checklist drawn from DZGD/FD plantation practices and related prescriptions for rainwater capture would help to enhance quality assurance in planting and guide regular field monitoring procedures. The obligations of the IPs and government departments (see co-financing commitments) with respect to planting and maintenance should also be clarified in this checklist.

**Recommendation 7: The project should combine the tree plantation, forest conservation, agroforestry, homestead and other tree planting activities into one workplan to improve coordination and delivery efficiency, and harmonize or consolidate the contracts of the two IPs accordingly.**

*Rationale:* There are two IPs responsible for forestry activities (NAG and CDA). The overlap between afforestation, forest conservation, homestead, farm boundary and other tree planting across many isolated sites creates unnecessary inefficiency in the implementation of similar tasks. In conjunction with review of targets (Recommendation 1), the forestry workplan should consider allocating the work geographically and rationalizing and concentrating the activities (Recommendation 5).

**Recommendation 8: The project should review and refine the agro-forestry strategy to focus on larger sites to model and showcase demonstrations of introducing trees into cropping and inter-cropping systems and alternatively introducing cover crops into existing tree farms.**

*Rationale:* The agroforestry activities contain a variety of dispersed on-farm tree planting. It would be better to confine the approach to more comprehensive demonstrations of agroforestry with established, operating farms in order to show the income and diversification potential of this farming system. Introduction of crops within existing *thanakha* tree farms also provides a complementary approach. The review of opportunities to consolidate and focus the agroforestry interventions and monitor results should be undertaken in cooperation with the Output 2.1 agricultural component under IP CESVI.

**Recommendation 9: The project should appoint a qualified consultant to review and advise Shwebo and Khin Oo Townships on (i) operating rules and responsibilities, (ii) maintenance procedures and**

schedule, (iii) a multi-year maintenance budget and (iv) any other O&M requirements needed for sustainability of the renovated Kin Tak canal, control gates and Kantawmin escape gate. The results of this review should be part of the formal hand-over to the Sagaing regional government.

*Rationale:* The sub-project under Output 1.1, *Renovation of irrigation system to ensure drinking and irrigation water supply to enhance food and water security in Shwebo Township*, has successfully produced significant benefits for drinking water protection, flood control, irrigation development. But the operations will require regular monitoring and management to avoid repeating the causes of the original blockage of the canal and decline in the system facilities. While there is confidence in the current managers, further measures are needed to ensure effective long-term institutional support by the Townships and regional authorities to operate and maintain the renovated facilities.

**Recommendation 10: The project should prepare and implement a dissemination plan for the main agronomic innovations that have proven effective in the demonstration plots under Output 2.1, with the aim of expanding the uptake of these new methods to the majority of active farmers in each project village where the innovations have been successful at a demonstration scale.**

*Rationale:* The inter-cropping systems and other agronomic climate change adaptation measures have had good results on the two or three demonstration plots in each village where they have been tested. These climate change adaptation measures have high potential for replication but significant additional support to expand their use by other farmers is needed in the form of information and advice and the possible expansion of the farmer field school approach to dissemination of the new methods.

**Recommendation 11: The TAG should be requested to further review the implications of the risk assessments and hazard maps produced under Outcome 3, and to facilitate communications with the local and regional authorities on community-based disaster risk management.**

*Rationale:* The climate risk assessment and mapping and related CBDRM under Outcome 3 is advancing rapidly. The profile of this component should be increased. While a validation workshop was held with stakeholders on the initial assessment of risks and hazards, further consultation and endorsement through more formal processes with the government may be necessary given the sensitivities associated with hazard classification. There are concerns about publishing flood and landslide hazard maps that are not officially approved by the government even where consultation has occurred. The project should ensure they are not published or distributed without the full approval of the Government of Myanmar.

**Recommendation 12: The project should provide concise quarterly progress summaries for distribution directly to Regional Directors and Township General Administration Departments to enhance communications.**

*Rationale:* The project has developed an elaborate consultation and reporting system on a monthly, quarterly, six-monthly and annual basis. There are however, gaps in how information is distributed within the government system. More communication has been requested by regional and township authorities. This should be concise and targeted at key leadership positions in government.

**Recommendation 13: The project should strengthen the monitoring database by compiling and collating key information from field visits and surveys on the status of and results from physical assets created by the project.**

*Rationale:* While there are substantial data on project outputs, information on the results of these outputs are lacking; for example, plantation condition, enhanced water availability, improved crop yields, operational status of water infrastructure, adoption of inter-cropping farming methods. These data are generally available from quantitative and qualitative field observations/monitoring visits and surveys by project officers and IP staff. The basis for reporting on outcome progress should be reviewed in view of the fact that the outcome indicators in the Results Framework are primarily designed for post-project impact assessment.

### **4.3 Rating of Performance**

**Annex 1 and 1a** provide a summary of achievements to date and progress towards results (AF Achievement of Outcomes against End-of-project Targets). **Table 9** summarizes ratings as per AF evaluation criteria. Overall, the project progress is rated as Satisfactory. This general performance rating needs to be considered in context with the conclusions and recommendations and Section 3.2 above which provide a more full description of the progress and issues that need to be faced during the final stages of the project.

There are particular aspects of the project design and set-up that have affected progress – wide scope, little precedence, dry zone challenges, insufficient preparations, inconsistent IP capacity, adversarial government partner, outdated cost estimates, etc. But adjustments, persistence and participatory processes have worked to gradually address many of these constraints during the past two years of implementation. Further refinement of the implementation strategies is needed in the days ahead.

### **4.4 Project Extension Criteria**

The progress reports show rapid catch-up from delays in earlier years. Any shortfalls will depend upon the compromises made between quantity and quality and the budget revisions for 2018. The project is significantly behind in terms of acquiring land for forestry activities and undertaking plantation preparations to meet original targets. But, subject to the revised workplan, current progress on other

outputs is generally on-track to achieve the planned outcomes. The lack of land is a limiting factor that weakens the case for extension of the project.

Any application for no-cost AF project extension needs to be precise about remaining gaps that can be addressed in the short term of an extension. It is too early to determine the need for extension given the uncertainties about what is achievable in 2018. The potential criteria for determining this could include:

- (i) the status of completed work and the need for finalization of arrangements for sustainability of the assets developed by the project (based on reliable monitoring data);
- (ii) the level of effectiveness and completeness of the dissemination and replication efforts to expand the adoption of proven farming technologies beyond the demonstration sites; and
- (iii) the extent to which learning and implications for related government extension programs still need to be addressed in order to achieve the expected results. For example, adequate user feedback on the weather forecasting app and agro-advisories and progress on integration into agricultural extension programmes.

**Table 9: MTE Ratings & Achievement Summary Table for Addressing Climate Change Risks on Water Resources and Food Security in the Dry Zone of Myanmar**

<b>Measure</b>	<b>MTR Rating</b>	<b>Achievement Description</b>
<b>Project Strategy</b>	N/A	
<b>Progress Towards Results</b>	Objective Achievement Rating: <b>Satisfactory</b>	Significant output progress has occurred in the last two years given the slow start, with some issues on quality of some outputs, and budgets that are generally spread too thin across many sectors and communities.
	Outcome 1 Achievement Rating: <b>Marginally Satisfactory</b>	Outcome 1 seeks “ <i>continuous freshwater availability is ensured during the dry seasons in 280 villages in the Dry Zone</i> ”, but the increases in water holding capacity of the ponds are relatively small due to budgets and the measures to enhance water yield through watershed soil and water conservation are very limited. Even with the renovation (excavation) assistance from the project, many of the ponds do not have enough water to last to or into the dry period (Feb-June).  Output 1.2 focuses on watershed management through community-based afforestation, reforestation and regeneration practices, but the budgets for tree planting are much lower than government norms and this affects quality of the plantation; targets are too high or budgets are too low and therefore adjustments need to be made.
	Outcome 2 Achievement Rating: <b>Satisfactory</b>	The agricultural and livestock adaptation activities are being effectively implemented and should have an important impact on increasing climate resilience for marginal farming households. Replication and sustainability are concerns.
	Outcome 3 Achievement Rating: <b>Satisfactory</b>	The climate risk assessment, mapping and information technologies development are developing the initial framework for improved weather forecasting, agro-advisories and disaster notification/management. Progress is good but further alignment with township authorities is needed.
<b>Project Implementation &amp; Adaptive Management</b>	<b>Satisfactory</b>	Given the scope and complexities of the project design and the slow start-up and long inception due to lack of experience in working with the government procedures along with unrealistic budgets and high targets, the implementation has been satisfactory despite low quality in some of the outputs and the need to re-set many of the project targets associated with the ambitious project design. Active management has been required and provided on the part of all parties.
<b>Sustainability</b>	<b>Moderately Likely</b>	Some of the agricultural and livestock activities have high likelihood of being sustained due to improved yields and incomes from the new practices. But ensuring community capacity to manage new assets (e.g. seed storage, livestock lending, water fees) will be a key to long term sustainability.

## Annex 1: Progress towards Results Matrix (Achievement of outcomes against End-of-project Targets)

Project Strategy	Results Indicator -M&E Plan	Baseline Level -M&E Plan	Level in 1 <sup>st</sup> PPR (self- reported)	End-of-project Target	Midterm Level & Assessment/Rating <sup>41</sup>	Reasons for the Rating
<p><b>OBJECTIVE</b></p> <p>To reduce the vulnerability of households in Myanmar’s Dry Zone to increasing drought and rainfall variability, and enhance the capacity of households to plan for and respond to future impacts of Climate Change on food security</p>	<p>% of households in target site implementing climate change adaptation livelihood measures introduced by the project</p> <p>% of Dry Zone households with access to early warning information on sudden onset of disasters</p> <p>% of Dry Zone households using climate risk information to adjust their livelihood behavior</p>	<p>Current agricultural and livestock rearing practices among subsistence farmers are based on historical climatic conditions and trends and are unsuited to increased drought conditions that are becoming increasingly frequent in the Dry Zone in Myanmar</p> <p>Currently climate risk information on sudden onset of disasters is</p>	<p>Project activities and associated TORs for implementation have been designed with the objective of benefiting mainly the landless and impoverished households</p>	<p>By the end of the project, at least 61% of impoverished farming households or the landless, equivalent to approximately 17,850 households (11,550 agriculture and 6,300 livestock) benefit from and implement climate-resilient agriculture or livestock practice</p> <p>At least 50% of all households in target location (based on random sampling),</p>	<p><b>SATISFACTORY</b></p> <p><b>Achieved some targets; On-target to achieve others, tree plantation needs realistic budgets and targets and better quality</b></p> <p>There is a very large range and number of activities completed and underway in the water supply, watershed, soil and water conservation, forestry, agriculture, livestock, weather forecasting, extension advisories, and disaster risk management sectors in 280 villages. The large scale of outputs has ramped up quickly after a very slow start to the project.</p> <p>Many of the targets are generally on-track for achievement, assuming that ‘changes in livelihood behaviour’ means adopting or exposure to one or more of the many adaptation technologies that are being demonstrated. E.g., 34,150 HH benefited from climate-resilient agriculture and livestock and agroforestry interventions; two thirds of the livestock</p>	<p>There has been a good level of output achievement in terms of quantity but results are sometimes more variable in terms of quality, especially in the tree planting. The farmers interviewed indicated a high level of satisfaction with the climate resilient farming methods especially new seed varieties, inter-cropping methods and post-harvest loss reduction, and the livestock rearing, especially pigs, has been very well received. These are significant benefits reaching marginal farm households.</p> <p>The project is working on so many fronts, it is easy to be impressed with the volume of outputs. Whether these many interventions are working collectively enough and being taken up strong enough to significantly reduce the very high levels</p>

<sup>41</sup> Colour code this column only

Project Strategy	Results Indicator -M&E Plan	Baseline Level -M&E Plan	Level in 1 <sup>st</sup> PPR (self-reported)	End-of-project Target	Midterm Level & Assessment/Rating <sup>41</sup>	Reasons for the Rating
		delivered only to those houses with TV/radio and yet the level of interpretation and response is low. The outreach and understanding of information on slow onset of disasters are even lower.		equivalent to 25,000 households, report that they have changed their livelihood behavior based on climate risk information produced by the project  At least 75% of all households in target location, equivalent to 38,000, receive early warning in a timely manner.	beneficiaries target has been met to date.  Partial progress has occurred on “continuous freshwater availability in the dry season” and related tree planting and forest protection objectives.  Weather forecasting technologies and farm advisories have been introduced. The Disaster Alert Notification (DAN) application has had about 60,000 downloads.	of climate change vulnerability in 280 dry zone villages remains to be seen.
<b>OUTCOME 1</b> Continuous freshwater availability is ensured during the dry seasons in 280 villages in the Dry Zone	% of Dry Zone (farmers) households reporting increased freshwater availability during dry periods	74% of households in project targeted townships area currently face shortages of fresh water supply for domestic and agricultural use	The project has planned activities such as micro-watershed and natural forest conservation, homestead and farm boundary plantation and capacity building and demonstration	At least 60% of households (facing water shortages) in 280 villages in the five project targeted townships report increased freshwater availability during dry periods	<b>MODERATELY SATISFACTORY</b> On-target to be achieved in terms of increased water availability and number of ponds renovated; so far little increase in water supply during the dry season  Approximately 20,000 HH have <i>increased freshwater availability</i> through pond rehabilitation and water diversion canal construction; there are 50,000 HH in the project area, 74% assumed	The project has completed renovations to 75 ponds with some incremental improvement in water holding capacity; perhaps in an estimated 10-15% excavation of the pond areas. This is relatively small scale effect on water supply but it also varies where canal diversions (45) have been possible to add new water.

