



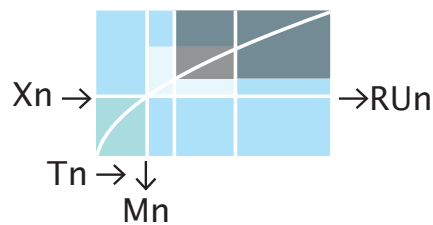
Ministry of Agriculture



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Exit Strategy and Performance Assessment for Watershed Management (ESPAWM)

A Guideline for Sustainability



Second Edition

Second edition 2015

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of WLRC in Bahir Dar Zurian Woreda, West Gojam Admin Zone

Disclaimer: This Exit Strategy and Performance Assessment for Watershed
Management Guideline presents the professional opinion of the Author (Dr. Gete
Zeleke) who has long years of professional experience on integrated watershed
management and has conducted extensive performance assessment survey of
92 SUN-Supported watersheds in the three regions: Tigray, Amhara and Oromia
in 2009/10. The Guideline is in no way binding the German Technical Cooper-
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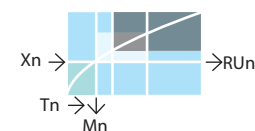


Table of Contents

List of Tables	4
List of Figures	5
Preface	6
Acknowledgments	8
Acronyms	9
1. Introduction	11
1.1 Background	11
1.2 Proposed Exit Approach for Watershed Management	12
1.3 Objective of the Guideline	13
2. Rationale for the Exit Strategy and Performance Assessment Guideline	15
3. PART I: Designing Exit Strategy for Watershed Management	19
3.1 STEP 1: Defining Periodic Benchmarks (Milestones)	19
3.1.1 Criteria for Defining Periodic Benchmarks	19
3.1.2 Review the Watershed Development Plan	20
3.2 STEP 2: Prepare an Exit Strategy Framework (ESF)	21
3.2.1 Adapt Annex 1 for your Watershed	21
3.2.2 Indicate Milestones on the 3D framework	21
3.2.3 Develop Summary Table and Define Responsibilities	22
3.3 STEP 3: Producing the Final Exit Strategy Document	23
3.4 STEP 4: Communicate the Final Exit Strategy	24
3.5 STEP 5: Signing and Documenting the Exit Strategy	24
3.6 STEP 6: Conduct Periodic Performance Assessment (PA)	25
3.7 STEP 7: Taking Corrective Actions	25
3.8 STEP 8: Arrange Official Exit	25
3.9 STEP 9: Conduct Post Exit Evaluation	26
4. PART II: Performance Assessment (PA) for Watershed Management	27
4.1 STEP 1: Checking Watershed Development Status	28
4.1.1 Checking Quantity of Implemented Activities	28
4.1.2 Checking Quality of Implemented Activities	28
4.2 STEP 2: Checking Development Stage of the Watershed	30
4.3 STEP 3: Checking Resource Use Status of the Watershed	34
4.4 STEP 4: Checking Watershed Sustainability	36
4.4.1 Defining Key Sustainability Factors	36
4.4.2 Processes of Rating Each Indicator	37
4.4.3 Key Procedures for Rating Sustainability Factors	38
4.4.4 Process of Rating Sustainability of the Watershed	40
4.5 STEP 5: Recommending Actions for Sustainability and Progress	44
4.5.1 Considerations for Immediate Exit	44
4.5.2 Ensuring Sustainability and Continuity of Past Achievements	45
4.5.2.1 Creating an Enabling Institutional System	45
4.5.2.2 Making the Technique Right	48
4.5.2.3 Make capacity building result oriented	50
4.5.2.4 Slope based approach for conserving cultivated lands	50
4.5.3 Identifying Key Requirements for Continuing the Watershed Development	51
4.5.4 Preparing detail action plan	52
4.6 STEP 6: Communicate the Result to Communities	53
5. Conclusion	55
6. References	57
7. Annexe	59
7.1 Annex 1: Detail Design of the Exit Strategy Framework	59
7.2 Annex 2: Field data collection and synthesis form for watershed Performance Assessment	98
7.3 Annex 3: Simple guideline for quality assessment and data collection in Annex 2	99
7.4 Annex 4: Criteria and guideline to assess economic development stage of sub-classes	107

7.5 Annex 5: Indicators of watershed sustainability factors	109
7.6 Annex 6: Field data collection and synthesis form for remaining key activities	115
7.7 Annex 7: Guide for rounding values for sustainability matrix	116
7.8 Annex 8: Cost breakdown for a standard watershed - 500ha for five years	118
7.9 Annex 9: Example of transect walk report	120
7.10 Annex 10: Example of vision of change exercise prepared by communities	125
7.11 Annex 11: Simple GPS data collection guide GARIMN MAP 60CSx	136
7.12 Annex 12: The three dimensional view of the exit strategy frame work	144
7.13 Annex 13: A table showing rating of a hypothetical watershed that has three major activities and their possible sub-activities	148

List of Tables

Table 1: Summary of selected milestones, timeframe, and source of information, key requirements and stakeholders for each phase extracted from Annex 1	23
Table 2: Procedures for determining overall development stages (ODS) of a watershed by combining the three development stages (Phase I=IP, Phase II=RP and Phase III=EDP)	31
Table 3: Optimum length of time it takes to reach the various development stages under each phase and the overall development stage of a healthy watershed in potential and humid areas	32
Table 4: Estimated resource use in percentage (net and cumulative) to fully achieve activities that will bring the watershed development stage to the specified sub-class for a five year project supported healthy watershed.	35
Table 5: Ideal rating of ecological response for demonstration purpose	39
Table 6: Sustainability matrix levels and descriptions	41
Table 7: Ideal rating of sustainability factors for illustration purposes	42

List of Figures

Figure 1: An illustration of the three stages (phases) of a watershed development process indicating a possible early start of Phase III towards the early stage of the rehabilitation phase (adapted from SUN Project Concept). Note: early start of Phase-III (Economic Development Phase) is highly recommended	16
Figure 2: An illustration of key parts and processes associated to the proposed exit strategy and performance assessment (ESPAWD) guideline	18
Figure 3: Illustration of an Exit Strategy Framework (ESF) for Watershed Management	22
Figure 4: Illustration of development stages in each phase, overlaps between PII & PIII, cumulative time required to bring the watershed to indicated level (sub-class) and cumulative and net resource requirement by sub-class for an ideal five year watershed in 'potential' areas	33
Figure 5: The ground water was raised at the bed of a rehabilitated Gulley in Dershem SUN-Supported Watershed, near Axum Tigray and was used as a swimming pool by children from the nearby village	37
Figure 6: Sustainability Matrix with values for each cell (1-6) and levelled (A, B, C, D, E, F, G, H and I)	41
Figure 7: An illustration showing the transfer of watershed Sustainability factors generated from Equation 8 to the suitability matrix for three ideal cases	43
Figure 8: Vegetable market in Abrha Woatsebeha Watershed – too much produce for the very small market (a) and tomato left unharvest due to poor market at the same watershed (b)	49
Figure 9: More than 50% slope land used for cultivation in Ambo Woreda (on the side of the road to Wonchi Lake)	51

Preface

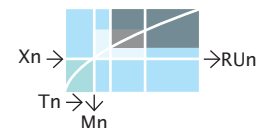
Sustainable land management does require the adequate skills and competences of those who live on and from the land. Moreover a sense of ownership for the management of resources is indispensable for sustainability of whichever site specific management approaches are used. As a implementing body of Sustainable Land Management (SLM) program, the MoA is closely working with a range of national and international development partners. The support provided by government and our development partners reaches the end users/farmers through our decentralized administrative system. Besides, financing for investments in SLM includes all kinds of capacity development measures which are ultimately aiming at building our farmers competences and skills to manage their land in an environmentally, socially, economically and ecologically sustainable manner.

But, when we reach the end of a development support phase, are we entirely certain of reaching the desired level of sustainability with the support that has been provided by our partners? Can we assure that our farmers are in a position to continue managing their land sustainably and maximizing their benefit without the support of a program/project? Can we allow the programs/projects to simply shut down their operations when a contract comes to an end? Can we at this point in time allow implementing practitioners to drop their program related support to the farming communities as well? Do we have a tool and a system that will allow us to undertake periodic performance assessment of our watershed development efforts? The answer for these questions is perhaps not affirmative.

Hence, we need to think about the ending of a program right at its beginning. And we need to make clear this to implementers at all levels and particularly to the farmers who are supposed to benefit from the government and our development partners' support.

Bringing a program successfully to an end with achieving its desired objective of sustainability requires a systematically in-built strategy for exiting and periodic performance assessment to make sure that the watershed development initiatives are moving on the right direction and to make corrective actions on time, otherwise. Moreover, the strategic exit approach must serve as a system that provides relevant and regular information for the steering of support to the implementation process. It shall allow decision makers to guide the thematic prioritization and intensity of external support under consideration of development stages reached at the grassroots level.

The Ministry of Agriculture has assigned the task of supporting the development of an exit strategy to our partner GIZ, under our agreed Technical Cooperation with German Government, already during the times of the GDC funded SUN project. So far it had not reached the desired level of a widely used strategic approach beyond the SUN project. Now, GIZ-SLM in partnership with the Water and Land Resources Centre (WLRC) has taken up the thread again and is moving ahead in bringing the exit strategy and performance assessment guideline to a level that is expected to see broad implementation across the entire SLMP and hopefully beyond.



On behalf of The Federal Democratic Republic of Ethiopia's Ministry of Agriculture, I would like to thank the Water and Land Resource Center, specifically the author Dr. Gete Zeleke for his dedicated professional effort and the GiZ-SLM for their financial support, for facilitating the review process and coordinating the effort of integrating the exit strategy in the SLMP process. I would also like to acknowledge the contributions of all stakeholders who provided their valuable comments in enriching the document. I do assume that the practical use of this guideline in the reality of watershed management will allow us to evaluate the material for further improvement and updating for a new edition in the future based on the feedback received from users. The Ministry of Agriculture renews its continued government commitment and support in practical implementation of the guideline.



Seleshi Getahun

State Minister (Natural Resources Sector)
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Acknowledgments

This guideline which is a first of its kind in the country is a result of many years of professional experience on watershed management and based on the practical experience of what could possibly be said ‘the biggest survey ever done in the country’ involving many professionals (about 150) working on the detailed survey and data analysis of 92 SUN supported watersheds in Amhara, Oromia and Tigray Regional States in 2009/10. Thus, I would like to express my sincere gratitude to those involved on the challenging field survey and data analysis, particularly GIZ Advisors of the three regions, Woreda SUN Focal Experts, Development Agents of each watershed, and to all experts and officials who were involved on this undertaking at zonal and Woreda level.

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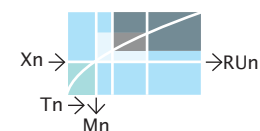
My thanks to the Center for Development and Environment (CDE) of University of Bern, Switzerland for the conceptual and methodological support provided for this big undertaking.

My last thanks to my assistants Miss. Venusia Gete and Marta Genetu for their sleepless nights and days for encoding and cleaning the massive data generated during the survey of 92 SUN-Supported watersheds. Without their tireless efforts finalizing the report which is one of the bases for this guideline would have not been possible.



Dr. Gete Zeleke

Director, Water and Land Resource Center



Acronyms

ADLI	Agricultural Development Led Industrialization
AEZ	Agro-Ecological Zones
CDE	Center for Development and Environment
CEPWD	Community Based Participation Watershed Development
CFW	Cash for Work
CWT	Community Watershed Team
DA	Development Agent
DED	German Development Service
DoA	Department of Agriculture
EDP	Economic Development Phase
EPA	Environmental Protection Authority
ESF	Exit Strategy Framework
ESIF	Ethiopian Sustainable Land Management Investment Framework
ESPAWM	Exit Strategy and Performance Assessment for Watershed Management
FFW	Food for Work
FGD	Focused Group Discussion
FS	Food Security
GDC	Garman Development Cooperation
GIS	Geographic Information System
GiZ	Deutsche Gesellschaft fuer Internationale Zusammenarbeit
GPS	Global Positioning System
GTP	Growth and Transformation Programme
IS	Initiation Phase
IWM	Integrated Watershed Management
LLPPA	Local Level Participatory Planning Approach
ME	Monitoring and Evaluation
MERET	Managing Environmental Resources to Enable Transition to more Sustainable Livelihoods
MoA	Ministry of Agriculture
MoARD	Ministry of Agriculture and Rural Development
NGO	None Government Organization
ODS	Overall Development Stages
PA	Performance Assessment
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
RP	Rehabilitation Phase
SCRIP	Soil Conservation Research Programme
SLM	Sustainable Land Management
SLMP	Sustainable Land Management Programme
SSA	Sub Saharan Africa
SUN	Sustainable Utilization of Natural Resources
SWC	Soil and Water Conservation
WB	World Bank
WLRC	Water and Land Resource Centre
WUA	Watershed Users Association
WWT	Woreda Watershed Team

1. Introduction

1.1 Background

Ethiopia is the second largest country in Africa in terms of population size with about 83% of the population living in rural areas that derive their livelihood from agriculture and local environmental resources. Agriculture is dominated by small scale rain-fed household production system which accounts for over 90% of the total cropland and produces over 90% of the total agricultural output in the country. Whereas encouraging results have been achieved with implementation of the different public strategies like Agriculture Development Led Industrialization (ADLI) strategy and the Growth and Transformation Programme (GTP), land degradation and climate change constitute fundamental challenges to a sustained realization of the full potential of the Ethiopian agriculture. Land degradation, is a major immediate cause to the country's low agricultural productivity, persistent food insecurity, and prevalent rural poverty.

Even though indigenous land management is known to have a long history in many parts of Ethiopia, large scale efforts led by government only dates back to the mid-1970s following the Sahelian severe drought and famine, to which land degradation was identified as the major contributing factor. Considerable efforts have been made since that time to address the problem of land degradation through public programs as well as through several projects supported by various development partners of the country. At present Sustainable Land Management (SLM) is one of the GoE's national priority responses to food insecurity

One of the major breakthroughs was the shift made from highly technocratic "top down" planning approach, which used to focus on technical and physical works alone, to more participatory bottom-up planning and implementation approach that takes into account community and household concerns and other biophysical and socio-economic aspects. There were various efforts by MoA and other organizations to develop useful participatory approach since the eighties with the development of the guideline for Soil and Water Conservation (SWC) and Community Forestry for Development Agents in 1986 by Soil Conservation Research Programme (SCRPP) followed by Local Level Participatory Planning Approach (LLPPA) by MoA/WFP, which finally resulted in the birth of the National Community Based Participatory Watershed Development (CBPWD) guideline in 2005. The birth of CBPWD has changed the whole picture of land management and rehabilitation in the country where participation, quality, sustainability, livelihood and environmental impacts measures were highly valued than fulfilling quotas.

Another breakthrough on the whole SLM effort in the country is the development of the Ethiopian Strategic Investment Framework (ESIF) for SLM in 2008. ESIF is a holistic and integrated strategic planning framework to guide the broad spectrum of government and civil society stakeholders towards removing bottlenecks and barriers in SLM scaling-up. As a strategic framework the ESIF provides a common set of economic, social and environmental prioritization criteria for SLM interventions. Eradicating rural poverty through restoring, sustaining and enhancing the productive capacity, protective functions and bio-diversity of Ethiopia's natural ecosystem resources is the primary aim of the ESIF. As a partnership agenda,

ESIF is guided by a multi-stakeholder and multi-sectorial approach; draws on the principles of aid effectiveness of the Paris Declaration and calls for harmonization of efforts from all stakeholders (MoARD, 2010).

It is true that within the last four decades there were many progresses in terms of improving planning and implementation approaches and designing appropriate guiding policy frameworks for SLM. Using this opportunity many watershed management projects have indeed achieved very good results but often left without proper exit system and many watersheds fallback to their previous situations. Some other projects have supported specific watersheds for unnecessarily long time for not knowing how to exit. This situation can easily create dependency syndrome and can also limit progress in the watershed. However, any watershed development project should have an entry phase, implementation phase and should have benchmarks (milestones) that need to be achieved and monitored before exit, which is the missing element in so far watershed development efforts of the country.