Project Strategy	Results Indicator -M&E Plan	Baseline Level -M&E Plan	Level in 1 <sup>st</sup> PPR (self-reported)	End-of-project Target	Midterm Level & Assessment/Rating <sup>41</sup>	Reasons for the Rating
			of soil and water conservation activities to ensure freshwater supply for drinking and agriculture		<p>in baseline to have water shortages - much of the target (37,000 x 60%) may therefore be met. One-half the targeted 150 ponds have been completed. But it should be noted that many of the expanded ponds do not provide water to last through to the Feb-June dry period. The pond renovation activities have small budgets spread across 150 sites which limits catchment area improvements.</p> <p>Noteworthy 10,000 HH of Shwebo City now have improved drinking water protection and less flooding /waterlogging (300 HH) and 500 HH with new irrigation water through renovation of Shwebo Irrigation Canal.</p>	<p>Pond capacities at 75 sites have been expanded but there appears to be some variability in the end results and level of completion, under budget restrictions. Presence of established user groups and the site circumstances that affect costs in relation to new water inputs/yield are key variables. Community watershed management was a limited part of the ponds and catchment areas visited. Any improvement in water supply is greatly appreciated by local people.</p>
<b>OUTCOME 2</b> Climate-resilient agricultural and livestock practices enhanced in Myanmar's Dry Zone	Number of climate-resilient agricultural and livestock practices demonstrated and adopted to support adaptation of (vulnerable farmers) marginal farmers and	Agricultural and livestock practices and extension services in the Dry Zone (do not take into account) pay only limited attention to climate change risks.	Climate-resilient agriculture and livestock activities under the project have been packaged in a way that specifically benefit marginal farmers and landless households	By the end of the project, at least 6 discrete agricultural adaptation and diversified livestock rearing practices are demonstrated including resilient varieties, on-farm water management	<p><b>SATISFACTORY</b> <b>On-target to be achieved</b></p> <p>At least six climate resilient farming methods have been demonstrated. Alternative Wetting and Drying Technology has been effective in rice growing areas and on-farm water management techniques are becoming accepted with project help. Outputs included establishment of perennial trees and</p>	<p>New drought-resistant crops, more diversified cropping systems and the measures to reduce post-harvest losses, and pig-raising are probably the most successful highlights of Outcome 2. There are many technologies and approaches here that have potential to be scaled up, both within the project villages (ie., beyond</p>

Project Strategy	Results Indicator -M&E Plan	Baseline Level -M&E Plan	Level in 1 <sup>st</sup> PPR (self-reported)	End-of-project Target	Midterm Level & Assessment/Rating <sup>41</sup>	Reasons for the Rating
	landless households			techniques, soil management practices, planting techniques, post-harvest processing and diversified livestock breeds.	demonstration plots (soil management techniques), farmer-managed seed multiplication and participatory varietal selection, post-harvest processing techniques and promote diversified livestock production system and breeds	demonstration plots) and to other areas of the dry zone. Learning and dissemination will be important during the remainder of the project.
<b>OUTCOME 3</b> Timeliness and quality of climate risk information disseminated to Dry Zone households enhanced through use of short-term weather forecasts, medium-term seasonal forecasts, and longer-term climate scenario planning	% of Dry Zone households using climate risk information to adjust their livelihood behavior  % of Dry Zone households with access to early warning information on sudden onset of disasters	Currently climate risk information on sudden onset of disasters is delivered only to those houses with TV/radio and yet the level of interpretation and response is low. The outreach and understanding of information on slow onset of disasters are even lower.	The project is currently exploring options with DMH and RIMES to produce and communicate climate information in the form of agro-advisories so that farmers are able to plan ahead and adapt to the changing climate	At least 50% of all households in target location (based on random sampling), equivalent to 25,000 households, report that they have changed their livelihood behaviour based on climate risk information produced by the project  At least 90% of all households in target location, equivalent to 45,600, receive early warning in a timely manner.	<b>SATISFACTORY</b> <b>On-target to be achieved</b> (although the indicators do not assist progress monitoring)  Many outputs over the past year - Draft Climate Analysis; 5 Profiles on Climate Variability, Extremes, Trends and Projections (one for each township); Risk/vulnerability Assessment and Hazard maps (earthquake, floods and drought) for 5 project townships. This component is part of a longer term program of RIMES in Myanmar. Advances in the weather forecasting app alongside farming advisories and disaster alert notification tools have been significant and may provide important extension assistance in future farming practices.	The climate risk assessment and mapping and related technologies for improved in-season forecasting and agro-advisories have gained a fast start, and show a lot of promise. But they have limited presence and effect so far with rural villages and farmers given the early stages of development. DMH has worked hard to develop a practical app to assist farming decision and RIMES has provided extensive initial orientation and training on climate scenarios and disaster risk management.

**Indicator Assessment Key**

Green= Achieved      Yellow= On target to be achieved      Red= Not on target to be achieved

## ANNEX 1a: Summary of Mid-term Achievements, December 2017

Project Strategy	Indicator	Status of achievements in relation to end targets – prepared by project team	Comments – by MTE consultants
<p><b>Objective</b> To reduce the vulnerability of households in Myanmar’s Dry Zone to increasing drought and rainfall variability, and enhance the capacity of households to plan for and respond to future impacts of Climate Change on food security</p>	<p>% of households in target site implementing climate change adaptation livelihood measures introduced by the project</p> <p>% of Dry Zone households with access to early warning information on sudden onset of disasters</p> <p>% of Dry Zone households using climate risk information to adjust their livelihood behavior</p>	<p>34,150 HH benefit from climate-resilient agriculture and livestock and agroforestry interventions. (8,019 HH in Agriculture sector, 4061 HH livestock sector and 22,070 HH homestead gardening)</p>	<p><i>There is a high level of involvement climate change adaptation measures in the project villages. Extensive use of new weather forecasts is not yet apparent based on the MTE field interviews.</i></p>
<p><b>OUTCOME 1</b> Continuous freshwater availability is ensured during the dry seasons in 280 villages in the Dry Zone</p>	<p>% of Dry Zone (farmers) households reporting increased freshwater availability during dry periods</p>	<p>Approximately 20,000 HH have increased freshwater availability through pond rehabilitation and water diversion canal construction. In addition, 10,000 HH in Shwbo City has access to clean drinking water through renovation of Shwebo Irrigation Canal</p>	<p><i>Increased water supply is often not sufficient to last to the Feb-Jun dry season but does extend post-monsoon water availability</i></p>
<p><b>OUTPUT 1.1</b> Water capture and storage capacities in 280 villages enhanced to ensure improved access to fresh water supply during dry periods</p>	<p>Additional community-based freshwater supply and storage infrastructure put in place in drought-prone villages</p>	<ul style="list-style-type: none"> <li>• 45 water diversion canals constructed</li> <li>• 75 communal pond/village earth pond rehabilitated</li> <li>• 852 hectare of land (of marginal farmers) covered by soil and water conservation measures; three types of soil and water activities: Check dam 1.9 hectare, Contour bund 313.78 hectare, and</li> <li>• Soil bund 536.32 hectare</li> <li>• 304 HH trained on soil and water conservation</li> </ul>	<p><i>Water-holding capacity of ponds has increased. Soil and water conservation results are assumed to have improved agriculture and groundwater but</i></p>

Project Strategy	Indicator	Status of achievements in relation to end targets – prepared by project team	Comments – by MTE consultants
		<ul style="list-style-type: none"> <li>• Rapid need assessment on village needs of water infrastructures</li> </ul>	<i>information is anecdotal.</i>
<b>OUTPUT 1.2</b> 6,141 hectares of micro-watersheds are protected and rehabilitated through Farmer- Managed Natural Regeneration (FMNR) to increase natural water retention and reduce erosion	Hectares of watershed area protected through community-based afforestation, reforestation and regeneration practices	In total : 4008 ha <ul style="list-style-type: none"> <li>• 2,625 Ha of Natural Forest conservation</li> <li>• 843 Ha of Community Forest establishment</li> <li>• 540 Ha of tree planting activities on public land</li> </ul> 44.29% of survival rate for farm boundary and public land tree plantation in 2016. (Counted in May) 47.5% of survival rate for homestead gardening plantation. (Counted in May) Survival counting for 2017 planted trees are ongoing and based on completed 3 townships, it is between 85% to 90 % in average. (Counted in Dec)	<i>Two-thirds of the forest planttaion target achieved. Poor quality pit preparation observed during field visits. Dec 2017 count seems high for sites visited. Indicator may need to be updated.</i>
<b>OUTPUT 1.3</b> Community-based agro-forestry plots are established on 3,983 hectares of private and communal lands to conserve soil and water	Hectares of land covered by systematic new agroforestry plantations	In total: 1378 ha <ul style="list-style-type: none"> <li>• 600 Ha of Homestead gardening/ agro-forestry</li> <li>• 710 Ha of farm boundary plantation</li> <li>• 13 Ha of Demo plots established</li> <li>• 55 Ha of Gap plantation</li> </ul>	<i>Small-scale ‘plots’. Choice of preffered species not always available to farmers. 35% of target has been met.</i>
<b>OUTCOME 2</b> Climate-resilient agricultural and livestock practices enhanced in Myanmar’s Dry Zone	Number of climate-resilient agricultural and livestock practices demonstrated and adopted to support adaptation of (vulnerable farmers) marginal farmers and landless households	Project demonstrates at least 6 discrete agricultural adaptations such as climate resilient farming method, Alternative Wetting and Drying Technology and drip irrigation demonstration ( on-farm water management techniques), establishment of perennial trees and demonstration plots (soil managment techniques), farmer-managed seed multiplication and participatory varietal selection, post-harvest processing techniques and promoting diversified livestock production system and breeds.	<i>Demonstration plots and seed mulitiplication are well organised and have received positive results and interest. Pig-raising is popular and profitable.</i>
<b>OUTPUT 2.1</b> Drought-resilient farming methods introduced to	Number of Dry Zone farmers exposed to and involved in climate resilient farming techniques	<ul style="list-style-type: none"> <li>• Climate-resilient farming methods (Total: 6270; Direct: 1120 (after training, provide knowledge sharing to other farmers); Indirect: 5,000; DOA Staff: 150)</li> </ul>	<i>All of the methods appear to have strong support, although</i>

Project Strategy	Indicator	Status of achievements in relation to end targets – prepared by project team	Comments – by MTE consultants
farmers to enhance the resilience of subsistence agriculture in the Dry Zone	<p>Accessibility to drought-resilient seed varieties</p> <p>Number of project and non-project community members participating in exchange visits and demonstration plots</p>	<ul style="list-style-type: none"> <li>• Water saving technology (AWD) (Total: 740; Direct: 260; Indirect: 400; DOA Staff: 80)</li> <li>• Establishment perennial trees (Thanakha) (Total: 690; Direct: 210; Indirect: 400; DOA Staff: 80)</li> <li>• Establishment of perennial trees (Fruit tree) (Total: 375; Direct: 150; Indirect: 200; DOA Staff: 25)</li> <li>• Farmer-managed seed multiplication (Total: 910; Direct: 360; Indirect: 500; DOA Staff: 50)</li> <li>• Participatory demonstration plots (Total: 875; Direct: 325; Indirect: 500; DOA Staff: 50)</li> <li>• Participatory Varietal Selection (Total: 104; Direct: 2; Indirect: 100; DOA Staff: 2)</li> <li>• Drip irrigation plots (Total: 400; Direct: 125; Indirect: 250; DOA Staff: 25)</li> <li>• Farmer Field School (Total: 4,535; Direct: 450; Indirect: 4,050; DOA Staff: 35)</li> <li>• Exchange visit (Total: 130; Direct: 100; DOA Staff: 50)</li> </ul>	<p><i>water saving technologies have yet to be tested for viability. Uptake of new seed varieties and farmer field school involvement has been good. Interventions under this Outcome appear to have a high level of presence in the villages. Post-harvest loss reduction is newly introduced. Results from demo plots (2 farmers amongst +/- 150 in the village) need to be compiled and disseminated.</i></p>
<p><b>OUTPUT 2.2</b> Resilient post-harvest processing and storage systems introduced to reduce climate-induced post-harvest losses (droughts, rains and floods)</p>	<p>% of (farmers) households who report reduced harvest losses due to improved post-harvest processing and storage</p>	<ul style="list-style-type: none"> <li>• Crop threshers (20 rice and 105 multi-crop) (Total: 5,550 members of 125 rice and multi-crop thresher user groups)</li> <li>• Training on postharvest processing and handling techniques (Total: 2,970; Direct: 280; Indirect: 2,670; DOA Staff: 20)</li> <li>• Postharvest storage facilities (36 nos. in 5 townships) (Total: 720 members of 36 storage facilities)</li> </ul>	<p><i>High levels of food losses in the Dry Zone. Project provides priority action to reduce such losses.</i></p>
<p><b>OUTPUT 2.3</b> Diversified livestock production systems are introduced in 6,300 households to buffer the</p>	<p>Number of marginal and landless households (vulnerable households) with increased diversity of livestock assets</p>	<ul style="list-style-type: none"> <li>• 3200 (direct) beneficiaries of landless and marginal farmer households received livestock provision</li> <li>• Handed over to 748 waiting list beneficiary of landless and marginal farmer households</li> </ul>	<p><i>Very popular and prominent activity in 253 of the 280 villages with active support from LBVD.</i></p>