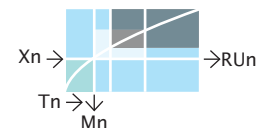
Thus, this guideline is prepared to provide instruments for systematic performance assessment of watershed development efforts periodically and for proper exit of external resources from watershed development projects **to ensure sustainability and continuity of development after project exit and to avoid fallback situations.**

Chapter two provides brief justification about the guideline, Chapter three describes the key steps of the exit strategy while Chapter four describes the key steps of the periodic performance assessment and Chapter five holds brief conclusion. Chapter three and four are heavily supported with annexes.

1.2 Proposed Exit Approach for Watershed Management

In principle there are two kinds of exit approaches, i.e., phase out and phase over (Rogers et al., 2004). Phase out refers to the withdrawal of project inputs or support without making explicit arrangements for inputs of activities to be continued, because the project has resulted in changes that are likely to be sustainable without continuity of support or arrangements. As watershed management is not static and onetime intervention process, this approach is not suitable for watershed management projects. Phase over approach refers to the transfer of responsibility for activities that need to continue to achieve project goals to another entity. As watershed management is a continuous process, there are still more activities to be carried out by communities and local authorities to push the watershed to the highest possible level of development. Watershed management projects with the given timeframe can only bring watersheds to optimum level of sustainability or development. Thus, phase over is the right approach for watershed management.

When designing an exit strategy following a phase over approach, the designer should make sure that building the required capacity at community and local authority level should be one of the benchmarks to be defined to ensure continuity of activities that will bring the watershed to the highest possible development level over time. Some of the activities to be seen under the broader capacity



building benchmark to implement the phase over approach include: i) Strengthening of community watershed associations, ii) creating special community groups for continuing specialized activities, such as dairy cooperatives, potato seed producer groups, honey producers cooperatives, etc., and iii) integration of some of the activities that need to be further developed within the local public sector programmes and ensuring that appropriate capacity is developed within the public sector. In some cases, some of the activities might be handed over to specialized NGOs to continue developing the watershed if there are NGOs in the area. All these have to be seen while defining periodic benchmarks for exit.

It should be, however, noted that while Phase over is proposed to be the overall approach, it is possible to follow phase out approach for some project activities within the watershed. There are always some activities such as some infrastructures, behavior changes, improved production and marketing practices in agriculture mainly linked to household asset development interventions, etc., once implemented can be self-sustaining and do not require additional follow-up or project resources. However, as watershed development is a dynamic process, it is always important to monitor developments, even those activities where phase out has been exercised, after exit. That is why it is mandatory that the watershed management project should be integrated to the public sector programme from the very beginning and after exit in the Ethiopian context.

1.3 Objective of the Guideline

The objective of this guideline is to develop a systematic and user-friendly approach for planning and decision making to design and carry out properly planned and fact based exit strategies and to assist and enable experts and decision makers to evaluate the status of their watershed management project at any given time and take appropriate actions to ensure optimum sustainability of watersheds before and after exit.

Note

The users should note that this guideline is developed to guide the development of an inbuilt exit strategy and undertake periodic performance assessment of project supported community watersheds. This guideline cannot be directly used to prepare project level exit strategy, but the principle can easily be adopted for project level exit too.

2. Rationale for the Exit Strategy and Performance Assessment Guideline

Passing through different learning processes, watershed management in Ethiopia has reached a stage where major socio-economic and biophysical factors are well addressed at different stages. The planning process has evolved from purely technocratic and top-down approach to a participatory bottom-up approach where technical inputs are systematically injected without dominating community's aspirations and immediate needs. Although it is not on all watersheds, there is proper integration of socio-economic situations with that of biophysical requirements.

Despite the numerous successes that the country has accumulated on watershed management actions supported by guidelines and policy frameworks as mentioned in the preceding section, it lacked basic guiding frameworks to achieve sustainability such as an integrated exit strategy including tools for the assessment of the different stages/phases, i.e., Initiation, Rehabilitation and Economic Development (See Box 1), of watershed development for decision making. For a given watershed to move from one phase to the other (with the exception of the last two phases) there is a need that all core activities in the previous phase have to be completed (See Figure 1). This requires that each phase has to be monitored with predetermined performance indicators, in this case periodic milestones. Furthermore, project resources are not unlimited. Once the objectives are achieved and the watershed development reached optimum level of sustainability, the project has to safely exit and handover the remaining development issues to communities and local authorities to continue by their own.

Box 1

Watershed development process can be divided into three phases, i.e., Initiation Phase (Phase-I), Rehabilitation Phase (Phase-II) and Economic Development Phase (Phase-III) with very strong overlap between the last two phases. This is a sound and logical classification and was first used by GTZ for their SUN project. The major concept of this guideline builds on this broad and logical classification.

This approach calls for the need to develop an instrument that will allow stakeholders at federal, regional and woreda level and development partners supporting watershed development efforts to develop an inbuilt exit strategy during the planning process. It is due to lack of such an instrument that many successful watershed projects in the past have fallback to the baseline situation after projects phase-out and some projects stayed in the same watershed for long time than the time they should be under normal circumstances.

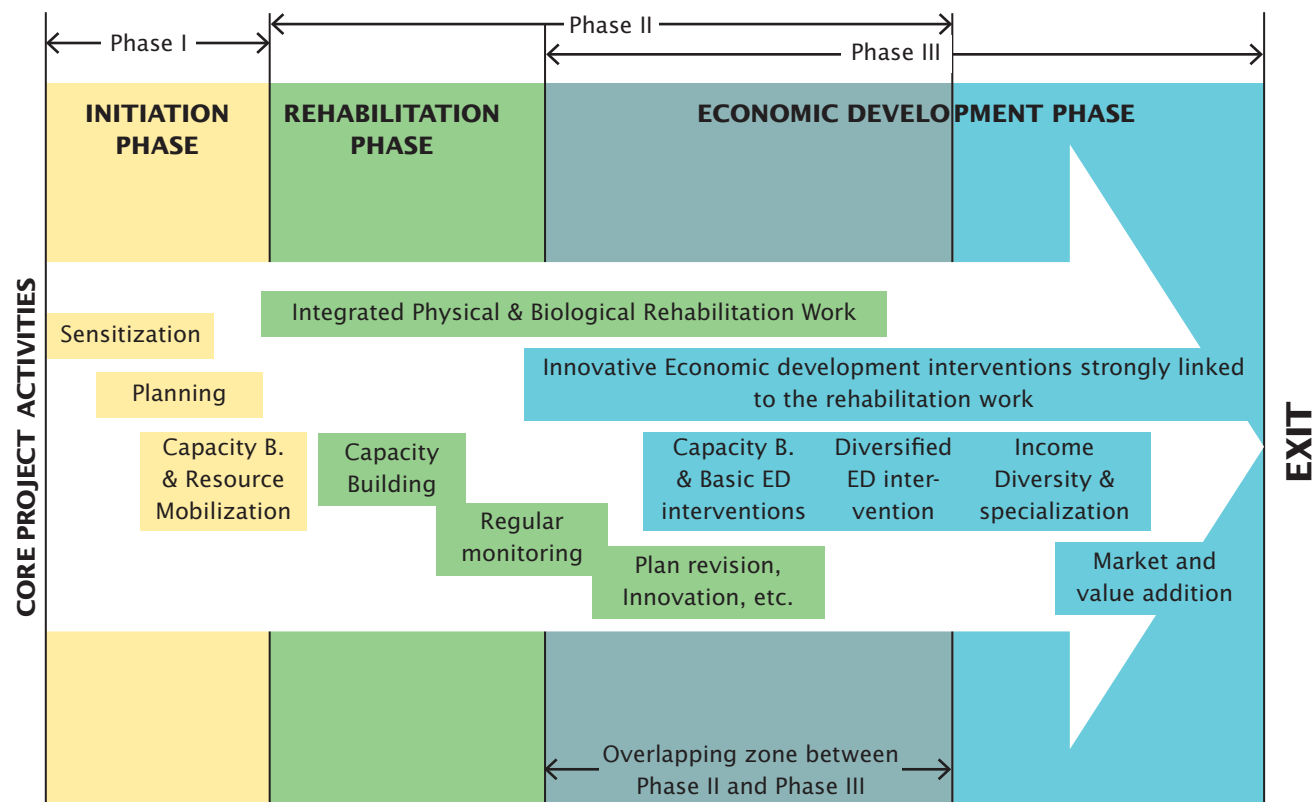
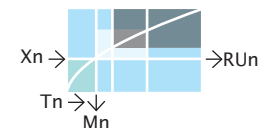


Figure 1: An illustration of the three stages (phases) of a watershed development process indicating a possible early start of Phase III towards the early stage of the rehabilitation phase (adapted from SUN Project Concept). Note: early start of Phase-III (Economic Development Phase) is highly recommended

The current exit strategy applied in the country is classical in nature and if it is done at all it is often at the end of the project and its main target is to safeguard project investments. This type of exit process will not ensure sustainability and continuity of the development process triggered by the project. However, the new proposed exit strategy for watershed management (i.e. outlined in this guideline) is a plan describing how the project intends to withdraw its resources with achieving project objectives and making sure that progress towards the final goals continue and sustainability is achieved. The underlying goal of the proposed exit strategy and PA is to ensure sustainability of project impacts continue after a project ends and to enable communities continue the development process using the achievements of the project as a spring board.

Thus, it is proposed that the exit strategy for watershed management must be designed during the planning process not at the end of the project as it is normally done. It is important to set expectations right with communities and other partners regarding how long the project will last, what need to be in place and what will happen when it ends. An estimation of optimum lifespan of the watershed management project is important, but at the same time it is important to base any actual decision about exit on clear criteria rather than rigidly fixing the time for an exit. Hence it is important to set benchmarks (milestones) that have to be accomplished periodically within the predetermined timeframe to ensure healthy progress of the watershed development effort.



Our past experience tells us that five years is an optimum time to exit from a community watershed projects in food secure ('high potential') and humid areas and seven years for food insecure ('low potential'), degraded and semi-arid areas. Considering the various phases and sequential order of activities of such projects, periodic benchmarks (key milestones) that have to be monitored regularly have to be set throughout the project time span during the planning process. This will alert both the beneficiaries and funding agencies from the very beginning and will indirectly compel the implementation process to be more focused and outcome oriented. All actors will know what should be in place and when, in terms of physical achievements and socio-economic development as well as preparedness before exiting from the watershed.

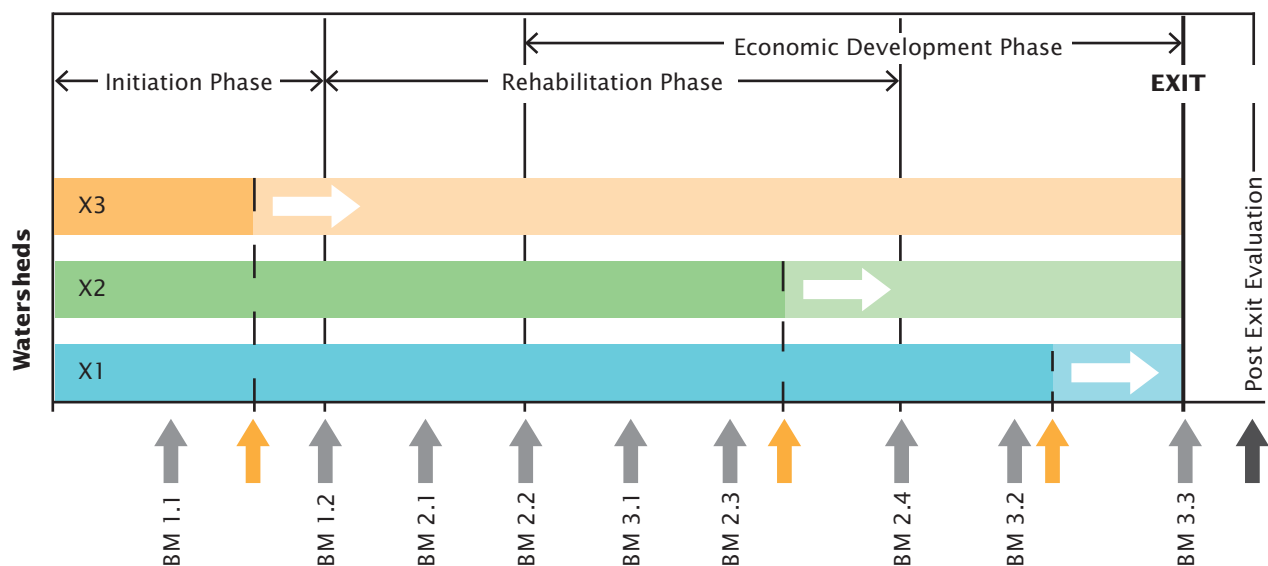
Based on detail analysis of factors for sustainability, the project team and key partners should define the end state that the communities would want to see or should achieve in order for the project to be able to exit. This may mean more than the achievement of goals and objectives. It may also mean that certain supportive conditions have to be in place for those achievements to last, based on the most important sustainability factors such as the institutional capacity at local level, capacity of communities to continue the remaining watershed development activities, practicality of bylaws, functionality of working groups and Watershed Users Association, strength of the CWT and KWT, rural financing, rural infrastructures including market linkage, etc. Thus, an assessment instrument is required to achieve all the above mentioned sequence of activities. This is the reason why tools and methods for periodic performance assessment are included in the guideline.

The periodic performance assessment instrument should allow stakeholders to evaluate the status of their watershed development efforts at any time including the status of the agreed benchmarks for exit strategy and to be able to take necessary actions towards further developing their watersheds and manage the past achievements sustainably.

In general the ESPAWM guideline must elaborate instruments to allow implementers and its partners to ascertain that the watershed development reaches optimum level of sustainability and achieves the objective to provide the basis for betterment of livelihoods of the target population. Hence, proper application of the instruments mentioned in this guideline will avoid the occurrence of the historical set-backs related to watershed management in Ethiopia and will empower communities to continue the momentum created by the project in developing their watershed further. This is because the instrument will allow stakeholders to check whether the agreed periodic progress indicator milestones are achieved or not. It will also allow taking corrective actions to achieve the required development objectives as per the development plan of the project during the project life time (see Figure 2).

The illustration presented in Figure 2 helps to visualize the key parts of the exit strategy: i) the need for predefining key milestones (or periodic benchmarks) of success of the different stages and designing mechanism to enable users accurately measure or assess these indicators or milestones periodically; ii) the need for periodic assessment of the watershed to check accomplishment of periodic

benchmarks and help identify the development stage of a watershed at a given time; iii) the need for defining minimum requirement to push the watershed to the next stages after the periodic assessment; iv) the need for defining aggregate minimum requirements for pushing the watershed to overall optimum level of sustainability to ensure progress and at later stage safe exit from the particular watershed; and v) the need for post exit evaluation and follow-up actions. The details for all these steps are explained in Chapter 3 and Chapter 4.



- What are key periodic milestones (benchmarks) that have to be achieved to ensure success in watershed management under each phase? →Periodic benchmarks that show progress of project should be defined during the preparation of the exit strategy.
- What are key indicators that can help to determine the watershed development status at a particular time? What are mechanisms to define these parameters or indicators? →key milestones and sub-milestones including measurement techniques should be defined at Start-Up Stage. They will be identified by periodic performance assessment.
- What are the minimum requirements to push the watershed from its current status to the next level and beyond? How do we know them? →This should be known during Performance Assessment linked to the ME system.
- EXIT** What are the formal processes to be followed to ensure safe exit? →Handover ceremony should be arranged to watershed communities or Watershed Users Association together with Woreda authorities. Brief status report highlighting changes occurred within the watershed, areas that should be strengthened and the need for communities to continue the development process taking the achievement they made with the project as a spring board.
- When and how to do it? What process should be followed? →After two years is believed optimum. But after one year is safe. It should be done through random checking of key indicators focusing on institutional issues and values that were expected to be added or continued. Findings and recommendations should be communicated to WUA, CWT, Kebele and Woreda.

Figure 2: An illustration of key parts and processes associated to the proposed exit strategy and performance assessment (ESPAWM) guideline

3. PART I: Designing Exit Strategy for Watershed Management

The most appropriate time for preparing the exit strategy for watershed management is right after the detail watershed plan preparation is finalized. The plan will give clear directions on watershed opportunities, problems and proposed development options. It will also indicate the aspiration, strengths and weaknesses of communities, the size of external resources, and the overall timeframe of the project. It will give clear ideas on the type of the external resources to be used and modality of utilization arrangements. All these information will give a clear direction in defining the following nine steps of an exit strategy: i) Step 1: Defining periodic benchmarks for assessing progress towards meeting the exit objectives with their own timeline - recognizing the need for flexibility; ii) Step 2: Prepare an Exit Strategy Framework (revised version of Annex1); iii) Step-3: Producing the Final Exit Strategy Document; iv) Step-4: Communicating the exit strategy to watershed communities and authorities; v) Step-5: Signing and Documenting the Exit Strategy with local authorities and community representatives; vi) Step-6: Conduct Periodic Performance Assessment to check the health of watershed and its progress; vii) Step-7: Taking Corrective Actions as per the findings of the performance assessment; Step-8: Arrange Official Exit; and Step-9: Conduct post exit evaluation. Each of these elements is discussed below:

3.1 STEP 1: Defining Periodic Benchmarks (Milestones)

3.1.1 Criteria for Defining Periodic Benchmarks

As explained in preceding sections watershed development activities do fall in three phases: Initiation (Phase I), Rehabilitation (Phase II) and Economic Development (Phase III). This classification is possible because successful watershed development activities should follow sequential orders. There are, of course, some conditions where activities from different phases (particularly Phase II and Phase III) can be implemented in parallel. This kind of overlap between the two phases is the most desired action as it enhances ownership feeling of communities and helps to improve livelihood within short time possible (see Gete Zeleke, 2010 SUN Exit Strategy National Report).

Under each phase (irrespective of possible overlaps) there are intermediate outcomes that will show progress towards the next highest level within the phase or between the phases. These can be taken as milestones for progress indicators and exit within the exit strategy. This is because milestones within the exit strategy context are the operationalized measurable indicators of clearly identified outputs in the watershed development process. They are periodic in nature and their accomplishment ensures healthy progress towards safe exit or otherwise.

The following criteria are suggested to be followed in defining appropriate milestones:

- (a) Selecting milestones that should indicate progress to the next level with their own possible period of attainment within the overall project timeframe;
- (b) Having easily understandable milestones - Milestones should be easy enough to be understood by communities and should clearly show where the watershed will reach at a certain time within the planning frame;
- (c) Aligning milestones with the site specific plan and checking with the exit strategy framework for consistency (see Section 3.2.3 and Annex 1 for details);
- (d) Balancing between qualitative and quantitative milestones;
- (e) Balancing among social (attitude, awareness, capacity, etc), economic and ecological milestones;
- (f) Avoiding too many milestones in each phase – focus only on few milestones as explained under ‘b’ above;
- (g) Considering some level of flexibility on timeline for each benchmark;

Defining appropriate milestones is the most critical process in designing the exit strategy (See Section 3.1.2 and Annex 1).

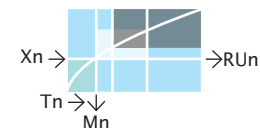
3.1.2 Review the Watershed Development Plan

Since different watersheds have different priorities (although most of them have similarity there are still differences) there is always a need to review the development plan and identify expected intermediate outcomes that shows progress. These are outputs (milestones) that should be achieved after some activities are successfully implemented. In other words, milestones are aggregate outputs of activities and a number of sub-activities. Therefore, each milestone can be taken as periodic benchmarks for the exit.

As a major action, the user should check and compare the watershed plan with generic activities and milestones indicated in the exit strategy framework in Annex 1. If there are major differences, check consistency in the plan. If there are some gaps consider revising the plan and adjust the outcomes accordingly. If the plan is consistent with Annex 1 but captured the local context (watershed opportunities and constraints), then keep the plan as it is and proceed in defining local-specific milestones and exit strategy framework as discussed in Section 3.2.1 below. However, the user should take into consideration the criteria for defining milestones befitting the specificities of the watershed as indicated on Section 3.1.1 above to avoid too many milestones and those that will not show real progress in the watershed development process.

Note

Annex 1 is developed based on many years of watershed development experience in Ethiopia. It captures key activities and sub-activities as well as corresponding milestones and sub-milestones under each phase. So the watershed development plan should not be too far from Annex1 that is why checking the plan with Annex-1 for consistency is needed. However, the user should note that some local specific activities may not be included in Annex-1.



3.2 STEP 2: Prepare an Exit Strategy Framework (ESF)

3.2.1 Adapt Annex 1 for your Watershed

Designing an exit strategy framework (ESF) is one of the key steps in preparing the overall exit strategy itself. Thus, to help users achieve develop the exit strategy framework, simple but comprehensive sample framework was developed (Annex 1). This sample framework contains narration of key activities, sub-activities and associated milestones and sub-milestones for each phase, following logical sequential orders, on a two pages explanatory notes. This two pages explanatory note are developed for each key activity of each phase and holds a description of sub-activities, milestones, sub-milestones and mechanisms on how to assess associated milestones at different stages of the watershed, the time it requires to achieve them and an estimation cost.

The user should be aware that suggested key activities, expected milestones and percentage of resource utilization under each stage in Annex 1 are based on many years of experience in Ethiopia (with special emphasis to CBPWD) and other experiences in the world. Therefore, what is presented on Annex 1 is an example taking long years of experience into consideration to show the user the possible contents of an exit strategy framework but are not expected to fully capture the specificities of each watershed. Thus, the user should countercheck the actual watershed plan (as mentioned in 3.1.2 above) with the contents of Annex 1 for consistency. As explained earlier this might result revision of the actual plan, if there is visible discrepancies, because it is assumed that the gap should not be that big. Once the user is satisfied with the content of the watershed development plan (with some revision) he/she has to start preparing the framework for the exit strategy following the example in Annex 1 for each phase. Which means a revised version of Annex 1 will be prepared addressing the specificities of the given watershed at the end.

What Next

In this step you have now defined benchmarks and exit strategy framework is prepared based on Annex-1 and the watershed development plan. Now you have to map them on your 3D framework!

3.2.2 Indicate Milestones on the 3D framework

The ESF designed in Section 3.2.1 above has detail periodic activities and related milestones for the three development phases and resulted revised version of Annex 1. Now key activities, milestones, their expected time and estimated resource required for each activity in the revised Annex 1 have to be transferred to the 3D ESF. This can be done on Excel Software (this can later be printed in A0 size paper) as indicated on Figure 3 to show their actual distribution over project period and the three project phases (the Excel version is presented on Annex 12). The 3D ESF has three dimensions- X, Y & Z axis. On the Y axis key watershed activities for the different stages of watershed development will be listed. Some variation is expected depending on the AEZ where the particular watershed is

found. The activities will be listed in a sequential order. If there are overlapping activities that will also be indicated. On the X-axis the expected milestones and sub-milestones that could be achieved after the activities are implemented will be identified. Expected length of time to achieve a particular milestone will also be given taking into consideration the watershed degradation status, AEZ and general socio-economic situations. A fare estimation of resource utilization status to implement the sequential activities and to achieve a particular milestone will be indicated on Z-axis. Together with the watershed action plan, this axis will help to judge whether the resource utilization and achievements are in harmony. It will also show whether the watershed development efforts are healthy or not (see Figure 3 and 4).

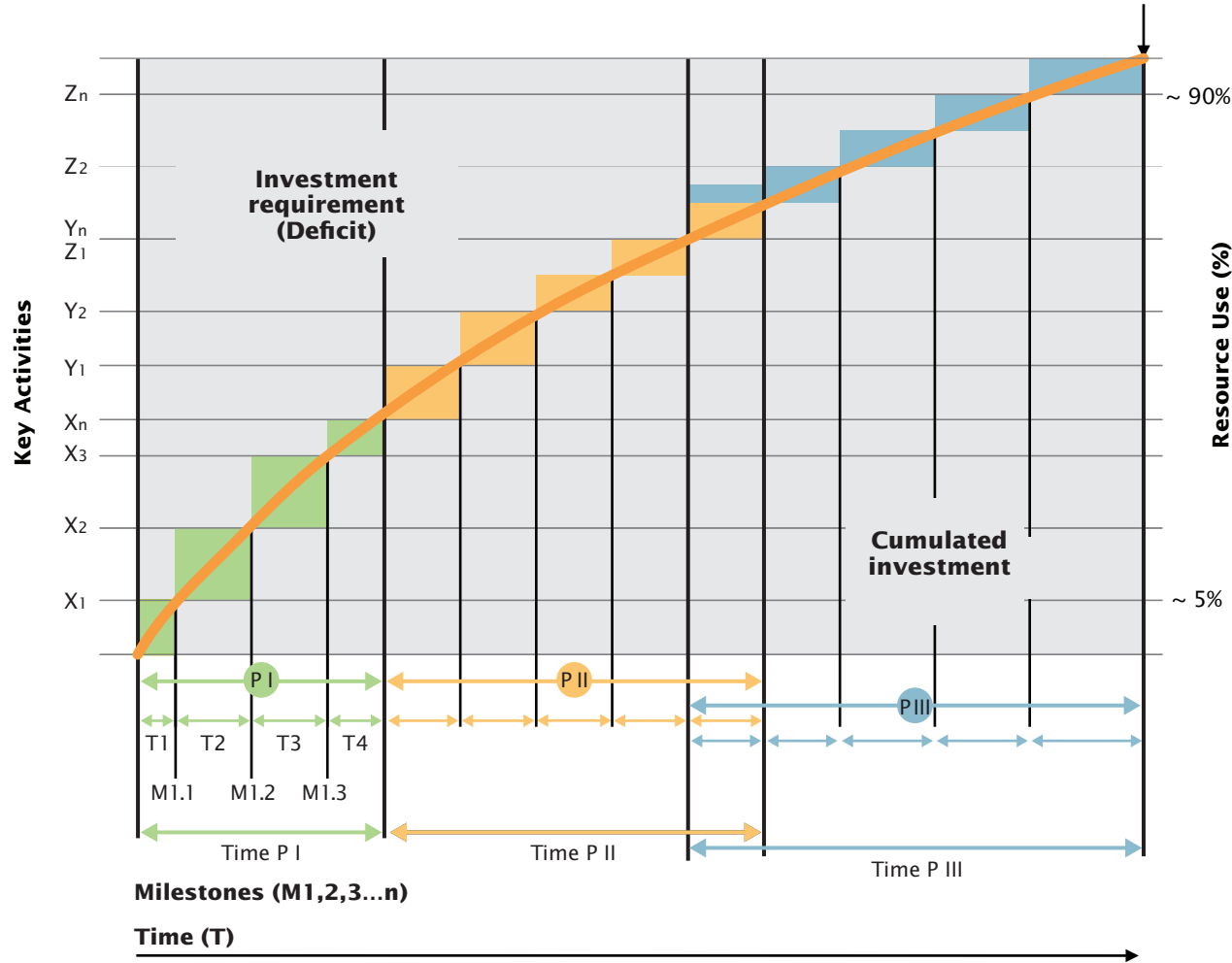
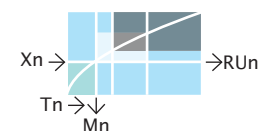


Figure 3: Illustration of an Exit Strategy Framework (ESF) for Watershed Management

3.2.3 Develop Summary Table and Define Responsibilities

Using the revised Annex 1 and the 3D ESF, a summary table as indicated on Table 1 below has to be prepared and it should outline selected key milestones, expected period of accomplishment for milestones, source of information, key requirements and responsibility for each milestone. The last column is very important as it indicates what is required among the key stakeholders of the watershed project. It will guide implementers about their roles to achieve a particular benchmark and when this has to be done. In general this step is very important because



during project status assessment it will clearly show how far the watershed is in terms of progress over time and whether or not stakeholders are delivering their responsibilities.

Table 1: Summary of selected milestones, timeframe, and source of information, key requirements and stakeholders for each phase extracted from Annex 1

Phases	Selected milestones (MS)	Expected period of accomplishment (within the project timeframe) – (T)	Key requirements or actions	Responsibility (key stakeholders)
Phase I	MS1.1	T1.1		
	MS1.2	T1.2		
		
Phase II	MS2.1	T2.1		
	MS2.2	T2.2		
		
Phase III	MS3.1	T3.1		
	MS3.2	T3.2		
		

3.3 STEP 3: Producing the Final Exit Strategy Document

Following the procedures indicated in Step-1 and Step-2 above, key milestones are defined and the ESF is finalized and it is transferred to the 3D framework. Summary table is also prepared. Although these are the core elements, a final touch is needed to make it a standalone document. Hence, it should have a cover page, table of content, brief introductions section (extracted from the development plan) containing key watershed features, problems, opportunities and location. It should also include watershed base map, land use map and development option map. This will follow with the revised Annex 1 and the 3D framework and the summary table. Now the exit strategy document for the specific watershed is ready.

What Next

Now you have finished mapping benchmarks on the framework and summary table. You are now ready to finalize the exit strategy document and communicate with communities and key stakeholders!

3.4 STEP 4: Communicate the Final Exit Strategy

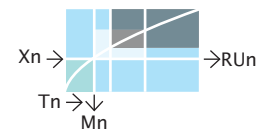
Once the exit strategy document is designed following the procedures described above, it should be communicated to communities and other stakeholders in a concise and simple tone. A clear communication with the community and other beneficiaries of the project including local authorities about the exit strategy and eventual departure of the project support right from the very beginning and showing what is expected from the different stakeholders including communities periodically will gear both communities and other stakeholders to work towards achieving project objectives within the specified timeframe.

The communication should be jointly chaired by the woreda representative and Kebele Chairman and has to be presented by CWT representative. If you as a planner are going to make the presentation make sure to explain that you are doing this on behalf of the CWT and this has to be agreed beforehand. After explaining the objective of the exit strategy and its benefits, present the summary table supported with the 3D framework (if you have A0 print out, which is advisable) and conclude by indicating the process involved in regularly checking the achievement of agreed milestones and the expected end state of the watershed and their livelihoods at the end of the project. During this process some issues might arise that will force you to make some changes in the Exit Strategy. Once the issues are agreed take notes of them and make sure that the exit strategy is revised accordingly.

Apart from making them aware of the requirements, this process will also help to show communities the end state of their watershed at the end of the project and their periodic responsibilities. It will help them to realize that they are working towards a deadline and specified outcome. This will prepare communities for graduation and will eliminate a sense of dependency on the project. It will encourage communities to become self-reliant through the creation or strengthening of watershed associations, community groups and other mechanisms. It also helps to generate greater ownership of the project and its components among communities from the very beginning. That is why the need for communicating communities about the project, when it will end, what is expected periodically (from communities as a whole or from specific groups) and what should be in place at the stated project final timeframe is an essential step of the exit strategy.

3.5 STEP 5: Signing and Documenting the Exit Strategy

After the exit strategy is communicated to communities and possible amendments are incorporated the exit strategy has to be signed by the Head of Woreda Office of Agriculture (or representative), Kebele Chairperson, the Development Agent, Donor or NGO representative (who is supporting the project) and the Chairperson of the CWT. One copy should be documented in the watershed together with the watershed plan and one copy should be in the office of Woreda Office of Agriculture. Additional copies can be made as required.



What Next

Now all aspects of preparing an exit strategy are finalized. You are now ready to make periodic assessments of its implementation

3.6 STEP 6: Conduct Periodic Performance Assessment (PA)

After the exit strategy is designed and communicated, checking successful implementation of the exit strategy is the next most important action that has to be undertaken. Thus, apart from the regular monitoring, the progress towards meeting requirements of the exit strategy should be periodically assessed. Depending on the nature of the project, the periodic assessment could be done two or three times. For instance, for a normal five¹ years community watershed project the detailed PA to check progress should be done at least two times (i.e., end of 2nd year and end of 4th year taking the actual start-up of the project as a starting point). The second assessment should build on the results of the first assessment and can be done fairly quickly. In general it is recommended to undertake such assessments close to mid and end term periods. This will help to undertake corrective actions to meet exit requirements successfully. After each assessment the plan has to be revised and implemented accordingly. Details are presented on Part II of this guideline.