Project Strategy	Indicator	Status of achievements in relation to end targets – prepared by project team	Comments – by MTE consultants
effects of flooding and drought on rural livelihoods		<ul style="list-style-type: none"> <li>• 113 demonstrations* (mostly small breeder farms of goat, local chicken and pig cross breeds) for 113 landless and marginal farmer households. (Total -4061 households had already received project supported livestock.)</li> <li>* Demonstration activities are 12 local chicken for commercial breeding, 4 semibroiler for cross breeding, 40 goat breeder farm, 37 DYL Cross Breeding and 20 Pasture Demonstartion Plot (Napier grass plantation). Demonstration plots support in increased diversity of livestock assets and keeping the resilient breeds at the communities.</li> </ul>	<i>Sustainability concerns remain. Quality of livestock breeds sometimes questioned, along with marketing options. Income effects high for many women participants.</i>
<b>Outcome 3</b> Timeliness and quality of climate risk information disseminated to Dry Zone households enhanced through use of short-term weather forecasts, medium-term seasonal forecasts, and longer-term climate scenario planning	% of Dry Zone households using climate risk information to adjust their livelihood behavior  % of Dry Zone households with access to early warning information on sudden onset of disasters	Climate risk info is being conveyed through SESAME mobile application and agro-advisories through extension officers in the 5 townships. While the mobile application is still being fully established, agro-advisories have been useful in terms of informing commnities of extreme events, thereby resulting in protection of valuable assets like crops and livestock.  In terms of measuring the indicator, the project will track extension agents that serve the project villages, as well as the number of households they serve and report results accordingly.  The project has updated DAN mobile application to acquire user info and details – so we can track project beneficiaries using the services to change their habits. The DAN application has about 60,000 downloads so far.	<i>This component is in the preliminary stages of developing the framwork for decentralised disaster risk management and a series of information and technologies to assist farmers and administrators. It is a work in progress.</i>
<b>OUTPUT 3.1</b> Climate hazard maps and risk scenarios are developed in each Township to support community-based climate	Number of climate risk communication products such as maps and scenarios in active use by Township authorities, NGOs and CBOs to improve planning	<ul style="list-style-type: none"> <li>• Draft Climate Analysis: Vulnerabilities, Extremes, Trends, Projections and Associated Risks in the Dry Zone of Myanmar</li> <li>• 5 Profiles on Climate Variability, Extremes, Trends and Projections (one for each township)</li> <li>• Risk/vulnerability Assessment for the 5 project townships</li> </ul>	<i>Technical products completed and distributed but not a high level of presence or familiarity so far</i>

Project Strategy	Indicator	Status of achievements in relation to end targets – prepared by project team	Comments – by MTE consultants
risk management and preparedness planning	decisions and prioritize investment actions	<ul style="list-style-type: none"> <li>• Hazard maps (earthquake, floods and drought) for 5 project townships</li> </ul>	<i>with the Township authorities</i>
<b>OUTPUT 3.2</b> Local level climate and disaster risk management framework strengthened for timely and effective communication of climate risk and early warning information	Number of local institutions that issue regular warning and forecasting communications to community-based organisations and vulnerable households  The number of climate related information materials produced to assist Dry Zone households to adjust their livelihood behaviour	<ul style="list-style-type: none"> <li>• DMH, DOA Extension Workers, AF Implementing Partners</li> <li>• RRD (through DAN – Disaster Alert Notification application)</li> <li>• DMH SESAME mobile application (English and Myanmar version)</li> <li>• 295 Agro-met bulletins/advisories produced – which provides location-specific climate information to farmers in the 5 project</li> </ul>	<i>Good development of the technologies and bulletins. Needs to be linked to extension systems although government extension officers have limited presence in rainfed areas of the Dry Zone.</i>

## **Annex 2: Terms of Reference for Midterm Evaluation Addressing Climate Change Risks on Water Resources and Food Security in the Dry Zone of Myanmar**

### **1. INTRODUCTION**

This is the Terms of Reference (ToR) for the Mid-Term Evaluation (MTE) for the UNDP-supported Adaptation Fund financed project titled – “Addressing Climate Change Risks on Water Resources and Food Security in the Dry Zone of Myanmar” (PIMS 4703) implemented through the United Nations Development Programme, which is to be undertaken in October 2017. The project started in February 2015 and is in its third year of implementation. This ToR sets out the expectations for this MTE.

### **2. PROJECT BACKGROUND INFORMATION**

UNDP Myanmar, with funding from Adaptation Fund is currently implementing a Climate Change Adaptation project - “Addressing Climate Change Risks on Water Resources and Food Security in the Dry Zone of Myanmar.” The project aims to reduce the increasing impacts of climate change on agricultural and livestock production cycles in the dry zone of Myanmar - the impacts of increasing temperature and evaporation, declining water availability, and intensifying weather events especially flash floods and cyclones.

The Dry Zone is one of the most climate sensitive and natural resource poor regions in Myanmar. The dry zone covers approximately 54,390 square kilometers and represents about 10% of the country’s total land area. The present population in the Dry Zone is estimated at 18 million people. It constitutes 34% of the country’s total population of about 53 million. The population density is 123 people per square kilometer, making it the third most densely populated region in Myanmar.

Across the Dry Zone, water is scarce, vegetation cover is thin, and soil is degraded due to severe erosion. The region is characterized by low annual rainfall that ranges between 508 and 1,016 mm per annum with high variability and uneven distribution. The monsoon rain is bimodal with a dry period during July when dry desiccating winds blow from the south. The undulating land, composed mainly of sandy loam with low fertility, is subjected to severe erosion under rain and strong winds. The average mean temperature in the Dry Zone is about 27° C and the temperature often rises to about 43° C in the summer period. This dry environment with its other natural limiting factors has led to conditions of growing food insecurity and severe environmental degradation.

The major economic activities in the Dry Zone are subsistence farming such as paddy, sesame and groundnut and small scale livestock rearing. Agricultural productivity is low and the farmers are heavily dependent on products from the natural forest especially fuel wood, pole, post and fodder to support their living and livestock. Many landless people are working as seasonal farm labourers, migrating to urban regions during non-planting time to find temporary employment.

The project operates in five townships in the Sagaing, Mandalay and Magway Regions – Shwebo and Moneywa townships in the Sagaing region, Myingyan and Nyaung Oo townships in the Mandalay Region, and Chauk township in the Magway Region. The townships were selected on the basis of observed temperature extremes, frequency of drought per year, and the impacts of climatic parameters on food security. An additional criterion for township selection was the potential to access ground and surface water resources – vital prerequisites for small irrigation and water management schemes. The direct beneficiaries of the project are marginal farmers in rain-fed areas and landless workers whose access to arable land is severely threatened by erosion and land degradation. Special emphasis is placed on women and female-headed households within this vulnerable group.

The project targets approximately 50,000 households from 280 villages. The target populations are largely categorized into the following three types of beneficiaries: First group is landless farmers, who make up about 60% of target population; second group is marginal/small farmers whose landholding is less between 0.4 – 0.8 hectares and they make up about 25% of target population; and the third group is farmers who have landholding larger than 0.8 hectares.

Absence of community water infrastructure for both domestic and agricultural purposes is a critical constraint in building the resilience of these communities to future climate change impact. This project aims to deliver the following key outputs to build community resilience to climate change:

9. Enhancing water capture and storage capacities in 280 villages to augment irrigation and domestic water supply during the dry periods
10. Protecting and rehabilitating 6,141 hectares of micro-watersheds through Farmer-Managed Natural Regeneration (FMNR) to increase natural water retention and reduce erosion
11. Establishing 3,983 hectares of community-based agro-forestry plots in private and communal lands to conserve soil and water
12. Introducing drought-resilient farming methods
13. Introducing resilient post-harvest processing and storage systems
14. Introducing diversified livestock production systems targeting landless households
15. Develop climate hazard maps and risk scenarios in each township to support community-based climate risk management and preparedness planning
16. Strengthen local level climate and disaster risk management framework for timely and effective communication of climate risk and early warning information.

At the national level, the Project is supported by a Project Steering Committee (PSC). The PSC oversees and keep abreast of project progress and facilitate the implementation of the project in partnership with co-financing institutions. Implementation of the project and allocation of resources is the responsibility of UNDP - as the executing agency under the overall direction of the PSC. The PSC is chaired by the Country Director of UNDP and the Director General of Dry Zone Greening Department (DZGD). The DZGD is also the principle counterpart agency for the project. Other members of the PSC include representatives from Environmental Conservation Department, Irrigation and Water Utilization Management Department, Department of Meteorology and Hydrology, Department of Agriculture, Relief and Resettlement Department, Livestock Breeding and Veterinary Department, Watershed Management Section, Forest Department, Department of Rural Development and Foreign Economic Relations Department

To assist the Project Team on technical questions, a Technical Advisory Group (TAG) has been constituted. The TAG provides guidance and advice on technical questions related to water management, agriculture, forestry, food security and risk information/communication. The main objective of the TAG is to identify technical strengths and weaknesses of the project, take stock of available and required technical know-how under different project components, and provide technical backstopping and quality control throughout the project period. The TAG includes representatives from Dry Zone Greening Department, Environmental Conservation Department, Irrigation and Water Utilization Management Department, Department of Meteorology and Hydrology, Department of Agriculture, Relief and Resettlement Department, Livestock Breeding and Veterinary Department, Watershed Management Section of Forest Department and Department of Rural Development.

A project team, which is housed in the Dry Zone Greening Department offices in Patheingyi and Nyaung U, comprises of the following personnel – National Project Manager, Technical Specialist (International), Soil Conservation and Water Harvesting Specialist (Nyaung U-based), Agricultural

Specialist, Environmental Conservation and Forestry Specialist (Nyaung U-based), Livestock Specialist, Monitoring and Evaluation Officer, Project Assistant and a Project Driver.

The project has two locations – one main office within the Dry Zone Greening Department compound in Patheingyi, Mandalay Region and the other in Nyaung U, Mandalay region. Under the overall guidance of PSC and TAG, the Project Team is responsible for the day-to-day management and implementation, oversight, reporting and monitoring of project activities.

### **3. OBJECTIVES OF THE MTE**

The MTE will assess progress towards the achievement of the project objectives and outcomes as specified in the Project Document, and assess early signs of project success or failure with the goal of identifying the necessary changes to be made in order to set the project on-track to achieve its intended results. The MTE will also review the project's strategy, its risks to sustainability.

### **4. MTE APPROACH & METHODOLOGY**

The MTE will provide evidence based information that is credible, reliable and useful. The MTE team will review all relevant sources of information, including documents prepared during the preparation phase (i.e. AF Concept, AF Proposal, UNDP Initiation Plan, UNDP Environmental & Social Safeguard Policy, the Project Document, project reports including Project Performance Reports/PPRs, project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the team considers useful for this evidence-based review).

The MTE team is expected to follow a collaborative and participatory approach<sup>42</sup> ensuring close engagement with the Project Team, government counterparts, the UNDP Country Office, UNDP-GEF Regional Technical Adviser, and other key stakeholders. As overall reference, the MTE will use the guidance for conducting midterm reviews of UNDP-supported GEF-financed project<sup>43</sup>.