3.7 STEP 7: Taking Corrective Actions

The main reason for undertaking periodic performance assessment is not only to check status but to undertake corrective actions so that the watershed development process will move forward as planned. The performance assessment as it is presented in PART-II of this guideline, will not only checking the achievement of periodic milestones but it will check quality, development stage and sustainability. Based on the findings of the performance assessment an action plan should be prepared to correct observed gaps and communicated to communities. This process will ensure that timely actions are taken to achieve the desired end state during the preparation of the exit strategy under normal state. The details are discussed on Step-4 of PART-II.

3.8 STEP 8: Arrange Official Exit

The process of ultimate exit will start at least one year earlier before the planned exit timeframe while the last performance assessment is done. For the final handover, it is recommended to follow the following two simple but important procedures.

- (a) Conduct final quick evaluation of the watershed focusing on exit milestones: this action has to be quick and be done few months before final exit. This will give a chance to include notes of concern or appreciation during the time of handover ceremony. This quick evaluation will focus whether the approved exit benchmarks are achieved or not as per the revised plan as a result of the performance assessment done as per the procedures described in PART II.

¹ If the project period is seven years, it is advisable to do it end of 2nd year, end of 4th year and end of 6th year.

The evaluator should have the revised plan and the revised exit strategy (if it was done after the assessment) and annual reports. He or she will then have to prepare checklists to make quick survey for physical observation and discuss with communities and their representatives. The evaluator should then give recommendations on overall sustainability concerns, innovations and future development direction. It is highly recommended that at this stage focus should be given on sustainability issues that enable communities and local authorities to continue the momentum after project exit.

- (b) **Handing over:** at this stage it is assumed that the watershed has reached optimum level of sustainability, awareness level of authorities and communities is enhanced, better capacity is created that will allow communities and local authorities shoulder responsibility of further developing the watershed. The handover should be a ceremony organized within the watershed where communities, representatives of local authorities, funding agency, zone and regional government are presented. This should be an occasion where communities reflect on the past and the future, innovative community members and local authority professionals and leaders are recognized, and the new organizational arrangements created to continue the momentum within communities are introduced. Those who will take responsibility will also know what course of action they should take, by when and how.

Congratulations!

You have just finalized all processes. Now plan to comeback and check the impact after one or two years and document lessons!

3.9 STEP 9: Conduct Post Exit Evaluation

As it is mandatory, the success of the project must be evaluated after one or two years. The evaluation will focus on many issues but most importantly on assessing if the impact generated by the project is maintained or not, whether the communities expanded the impact within and outside their watershed boundaries, and if the system created by the project continue functioning or not. It will also check the loose points in the whole process (particularly institutional issues) and the dynamics created after exit. The evaluator should also check if support is required to fill some possible gaps that are beyond capacity of communities or to maximize opportunities created as a result of the watershed development process such as value chain development, value addition requirements of some products, skill development requirements, etc. Apart from informing communities and local authorities about their progress and key requirements, this will also help to revisit the exit strategy for the future.

Congratulations again!

You have just finalized post exit evaluation and communication. Now consider to transfer lessons to improve the tool and the overall approach!

4. PART II: Performance Assessment (PA) for Watershed Management

After the exit strategy is designed and communicated, checking successful implementation of the exit strategy or the watershed development plan is the next most important action that has to be undertaken. Thus, apart from the regular monitoring, the progress towards meeting requirements of the exit strategy should be periodically assessed. The PA is done in the following six steps:

- a) Step 1: Checking watershed development status - it focusses mainly on assessing quantity and quality of implemented activities using tools developed for this purpose;
- b) Step 2: Checking development stage of the watershed - it focusses in checking the implementation of milestones under the three phases and determine what is the overall development stage in terms of achievement of plans by combining the achievements in the three phases;
- c) Step 3: Checking resource use status of the watershed – it focusses on checking the financial utilization against the development stage using guiding tools developed for this purpose and regular financial reports of the project;
- d) Step 4: Checking watershed sustainability - this focusses on checking the overall watershed sustainability using sustainability factors developed for this purpose;
- e) Step 5: Recommending actions to ensure sustainability and progress – this focusses on suggesting actions to ensure sustainability of already achieved activities (hard and soft components) and developing revised action plan to push the watershed to the next optimum level of development and sustainability; and
- f) Step 6: Communicating the findings to communities and key stakeholders - this is the step where the findings of the performance assessment and the revised action plan are communicated to communities and other stakeholders for their actions.

As can be seen the six steps above, the suggested performance assessment is designed to be systematic and comprehensive to support progress towards planned end state and sustainable development after project exit. The details of each of the steps are discussed below.

4.1 STEP 1: Checking Watershed Development Status

The implementation of the exit strategy for watershed development projects requires that each watershed has to be assessed in terms of the startup time, achievements linked to periodic benchmarks, quality of achievements and resource use and future directions (remaining requirements in terms of achievements of both physical and soft components). The following sections describe methods on how to make detail assessments of the different elements of watershed development project.

4.1.1 Checking Quantity of Implemented Activities

In Part I of this guideline step-wise actions are proposed on how to prepare an exit strategy framework and how to extract measurable benchmarks for the exit strategy as a means to indicate progress. As indicated on Annex 1 for each activity and millstone (benchmark) key indicators and tools to measure them are suggested. The quantity of physical and soft outputs (such as training, awareness creation workshops, field days, study tours, etc) should be extracted from project reports (quarterly and yearly reports) together with annual development status maps. If the achievements are not transferred to maps the user should make sure that they are transferred during this session. On some activities where the user has some doubts in the report there should be verification using random field checks. On some activities where the user is not able to quantify from the report, he or she has to use the annual status report map to quantify the value. This might also need some minor GPS based survey and transfer of the result to the map and survey format in Annex 2, (see also Box 2). A simple guideline on the use of GPS is presented on Annex 11.

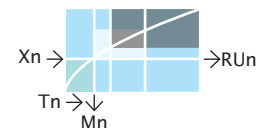
Box 2

For instance, part of a gulley might be treated and the report often indicates the amount of check dams constructed (either in volume or length). It may not show part of the gulley treated on the map. In this case one could easily make GPS based survey and put survey results on the field formats (see Annex 2) which will later on be transferred to the development status map.

4.1.2 Checking Quality of Implemented Activities

Quality of achievements in a watershed development process at any given time can be affected by various socio-economic and biophysical factors and is a key indicator for sustainability. That is why there is a need to assess not only what was planned and achieved (which can be also deducted from reports), but also the current quality and factors contributing (positive and negative) to the current level of quality for each activity. So, the user should find out the current quality and contributing factors as indicated using the guideline on Annex 2 and Annex 3. Unlike the quantity the current quality cannot be extracted from the report, though it is possible to get some insights for particular group of activities if the ME system address this but still there is a need to check quality of each activity using the guideline indicated above.

In general quality checking requires both office work (mainly done during quan-



tity checking on Section 4.1.1) and quick field survey to check current quality of achievements. This should be done following the simple guideline for quality assessment presented in Annex 3 and the result has to be transferred to the field form designed for this purpose (see Annex 2). Since this is a qualitative assessment following the guideline in Annex 3, there is a need to aggregate the result into major watershed development entries such as gulley rehabilitation, area closure, rehabilitation of cultivated lands, homestead development, water resources development (water supply, irrigation, etc.), nursery development community road construction enhancing crop productivity, livestock management and capacity building (see Box 3).

Box 3

For instance, under gulley rehabilitation there are many activities such as runoff diversion (if possibilities exist), gulley reshaping, check dams of different types, and gulley re-vegetation. The current quality for these sub-components might be different depending on many factors. It is possible that one component could be very good but the other good or in some parts poor. Under this condition the user should set average values for each sub-component and has to extract the overall value by taking the average values of the three sub-components for each entry in Annex 2. But the final rating for sub-components, major entries and the overall quality of activities in the watershed can be done through weighted average system from Annex 2 and using equation 1, 2 and 3 (Eq1, Eq2 & Eq3) and finally should be transferred to summary table.

In the field form (Annex 2) the user can assess different activities under each entry – called sub-components (eg. For Gulley-1: Reshaping, Check dam, Cutoff Drain, Plantation, etc., and so on). But finally the user has to prepare summary table for major entries and sub-components as mentioned above and calculate the average values of the sub-components and major entries using the following equations:

To determine the average quality of each major entry (eg. If Gulley, Gulley-1, Gulley-2, etc.):

$$Q_{mi} = \text{SUM}(P_{a_1} + \dots P_{a_i}) / N_i \quad \text{Eq1}$$

Where Q_{mi} , is average quality of each major entry, m , represents types of entries (eg. If we take Gulley, it will be Q_{g1} for Gulley-1, and Q_{g2} for Gulley-2, etc.), $q_{a1} \dots q_{ai}$ are quality of sub-components (eg. If we take Gulley, it will be quality of gulley reshaping, check dam, plantation, etc.), a_1, a_i = represents sub-components (check dam, plantation, etc.), and $i=1,2,3,\dots,n$, $P_x=1$ for poor, 4 for good and 6 for very good, N_i = number of sub-Components.

To determine the average quality of major entry (eg. For Gulley, for Area closure, etc. if there are more than one gulley and more than one area closure):

$$Q_A = \text{SUM}(Q_{mi} + \dots Q_{mn}) / N_i \quad \text{Eq2}$$

Where Q_A represents average quality of major entries, A = represents type of major entry (eg. Gulley, Area Closure, Nursery establishment, etc.), Q_{mi} = represents the quality of each major entry (eg. If we take Gulley, it will be Q_{g1} for Gulley-1, and Q_{g2} for Gulley-2, etc.), N_i = number of each major entries ($i=1,2,\dots,n$).

The overall quality of activities within the watershed can be determined:

$$Q_w = \text{SUM}(Q_{Ai} + \dots Q_{An}) / N_i \quad \text{Eq3}$$

Where Q_w represents overall quality of activities in the watershed, w = represents the name of the watershed, Q_{Ai} average quality of major entries, A = represents types of major entry (eg. Gulley, Area Closure, Nursery establishment, etc.), N_i = number of major entries ($i=1,2,\dots,n$). See example on Annex 13.

4.2 STEP 2: Checking Development Stage of the Watershed

Once the exit strategy framework is done properly during the initial stage and if the periodic benchmarks are also mapped on the framework as explained in PART I above, the task of checking development stage of the watershed is simple. It is a matter of comparing the result of Section 4.1.1 (quantity checking) with that of the initial framework and benchmark mapping. However, since there is no clear line between Phase II and III (Rehabilitation and Economic Development Phases, respectively), and there is a possible overlap, which is very much desired as explained previously, the watershed development stage after the planning phase (called Initiation Stage) should be determined for the two phases jointly. Thus, by taking into consideration the percentage of rehabilitated part of the watershed and the percentage of watershed communities implementing economic development interventions, Annex 4, (for both cases the average quality should be above 1, please see the note box below), the development stages for two phases (i.e., P-II and P-III) and the overall development stage are further subdivided into five sub classes (See Table 2 for details). The overall development stage (ODS) of the watershed will be determined by merging the results of the two phases using the logical sequence as presented in Table 2 below. See also Box 4 for explanation of the logic to be used in Table 2 below to determine the overall development stage of the watershed by combining the results of the two phases.

As explained in preceding sections, according to the experiences in Ethiopia full development of a community watershed (500-1000 ha) could take about five years in potential areas. This is possible when required resources are available and when communities are empowered and are owners of the plan starting from the very beginning and local authorities are committed and mobilized. Taking this ideal situation a fare estimate of time required to achieve each phase was made (see Table 3) and the result was transferred to the 3D ESF (Figure 4). This will help users to check whether the development stage of the watershed is healthy or not. Thus, the user should compare his/her findings from the PA with the standard results in Table 3 and Figure 4 below. The user has to identify and list key reasons for any of the discrepancies observed. If the project life is more than five years, particularly in highly degraded and food insecure areas the user should develop his/her own table using the example of Table 3.

Note:

Equation 1 can be followed for sub-activities such as for check dams, cut of drains etc.

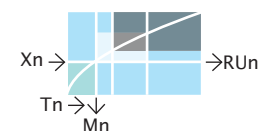


Table 2: Procedures for determining overall development stages (ODS) of a watershed by combining the three development stages (Phase I=IP, Phase II=RP and Phase III=EDP)

IP	RP			EDP			ODS		
Development Stage	Sub-Classes	Development Stage	Code	Sub-Classes	Development Stage	Code	Sub-Classes	Code/combination	Development Stage
100%							Initiation Stage (Phase-I)	ODS1 (100%IP)	3%
	Start-up stage	0–25%	RP1	Start-up stage	0–10%	EDP1	Start-up stage	ODS2 (RP1+EDP1)	3–23%
	Intermediate Stage	25–50%	RP2	Intermediate Stage	10–25%	EDP2	Intermediate Stage	ODS3 (RP2+EDP2)	23–43%
	Progressive Stage	50–75%	RP3	Progressive Stage	25–50%	EDP3	Progressive Stage	ODS4 (RP3+EDP3)	43–63%
	Transformation Stage	75–100%	RP4	Transformation Stage	50–75%	EDP4	Transformation Stage	ODS5 (RP4+EDP4)	63–85%
				Maturity Stage	75–100%	EDP5	Maturity Stage	ODS6 = EDP5	85–100%

IP stands for Initiation Phase (Phase I), RP stands for Rehabilitation Phase (Phase II) and EDP stands for Economic Development Phase (Phase III) and ODS stands for Overall Development Stage of a watershed

Box 4

The following explains the logics followed while merging the results of Phase II and III in Table 2. Taking the nature of watershed development processes it is assumed that all rehabilitation works has to be finalized before Maturity Stage of the overall development stage. Planning Phase has to be completed 100% to claim that the watershed is at ODS1. Similarly Start-Up Stage of Phase II is merged with Start-Up Stage of Phase III to give Start-Up Stage of the overall development stage (ODS2). This is because for the ODS2 at least close to 25% of the land must be rehabilitated and close to 10% of the population engaged on economic development activities as indicated on Annex 6. For Transformation Stage (ODS5) at least close to 100% of the rehabilitation must be completed and close to 75% of the community must be actively engaged on economic development activities with acceptable overall quality as explained above.

Note:

If the overall quality of the watershed as per equation 3 (Eq 3) is 1 and below, there is no need to go for determining development stage of a watershed.

Table 3: Optimum length of time it takes to reach the various development stages under each phase and the overall development stage of a healthy watershed in potential and humid areas

No	Overall Development Stage (ODS) sub-classes	Development Stage of Sub-classes by Phase	The three phases and their development stage in % (maximum values within the class)			Estimated Optimum time required for the combined class (in months)	Cumulative time required to reach the ODS classes (in months)	Overall watershed development stage (maximum values for ODS, in %)
			Phase I	Phase II	Phase III			
1	Initiation Stage (ODS1)	IP1	100	-	-	2	2	3
2	Start-up Stage (ODS2)	(RP1+EDP1)	-	25	10	12	14	23
3	Intermediate Stage (ODS3)	(RP2+EDP2)	-	50	25	12	26	43
4	Progressive Stage (ODS4)	(RP3+EDP3)	-	75	50	12	38	63
5	Transformation Stage (ODS5)	(RP4+EDP4)	-	100	75	13	51	85
6	Maturity Stage (ODS6)	ODS6 = EDP5			100	9	60	100

Note:

With the exception of the Initiation stage (Phase I) and Maturity stage of Phase III, for the other sub-classes there is an overlap between Phase II and Phase III (i.e., row no 2, 3, 4 and 5). In these overlap cases the time indicated in the last two columns are for achieving the different classes of the two phases in parallel. For instance if we take row number 3 (which is Intermediate Stage for PII & PIII) about 26 months are required to bring the watershed to this level, i.e., rehabilitation to 50% and ED to 25%. However, the class itself requires 12 months, i.e., to perform all activities for the intermediate stage for PII and PIII in parallel.

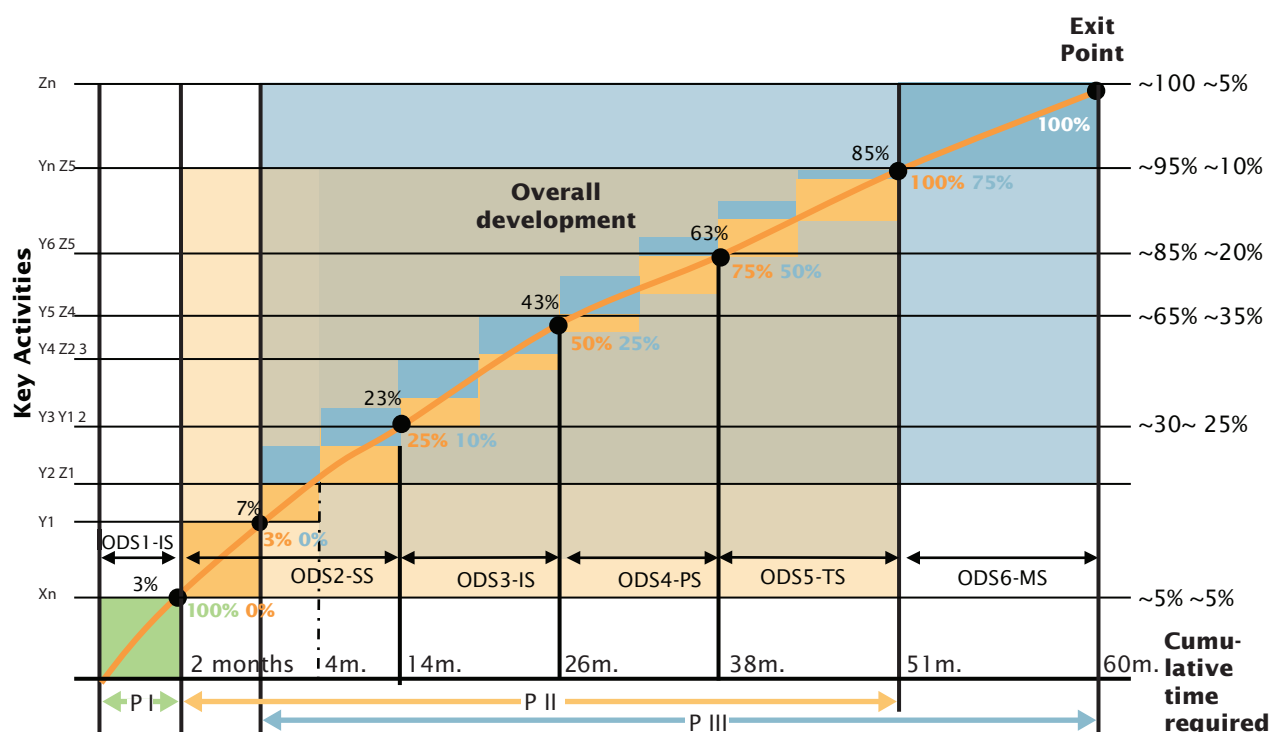
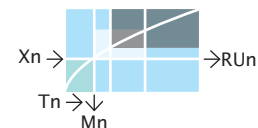


Figure 4: Illustration of development stages in each phase, overlaps between PII & PIII, cumulative time required to bring the watershed to indicated level (sub-class) and cumulative and net resource requirement by sub-class for an ideal five year watershed in 'potential' areas

Note

Figure 4 assumes that the planning process started in October and finished in November (IP), RP started in December and EDP started beginning of February with some activities.

4.3 STEP 3: Checking Resource Use Status of the Watershed

Many watershed projects in the past have failed due to misutilization of the available resources. In some cases they over consumed the resources while the watershed is still at lowest level, in another cases they failed to use the available resources. Both cases have implications on healthy development of the watershed. As a result there is often a mismatch between achievements and resource use. That is why the need to check resource utilization in relation to the activities that has to be achieved at a particular time during the assessment is necessary. Often it is only the regularity of the annual resource use that is checked during evaluations but little is done to compare it with what was achieved using that resource. This is also partly related to lack of tools to make such comparisons and decide whether the watershed is on the right direction or not. Figure 4 above and Table 4 below are prepared to guide the user compare resource use with that of the development stage of the watershed. The procedure depends on the finance use report (periodic) and the surveyor should transfer the findings to the 3D frame (Z axis) after the development stage is defined and milestones are leveled.

i Note:

Figure 4 and Table 4 were developed using an estimated total cost of 320,000 USD for a community based watershed development (about 500 ha for 5 years) project. The values are indicative based on different experiences while the amount can have slight variation depending on the specific situations of the watershed but the percentage remains the same (see also Annex 8 for detail break downs). Furthermore, Figure 4 and Table 4 guides the user in the following way – for instance if we take Raw No 4 to accomplish activities (or push the watershed) from 50% P II and 25% P III to the next level i.e., 75% P II and 50% P III, you need 20% of the total resource. By this time you must be at 85% of the total project resource and should be at about 63% of the overall development stage and should be at about 38 months since the start. If the resource utilization is above or below 85%, you need to check reasons and make sure it is correctable (not too high and not too low). If the reasons are not justifiable and the gaps are too far apart, then the watershed development (particularly the resource utilization) can be considered as unhealthy and would risk immediate exit. However, the user has to see all other factors and has to discuss with all stakeholders before reaching this final decision. The same applies for the development stage too.

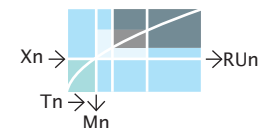


Table 4: Estimated resource use in percentage (net and cumulative) to fully achieve activities that will bring the watershed development stage to the specified sub-class for a five year project-supported healthy watershed

No	Overall Development Stage (ODS) sub-classes	Development Stage of Sub-classes by Phase	The three phases and their development stage in % (maximum values within the class)			Overall watershed development stage (Maximum values for ODS) (in %)	Net resource use for each sub-class separately for No 1 and 6 and in combination for no 2,3,4 & 5. (In % of the total resource)	Cumulative resource required for each ODS (in % of the total resource)
			Phase I	Phase II	Phase III			
1	Initiation Stage (ODS1)	IP1	100	-	-	3	5	5
2	Start-up Stage (ODS2)	(RP1+EDP1)	-	25	10	23	25	30
3	Intermediate Stage (ODS3)	(RP2+EDP2)	-	50	25	43	35	65
4	Progressive Stage (ODS4)	(RP3+EDP3)	-	75	50	63	20	85
5	Transformation Stage (ODS5)	(RP4+EDP4)	-	100	75	85	10	95
6	Maturity Stage (ODS6)	ODS6 = EDP5			100	100	5	100

What's next?

You have assessed quantity and quality of achievements and you have also determined development stage of the watershed and the time and resources (cumulative and net) it takes to bring the different development stages sub-classes to maximum level within the class in isolation or in combination. You have indeed acquired detail knowledge of the watershed status. Now you are ready to determine sustainability of the watershed!

4.4 STEP 4: Checking Watershed Sustainability

As it was explained in Section 4.1 and 4.2 above, it is possible to check the quantity and quality of achievements and development stages of the watershed using a combination of periodic reports of the watershed, the exit strategy framework and minor field assessments. From this it is also possible to deduce minimum requirements mainly in terms of physical achievements. But there is a need to check sustainability by employing multi-factor analysis because this is the time to carefully check if the watershed development process is moving on the right direction or not. Although there are very sophisticated systems and survey techniques to collect data for sustainability, this was intentionally avoided here as the whole idea was to enable local experts to collect the required data without sophistication but also without missing essential information. Perhaps this was one of the most important methodological challenges faced during the design of the guideline – i.e., simplification without losing essential information. Accordingly, maximum care was taken during identification of individual indicators for each of the sustainability factors as explained below.

4.4.1 Defining Key Sustainability Factors

Any watershed could perform well in terms of accomplishing planned activities as long as project support exists and if there is optimum follow-up by the project staff. But this does not ensure sustainability of the watershed for the future. One of the essential elements of any exit strategy is the question of sustainability. Within the given political and policy environment, sustainability depends on socio-economic and ecological responses and benefits acquired from the watershed development effort, and commitment and capacity of communities and local public authorities. These are the key factors that indicate sustainability. Each of the major sustainability factors are explained below.

- (a) Socio-economic response: this is an indicator capturing social and economic benefits acquired as a result of the watershed development intervention. Over the years we have noticed that any watershed development effort that does not have any economic benefit and social accepted is not sustainable, hence there is a need to assess these two factors to check sustainability. To help the user to objectively assess both social and economic responses easily measurable or identifiable indicators were selected as listed in Annex 5.
- (b) Ecological response: equally important is the ecological response of the watershed. Proper implementation of physical and biological conservation activities with the right design and integration should yield recovery in the overall ecology. This will be manifested by the improvement of the biomass cover, improvement of soil productivity, improvement of soil physical and chemical properties (including moisture holding capacity), raising of ground water level (see Box 5) and improvements in base flow of streams. To enable the user estimate such improvements easily observable indicators are presented on Annex 5.

Box 5:

Recently it was observed that in many watershed development sites in Tigray the ground water was raised and farmers dug shallow wells both for irrigation and drinking water. For instance at the foot slope areas of many watersheds in Tigray (supported by MERET and SUN) farmers have dug shallow wells and use it for small-scale irrigation (see also Figure 5).



Figure 5: The ground water was raised at the bed of a rehabilitated Gully in Dershem SUN-Supported Watershed, near Axum, Tigray and was used as a swimming pool by children from the nearby village Source: Gete Zeleke (2010)

- (c) Commitment of authorities at different level and communities: the overall policy environment and its implementation can be fairly and indirectly checked through carefully designed indicators on commitment of local authorities (at least woreda and kebele level) as one of the key sustainability factor. Commitment of communities depended on their level of awareness, their capacity and their comfort on the approach employed (including planning approaches, efforts applied to change their attitude, build their capacity, etc.) by the responsible organization (public or aid organizations). A combination of these two results gives the overall picture of commitment to push the watershed development forward. Carefully selected indicators are presented in Annex 5 to enable the user fairly estimate the above important sustainability factors.

4.4.2 Processes of Rating Each Indicator

Each of the sustainability factors has seven to eight carefully selected and easily identifiable indicators. Care was taken not to inflate indicators for each sustainability factor everything should be recorded in one page including key remarks (see Annex 5). The user will rate each indicator out of six, i.e., 6 being 'very good', 4 being 'good' and 1 being 'poor'. The rating is designed to be made following Focused Group Discussion (FGD) modality after the experts finalized all forms of survey (i.e., STEP 1, 2 and 3) in the watershed. This arrangement was made deliberately because by the end of the whole assessment (i.e., STEP 1, 2 and 3) the surveyors are expected to know the status of the key elements of the watershed,

Box 6:

In 2009/10 detail assessment of 92 SUN-Supported watersheds were done. The FGD was performed after the experts finalized the detail survey and measurements of activities in the watershed. It proved to be very effective and easy to rate each indicators as the experts have already observed the status of each and every part of their watershed. Only in few cases there was a bit of bias in rating commitment of woreda leaders. This was noticed during final analysis of watershed results because very poorly performed watershed in every aspect (quantity, quality and development stage) can't match with high rate of woreda leaders' commitment. So, there is also a chance to indirectly check the rating, when needed.

they have seen all activities and they are also expected to have consulted land users about each and every element of interventions including bylaws. Suggested participants for the FGD are members of Kebele Leaders, Community Watershed Team (CWT), Development Agent (DA) and woreda experts. Rating of each indicator will be by consensus but it has to be facilitated preferably by external advisors, if involved (see also example in Box 6).

4.4.3 Key Procedures for Rating Sustainability Factors

The key sustainability factors as indicated in Section 4.2.1 are social response, economic response, ecological response, commitment of woreda leaders (mainly DoA, FS and administration), and commitment of Kebele Leaders and Commitment of Communities each of them with 7–8 indicators. The rating for each of the sustainability factors will be determined using the following simple equations:

$R_{sf} = \text{SUM}(R_a + R_b + R_c) / N_i$ Eq 4

$R_a = \text{SUM}(R_{ia} * P_1)$ Eq 5

$R_b = \text{SUM}(R_{ib} * P_2)$ Eq 6

$R_c = \text{SUM}(R_{ic} * P_3)$ Eq 7

Where R_{sf} is final rate for each sustainability factor, R_a is the sum of the rate of each indicator under 'a' (which represents Very Good), R_b is the sum of the rate of each indicator under 'b' (which represents Good), R_c is the sum of the rate of each indicator under 'c' (which represents Poor), $P_1 = 6$ (value for Very Good), and $P_2 = 4$ (value for Good) and $P_3 = 1$ (value for Poor), $R_{ia,b,c}$ are sum of ratings of each indicator under a, b and c, respectively; N_i is number of indicators for each sustainability factor as some has 7 and others have 8 (Note: in case there are indicators leveld as NA (not applicable to that particular area), then 'N' will be minus the NA factor); $i = 1, 2, \dots, n$. An ideal rating is presented on Table 5 for ecological response to demonstrate the use of equations 4-7.

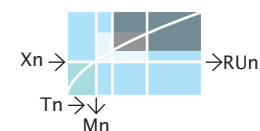


Table 5: Ideal rating of ecological response for demonstration purpose

No	Indicators to checked	1 = Yes 2=No 3=NA	If Yes, Rate them		
			a	b	c
ECR1	Do you observe increased overall vegetation cover (grass and woody biomass) as compared to the baseline situation?	1	x		
ECR2	Is the recovery and regeneration of closed areas (grass and woody biomass) high?	1		x	
ECR3	Do you observe regeneration of springs and strengthening of weaker base flows?	1		x	
ECR4	Do you observe an improvement on the availability (depth) of groundwater at foot slope?	1			x
ECR5	Do you observe an improvement on soil productivity of cultivated lands?	1			x
ECR6	Are rehabilitated gullies well stabilized and vegetated?	1		x	
ECR7	Is flood damage on downstream areas reduced after the watershed treatment?	1	x		
ECR8	Do you see reduction in visible soil erosion such as rills and gullies on cultivated lands and hillsides as compared to the baseline situation?	1		x	
Sum			2	4	2

Example:

$$R_a = \text{SUM}(R_{ia} * P_1) = \text{SUM}(2 * 6) = 12$$

$$R_b = \text{SUM}(R_{ib} * P_2) = \text{SUM}(4 * 4) = 16$$

$$R_c = \text{SUM}(R_{ic} * P_3) = \text{SUM}(2 * 1) = 2$$

Then

$$R_{sf} = \text{SUM}(R_a + R_b + R_c) / N_i = \text{SUM}(12 + 16 + 2) / 8 = 3.75$$

Note

It is very important that each indicator is carefully rated based on the observation the surveyor made, Annex 3 and consultation with experts as indicated above. The result in this hypothetical example shows that the Ecological Response is close to average (i.e., Good), which makes sense. The results often will have decimal numbers. The user should round the figures to closer values resulted from Equation 4 and 8. In some cases the results can be between the two values such as 1.5 or 3.5. In this particular case the figures should be rounded to 2 and 4, respectively. A guiding table on how to round figures is suggested in Annex 7.

4.4.4 Process of Rating Sustainability of the Watershed

On Section 4.4.3 we have seen how each of the sustainability indicating factors is rated. On this section we will see on how the watershed sustainability is determined. There are two steps to be followed in rating sustainability level of a watershed i) arithmetic rating using Equation 8 and ii) transferring rating value from Equation 8 to sustainability matrix. The arithmetic rating is used to develop sustainability rating values for each watershed which will be valued against the three ratings, i.e., Very Good, Good and Poor. It is also important if the user is involved in assessing sustainability of many watersheds (Equation 9). The sustainability matrix is used to check sustainability status of single watershed. Using the matrix it is possible to clearly see areas that need attention (among the six sustainability factors). Each of them are discussed below

i) Arithmetic rating

Once the sustainability factors are rated following the procedure indicated above in Section 4.4.3, using Equations 4–7, the overall watershed sustainability can be rated using the following equation:

$RW_s = \text{SUM}(R_{sfi} + \dots + R_{sfn}) / N_{sf}$ Eq. 8

Where RW_s is final rate of watershed sustainability, R_{sfi} is rate of sustainability factors, and N_{sf} is number of sustainability factors which is 6 in this case, $i=1,2,\dots,7$.