Engagement of stakeholders is vital to a successful MTE.<sup>44</sup> Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to - Dry Zone Greening Department, Environmental Conservation Department, Irrigation and Water Utilization Management Department, Department of Meteorology and Hydrology, Department of Agriculture, Relief and Resettlement Department, Livestock Breeding and Veterinary Department, Watershed Management Section of Forest Department, Department of Rural Development and Foreign Economic Relations Department; Implementing partners, key experts and consultants in the subject area, Project Steering Committee members, project stakeholders, academia, local government and CSOs, etc. Additionally, the MTE team is expected to conduct field missions to Patheingyi Mandalay, including the following project sites – Shwebo, Monywa under Sagaing Region, Myingyan and Nyaung U under Mandalay Region and Chauk under Magwe Region.

The final MTE report should describe the full MTE approach taken and the rationale for the approach making explicit the underlying assumptions, challenges, strengths and weaknesses about the methods and approach of the review.

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<sup>42</sup> For ideas on innovative and participatory Monitoring and Evaluation strategies and techniques, see [UNDP Discussion Paper: Innovations in Monitoring & Evaluating Results](#), 05 Nov 2013.

<sup>43</sup> The guidance can be found here - [http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance\\_Midterm%20Review%20EN\\_2014.pdf](http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance_Midterm%20Review%20EN_2014.pdf)

<sup>44</sup> For more stakeholder engagement in the M&E process, see the [UNDP Handbook on Planning, Monitoring and Evaluating for Development Results](#), Chapter 3, pg. 93.

## 5. DETAILED SCOPE OF THE MTE

The MTE team will assess the following four categories of project progress.

### i. Project Strategy

#### Project design:

- Review the problem addressed by the project and the underlying assumptions. Review the effect of any incorrect assumptions or changes to the context to achieving the project results as outlined in the Project Document.
- Review the relevance of the project strategy and assess whether it provides the most effective route towards expected/intended results. Were lessons from other relevant projects properly incorporated into the project design?
- Review how the project addresses country priorities. Review country ownership. Was the project concept in line with the national sector development priorities and plans of the country?
- Review decision-making processes: were perspectives of those who would be affected by project decisions, those who could affect the outcomes, and those who could contribute information or other resources to the process, taken into account during project design processes?
- Review the extent to which relevant gender issues were raised in the project design.
- If there are major areas of concern, recommend areas for improvement.

#### Results Framework/Log frame:

- Are the project’s objectives and outcomes or components clear, practical, and feasible within its time frame?
- Examine if progress so far has led to, or could in the future catalyse beneficial development effects (i.e. income generation, gender equality and women’s empowerment, improved governance etc...) that should be included in the project results framework and monitored on an annual basis.
- Ensure broader development and gender aspects of the project are being monitored effectively.

### ii. Progress Towards Results

#### Progress towards Outcomes Analysis:

- Review the log frame indicators against progress made towards the end-of-project targets using the Progress Towards Results Matrix; colour code progress in a “traffic light system” based on the level of progress achieved; assign a rating on progress for each outcome; make recommendations from the areas marked as “Not on target to be achieved” (red).

**Table. Progress Towards Results Matrix (Achievement of outcomes against End-of-project Targets)**

Project Strategy	Indicator <sup>45</sup>	Baseline Level <sup>46</sup>	Level in 1 <sup>st</sup> PPR (self-reported)	Midterm Target <sup>47</sup>	End-of-project Target	Midterm Level & Assessment <sup>48</sup>	Achievement Rating <sup>49</sup>	Justification for Rating
<b>Objective:</b>	Indicator (if applicable):							
<b>Outcome 1:</b>	Indicator 1:							
	Indicator 2:							

<sup>45</sup> Populate with data from the Logframe and scorecards

<sup>46</sup> Populate with data from the Project Document

<sup>47</sup> If available

<sup>48</sup> Colour code this column only

<sup>49</sup> Use the 6 point Progress Towards Results Rating Scale: HS, S, MS, MU, U, HU

<b>Outcome 2:</b>	Indicator 3:							
	Indicator 4:							
	Etc.							
<b>Etc.</b>								

**Indicator Assessment Key**

Green= Achieved	Yellow= On target to be achieved	Red= Not on target to be achieved
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In addition to the progress towards outcomes analysis:

- Compare and analyse the Adaptation Fund (AF) Results Tracker within the Project Performance Report (PPR) at the Baseline with the one completed right before the Midterm Review.
- Identify remaining barriers to achieving the project objective in the remainder of the project.
- By reviewing the aspects of the project that have already been successful, identify ways in which the project can further expand these benefits.

**iii. Project Implementation and Adaptive Management**

Management Arrangements:

- Review overall effectiveness of project management as outlined in the Project Document. Have changes been made and are they effective? Are responsibilities and reporting lines clear? Is decision-making transparent and undertaken in a timely manner? Recommend areas for improvement.
- Review the quality of execution of the Executing Agency/Implementing Partner(s) and recommend areas for improvement.
- Review the quality of support provided by the AF Partner Agency (UNDP) and recommend areas for improvement.

Work Planning:

- Review any delays in project start-up and implementation, identify the causes and examine if they have been resolved.
- Are work-planning processes results-based? If not, suggest ways to re-orientate work planning to focus on results?
- Examine the use of the project’s results framework/ log frame as a management tool and review any changes made to it since project start.

Finance and co-finance:

- Consider the financial management of the project, with specific reference to the cost-effectiveness of interventions.
- Review the changes to fund allocations as a result of budget revisions and assess the appropriateness and relevance of such revisions.
- Does the project have the appropriate financial controls, including reporting and planning, that allow management to make informed decisions regarding the budget and allow for timely flow of funds?
- Informed by the co-financing monitoring table to be filled out, provide commentary on co-financing: is co-financing being used strategically to help the objectives of the project? Is the Project Team meeting with all co-financing partners regularly in order to align financing priorities and annual work plans?

#### Project-level Monitoring and Evaluation Systems:

- Review the monitoring tools currently being used: Do they provide the necessary information? Do they involve key partners? Are they aligned or mainstreamed with national systems? Do they use existing information? Are they efficient? Are they cost-effective? Are additional tools required? How could they be made more participatory and inclusive?
- Examine the financial management of the project monitoring and evaluation budget. Are sufficient resources being allocated to monitoring and evaluation? Are these resources being allocated effectively?

#### Stakeholder Engagement:

- Project management: Has the project developed and leveraged the necessary and appropriate partnerships with direct and tangential stakeholders?
- Participation and country-driven processes: Do local and national government stakeholders support the objectives of the project? Do they continue to have an active role in project decision-making that supports efficient and effective project implementation?
- Participation and public awareness: To what extent has stakeholder involvement and public awareness contributed to the progress towards achievement of project objectives?

#### Reporting:

- Assess how adaptive management changes have been reported by the project management and shared with the Project Board.
- Assess how well the Project Team and partners undertake and fulfil AF reporting requirements (i.e. how have they addressed poorly-rated PPRs, if applicable?)
- Assess how lessons derived from the adaptive management process have been documented, shared with key partners and internalized by partners.

#### Communications:

- Review internal project communication with stakeholders: Is communication regular and effective? Are there key stakeholders left out of communication? Are there feedback mechanisms when communication is received? Does this communication with stakeholders contribute to their awareness of project outcomes and activities and investment in the sustainability of project results?
- Review external project communication: Are proper means of communication established or being established to express the project progress and intended impact to the public (is there a web presence, for example? Or did the project implement appropriate outreach and public awareness campaigns?)

#### **iv. Sustainability**

- Validate whether the risks identified in the Project Document, PPRs, and the ATLAS Risk Management Module are the most important and whether the risk ratings applied are appropriate and up to date. If not, explain why.
- In addition, assess the following risks to sustainability:

##### Financial risks to sustainability:

- What is the likelihood of financial and economic resources not being available once the AF assistance ends (consider potential resources can be from multiple sources, such as the public and private sectors, income generating activities, and other funding that will be adequate financial resources for sustaining project's outcomes)?

##### Socio-economic risks to sustainability:

- Are there any social or political risks that may jeopardize sustainability of project outcomes? What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public/stakeholder awareness in support of the long term objectives of the project? Are lessons learned being documented by the Project Team on a continual basis and shared/ transferred to appropriate parties who could learn from the project and potentially replicate and/or scale it in the future?

Institutional Framework and Governance risks to sustainability:

- Do the legal frameworks, policies, governance structures and processes pose risks that may jeopardize sustenance of project benefits? While assessing this parameter, also consider if the required systems/ mechanisms for accountability, transparency, and technical knowledge transfer are in place.

Environmental risks to sustainability:

- Are there any environmental risks that may jeopardize sustenance of project outcomes?

## Conclusions & Recommendations

The MTE team will include a section of the report setting out the MTE’s evidence-based conclusions, in light of the findings.<sup>50</sup>

Recommendations should be succinct suggestions for critical intervention that are specific, measurable, achievable, and relevant. A recommendation table should be put in the report’s executive summary.

Rec #	Recommendation	Entity Responsible
A	<i>(State Outcome 1) (Outcome 1)</i>	
A.1	<b>Key recommendation:</b>	
A.2		
A.3		
B	<i>(State Outcome 2) (Outcome 2)</i>	
B.1	<b>Key recommendation:</b>	
B.2		
B.3		
C	<i>(State Outcome 3) (Outcome 3), etc.</i>	
C.1	<b>Key recommendation:</b>	
C.2		
C.3		
D	Project Implementation & Adaptive Management	
D.1	<b>Key recommendation:</b>	
D.2		
D.3		
E	Sustainability	
E.1	<b>Key recommendation:</b>	
E.2		
E.		

<sup>50</sup> Alternatively, MTE conclusions may be integrated into the body of the report.

## Ratings

The MTE team will include its ratings of the project's results and brief descriptions of the associated achievements in a *MTE Ratings & Achievement Summary Table* in the Executive Summary of the MTE report. See Annex E for ratings scales. No rating on Project Strategy and no overall project rating is required.

**Table. MTE Ratings & Achievement Summary Table for (*Project Title*)**

<b>Measure</b>	<b>MTR Rating</b>	<b>Achievement Description</b>
<b>Project Strategy</b>	N/A	
<b>Progress Towards Results</b>	Objective Achievement Rating: (rate 6 pt. scale)	
	Outcome 1 Achievement Rating: (rate 6 pt. scale)	
	Outcome 2 Achievement Rating: (rate 6 pt. scale)	
	Outcome 3 Achievement Rating: (rate 6 pt. scale)	
	Etc.	
<b>Project Implementation &amp; Adaptive Management</b>	(rate 6 pt. scale)	
<b>Sustainability</b>	(rate 4 pt. scale)	

## 6. DUTY STATION

The location of the assignment will be Mnadalay and it may involve travel to the project sites in Mandalay, Sagaing and Magwe Region, as appropriate.

## 7. TIMEFRAME

The total duration of the MTE will be approximately one month starting 07 November 2017 – 31 December 2017. The tentative MTR timeframe is as follows:

<b>TIMEFRAME</b>	<b>ACTIVITY</b>
<i>4 September 2017</i>	Application closes
<i>27 October 2017</i>	Select MTE Team
<i>06 November 2017</i>	Prep the MTE Team (handover of Project Documents)
<i>7-10 November 2017 (4 days)</i>	Document review and preparing MTE Inception Report
<i>13 November 2017</i>	Finalization and Validation of MTE Inception Report- latest start of MTE mission
<i>14 November - 29 November 2017 (12 days)</i>	MTE mission: stakeholder meetings, interviews, field visits

30 November 2017	Mission wrap-up meeting & presentation of initial findings-earliest end of MTE mission (invite all stakeholders to the meeting)
4-12 December 2017 (7 days)	Preparing draft report
12- 24 December 2017	UNDP and stakeholders review draft MTE report and provide feedback
25-31 Dec (5 days)	Incorporating audit trail from feedback on draft report/Finalization of MTE report
	Present findings to Stakeholder at PSC meeting
5 January 2018	Preparation & Issue of Management Response
15 January 2018	Expected date of full MTE completion

Options for site visits should be provided in the Inception Report.

## 8. MIDTERM EVALUATION DELIVERABLES

#	Deliverable	Description	Timing	Responsibilities
1	<b>MTE Inception Report</b>	MTE team clarifies objectives and methods of Midterm Evaluation	Beginning of MTE field mission ( <b>13 Nov 2017</b> )	MTE team submits to the Commissioning Unit and project management
2	<b>Presentation</b>	Initial Findings	End of MTE field mission <b>30 Nov 2017</b> )	MTE Team presents to project management and the Commissioning Unit
3	<b>Draft Final Report</b>	Full report (using guidelines on content outlined in Annex B) with annexes	Within 7 days after the MTE field mission ( <b>12 Dec 2017</b> )	Sent to the Commissioning Unit, reviewed by RTA, Project Coordinating Unit, GEF OFF
4	<b>Final Report*</b>	Revised report with audit trail detailing how all received comments have (and have not) been addressed in the final MTE report  <i>(see Annex G for an Audit trail template)</i>	Within 1 week of receiving UNDP comments on draft ( <b>31 Dec 2017</b> )	Sent to the Commissioning Unit

\*The final MTE report must be in English. If applicable, the Commissioning Unit may choose to arrange for a translation of the report into a language more widely shared by national stakeholders.

## 9. MTE ARRANGEMENTS

The principal responsibility for managing this MTE resides with the Commissioning Unit. The Commissioning Unit for this project's MTE is UNDP Country Office in Myanmar.

The commissioning unit will contract the consultants and ensure timely payment and make travel arrangements within the country for the MTE team. The Project Team will be responsible for liaising with the MTE team to provide all relevant documents, set up stakeholder interviews, and arrange field visits.

### ANNEX 3: Evaluation Matrix

Key Evaluation Questions	Indicators	Data Sources	Methods
<p><b>Project Strategy: To what extent is the project strategy relevant to country priorities, country ownership, and the best route towards expected results?</b></p> <p><i>The coherence and practicality of the project concept, results framework and implementation strategy, and whether based on experience to date, anything in the project design needs to be modified to achieve (or re-consider) the project results and strategy for implementation</i></p>			
1. Is the project log frame and theory of change still relevant and appropriately designed given the project experience to date?	<ul style="list-style-type: none"> <li>Extent to which implementation conforms with the design strategy</li> <li>Progress occurring with sufficient confidence in reaching outcomes</li> </ul>	<ul style="list-style-type: none"> <li>Progress reports</li> <li>Stakeholder views of the project design effectiveness</li> </ul>	Compare Project Strategy to actual experiences during implementation and interview participants
2. Are the project assumptions still valid and have any been missed?	<ul style="list-style-type: none"> <li>Key assumptions are confirmed or not during implementation</li> <li>Changes that occurred in underlying conditions that affect design assumptions</li> </ul>	<ul style="list-style-type: none"> <li>Project Document and progress reports that either affirm or question the key assumptions in the project design</li> </ul>	Compare Project Document assumptions to actual experiences during implementation, and interview participants on issues arising
3. Is the project in line with and supported by government priorities and strategies?	<ul style="list-style-type: none"> <li>Project activities are consistent with government policies</li> <li>Government staff support the project at policy/field levels</li> </ul>	<ul style="list-style-type: none"> <li>Progress reports</li> <li>Policy documents</li> <li>Field reports on govt. technical support</li> </ul>	Compile information on government priorities, commitment and participation
4. Are the project targets appropriate and realistic?	<ul style="list-style-type: none"> <li>Technical design studies confirm feasibility</li> <li>Extent of targeting of vulnerable beneficiaries</li> <li>Progress to date relative to targets</li> </ul>	<ul style="list-style-type: none"> <li>Progress reports</li> <li>Field observation on results of the interventions</li> <li>Interviews</li> </ul>	Review data on progress and interview staff, partners and donors and beneficiaries' perceptions of the project

<b>Progress Towards Results: To what extent have the expected outcomes and objectives of the project been achieved thus far?</b> <i>Achievement and timeliness of progress on the targeted outcomes and outputs per the Project Document and Annual Workplans, including progress relative to M&amp;E tracking tool baseline status</i>			
1. What quantitative and qualitative achievements have occurred in terms of output/outcome targets?	<ul style="list-style-type: none"> <li>• Changes from baseline conditions per project Indicators</li> <li>• Participant satisfaction with quantity and quality of outputs to date</li> </ul>	<ul style="list-style-type: none"> <li>• Project progress reports and PPR reports</li> <li>• Stakeholder interviews</li> </ul>	Compile and collate data from M&E reports and interviews on results to date. Review of post training surveys.
2. How well has the project progressed relative to work plans and schedules?	<ul style="list-style-type: none"> <li>• Responses to delays in project deliverables per schedule</li> </ul>	<ul style="list-style-type: none"> <li>• Project progress reports and PPR reports</li> <li>• M&amp;E data</li> </ul>	Compare program schedule with actual completion of work.
3. What is the effect of project outputs on household food security and climate risk reduction?	<ul style="list-style-type: none"> <li>• Crop production and yields</li> <li>• Crop diversity</li> <li>• Water availability/scarcity</li> <li>• Livelihoods and incomes</li> </ul>	<ul style="list-style-type: none"> <li>• M&amp;E data</li> <li>• Beneficiary interviews</li> <li>• Government interviews</li> </ul>	Interview beneficiaries in conjunction with M&E data
4. Is the project reaching the targeted beneficiaries?	<ul style="list-style-type: none"> <li>• Characteristics of the beneficiaries</li> <li>• Gender-disaggregated results</li> </ul>	<ul style="list-style-type: none"> <li>• M&amp;E data</li> <li>• Field interviews</li> </ul>	Assess progress against targets
5. What are the issues affecting project achievements and components that may not be on target?	<ul style="list-style-type: none"> <li>• Status of outputs completion, any targets not met</li> <li>• Reasons for non-achievement of targets</li> </ul>	<ul style="list-style-type: none"> <li>• Project progress reports and PPR reports</li> <li>• Stakeholder interviews</li> <li>• Board meeting minutes</li> </ul>	Meetings with project staff and implementing partners; interview stakeholders
6. What actions are needed, if any, to ensure, accelerate or expand project achievements?	<ul style="list-style-type: none"> <li>• Recognized issues that need attention</li> <li>• Proposed action by the project to address issues</li> </ul>	<ul style="list-style-type: none"> <li>• Project progress reports and PPR reports</li> <li>• Stakeholder interviews</li> <li>• Board meeting minutes</li> </ul>	Consolidate views on key issues and assess consensus on actions needed
<b>Project Implementation and Adaptive Management: Has the project been implemented efficiently, cost-effectively, and been able to adapt to any changing conditions thus far? To what extent are project-level monitoring and evaluation systems, reporting, and project communications supporting the project's implementation?</b> - <i>Performance of the management structure and coordination mechanisms, work planning and financial management, and adaptive responses</i>			

<ul style="list-style-type: none"> <li>- <i>The reliability and usability of the Project Indicators for monitoring and reporting against baseline conditions, the quality of the monitoring plan, and the reliability of the monitoring system, data quality and progress reporting.</i></li> <li>- <i>The accuracy of the identified risks, any required changes in risk rating and any new risks that have emerged since project start-up</i></li> </ul>			
1. Are the management structure and the roles and responsibilities operating as planned in the Project Document?	<ul style="list-style-type: none"> <li>• Perceived clarity of roles and responsibilities by stakeholders</li> <li>• Participant satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>• Interviews with project partners</li> <li>•</li> </ul>	Interview project staff and implementing partners
2. Are the coordination mechanisms operating effectively?	<ul style="list-style-type: none"> <li>• Extent of partner knowledge and engagement</li> <li>• Number of meetings/workshops</li> </ul>	<ul style="list-style-type: none"> <li>• Interviews with project partners</li> <li>• Progress reports</li> </ul>	Interview project staff and implementing partners
3. How effective are the working relationships and communications between the implementing partners?	<ul style="list-style-type: none"> <li>• Participant satisfaction</li> <li>• Extent of collaboration on implementation activities</li> </ul>	<ul style="list-style-type: none"> <li>• Interviews with project partners</li> <li>• Progress reports</li> </ul>	Interview project staff and implementing partners
4. Is the executing agency providing sufficient management direction and how could it be improved?	<ul style="list-style-type: none"> <li>• Number and significance of project delivery issues</li> <li>• Participant satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>• Interviews with project partners</li> <li>• Progress reports</li> </ul>	Interview project staff and implementing partners
5. Is UNDP providing effective support and quality assurance and how could it be improved?	<ul style="list-style-type: none"> <li>• Number and significance of project management issues</li> <li>• Timeliness of recruitments</li> <li>• Participant satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>• Interviews with project staff, partners and beneficiaries</li> </ul>	Interview project staff and implementing partners. Review implementation delays and issues.
6. Are the Project Board and Technical committee providing effective oversight and guidance and how could it be improved?	<ul style="list-style-type: none"> <li>• Number of meetings and decisions taken by project committees</li> <li>• Pro-active actions of management bodies (adaptive management)</li> </ul>	<ul style="list-style-type: none"> <li>• Interviews with project staff, partners and beneficiaries</li> </ul>	Interview project staff and implementing partners
7. Does the project have the appropriate financial controls, including reporting and planning, for budgeting and for timely flow of funds?	<ul style="list-style-type: none"> <li>• Annual expenditures in relation to annual budgets</li> <li>• Efficiency of disbursements and financial management (delays in payments, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Stakeholder interviews on implementation modalities</li> <li>• Financial audits</li> <li>• Minutes of meetings</li> </ul>	Review financial audit and progress reports.

8. What is the status of expected and actual co-financing?	<ul style="list-style-type: none"> <li>• Self-assessment by implementing partners of their contributions</li> </ul>	<ul style="list-style-type: none"> <li>• Tracking of co-financing contributions (table)</li> </ul>	Interview project staff.
9. Are the project indicators being used and is the M&E framework effective?	<ul style="list-style-type: none"> <li>• Reporting as per M&amp;E indicators</li> <li>• Extent of implementation of M&amp;E manual</li> </ul>	<ul style="list-style-type: none"> <li>• Project progress reports</li> <li>• Stakeholder interviews</li> </ul>	Review project reporting use of indicators.
10. Have critical risks to achievements and sustainability been sufficiently addressed?	<ul style="list-style-type: none"> <li>• Occurrence of known or unexpected risks affecting implementation progress</li> <li>• Actions taken to reduce the effects of these risks</li> </ul>	<ul style="list-style-type: none"> <li>• Risks identified in the ProDoc/ ATLAS Risk Management Module</li> <li>• Progress reports describing risks triggered</li> </ul>	Review and assess current risk profile.
<p><b>Sustainability: To what extent are there financial, institutional, socio-economic, and/or environmental risks to sustaining long-term project results?</b></p> <p>- <i>The conditions necessary for project-related results and benefits being sustained and viable without major social/environmental risks after the project is completed.</i></p>			
1. To what extent is the project contributing to capacity development to sustain results?	<ul style="list-style-type: none"> <li>• Institutional capacity indicators</li> <li>• Extensions services promotions of adaptation measures</li> </ul>	<ul style="list-style-type: none"> <li>• Training and capacity development reports</li> </ul>	Review training reports. Interview local authorities and farmers
2. What factors are likely to drive or affect sustainability – financial, institutional, socio-economic, and environmental?	<ul style="list-style-type: none"> <li>• Financial viability of the practices/ technologies for households and farmers</li> <li>• Integration of adaptation actions into government systems</li> </ul>	<ul style="list-style-type: none"> <li>• Interviews with staff, partners and beneficiaries</li> <li>• Sustainability analysis from interview data</li> </ul>	Assess viability and uptake with the farmers. Interview local authorities on mainstreaming efforts.

## ANNEX 4 – Draft Interview Guide

The following is a set of lead questions that may be used in a general manner to prompt and guide the evaluation discussions. It is a guide only and not a questionnaire. Questions may be added or avoided depending upon the available time and the particular involvement of the interviewees.

### Government/NGO Partners

1. What has been your involvement in the project?
  2. What are the Major Challenges you have faced so far in implementing the project? Can they be addressed by adjusting the project implementation strategy?
  3. How effective or useful have the project outputs been – can you give examples? Should any of the implementation methods be revised?  
-----
  4. What training or technical assistance have you received from the project?
  5. How useful was it? Has it had any significant effect on how you do your job? Please explain  
-----
  6. What has been the most successful part of the project so far?
  7. What has been the least successful part of the project so far?
  8. Should anything be changed to make the project more effective and efficient?  
Recommendations?
  9. Do you have any comments on specific water, forestry or agricultural activities that you have observed at the field level – examples of best practices, or examples of failures?  
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  10. Have there been any administrative difficulties working with UNDP systems?
  11. Are you satisfied with the coordination and communication aspects of the project?
  12. Is there adequate direction and management of the project activities?
  13. Have there been any planned activities that have been difficult to complete according to the schedule? Have delays affected progress toward expected results?
  14. Are there any data gaps related to tracking results as shown on **Annex 4**?
- 

### Local Beneficiaries

1. What project activities have you been engaged in? What is your role in the project?
2. What training or technical support has been provided? Was it useful? Why?
3. What practical results have been achieved or not achieved from these activities? Examples?