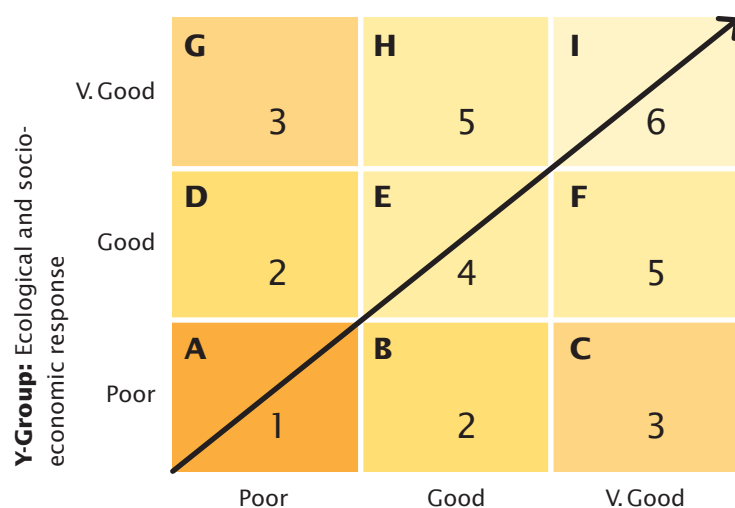
If the project has many watersheds and want to rate the overall sustainability level at project level the following equation can be used:

$RW_{ts} = \text{SUM}(RW_{si} + \dots + RW_{sn}) / N_w$ Eq. 9

Where RW_{ts} is the overall sustainability rate of watersheds for the project, RW_{si} is value of sustainability factors of each watershed, and N_w is number of watersheds rated under the project, $i=1,2,\dots,n$.

ii) Sustainability Matrix

Sustainability matrix (indicated in Figure 6) is prepared to visualize the rating of watersheds on X and Y axis. The key sustainability factors were regrouped in to two broader groups taking their closeness. The response group is put on Y axis (Social, economic and ecological responses) and the commitment group (commitment of communities, Kebele and woreda leaders) is put on X axis. The matrix has nine sections leveled with six values. Table 6 below gives description of each value and the Note box describes on how to place the values on each box particularly for values 5, 2 and 3, or for positions B, C, D, G, H and F.



X-Group: Level of commitment by leaders & communities (woreda/kebele & communities)

Figure 6: Sustainability Matrix with values for each cell (1–6) and levelled (A, B, C, D, E, F, G, H and I)

Table 6: Sustainability matrix levels and descriptions

Values	Description
Level 6 (I)	The watershed is sustainable, could be a learning ground and exit is possible with well-organized handover as explained in PART-1 on STEP-8. However, some value addition can still be continued
Level 5 (F or H)	The watershed is at promising stage, need only little push to move it to the next highest level of sustainability. Focus should be given to weak parts among the sustainability factors. For instance the value at 'F' indicates that there is slight weakness on the Y-Group. Similarly the value at 'H' shows that there is some weakness to be corrected at the X-Group
Level 4 (E)	The watershed is at optimum stage on all indicators. There is big room to improve on all indicators. i.e. both on y and x-group.
Level 3 (G or C)	The watershed has very strong sides and has to be pushed to next level but due emphasis should be given to the lowest sustainability factor or factors on either of the two groups as explained on Level 5 above. Position G shows that there is serious problem on X-Group and similarly Position C shows that big improvement is needed on Y-Group.
Level 2 (D or B)	Automatic exit can be considered for this watershed if the lowest determinants are commitment related (Level 'D'), if not consideration for next step is possible after detail analysis of all elements, particularly those with lowest rates (Level 'B'). See also explanation under Level 5 above
Level 1 (A)	The project has to exit from this watershed right away – further investment is not justifiable

Note:

When transferring value from Equation 8 to Figure 6 the following should be carefully noted: i) when the value is 1, 4 and 6, (i.e., I, E and A) it is automatic, no problem; but ii) when the value is 2, 3 or 5, (i.e., D & B, G & C, and H & F, respectively) the user should go back to the table and should place the value to the side of the group that shows better results (i.e. the X-Group or the Y-Group). In other words the placement on which box will be determined by the bigger average value of each group. For instance for value '5' there are two boxes, 'H' and 'F'; if the average value of the X-group is 6.56 but the Y-group scores 6.71 (as illustrated on Figure 7), the placement will be on 'H' box (Ws1) showing that the user has to go back to its X-group factors and see where improvements are needed. In general this helps to visualize where the weak point is in the watershed. See illustration on Figure 7 and Annex 7 for rounding values.

An example on how to use Equation 8 and Figure 6 (i.e. Sustainability Matrix) are presented on Table 7 and Figure 7 below.

Table 7: Ideal rating of sustainability factors for illustration purposes

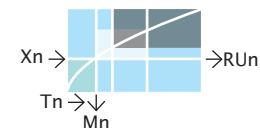
Sustainability factors	Ws1	Ws2	Ws3
Social response	5.57	5	2
Economic response	3.57	3	2
Ecological Response	5	4	3
Commitment of Woreda Authorities	6.28	5	4
Commitment of Kebele Leaders	4	4	4
Commitment of Communities	5.4	3	3
Sum	27.82	24	18

Ws1: $RWs = \text{SUM}(R_{sf1} + R_{sf2} + \dots + R_{sfn}) / N_{sf} = 27.82 / 6 = 6.64$ based on Annex 7 this value is rounded to ~5.

Ws2: $RWs = \text{SUM}(R_{sf1} + R_{sf2} + \dots + R_{sfn}) / N_{sf} = 24 / 6 = 4$

Ws3: $RWs = \text{SUM}(R_{sf1} + R_{sf2} + \dots + R_{sfn}) / N_{sf} = 18 / 6 = 3$

Note: Ws stands for Watershed



The result of the three cases is transferred to the sustainability matrix as indicated on Figure 7. Ws1 has RWs value of 5. But on the Matrix there are two boxes with equal value (i.e., 5), 'H & F'. In this kind of situation the user has to see the table (in this case Table 7). Out of the six factors the Y axis group has higher average aggregate score (i.e., 6.71) than the X group (i.e., 6.56). Therefore, the RWs rate will be placed on the position leveled 'H'. The same is true for Ws3 where the X group scored better and the value is placed on the position leveled 'C' indicating that there is serious concern on the Y-Group than the X-Group, though both needs attention at this level.

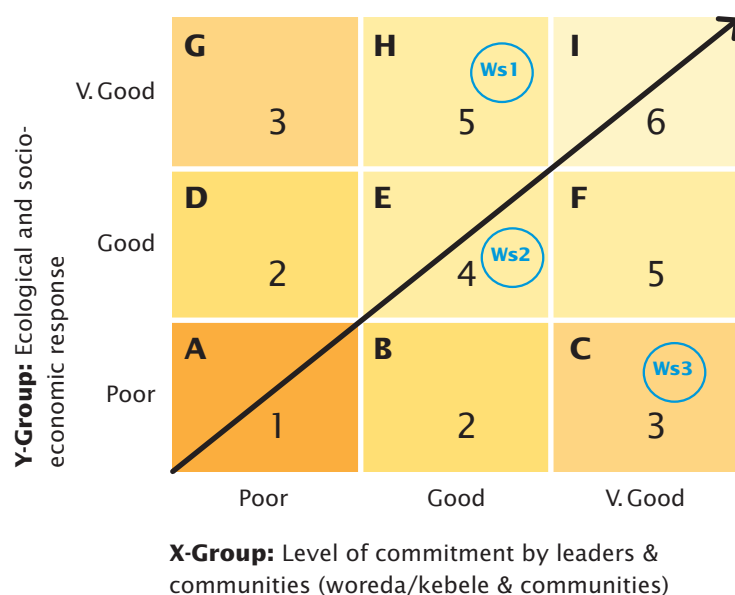


Figure 7: An illustration showing the transfer of watershed sustainability factors generated from Equation 8 to the sustainability matrix for the three ideal cases (examples)

Note:

If you as a user of the guideline are checking sustainability of your many watersheds, after the RWs is done for each watershed (using equation 8), then use Eq.9

What Next?

Now you have successfully finalized assessment of your watershed – status and sustainability. You are now ready to make recommendations for the way forward!

4.5 STEP 5: Recommending Actions for Sustainability and Progress

After the watershed assessment is finalized (status and sustainability) the users have to give detail recommendations for the way forward. The following are some of the actions:

- (a) Consider the result in Step-4 above and decide if immediate exit is required from the watershed(s), i.e., if the value is 1 or 6;
- (b) Identify key priority actions to ensure sustainability of past achievements in each watershed;
- (c) Identify key requirements for each watershed (that are selected for continuation of support) to push watersheds to the next level and to enable watersheds reach optimum level of sustainability before the last exit;
- (d) Design a revised action plan to define what needs to be done by whom and when;

The details for each action are discussed below in separate sections.

4.5.1 Considerations for Immediate Exit

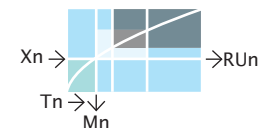
It is always very important to check if the watershed development process is healthy or not in terms of its outcomes and sustainability. In unhealthy watershed further investment is not advisable irrespective of the watershed development stage. Similarly it is also worth to see if further investment is required for a particular watershed or not. For instance if the watershed scores 6 and highly matured, then it may not be necessary to stay there, but this may not be the case in reality.

In general the following criteria are suggested to make decisions for immediate exit after the assessment:

- (a) If the watershed has reached highest development stage (number 6 on the sustainability matrix);
- (b) If the sustainability rating of the watershed is very low (number 1 on the matrix) at this moment - extending the investment will not be justified; and
- (c) If the watershed resource utilization is unhealthy (if it is high consumption against the development stage as suggested on Table 4 and Figure 4 on Section 4.2 and 4.3. above).

Note

This section is a very delicate part in many aspects and the users have to take necessary precaution and check before reaching on one of the above conclusions (see also Gete Zeleke, 2010 SUN Exist Strategy for the type of analysis that can be done depending on different situations).



4.5.2 Ensuring Sustainability and Continuity of Past Achievements

Watershed development is a continuous process and is influenced by multiple factors. The character or combination of factors can also change periodically and this might affect the sustainability of watershed development efforts either positively or negatively. Thus, there is a need to identify actions that will make watersheds to be resilient to any changes of negatively influencing factors and to avoid fallback situations.

The following are **recommended generic actions that the user should consider** with particular focus to sustaining or safeguarding past achievements but also laying better foundation for future achievements.

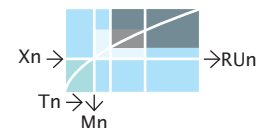
4.5.2.1 Creating an Enabling Institutional System

From past experiences while assessing watershed sustainability, it was found that for most poorly performing watersheds, weak commitment of woreda and kebele leaders, nonfunctional CWT, weak commitment of communities, very weak or nonexistence of watershed users association, poorly defined utilization arrangements of outputs from communal areas such as closed areas, rehabilitated gullies, etc., lack of respect or weak implementation of community bylaws, poorly implemented revolving fund, poorly developed marketing infrastructure or lack of attention to market, thin distribution of communal resources, limited capacity at all levels, lack of awareness, limited recognition system to good performers – individual, group, kebele, CWT, etc., are some of the key factors linked to institutions. This may not be true for all watersheds but the user should make sure that these and other issues related to institution (based on findings in Part II) are fully addressed. To help the user choose among different actions the following sets of possible actions are recommended but they are neither fully applicable nor an end by themselves for a particular watershed – but they provide options and directions.

- (a) **Improving commitment of woreda and kebele leaders:** If this is one of the issues identified during the assessment (also verified by the sustainability matrix), then it is advisable to organize awareness creation and sensitization discussions at different levels mainly at regional, woreda level with respective leaders and at kebele level with kebele leaders and experts responsible for the watershed. All the discussions at different level should be based on the findings of the assessment and should focus on improving commitment and creating ownership feeling of the whole interventions. At the end of each discussion agreement should be reached on periodic milestones that will be achieved by each actor (as per the findings of PART II) and a joint monitoring of achievements of agreed revised plan.
- (b) **Making the CWT functional:** in many watersheds it is not uncommon to find that the CWT is only nominal. Their role in leading the planning and implementation processes are limited in some cases (this will be visible during the assessment and FGD). Thus it is recommended that in all watersheds the composition of the CWT has to be revisited (add new members by replacing weak performing members), mechanism should be designed to improve gen-

der balance and participation of women, awareness creation and sensitization training and to identify and organize study tours, and each CWT together with Kebele Leaders should prepare action plan with well defined periodic milestones. This has to be approved by respective woreda leaders and a joint monitoring modality should be arranged and agreed upon.

- (c) **Improving commitment of communities:** for many years lack of commitment of communities was a major setback for sustainability of watershed development efforts. This is mainly attributed from lack of proper participation during the planning process, poorly organized consultation with communities, lack of immediate benefits from interventions, poor technical design and malfunctioning installments (such as spring development, ponds, water lifting devices, etc), poor leadership, unfulfilling project commitments such as delays of cash transfer, unclear utilization arrangement, poor implementation of by-laws and lack of awareness about the importance of overall watershed management, very weak commitment of community leaders, etc. Considering the above setbacks, it is recommended to organize community sensitization forums in each watershed at the initial stage where CWT members are reorganized and at the end of plan revision by CWT and technical staff. Communities have to review past achievements, their strength and weaknesses and should discuss and agree on the way forward. Based on the discussion a system of accountability has to be designed and agreed upon. Periodic evaluation of watershed progress by communities has to be agreed and implemented.
- (d) **Define better utilization arrangements for watershed resources:** our past experience shows that, sustainability of the different activities and progress of the watersheds are very promising, in watersheds where utilization arrangements for communal watershed resources are well defined during the start-up process of the implementation, such as rehabilitated gullies apportioned among individual farmers (very effective system), closed hillsides allocated to groups of farmers with clearly defined utilization arrangements, reclaimed irrigable horticultural plots apportioned among individual farmers in the vicinity, etc. In these cases ownership feelings of communities are high and bylaws set by communities are often respected. However, in watersheds where utilization arrangements of communal watershed resources are not pre-defined or remains communal the reverse reaction is observed (this can be found on Annex 2 and 3). Therefore, it is strongly recommended to define utilization arrangements prior to any intervention including those already developed but under unclear utilization arrangements. The following are better options provided that these are identified as issues during the assessment:
 - i. Allocate gullies to individual farmers adjacent to his or her farm with strict rules and regulation for utilizing and managing resources on his/her part of the gully.
 - ii. Partition and allocate closed areas to group of farmers with strict rules and regulation on utilization, management and periodic maintenance responsibilities. The potential of each closed area should also be well defined ahead.



- iii. Unless proved and justifiable avoid distributing communal resources such as closed areas, claimed irrigable horticultural areas, etc, to landless youth. This will neither help to improve their livelihood nor to enhance sustainability of the watershed.
 - iv. Establish water users associations for beneficiaries of communal irrigable areas with strict rules and regulations that should be respected and periodically monitored. Avoid too thin distribution of such resources, give chance to those communities close to such resources and find other livelihood opportunities to farmers far from such resources.
- (e) **Enforce community bylaws:** during our past watershed assessment experiences it is often the case in most watersheds, particularly in those watersheds rated as poor, community bylaws are not fully respected. Major causes were related to lack of ownership of bylaws by communities (in some cases bylaws were imposed at higher level without consulting communities), poor enforcement by kebele and woreda leaders, lack of periodic follow-up of its implementation, lack of alternatives set to communities (for instance when zero-grazing bylaw is agreed other means of getting feed to animals should be set and other farming tools that can replace animal labour should be introduced), and lack of clearly defined utilization arrangements for communally developed resources such as closed areas, gullies, woodlots, etc. To improve such situation the actions recommended are: (i) bylaws should be discussed and agreed by communities before being applied; (ii) leaders should ensure that bylaws are owned by communities and enforced; and (iii) considering the detail watershed report all other barriers that are reasons for not respecting bylaws should be pinpointed and implementable solution (alternatives) should be designed as a way forward.
- (f) **Establish proper management system for implementing enablers:** these are activities that add value and ownership on the watershed development process. These includes revolving fund (in cash or kind), access to small scale credit, creation of saving and lending groups, creating market infrastructure and linkages, creating functional users groups and dynamics, etc., with clearly defined guiding rules and regulations. However, experience shows that the problem is not often from establishing such enablers but managing them. Hence the following actions are recommended, provided that this is one of the issues in a watershed:
 - i. A clear management modality should be developed including agreements and enforcement mechanisms for all enablers;
 - ii. It is advisable to give responsibility for managing such enablers to WUA (if established) or CWT in the absence of WUA;
 - iii. Successful implementation of enablers should be monitored closely with periodic corrective actions without any delay.