4. How does this compare to before the project? Are there any new resources, crop yields or income that can be specifically linked to the project?
5. To what extent are women and disadvantaged groups involved in these activities?
6. Do you have any suggestions on how to improve the project?
7. What is the likelihood the project outputs will be sustained after the project? Why?
8. What would you say have been the main lessons from the project so far for your community?
9. Are there any data gaps related to tracking results as shown on **Annex 4**?

### Results Data Checklist

Results Framework targets at end of project	Data questions
<p><b>OUTPUT 1.1</b>            45 canals for water diversion constructed            70 small scale water pumping systems installed            56 communal water tanks (equivalent to total capacity 5000 gallon) incl. pipes installed            150 communal ponds rehabilitated or constructed            10 deep tube wells (new &amp; fixed/renovation)            1156ha of land covered with soil and water conservation techniques            40 shallow tube wells</p> <p>Trainings on (#/hh's/m-f):</p> <ul style="list-style-type: none"> <li>• Water infrastructure</li> <li>• Soil&amp;water conservation</li> <li>• Operation&amp;management</li> </ul> <p>Community agreements (WUGs) (#)</p>	<ol style="list-style-type: none"> <li>a) What water supply improvements have been made?</li> <li>b) What is the difference between before and after the project?</li> <li>c) How many HHs utilize these facilities?</li> <li>d) Has there been any change in crops or crop yields?</li> <li>e) Can you estimate the income from irrigated farming compared to before?</li> <li>f) What are the operation and maintenance arrangements? How have they functioned in other areas? WUG success?</li> </ol>
<p><b>OUTPUT 1.2</b>            3,913 ha of natural forest conservation            1,458 ha of community forest establishment (including x# of CF management plans)            770 ha of tree planting activities on public land:</p> <ul style="list-style-type: none"> <li>• Micro-watersheds 661ha</li> <li>• Road-side planting 35.5ha</li> <li>• Religious compounds 32.2ha</li> <li>• Schools 38.5ha</li> <li>• Clinics 2.8ha</li> </ul>	<ol style="list-style-type: none"> <li>a) What watershed protection has been implemented?</li> <li>b) How much of the plantation survived?</li> <li>c) How much community forest has been established?</li> <li>d) How effective are the CF plans and restrictions?</li> <li>e) What effect has the watershed rehab had on runoff, flooding, and water sources regeneration?</li> </ol>
<p><b>OUTPUT 1.3</b>            1,000 ha of homestead gardening /agro-forestry plots established in 76 villages 1,500ha of farm boundary plantations in 95 villages            Demo plots 20ha Silvopasture 2ha Intercropping 3ha Taungya crops – 1,458ha            Training on (#/hh's/m-f):</p>	<ol style="list-style-type: none"> <li>a) How many ha created hone garden and agroforestry plantation? Survival rate?</li> <li>b) Who are the owners?</li> <li>c) What agri production has been possible from the plots?</li> </ol>

<ul style="list-style-type: none"> <li>• CF establishment</li> <li>• Agro-forestry</li> <li>• Natural forest conservation</li> <li>• Micro-watershed management</li> </ul> <p>Workshop: CF review</p>	<p>d) How have watershed conditions improved?</p> <p>e) What new income has occurred?</p> <p>f) Is any replication visible?</p>
<p><b>OUTPUT 2.1</b>  At least 11,550 (11,200 farmers plus 350 others) households, extension workers and CSO/NGO members in the target (villages) Townships are trained on climate-resilient farming methods  Trainings on (#/hh's/m-f):</p> <ul style="list-style-type: none"> <li>• Climate resilient farming methods</li> <li>• Water smart practices (AWD)</li> <li>• Thanakha intercropping</li> <li>• Fruit tree drip irrigation</li> <li>• Organic farming and vermiculture</li> </ul> <p>At least 140 villages (-level (research farm is operational ) produce climate-resilient seed varieties</p> <ul style="list-style-type: none"> <li>• Trainings on climate-resilient seed multiplication (#/hh's/m-f)</li> </ul> <p>At least 50 participatory demonstration plots on climate-resilient agricultural practices are established  At least 20% of community participants in exchange visits and farmers field demonstrations are from non-project target villages</p> <p>Farmer field schools on climate change (#/hh's/m-f)</p>	<p>a) What training was completed?</p> <p>b) Was there post training assessment?</p> <p>c) What methods are now being applied?</p> <p>d) How have they changed farm production and income?</p> <p>e) What is the evidence of success from demo plots?</p> <p>f) Is any replication visible?</p>
<p><b>OUTPUT 2.2</b>  80% of target households ( 9,240 of 11,550) report reduced post-harvest losses through the use of improved processing and storage technology: e.g.:</p> <ul style="list-style-type: none"> <li>• 20 rice threshers and 120 multi-crop threshers</li> <li>• Establishment of thresher groups (140)</li> <li>• Trainings and participatory assessments on PHL</li> <li>• Elevated storage systems (36)</li> </ul>	<p>a) What post-harvest processing /storage methods have been implemented?</p> <p>b) How have they affected farm production and income?</p> <p>c) What will happen when the project ends?</p> <p>d) Is any replication visible?</p>
<p><b>OUTPUT 2.3</b>  At least 6,300 marginal and landless households (vulnerable households) have increased the diversity of livestock assets  Diversity in types: Cattle# ; Sheep# ; Goat#; Pig#; Poultry#</p> <ul style="list-style-type: none"> <li>• In climate-resistant/improved breeds#</li> </ul>	<p>a) What livestock have been introduced?</p> <p>b) What training have you received?</p> <p>c) Have you had any problems?</p> <p>d) What changes in income have occurred from livestock?</p> <p>e) What offspring on-lending has actually occurred?</p>
<p><b>OUTPUT 3.1</b>  Climate hazard maps and risk scenarios are available in each Township, based on vulnerability assessments.</p>	<p>a) How are the risk maps and vulnerability information used?</p>

	<ul style="list-style-type: none"> <li>b) Has the information had any effect on budgets or infrastructure decisions? Examples?</li> <li>c) Who will maintain the maps and studies? Why?</li> </ul>
<p><b>OUTPUT 3.2</b>  70 community based disaster risk management (CBDRM) committees are formed to relay climate early warning information from the Township DPC  5 Climate Risk Information sub-committees established within the Township DPC</p> <p>At least six agro-meteorological bulletins; two early warning and disaster response bulletins/posters; four guidance notes on resilient agricultural /livestock practices produced</p>	<ul style="list-style-type: none"> <li>a) Who are the members of the CBDRM committee?</li> <li>b) How often have they meet?</li> <li>c) What do they do?</li> <li>d) Who uses the bulletins and posters that are produced? How do you know they are useful?</li> </ul>

## ANNEX 5 – Itinerary for Stakeholder Meetings and Field Visits

Day/ Date	Location	Time	Activity	Remarks
Monday 4 Dec 2017	Mandalay	9:30- 10:30	Stakeholder meeting with DMH (Department of Meteorology and Hydrology)	
	Mandalay	11:00-12:00	Stakeholder meeting with ECD (Environmental Conservation Department)	
		12:00-13:00	Lunch	
	Patheingyi	13:00-17:00	Briefing meeting/finalization of Inception Report (Project Team)	Night stop in Mandalay
Tuesday 5 Dec 2017	Mandalay	9:00–10:00	Stakeholder meeting with RRD (Relief and Resettlement Department)	
	Mandalay	10:30–11:30	Area Office or Hotel	Based on preferences
	Mandalay	11:30–12:30	Lunch	
	Mandalay	13:00–14:00	Stakeholder meeting with DoA (Department of Agriculture)	
	Mandalay	14:30–15:30	Stakeholder meeting with IWUMD (Irrigation and Water Utilization Management Department)	
	Mandalay	16:00–17:00	Stakeholder meeting with FD (Forest Department)	
	Mandalay	17:00–17:30	Return to Hotel	Night stop in Mandalay
Wednesday 6 Dec 2017	Patheingyi	09:00–10:00	Stakeholder meeting with DZDG (Dry Zone Greening Department)	
	Mandalay	10:30–11:30	Stakeholder meeting with DRD (Department of Rural Development)	
	Mandalay	11:30–12:30	Lunch	
	Mandalay	13:00–14:00	Stakeholder meeting with LBVD (Livestock Breeding and Veterinary Department)	
	Mandalay	14:00–14:30	Return to Hotel	Night stop in Mandalay
Thursday 7 Dec 2017	Mandalay – Nay Pyi Taw	08:00–10:30	<b>Travel to Nay Pyi Taw</b>	
	Nay Pyi Taw	10:30–11:30	Meeting with AF Focal Point at ECD	
	Nay Pyi Taw	12:00-12:30	Meeting with RRD (Relief and Resettlement Department)	
	Nay Pyi Taw	12:30–13:30	Lunch	
	Nay Pyi Taw	13:30-14:00	Meeting with DMH	

	Nay Pyi Taw – Nyaung U	14:00–17:30	<b>Travel to Nyaung U</b>	Night stop in Nyaung U
Friday 8 Dec 2017	Nyaung U	09:30–11:30	Township stakeholder meeting with GAD (General Administration), DZGD, FD, DoA, LBVD, DRD, IWUMD, DMH, RRD.	
	Nyaung U	12:00- 13:00	Lunch	
	Nyaung U	13:00 -17:00	Field Visit- Meet and interview project beneficiaries	Separate meeting with stakeholder department could be conducted depending on the preference of MTE mission members.
	Nyaung U	17:30–17:45	Return to Hotel	Night Stop in Nyaung U
Saturday 9 Dec 2017	Nyaung U	09:00–12:00	Meeting with Implementing partners based in Nyaung U	
	Nyaung U	12:00-13:00	Lunch	
	Nyaung U-Chauk		<b>Travel to Chauk and check in Hotel</b>	Night Stop in Chauk
Sunday 10 Dec 2017	Chauk	08:30–12:00	Field visit – Meet and interview project beneficiaries	
	Chauk	12:00–13:00	Lunch	
	Chauk		Return to Hotel	Night Stop in Chauk
Monday 11 Dec 2017	Chauk	09:30–11:30	Township stakeholder meeting with GAD (General Administration), DZGD, FD, DoA, LBVD, DRD, IWUMD, DMH.	Separate meeting with stakeholder department could be conducted depending on the preference of MTE mission members.
	Chauk	12:00–13:00	Lunch	
	Chauk-Myingyan	13:00–17:00	<b>Travel to Myingyan and check in Hotel</b>	Night Stop in Myingyan
Tuesday 12 Dec 2017	Myingyan	09:30–11:30	Township stakeholder meeting with GAD (General Administration), DZGD, FD, DoA, LBVD, DRD, IWUMD, DMH.	
	Myingyan	12:00–13:00	Lunch	

	Myingyan	13:00-17:00	Field Visit- Meet and interview project beneficiaries	Separate meeting with stakeholder department could be conducted depending on the preference of MTE mission members.
	Myingyan	17:30-17:45	Return to Hotel	Night Stop in Myingyan
Wednesday 13 Dec 2017	Myingyan-Shwebo	8:30-13:00	<b>Travel to Shwebo/Lunch</b>	
	Shwebo	14:00-16:00	Meeting with Aung Zay Yar Association Field visit (Kin Tat irrigation canal, Kan Taw Min Escape and Ka Hpyu check gate)	Night stop in Shwebo
Thursday 14 Dec 2017	Shwebo	09:30-11:30	Township stakeholder meeting with GAD (General Administration), DZGD, FD, DoA, LBVD, DRD, IWUMD, DMH.	
	Shwebo	12:00-13:00	Lunch	
	Shwebo	13:00-17:00	Field Visit- Meet and interview project beneficiaries	Separate meeting with stakeholder department could be conducted depending on the preference of MTE mission members.
	Shwebo	17:30-17:45	Return to Hotel	Night Stop in Shwebo
Friday 15 Dec 2017	Shwebo-Monywa	8:30-13:00	<b>Travel to Monywa/Lunch</b>	
	Monywa	14:00-16:00	Township stakeholder meeting with GAD (General Administration), DZGD, FD, DoA, LBVD, DRD, IWUMD, DMH, RRD.	Separate meeting with stakeholder department could be conducted depending on the preference of MTE mission members.
	Monywa	16:30-16:45	Return to Hotel	Night Stop in Monywa
	Monywa	09:30-11:30	Field Visit- Meet and interview project beneficiaries	

Saturday 16 Dec 2017	Monywa	12:00-13:00	Lunch	
	Monywa- Mandalay		<b>Travel to Mandalay and check in the Hotel</b>	Night stop in Mandalay
Sunday 17 Dec 2017	Mandalay	15:00-17:00	Meeting with Project Team and preparation of report	Night stop in Mandalay
Monday 18 Dec 2017	Mandalay	10:00-12:00	Mission wrap up meeting and presentation of initial findings to all project stakeholders	Night stop in Mandalay
Tuesday 19 Dec 2017	Mandalay		Preparation of Preliminary observations	Night stop in Mandalay
Wednesday 20 Dec 2017	Mandalay	9:00-12:00	Present findings to Stakeholders at PSC meeting	
	Mandalay	14:00-16:00	Debriefing meeting with Project Team	Night stop in Mandalay
Thursday 21 Dec 2017	Mandalay		Departure from Myanmar	