4.5.2.2 Making the Technique Right

From our past experiences detail watershed assessment (like in Part II) shows that in most watersheds, some technical omissions such as weak integration of activities for maximum and quick impact, lack of value addition actions to products generated by watershed development efforts, lack of regular maintenance, poor technology choice, technical design failure (mainly physical measures) and lack of corrective actions, lack of technology solutions for emerging situations, weak technical backstopping, lack of regular and focused capacity building for defined target groups, lack of proper planning and periodic plan revision, and lack of innovative income generating activities are common mistakes that negatively affect sustainability. Thus, the following generic actions are recommended.

(a) Improve integration of activities: in most watershed development efforts in the past, the value of integrating activities in one site was not well addressed. Integration of activities has to be seen (i) at watershed level (eg. Upstream – downstream interaction and considerations), (ii) at plot level (eg. SWC physical structures supported and/or integrated with cutoff drains and waterways), and (iii) at technology level (eg. Strengthening of physical SWC measures with biological measures). A well designed watershed development plan and implementation should address this critical issue for quick response and better impact (both on ecology and on socio-economic aspects).

(b) Identify and implement activities for value addition: it is not uncommon to see that communities from some project supported watersheds are able to produce vegetables of all kind, fruits, honey and other agricultural products way above their household consumption. Most of these products are also perishable and with short storage life. There is also market saturation as most of the watersheds are far from major highways and market places (See Figure 8). Thus the farmers either abandon collecting products in the field or forced to sell products with very low prices. This is indeed very discouraging for farmers engaged on these kinds of activities. Therefore it is recommended to introduce the following.

- i. Easy to apply preservation techniques that could increase shelf life of products in bulk or small quantities should be introduced.
- ii. Simple and appropriate packing techniques for transporting perishable products to markets need to be developed (see also Box 7);

Box 7

For instance tomato and all other perishable vegetable can be boiled and packed in a small glass container and can be done by the farmers. Introducing this will add value to all past efforts and innovations;

- iii. Rural transportation such as animal drawn carts, motor driven carts, etc would enhance transformation in the watershed;
- iv. In watersheds where there is an irrigable horticultural area the technical support should apply maximum effort to establish market linkages and marketing groups.

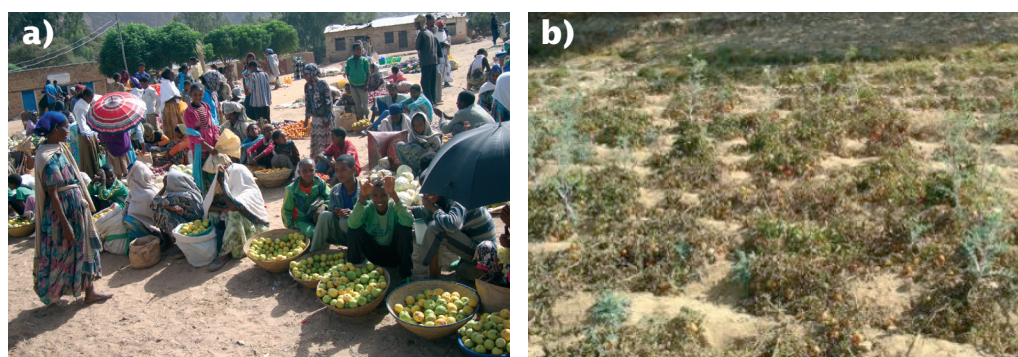


Figure 8: Vegetable market in Abrha Woatsebeha Watershed – too much produce for the very small market (a) and tomato left unharvest due to poor market at the same watershed (b) (Source: Aregawi Gebrekidan, 2010 (a), Author, 2010 (b))

(c) Enforcing regular maintenance of interventions: while support is often granted for the implementation of many of communal activities, regular maintenance of activities which are not beyond the capacity of communities are assumed to be the responsibility of communities (same holds true for private lands). However, experience shows that this was indeed respected only in few watersheds but not in all. Therefore, a regular maintenance and management protocol should be designed (that includes when, by whom, how, etc., details) and shall be discussed and approved by communities. As a rule of thumb, regular maintenance of all activities done on private plots should be a responsibility and obligation of the land user (farmer). Similarly communities or groups should be responsible for communal or group owned resources. This has to be set, discussed and agreed from the onset both for past and new achievements.

(d) Establishing user's fees: this is a system that could easily help communities to recover costs of installations which can be used for maintenance and proper management of infrastructures such as water supply points or springs, diversions for irrigation, community roads, and others built for communal use. Modalities for determining fees, management and disbursement system of the fund should be discussed and established together with communities.

(e) Improving technology solutions related interventions: as mentioned above in some watersheds in the past faulty technical design (such as springs, roads, etc.) and lack of corrective actions have caused dissatisfaction and incurred unwanted costs among communities. Some technologies introduced needs additional technological solutions such as threshing machine for Triticale² and other crops such as teff, weat, barley, finger millet, chopping machines for forage and preservative technologies for perishable products as mentioned above. Immediate implementation of these activities together with the creation of maintenance and operation capacity within communities will

² Triticale was introduced as one technology in most SUN supported watersheds (2006–2010) but in some watersheds farmers were not encouraged to expand it because of problem associated to threshability (see Gete Zeleke, 2010).

be vital for ensuring sustainability and progress in any watershed.

4.5.2.3 Make capacity building result oriented

Our experience in the past shows that almost all capacity building actions are somehow fragmented, though instrumental. There is a need to develop focused and result oriented capacity building that has strong outcome focus in all aspects. As this is an exit strategy guideline and is a section on action before exit, the capacity building should target in creating capable capacity within key stakeholders of the watershed to handle and continue the watershed development processes after the exit. This is one of the priority actions that have to be implemented before any exit from the watershed, provided that the assessment in Part II shows that it is a healthy watershed.

4.5.2.4 Slope based approach for conserving cultivated lands

Although cultivated lands are prime lands in terms of their economic importance throughout Ethiopia, many watershed assessments show that they were not direct priority land units for many project supported activities within the watershed. This is because they are designated as private lands and many of the project agreement underlines investment of project resources only on communal lands such as area closure, gully rehabilitation and other communal properties and infrastructures. However, rate of degradation is the highest on cultivated land units as they are under continuous pressure and disturbance for production.

Therefore, to avoid further degradation of these prime lands on one hand and also to avoid dependency on the other hand, it is recommended to follow a simple slope based rule that on any cultivated land above 10% slope use of external resource like communal land units should be allowed (see also Box 8). However, the management and maintenance should be full responsibility of the owner of the land, provided that he/she has capacity as there are labour constraint and disabled households. This has to be strictly followed and periodically supervised by CWT and strict managerial measures should be taken on defaulters.

Box 8

The photo in Figure 9 below is above 40% but intensively cultivated in one of SUN-Supported watersheds in Oromia Region on the way to Wonchi Lake. The project agreement didn't allow using external resources to conserve cultivated lands. So, it was expected that each farmer should conserve his/her land. However, due to the steepness this unit cannot be fully treated by household labour only. On the other hand, the farmers in the area do not have capacity to employ extra labour. If the land is left as it is, all the soil would be washed down within short period. That is why it is recommended to follow slope based approach to conserve cultivated lands using external resources to avoid further degradation and loss of livelihoods as in many parts of Ethiopia cultivation of steep land is common like the one presented on Figure 9.



Figure 9: More than 50% slope land used for cultivation in Ambo Woreda (on the side of the road to Wonchi Lake)

What Next?

You have just finished recommending concrete actions to make past achievements sustainable. Now is the time compiling your findings to recommend the remaining minimum requirements (activity and investment) to push the watershed to optimum level of sustainability!

4.5.3 Identifying Key Requirements for Continuing the Watershed Development

Apart from assessing the status of each watershed one of the tasks for the watershed assessment in PART II is to identify and quantify the key requirements needed to bring the particular watershed to the next level of development and optimum level of sustainability before exit. By this time the development stage of the watershed is clearly known and it is also expected that the development stage is marked on the exit strategy framework. This will clearly show the remaining volume of activities and resources required. However, from the quality and sustainability assessments definitely there will be emerging activities that needs careful attention before exit as explained in PART II above.

Therefore, it is recommended that at this stage the plan has to be revised and has to address the remaining activities as identified in Part II and emerging activities related to quality and sustainability. The result should be filled in Annex 6 with required budget and other resources. Similarly the development map has to be revised and should clearly show the planned remaining activities (those that can be mapped).

4.5.4 Preparing detail action plan

As this is a revised plan after the assessment the following points need to be respected: i) if it is the first performance assessment (near mid-term) the revision should focus on milestones that are not achieved, the remaining milestones, their connections and other emerging issues that were not foreseen during the initial planning; ii) if it is the last performance assessment only core actions that need to be performed before exit should be included. Such actions should be implemented with utmost care and within a given timeframe.

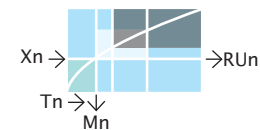
To achieve this in an orderly manner for both cases, a detail action plan has to be prepared as soon as the status of the watershed and the requirements for continuing and pushing it to optimum level for exit are identified following the steps described at 4.5.2 and 4.5.3. The detail action plan includes:

- (a) Unpacking the recommended actions related to ensuring sustainability of past and present achievements indicated under Section 4.5.2 above and resetting measurable milestones that need to be periodically monitored as an indicator for the level of sustainability before exit;
- (b) Although the requirement proposed in Section 4.5.3 above in terms of physical achievements and soft components are based on detail technical assessments of the watershed, taking into consideration the past experiences, bio-physical and socio-economic situations have to be thoroughly discussed with communities in each watershed. Activities should be planned in their logical sequence, and related milestones with specific timeframe should be defined. This has to include who should do what, when and how and requirements in terms of funding and other resources.

In general the two steps would result with modest revision of the actual watershed plan and Annex-1.

What Next?

You have just finalized your revised action plan. You are ready to present the assessment results and the revised plan (with the action plan) including revised Annex-1 to communities and other stakeholders within the watershed. Wish you success! Remember to start with positive findings and strengths!



4.6 STEP 6: Communicate the Result to Communities

This will be the second major communication since the exit strategy is designed at the start of the project. As it was explained earlier, clear communication with beneficiaries and other actors such as local authorities, service providers, etc., about the programme's eventual departure is an essential aspect of the exit strategy even at this stage. This will help communities and other actors to prepare themselves for a stepwise transfer of responsibilities on agreed timeframe. The communication at this stage helps to generate better ownership of the whole watershed development process and helps communities visualize what went wrong and right and what should be the future direction. The communication includes what new periodic activities and milestones are expected and when, the requirements to achieve the remaining milestone, the role of communities, other stakeholders and the donor at different stages and has to also emphasize the ultimate exit and link the revision made to address this issue and sustainability. Although the above indicated issues are of general benefits of this part, the communication at this stage should focus on the following two issues.

- (a) **Communicating status of their watershed:** as indicated in Step 1-Step 5 in PART II above, you have used rigorous techniques to assess the status of the watershed in terms of quantity and quality of achievements, development stage and sustainability. You have also identified key contributing factors (both positive and negative) for the current status, quality and sustainability. These have to be clearly presented, discussed and approved by communities and other key stakeholders of the watershed.
- (b) **Communicating the revised development plan and the revised Annex-1:** based on the findings in Step 1- Step 5, key actions to ensure sustainability and requirements (both physical and soft component) to push the watershed to optimum level of sustainability before exit are identified (Step 5). Accordingly the plan is revised (including the map) and detail action plan is prepared (Step 5). Thus, at this stage you make sure that the revised development plan (with new additions), budget and action plan and the revised Annex-1 are presented to the general assembly (discussed and approved) and has to be transferred to the Woreda Office of Agriculture for their final approval and integration to the umbrella woreda development plan. Copies can be sent to other key stakeholders such as funding agencies, regional BoA and others as per the requirements.

Congratulations!

You have successfully communicated the results to communities. Now finalize preparations and start implementing the revised plan! Do not forget to monitor!

5. Conclusion

As stated in the background section of this guideline, our experience in the country shows that many nicely developed watersheds have fallen back to baseline situation (some even to worse situation) after project phase out. Even in those watersheds that were able to maintain some of what was developed do not continue the momentum of developing the watershed to the next highest level. All the above mentioned facts of our experience are not results of lack of willingness to develop or hate to watershed development but it is related to lack of well thought and well-designed exit strategy and performance assessment tools.

This is also partly related to the misunderstanding among planners about the importance of and time of exit strategy design. Most think that exit strategy should be developed at the end of the project. This is probably one of the grave mistakes that contributed for the current poor state of sustainability of many past watershed development projects.

During the last four decades, it was very common to see watershed development projects come, do a good job and go. Some projects also remain in the same watershed for long time beyond the normal period (i.e., more than ten years in one watershed). In both cases, very little is done to inform communities and other actors when the project support will exit, what is expected from them, what mechanisms are important to achieve periodic milestones and what are the mechanisms to follow the achievement of these milestones, including their quality and sustainability. Thus, the need for well-defined exit strategy is an urgent issue not to repeat past mistakes and to move forward and make all watershed development efforts sustainable. This is particularly important as the government is recently embarking on huge multi-donor supported watershed development initiatives throughout the country, such as SLMP-2 and others.

However, there is neither the experience nor the guideline to design robust exit strategy. This guideline is designed to fill this big gap and would help planners start developing exit strategy for their watersheds right from the onset to avoid previous mistakes. As this is the first of its kind the author feels that the guideline should be tested and revised based on field findings (or experiences). The revised version should provide more examples and explanations using illustrations and boxes. Development of iterative computerized model could also be an option at later stage.

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7. Annexes

7.1 Annex 1: Detail Design of the Exit Strategy Framework

Note:

This framework is based on experiences in Ethiopia (mainly in the highlands) and takes into consideration an ideal community based integrated watershed development project as the basis for all the activities and milestones suggested. Thus, the user should note that some of the activities may not be applicable to particular watershed. There might be also a possibility that some specific issues of a specific watershed may not be addressed in this framework. It is strongly advisable to read PART I of this guideline carefully before using this framework.

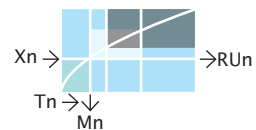
The framework details out activities, milestones and indicators phase by phase following their possible sequential order. Again here, there is a possibility that within each phase some of the sequential order might not be applicable in some areas, very rare case, of course, as this is based on years of watershed development experience in the country.

The user should also note that some activities are spanning across two phases (mainly phase II and Phase III) or across different stages within the phase. This is based on practical experience but depending on the nature of the watershed the percentages can vary.

For the three Phases main activities are identified in sequential order. For each main activity a two pager explanatory note is prepared including sub-activities and corresponding sub-milestones. It also include summary table that shows estimated time required to achieve each milestone, sub-milestones and resource requirements and documentation requirements.

It is crucial to note that the required documentations indicated on column 4 of the summary table have to be prepared all the way along the project implementation. Therefore, it is recommended to prepare three folders leveled as Phase-I, II and III for each watershed. Each box has to be partitioned by major activities to avoid mix-up. That means all required documents to monitor the achievements of each milestone and sub-milestones indicated on column 4 of the summary table will be regularly documented and will make the regular ME and the PA easy and comprehensive. This can also be computerized.

The sample 3D ESF of Annex 1 is presented on Annex 12.



Phase I: Initiation Phase



Key Activities⁴

Activity 1 (I1): Undertake all preparatory works and start the planning process as per the steps in the CBPWD guideline

Key requirements:

- Knowledge of the woreda – general socio-economic and biophysical situations
- List of potential watersheds for the intended project with their general description
- AEZ of each potential watershed
- Basic culture and religion of the community
- Ongoing activities with the woreda

Sub Activities:

Sub-Activity 1.1 (I1.1): Meet woreda officers, discuss about the project including tentative list of watersheds and form woreda watershed team (if not established);

Sub-Activity 1.2 (I1.2): Together with the watershed team visit watersheds listed and make final decisions including reasons for priority setting;

Sub-Activity 1.3 (I1.3): Together with the watershed team meet Kebele Leaders where watershed is located and discuss about the watershed development project. Then form Kebele Watershed Team (KWT) and agree on the general assembly meeting date;

Sub-Activity 1.4 (I1.4): Prepare base map of selected watershed, collect other relevant secondary information about the area and make necessary preparations for planning.