### Annex 6: List of Persons Interviewed

Sr	Name	Position	Organisation	Date	Place
1	Karma Lodey Raptan	Technical Specialist	Project Team	04-Dec 17	Mandalay
2	U Myint Wai	National Project Manager	Project Team		
3	U Yan Naing Tun	Soil Conservation and Water Harvesting Specialist	Project Team		
4	U Kyaw Zin Aung Soe	Environment and Forestry Specialist	Project Team		
5	U Myint Zaw	Agricultural Specialist	Project Team		
6	U Khin Maung Lwin	Livestock Specialist	Project Team		
7	Van Lal Ruat Pwee Yee	M&E Officer	Project Team		
8	Daw Theingi Soe	Project Assistant	Project Team		
9	U Kyaw Lwin Oo	Director	Department of Meteorology and Hydrology	05-Dec 17	Mandalay
10	U Maw Maw Ko	Assistant Director	Environmental Conservation Department		
11	U Thant Zin Tun	Assistant Director	Environmental Conservation Department		
12	Daw Lat Lat Aye	Team Leader	UNDP Country Office		
12	Daw Thiri Aung	National Project Coordinator	UNDP Country Office		
13	U Nay Mya Htun	Deputy Director	Relief and Resettlement Department		
14	Daw Zar Mon Oo	Deputy Director	Relief and Resettlement Department		
15	U Maung Maung	Director	Livestock Breeding and Veterinary Department, Mandalay Region		
16	Daw Win Win Hlaing	Staff Officer	Livestock Breeding and Veterinary Department, Mandalay Region		
17	U Kyin Maung	Director	Agriculture Department, Ministry of Agriculture, Livestock and Irrigation		

18	U Min Min Zaw	Executive Engineer	Irrigation Department, Ministry of Agriculture and Irrigation		
19	U Htay Oo	Director	Irrigation Department, Ministry of Agriculture and Irrigation		
20	U Khin Zaw	Deputy Director (Civil)	Irrigation Department, Ministry of Agriculture and Irrigation		
21	U Maung Lwin	Deputy Director	Irrigation Department, Ministry of Agriculture and Irrigation		
22	U Myint Thein	Director	Forestry Department, Mandalay region		
23	Dr. Chaw Chaw Sein	Staff Officer	Forestry Department, Mandalay region		
24	U Ba Kaung	Deputy Director General	Dry Zone Greening Department	06-Dec-17	<b>Mandalay</b>
25	U Sunn Htwe	Director, Planning	Dry Zone Greening Department		
26	U Aung Kyaw Soe	Asst. Director, Planning	Dry Zone Greening Department		
27	U Minn Han	Director	Dept of Rural Development	06-Dec-17	<b>Mandalay</b>
28	U Zaw Minn Taik	Dy Director	Dept of Rural Development		
29	U Kyone Hlian Paing	District officer (Myingyan)	Dept of Rural Development		
30	U Kyaw Win	Dy Director (Nyaung Oo)	Dept of Rural Development		
31	U Hla Mg Thein	Director General	Environmental Conservation Department	07-Dec-17	<b>NPT</b>
32	U Than Htut Swe	Deputy Director General	Relief and Resettlement Dept	07-Dec-17	
33	U Kyaw Moe Oo	Deputy Director General	Department of Meteorology and Hydrology	07-Dec-17	<b>NPT</b>
34	Daw Phyu Le Le Tun	Director	Department of Meteorology and Hydrology		
35	Daw Aye Nandar Win	Staff Officer	Department of Meteorology and Hydrology		
36	U Tun Tun Linn	Dy Township Administrator	General Administrative Department		
37	Daw Thin Thin Khine	Dy Director	RRD		

38	U Myo Minn Tun	Staff Officer	Forest Department	08-Dec-17	<b>Nyaung Oo</b>
39	U Aung Shein	Assistant Director	DRD		
40	U Tun Tun Oo	Staff Officer	LBVD		
41	U Tun Hla Aung	Dy Staff Officer	DMH		
42	Daw Kay Thwe Soe	Assistant Staff Officer	DoA		
43	Daw Zin Hlaing Thein	Assistant Staff Officer	DoA		
44	U Aung Zaw Latt	Range Officer	DZGD		
45	Daw Hlaing Wai Wai Oo	Staff Officer	DoI		
46	U Aung Khant	Village Head (+ villagers)	Kamma village	08-Dec-17	<b>Nyaung Oo</b>
47	U Myo Minn Aung	Project Manager	CESVI	09-Dec-17	<b>Nyaung Oo</b>
48	Dr Amy Thein	Asst PM	CESVI		
49	U Mg Myint	Myingyan Facilitator	CESVI		
50	U Win Tin	Project Manager	NAG		
51	U Nyi Nyi Hlaing	Program Associate	NAG		
52	U Nay Myo Swe	Forestry Technician	NAG		
53	Dr Thant Zin	Project Manager	CDA		
54	U Linn Htet Sann	T/S Officer Nyaung Oo	CDA		
55	U Tun Wai	Project Manager	FBD		
56	U Kyaw Zin Aung Soe	Forestry Specialist	Project Team	09-Dec-17	<b>Nyaung Oo</b>
57	U Kyaw Win	Village Head (+ villagers)	Kyaut Kan	10-Dec-17	<b>Chauk</b>
58	U Kyaw Swe Win	Township Administrator	General Administrative Department	11-Dec-17	<b>Chauk</b>
59	U Lwin Oo Mg	Assistant Director	Department of Meteorology and Hydrology		
60	Dr. Soe Linn	Township Officer	Livestock Breeding		
61	U Khin Mg Win	Staff Officer	Forest Department		
62	U Thein Ko	Staff Officer	Dry Zone Greening Department		

63	Daw Aye Myint Myat Tinn	Staff Officer	Department of Agriculture		
64	U Aung Myint	Deputy Staff Officer	Department of Rural Development		
65	U Thein Ko	Staff Officer	DZGD	11-Dec-17	<b>Shwe Bon Taung</b>
66	U Than Soe Linn	Dy T/S Administrator	General Administrative Department	12-Dec-17	<b>Myingyan</b>
67	U Kyaw Swar Win	Dy Staff Officer	Dry Zone Greening Department		
68	U Tun Kyaw Soe	Staff Officer	Forest Department		
69	U Aung Naing	Dy Staff Officer	Department of Agriculture		
70	Dr. Yin Yin Myint	Staff Officer	Livestock Breeding		
71	Dr. Hninn Yu Lwin	Staff Officer	Department of Rural Development		
72	Daw Win Mya	Staff Officer	Department of Meteorology and Hydrology		
73	U Ku Marr		Police Department		
74	U Kyaw Swar Win	Dy Staff Officer	Dry Zone Greening Department	12-Dec-17	<b>Kokke (PPF)</b>
75	U Soe	Village Head (+ villagers)	Kyauk Kan	12-Dec-17	<b>Kokke</b>
76	U Win Min Tun	Village Head (+ villagers)	Ka Tet Pin	12-Dec-17	<b>Kokke</b>
77	Dr. Tin Wynn	President	Aung Zay Yar ,Social Compassioner's Associa	13-Dec-17	<b>Shwe Bo</b>
78	U Khin Mg Myint	Chief Staff		13-Dec-17	<b>Shwe Bo</b>
79	U Tun Tun Oo	Canal Guard	Irrigation Department, Maharnandar Lake	13-Dec-17	<b>Shwe Bo</b>
80	U Tin Mg Tun	Representative	Kone Gyi village	13-Dec-17	<b>Shwe Bo</b>
81	U Htay Taung	Village Head	Thit Cho Pin village		
82	U Zaw Myint	Representative	Pauk Taw village		

83	U Zin Naung Soe	Junior Clerk	General Administrative Department	14-Dec-17	<b>Shwebo</b>
84	U Myo Khant Ko	Range Officer	Dry Zone Greening Department		
85	U Zaw Moe	Deputy Ranger	Forest Department		
86	U Aung Zay Minn	Deputy Staff Officer	Department of Rural Development		
87	Daw Aye Aye Nyein	Staff Officer	Department of Meteorology and Hydrology		
88	Daw Zar Zar Minn	Staff Officer	Agriculture Department		
89	U Tay Zar Tun	Staff Officer	Irrigation Department		
90	U Minn Naing	Village Head (+ villagers)	Maung Tet village	14-Dec-17	<b>Shwebo</b>
91	U Mya Aung	Village Elder Person			
92	U Chet Gyi	Chair, LBD Committee			
93	Ma Khine	Farmer			
94	U Ahar Kar Myint	Dy. T/S Administrator	General Administrative Department	15-Dec-17	<b>Monywar</b>
95	U Aung Tun Win	Forester	Dry Zone Greening Department		
96	U Kyaw Sint	Dy. Ranger	Forest Department		
97	Daw Thin Thin Khaing	Staff Officer	Department of Meteorology and Hydrology		
98	Daw Yu Yu	Dy. Staff Officer	Department of Rural Development		
99	Daw Hlaing Hlaing Myint	Junior Engineer	Department of Rural Development		
100	U Kyaw Soe Tin	Staff Officer	IWUMD		
101	Daw Win Win Htay	Dy. Staff Officer	Agriculture Department		
102	Dr. Ei Ei Aung	Staff Officer	Livestock Breeding		
103	Daw Than Than Win	Assistant Director	Relief and Resettlement Department		
104	U Myint Zaw	Chairman (+ villagers)	Heldar Village	15-Dec-17	<b>Monywar</b>
105	U Myot Oo	Chairman (+ villagers)	Myaingsi Village	15-Dec-17	<b>Monywar</b>
106	U Than Pe	Elder Person	Myaingsi Village		
107	U Nyi Pu	Elder Person	Myaingsi Village		

## **Annex 7: List of Documents Reviewed**

Adaptation Fund, MOECAAF, UNDP, Project Inception Report, Sept. 2015

Adaptation Fund, MOECAAF, UNDP, Addressing Climate Change Risks on Water and Food Security in the Dry Zone of Myanmar, Project Document, 2014.

Adaptation Fund, MOECAAF, UNDP, Minutes of Project Steering Committee, 2014.

Adaptation Fund, MOECAAF, Minutes of the Local Project Appraisal Meeting on “Addressing Climate Change Risk on Water Resources and Food Security in the Dry Zone of Myanmar”, (Adaptation Fund Project), 30 April 2014.

Adaptation Fund, MOECAAF, UNDP, Monitoring and Evaluation Framework, of the AF-UNDP Project, “Addressing Climate Change Risks on Water Resources and Food Security, in the Dry Zone of Myanmar”, March 2016

Aung Zay Yar Social Compassioners Association, Project Completion Report, 3 February 2017

Cesvi Fondazione (Onlus), Participatory Assessment on Crop Loss Patterns from Current Post Harvest Practices in Five Townships: Nyaung U, Myingyan, Chauk, Monywa and Shwero Final Report, 2017

Cesvi, Milestone 2 (PRA and Training Need Assessment Report) 29-Dec-2016

FBD Technical Group, U Nay Wun Paw, Assessment/Field Survey Report, from 14/08/2016 To 31/10/2016.

Hydroconseil, Assessment, Identification & Monitoring of Small Scale Water Infrastructure Needs for Drinking and Irrigation Water in the Dry Zone of Myanmar, Rapid Needs Assessment Report, 2016

MoECF, Minutes of TAG meetings

Myanmar Survey Research, Baseline Impact Assessment Report, Addressing Climate Change Risks on Water Resources and Food Security in the Dry Zone of Myanmar, n.d.

Project Office, Excel spreadsheet, Output 2.3 Summary Data (livestock)

Dr. Than Naing, Community Development Association, Report On Rapid Needs Assessment & Beneficiary Selection (Climate Change Resilient Diversified Livestock Rearing Practices), 2016.

U Nay Wun Paw, Addressing Climate Change Risks on Water Resources and Food Security in the Dry Zone of Myanmar, Assessment/Field Survey Report, FBD Technical Group, 2016.

Project Office, Quarterly Project Progress Review Reports, 2016- 2017.

RIMES/UNDP, Enhancing Capacities for Climate Risk Management in Myanmar’s Dry Zone through Climate Information and Services, Risk Assessment Report, April 2017

RIMES/DMH/ UNDP, Climate Analysis: Variabilities, Extremes, Trends, Projections, and Associated Risks, Central Dry Zone., Myanmar, 2016

UNDP project, Land Approval Process in Project Townships (9<sup>th</sup> November, 2017)

UNDP, Summary Notes: Local Consultation and Selection of Target Villages Addressing Climate Change Risks on Water Resources and Food Security in the Dry Zone of Myanmar, June 2015

UNDP, Project Performance Reports (PPR), 01 Apr 2016 - 31 Mar 2017 and 01Apr 2015 – 31 Mar 2015; PIMS 4703.

## Annex 8: Review of Project Indicators

Project Strategy	Results Indicator	MTE Comments	MTE Suggestions
<p><b>OBJECTIVE</b> To reduce the vulnerability of households in Myanmar’s Dry Zone to increasing drought and rainfall variability, and enhance the capacity of households to plan for and respond to future impacts of Climate Change on food security</p>	<p>% of households in target site implementing climate change adaptation livelihood measures introduced by the project</p> <p>% of Dry Zone households with access to early warning information on sudden onset of disasters</p> <p>% of Dry Zone households using climate risk information to adjust their livelihood behavior</p>	<p>The indicators cannot be easily applied in reporting until end-of-project HH surveys are completed.</p> <p>Some core vulnerability reduction indicators could be used from the outcome level to measure Objective achievement.</p>	<p>Prepare a summary statement of progress based on review of overall progress on Outcome 1, 2 and 3.</p>
<p><b>OUTCOME 1</b> Continuous freshwater availability is ensured during the dry seasons in 280villages in the Dry Zone</p>	<p>% of Dry Zone (farmers) households reporting increased freshwater availability during dry periods</p>	<p>The project aims to increase availability of dry season water from 26% of HHs at baseline toward a 60% target. It should be possible to calculate the increased water available based on (i) increased water storage capacity at each renovated pond site, (ii) the number of beneficiaries who are using the new/renovated water sources and (iii) the level of user satisfaction and self-management of the source.</p>	<p>Focus on calculating the number of direct, facility-specific beneficiaries (users) now having water compared to total HHs at the project sites.</p> <p>Consult with beneficiaries on i) user satisfaction and ii) O&amp;M management status of water supply committees and irrigation user groups as per government guidelines.</p>
<p><b>OUTCOME 2</b> Climate-resilient agricultural and livestock practices enhanced in</p>	<p>Number of climate-resilient agricultural and livestock practices demonstrated and adopted to</p>	<p>Numbers of “practices demonstrated” are available from the project database (demonstration activities completed).</p> <p>Information on the level of adoption by farmers/</p>	<p>Provide a breakdown of the types and numbers of climate-resilient practices demonstrated.</p> <p>Identify the characteristics/ gender of the direct</p>

Project Strategy	Results Indicator	MTE Comments	MTE Suggestions
Myanmar's Dry Zone	support adaptation of (vulnerable farmers) marginal farmers and landless households	HHs will depend upon surveys, formal and informal, of (i) adaptation practices being used in the villages and (ii) user benefits that are generated.	<p>beneficiaries of the demonstrations.</p> <p>Compile and present data on typical benefits to participants (household labour savings, crop yield, crop diversification, and income generated before and after the demonstration activities).</p> <p>Describe key factors affecting success and failure of the selected demonstration results</p>
<p><b>OUTCOME 3</b></p> <p>Timeliness and quality of climate risk information disseminated to Dry Zone households enhanced through use of short-term weather forecasts, medium-term seasonal forecasts, and longer-term climate scenario planning</p>	<p>% of Dry Zone households using climate risk information to adjust their livelihood behavior</p> <p>% of Dry Zone households with access to early warning information on sudden onset of disasters</p>	<p>The outcome focuses on "timeliness and quality of information disseminated" but the indicator measures HH use of information in adopting certain practices ('livelihood behaviour'), and on access to disaster warnings. Survey data not available.</p> <p>The central Outcome 3 outputs are i) Risk Assessments and Maps for local authorities, ii) Weather forecasts combined with Agro Advisories for farmers, and iii) the public Disaster Notification technology/ system.</p> <p>To what extent have these been accepted and utilized by the targeted groups?</p>	<p>Compile information on the extent to which the risk data and maps are being specifically used by the five townships in i) development plans (e.g., floodplain restrictions) and in ii) setting budget priorities for protection or upgrading of infrastructure at risk (e.g., flood proofing roads).</p> <p>Compile information on the extent to which the forecasts and advisories are considered by farmers as i) very useful in farming decisions, ii) marginally useful depending on circumstances, or iii) not that trusted to date compared to traditional methods of decision making, and indicate the level of government interest or commitment or lack of such, to integrate the advisories into extension programmes.</p> <p>Compile information on the practicality and sustainability of the Disaster Advisory Notification (DAN) from the perspective of the target users compared to the status quo.</p>

### Annex 9: Notes from discussions with beneficiaries, Dec. 8-15, 2017

Township	Village	Household effects (changes in domestic water supply, livelihoods)	Farming effects (changes crop varieties, yields, livestock, post-harvest)	Income effects (changes in HH income due to project activities)
Nyaung U	Kamma >100 villagers attending	(they have one well; it goes dry in the dry season, and they have to transport water from 2 miles away or buy water)	Benefits from addition of gypsum to groundnut crop: 10 farmers involved out of 170 total farmers. Yield increased 25%, was 20 baskets; now 25 baskets per crop. Cost of gypsum is 6000 kyat per crop season.  The new technology is: Use of high yield groundnuts and intercropping Groundnut-Pigeon pea-Green Gram	Groundnut gypsum addition: net income increase 44,000 kyat per crop  New system, they get 3 crops of groundnuts and about + 5 baskets more per crop; about 125,000 kyat increase in income annually  One farmer stated his income was up 50% because of a high market price of Green Gram. Estimated crop value for Green Gram is increased >200,000 kyat per season under the new crop system  Pigeon pea market price is 9500 kyat down from a high of 60,000 kyat/basket in previous years
			Livestock raising; 6 women bought pigs; got training from the NGO and from Livestock Dept.	Piglet cost: 60,000 kyat; sale price at 6 mths: 250,000 kyat. Net profit is about 100,000 kyat per pig
			Seed storage bins: they lose about 10% of seeds when stored in home and much higher loss if left in the field	
Chauk	Kyant Kan 60 villagers attending	Observed 1 community pond renovation, involving excavation of material to enhance storage capacity (cost: 750,000 kyat). But seepage infiltration rate is very high and no water was in the pond Dec 10 <sup>th</sup> . Some people had transported water from the pond to their home tanks before all seepage had occurred. Community has used the pond historically for	About 60 villagers attended the mtg. 68 HHs participate in home gardens. Improved variety of pigeon pea and introduction of intercropping system (PP-GN-GG) was supported. One farmer estimated increased yield of pigeon pea from 6 baskets earlier to about 10 baskets now. New variety of groundnut was appreciated since it produces for 6 mths	Villagers noted day labour income as a key benefit of the project.  Cost of 2 pigs is 60,000 kyat; loan must be paid back by 8 Mths. They expect the sale value will be 135,000 kyat. One farmer indicated they feed the pigs food scraps. Swine flu vaccination costs 2500 kyat. They are unsure of the buyer and the sale price.

Township	Village	Household effects (changes in domestic water supply, livelihoods)	Farming effects (changes crop varieties, yields, livestock, post-harvest)	Income effects (changes in HH income due to project activities)
		water supply. (Lack of water supply is the main issue in the community; they need to travel 3 miles for water in the dry season)	76 HHs currently part of the Livestock Group. 20 have taken pigs and 5 have taken goats.	
Myingyan	Kyauk Kan, 75 villagers attending	Water supply is their main problem. It has high level of salinity. One tube well serving the area They do not know about the Sesame in season weather forecasts or agro-advisories. The DOA extension officer visits 2 x per year, once before planting time.	Improved groundnut production with the high yield seeds; get a crop every three months. Previous 15-20 baskets per acre; now 28 baskets. About half of the 245 HHs can get seedlings for trees. New thresher will save about two-thirds the time for pigeon pea and green gram threshing. Home gardens are very popular – various fruit trees only, but only a few beneficiaries. About 20 farmers out of 245 HHs are involved in the intercropping demonstrations	Income now increased by 80,000 kyat per acre of groundnut, about 50% increase.
Swebo	Kan Tan Min canal renovation project, Swebo city	Met three farmers reps, members of the water user group	Expanded irrigated area for ten villages due to provision of water through major renovation of a diversion canal providing new water to rainfed eastern area (10 villages) and lower flooding in the main channel western area of the city of Swebo. Possibly + 1000 acres expansion (100+300/400+100 in their villages) They used to get 30-40 baskets/acre; now get 60 baskets/acre with more irrigation water.	Impact on income varies with type of rice grown; Estimated in the range of +160,000 to 320,000 kyat per acre
	Maung Tet, 48 villagers attending	1 tube well in the village. They have to travel 1 mile to get water in the dry season.	146 members of LFG. They have been operating for one year and had two rounds of livestock distribution.	Farmer bought 2 pigs; paid 135,000 kyat and sold them 8 mths later for 250,000 kyat; profit of 115,000 after expenses
		Farmers requested new technologies, especially for water savings.	5 types of demonstration plots underway. Intercropping system has been good for demon farmers. GN-PP-Maize: used to get 30 baskets of GN/acre; now get 35 baskets.	

Township	Village	Household effects (changes in domestic water supply, livelihoods)	Farming effects (changes crop varieties, yields, livestock, post-harvest)	Income effects (changes in HH income due to project activities)
			Agroforestry underway with 14 sp of trees; hope to get some future income but not sure. 2 farmers provided TOT training for farmers' field school.	
			Field border bunding to reduce overland flow of flood waters and add sediment to farm field. Interviewed Ma Khakne, local farmer who claimed benefits from the bund.	
Monywa	Hle Dar	The pond and a water pipeline (5200 ft) were constructed about 2007 by CARE Myanmar. 'Sin Mwe Du Dam' pond was increased by about 10% by the project. It normally goes dry at end of January but they are hoping the supply will now last longer. Very organised water use group trained by CARE who provided 5 lakh cash contribution (and 7.5 lakh from project). No watershed treatment.	Water now available for some small scale household gardens.	
	11 villagers attended meeting	All have homestead gardens – various trees planted and drip irrigation being set up for 5 HHs. Water supply is their #1 problem – pond goes dry in January.	Livestock: 17 HHs involved in pig farming. Only 3 mths old.	
		Met farmer Ko Oo who was involved in demonstration of intercropping pigeon pea and groundnut.	No crop harvested yet. He is convinced about the advantages of the new cropping system.	
	Myaing Si	Pond and water pipeline was constructed in 2014 with help of NGOs Solidaritie and GRET. The project widened the pond in 2017 and added a diversion canal, weir and stone gully	The earlier water supply project included a solar pump and large storage tank. The water is not used for drinking except in the dry season when pond water ends. The well	

Township	Village	Household effects (changes in domestic water supply, livelihoods)	Farming effects (changes crop varieties, yields, livestock, post-harvest)	Income effects (changes in HH income due to project activities)
		<p>plug. The storage capacity was increased by about 10-15%. Some erosion on pond bank; no significant watershed treatment. Very organised water use group who provided 13 lakh cash contribution (and 7.5 lakh from project)</p>	<p>water has a high level of iron and not preferred.</p>	
	<p>29 villagers attended mtg.</p>	<p>Increased income from pig farming.</p>	<p>They have undertaken homestead gardens (tree planting), SWC and forest plantation. They have learned about maintaining livestock in pens. Pig farming now very popular; 7 members LFG. They requested further assistance to expand pig farming and help with access to feed, feed storage and to market for selling the pigs. They also learned about use of making organic fertilizer - fish amino acids and compost for improving crop yield. They have never had a visit from a government extension officer.</p>	<p>1 woman described buying 2 pigs for 1.4 lakh and selling for 6 lakh after 8 mths; here net profit was 3 lakh after costs.</p>

## Annex 10 - Evaluation Consultant Code of Conduct Agreement Form

### Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

### Evaluation Consultant Agreement Form<sup>30</sup>

#### Agreement to abide by the Code of Conduct for Evaluation in the UN System

**Name of Consultant:** Alan Ferguson

**Name of Consultancy Organization** (where relevant): Regional Consulting Limited

**I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.**

Signed at *(place)* Vancouver on Nov. 15, 2017

Signature:



Alan Ferguson

## ANNEX 11: EVALUATION REPORT CLEARANCE FORM

*(to be completed by CO and UNDP AF Technical Adviser based in the region and included in the final*

Evaluation Report Reviewed and Cleared by

UNDP Country Office

Name: Dawn Del Rio

Signature: Dawn Del Rio Date: \_\_\_\_\_

UNDP GEF RTA

Name: Yusuke Taishi

Signature: Yusuke Taishi Date: 2 February 2018