Key Milestones

Milestone 1 (M1): All preparatory works for planning are finalized, including final selection of watershed, formation of WWT and KWT, and necessary paper works before the general assembly meeting of watershed communities.

Sub-milestones:

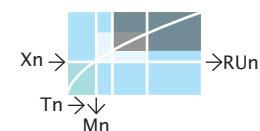
Sub-milestone 1.1 (M1.1): The project idea is discussed with woreda leaders and WWT formed;

Sub-milestone 1.2 (M1.2): Watershed selection is finalized;

Sub-milestone 1.3 (M1.3): Discussion with Kebele Leaders is finalized, KWT is formed and date for general assembly meeting is fixed;

Sub-milestone 1.4 (M1.4): All necessary preparatory works for planning such as base map preparation, secondary information about the watershed are finalized.

⁴ What is indicated in this guideline as key activities and milestones takes an ideal watershed development plan. How to achieve each activity and related milestones are well explained in the CBPWD guideline and it is expected that the planners would follow this guideline to prepare their watershed plans. As explained in PART I of this document, the actual plan should be checked with Annex 1 of this document to check consistency and make correction if some activities are left-out.



Summary

Activities	Milestones	Time required	Source of Information (Documents need to be available) ⁵	Resource use & requirement in %
I1	MI1	Oct 1-15 (15 days)		1%
I1.1	MI1.1	Oct 1-3 (3 days)	Minutes or summary of discussion notes of the initial discussion and summary of woreda leaders concerns and commitment including list of WWT members with their responsibility	0.25%
I1.2	MI1.2	Oct 4-5 (2 days)	Selection criteria, list of watersheds visited and final decision made, including reasons for selecting this watershed.	0.25%
I1.3	MI1.3	Oct 6-9 (4 days)	Minutes or notes of the initial discussion and summary of Kebele leaders concerns and commitment including list of KWT members with their responsibility	0.25%
I1.4	MI1.4	Oct 10-15 (6 days)	Base map, other secondary information about the watershed and participatory tools to be used to change attitude of CWT	0.25%

Methods of measuring milestones:

All the documents related to the above milestones should be found in the DA office as Annex to the original watershed development plan. A copy of these documents should also be available to WWT (focal person) and KWT.

Remark for ME and PA group:

Although these are very important actions and milestones, it is not common to prepare documents related to the above milestones. In this case the surveyor should ask the WWT and KWT informal questions such as trends in the watershed over time, reasons for prioritizing this watershed, if all preparatory works were done according to the guideline and if not reasons for omission. If their awareness and responses are reasonable these milestones will be taken as achieved but with remark as the missing element in the whole planning process as a lesson for future considerations.

⁵ Any watershed development project must have documents and information indicated under this column. This column guides planners what documents they should have about the watershed planning and implementation, ME and other PA processes. Before starting the planning process the planners should look this column to make sure that these documents are prepared and documented. The assessment team should also check this document regularly during the different stages.

Key Activities

Activity 2 (I2): Establish the Community Watershed Team (CWT) and make the team operational

Key requirements:

- Culture and religion
- Gender composition
- Geographic area representation
- Age mix
- Education level
- Wealth category

Sub Activities:

Sub-Activity 2.1 (I2.1): Call a general assembly of watershed communities, discuss the project (purpose, requirements and expected outputs) and ask communities to elect CWT as per the requirements above;

Sub-Activity 2.2 (I2.2): Create team spirit and initial awareness of changes in the watershed through Trend Analysis, Watershed Resource Mapping, Transect Walk and Institutional Mapping;

Sub-Activity 2.3 (I2.3): Undertake a Vision-Realization exercise (vision of change and actualization), to unlock the mindsets of CWT towards change.

Key Milestones

Milestone 2 (MI2): A strong watershed development team is established and is active in leading the watershed planning and development processes

Sub-milestones:

Sub-milestone 2.1 (MI2.1): Community concerns and generalized ideas of the watershed project are documented and list of elected CWT with their responsibility is documented including their village;

Sub-milestone 2.2 (MI2.2): Results of the trend analysis, watershed resource mapping and institutional mapping are documented and are available as reference indicating the baseline situation;

Sub-milestone 2.3 (MI2.3): Vision-realization matrix is developed and documented.

Summary

Activities	Milestones	Time required	Source of Information (Documents need to be available)	Resource use & requirement in %
I2	MI2	Oct 16–31 (16 days)		1%
I2.1	MI2.1	Oct 16–18 (3 days)	<ul style="list-style-type: none"> – A documentation of brief concerns and issues raised by communities during the general assembly meeting – List of elected CWT members with their responsibility and location within the watershed 	0.25%
I2.2	MI2.2	Oct 19–28 (10 days)	<ul style="list-style-type: none"> – Flip charts (or summary document) used for trend analysis, institutional mapping or photographs or summary of the trend analysis with drawings – Documentation on village resource mapping including the site (appropriateness) – Documentation for transect walks including transect maps (see Annex 9 for reference) 	0.5%
I2.3	MI2.3	Oct 29–31 (3 days)	<ul style="list-style-type: none"> – Summary of visions and realization exercise (See Annex 10 Sample summary vision of change exercise) 	0.25%

Methods of measuring milestones:

All documents related to the above milestones should be annexed to the original watershed development plan (as part or separate volume). During the PA, the surveyor (PA group) should check these documents and meet with CWT afterwards to countercheck the processes.

Remark for ME and PA group:

Although these are very important actions and milestones, often these are bypassed and sometimes not documented. In this case the surveyor should ask the CWT informal questions such as trends in their watershed over time, their perception about institutes and their visions for their watershed. If their awareness and responses are reasonable these milestones will be taken as achieved but with remark as the missing element in the whole planning process as a lesson for future considerations.

Key Activities

Activity 3 (I3): Follow CBPWD guideline and prepare participatory watershed development plan⁶

Key requirements:

- AEZ of the watershed
- Understanding watershed problems (biophysical and socio-economic)
- Understanding watershed opportunities and potentials
- Flexibility to systematically link technical requirements with that of community aspirations and interests
- Identify entry points
- Balance among ecological, social and economic benefits of the plan

Sub Activities:

Sub-Activity 3.1 (I3.1): Identify key watershed problems (biophysical & socio-economic) and set priorities (Note: group work should be supplemented by actual bio-physical and socio-economic survey following the CBPWD guideline) – proper baseline survey;

Sub-Activity 3.2 (I3.2): Identify key watershed opportunities and potentials and relate them to identified problems (from the biophysical and socio-economic assessment results);

Sub-Activity 3.3 (I3.3): Prepare watershed development plan and development map (identify key interventions that brings change in the watershed) through a participatory process following steps in the CBPWD guideline and identify entry points;

Sub-Activity 3.4 (I3.4): Present the plan to the general assembly of communities and other stakeholders for comments and approval and revise the plan;

Sub-Activity 3.5 (I3.5): Prepare detail action plan with input requirements and entry points.

Key milestones

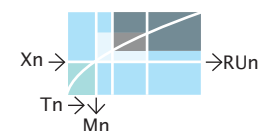
Milestone 3 (MI3): A detail watershed development plan with key problems and opportunities are well documented, priorities are set and solutions are suggested. The plan should be supported with base and development maps.

Sub-milestones:

Sub-milestone 3.1 (MI3.1): Baseline survey document is prepared and key socio-economic and biophysical problems are identified and prioritized;

Sub-milestone 3.2 (MI3.2): key watershed potentials and opportunities are identified and prioritized in line to key constraints;

⁶ It is assumed and is also a must that a watershed development plan with all the activities and milestones listed in this section should be prepared and be available within the watershed, woreda DoA and funding agency. However, the user should make sure that the development plan should have the above set of activities and milestones. If not the plan has to be checked and revised before implementation started.



Sub-milestone 3.3 (MI3.3): key interventions that will address problems and allow effective utilization of watershed potentials and opportunities are identified and documented with detail mapping (base map and development plan map), entry points are identified and the plan are completed;

Sub-milestone 3.4 (MI3.4): the final watershed plan is presented to communities, discussed, amended and approved;

Sub-milestone 3.5 (MI3.5): detail action plan with input requirements are prepared and entry points are clearly identified and indicated in the action plan.

Summary

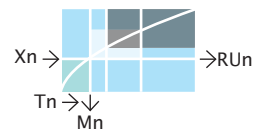
Activities	Milestones	Time required	Source of Information (Documents need to be available)	Resource use & requirement in %
I3	MI3	Nov 1–30 (30 days)		3%
I3.1	MI3.1	Nov 1–10 (10 days)	Baseline survey document which includes list of key socio-economic and biophysical problems with priorities and detail biophysical and socio-economic survey result of the watershed.	2%
I3.2	MI3.2	Nov 11 (1 day)	List of watershed opportunities and potentials.	0.125%
I3.3	MI3.3	Nov 12–26 (15 days)	Proposed development options and development plan document and map.	0.5%
I3.4	MI3.4	Nov 27–28 (2 days)	Summary of suggestions of communities and amendments made during the general assembly meeting as a separate document	0.125%
I3.5	MI3.5	Nov 29–30 (2 days)	Initial action plan with entry points and revised action plans within the development plan document	0.25%

Methods of measuring milestones:

The original watershed development plan with different maps (base map and development plan map) and socio-economic and biophysical survey results as annexes should be checked. If possible the print out of the base map and development plan map should be displayed in a visible place in the office of the CWT in the watershed. The revised annual action plan should also be available and documented with the original development plan and have to be checked against the above milestones.

Remark for ME and PA group:

Lack of proper documentation of the watershed development plan with required annexes and maps will make the planning process incomplete. The surveyor should carefully check the missing element and document the reason. Appropriate recommendation should be included for the way forward.



Phase II: Rehabilitation Phase



Key Activities

Activity 1 (R1): Prepare implementation arrangements (up to the Maturity Stage although the major part is done at the Start-up Stage)

Key requirements:

- Knowledge of the available framework conditions to set required bylaws
- Knowledge of the available resource and utilization procedures or requirements
- Knowledge of project agreements between government and development partners
- Knowledge of capacity building and awareness raising requirements

Sub Activities:

Sub-Activity 1.1 (R1.1): Set appropriate organizational arrangements required for implementation such as group formation of various kinds and institutional responsibilities;

Sub-Activity 1.2 (R1.2): Together with communities set bylaws and regulations including utilization arrangements of communal resources in a participatory process under the framework conditions of the area;

Sub-Activity 1.3 (R1.3): Design a strategy for mobilizing the available and additional resources if possible;

Sub-Activity 1.4 (R1.4): Design and implement the initial capacity development programme including study tours as per the capacity gap analysis during the planning process.

Key milestones

Milestone 1 (MR1): Implementation arrangements are finalized (up to the Maturity Stage although the major part is done at the Start-up Stage)

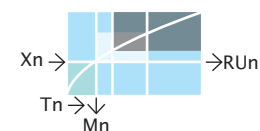
Sub-milestones:

Sub-milestone 1.1 (MR1.1): Different groups are formed and registered (such as groups for SWC, groups for closed area management, groups for irrigation (if available), etc) and institutional responsibilities are defined and agreed;

Sub-milestone 1.2 (MR1.2): Different bylaws and utilization arrangements of communal resources are drafted and approved by communities (such as zero grazing, closed area management and utilization, gulley land utilization, etc.);

Sub-milestone 1.3 (MR1.3): Required resources for implementation (such as farm implements, design equipment, gabions, meter, other precision equipment, etc.) are mobilized and a strategy on communities contributions are designed and approved by communities;

Sub-milestone 1.4 (MR1.4): The initial phase capacity building plan (such as study tours, training on SWC design and implementation, seedling production, gulley rehabilitation with its full package and construction, or other technical issues as per the need assessment, etc.) are implemented.



Summary

Activ-ities	Mile-stones	Time required (same for all stages)	Source of Information (Documents need to be available)	Resource use & require-ment in %
R1	MR1	Dec 1–31 (31 days)		5.5%
R1.1	MR1.1	Dec 1–2 (2 Days)	List of groups formed together with their function and agreements. The strategy followed during group formation such as flexibility to accommodate interests of different groups or individuals during group formation, gender, etc. List of institutional responsibilities and if possible minutes of agreement	0.25%
R1.2	MR1.2	Dec 3–4 (2 Days)	List of bylaws approved and the actual document itself including bylaws in mobilizing community labour	0.25%
R1.3	MR1.3	Dec 5–14 (10 Days)	Type and amount of materials mobilized together with their costs including funding sources and amount	2%
R1.4	MR1.4	Dec 15–31 (17 Days)	List of capacity building actions undertaken, participants, costs, and support documents including copy of training materials and reports	3%

Methods of measuring milestones:

This will be measured by checking the documentation related to the implementation of preparatory activities listed above and activity reports. This also includes training materials for the initial phase, inventory reports (if available) and group formation documents and achievement reports (if any) and minutes of agreement of institutional responsibilities. If possible bar charts on group formation, types, members, etc. should be displayed on visible place in the office.

Remark for ME and PA group:

This is an important step at the beginning of the implementation process. Proper implementation of this step will lay a foundation for sustainability of watershed development efforts. It is almost an interface between planning and implementation. All documents related to this process should be available and should be properly documented. If they are not available and are not documented the surveyor should give appropriate recommendations after consulting the responsible group. The surveyor should also carefully check the methods followed and the missing links. If necessary he/she should consult communities and representatives.

Note

All the sub-activities in this Activity will be slightly modified in each stage as the preparatory requirements will be also different. The user can adjust them as per the plans and site-specific requirements in each stage. Implementation arrangements of the next stage is implemented in the previous stage

Key Activities

Activity 2 (R2): Area closure with moisture harvesting structures (60% during Start-up Stage and 40% Intermediate Stage)⁷

Key requirements:

- AEZ
- Knowledge of remnant tree and grass species
- Level of degradation supported with pictures for reference
- Previous land use and user groups

Sub Activities:

Sub-Activity 2.1 (R2.1): Agree on closing and protecting the closed area;

Sub-Activity 2.2 (R2.2): Design and implement moisture conservation measures such as Hillside Terraces, Trenches, Eyebrow Basin, etc, or a combination of all based on CBPWD guideline; and other technical documents

Sub-Activity 2.3 (R2.3): Arrange safe utilization management modalities supported with documents following the agreed bylaws.

Key milestones

Milestone 2 (MR2): The area is closed as per the original plan with moisture conservation measures (60% during Start-Up Stage and 40% Intermediate Stage).

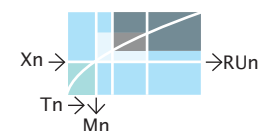
Sub-milestones:

Sub-milestone 2.1 (MR2.1): Agreements are recorded and the area is closed as per the plan;

Sub-milestone 2.2 (MR2.2): Moisture conservation and harvesting structures are implemented as per their standard design and quality;

Sub-milestone 2.3 (MR2.3): Utilization modalities are arranged and documented as per agreed bylaws.

⁷ Part of the moisture conservation work will be done at the beginning of Phase II (Start-Up Stage) and the remaining during Intermediate Stage. It is assumed that at Intermediate Stage of P2 all physical works on closed areas should be completed including enrichment plantation. The user should note that when mapping activities on the 3D framework, the 60% Area Closure rehabilitation work should be seen (mapped) on Start-Up Stage and the remaining 40% on Intermediate Stage. Of course this also depends on the size of closed areas in a particular watershed. Here it is assumed that about 100 hectares of land will be closed out of the standard 500 ha watershed. If the closed area is small, it can be finished at the start-up stage.



Summary

Activ-ities	Mile-stones	Time required under each Development Stage		Source of Information (Documents need to be available)	Resource use & require-ment in %
		SS	IS		
R2	MR2	Jan 1–Mar 2 (60 Days)	Jan 1–Feb 20 (40 Days)		2.9%
R2.1	MR2.1	Jan 1 (1 day)	Jan 1 (1 day)	<ul style="list-style-type: none"> – Document on common decisions and agreements on closing the area (minutes of agreements) – Size of the planned area including mapping and pictures 	0.25%
R2.2	MR2.2	Jan 2–Mar 1 (58 days)	Jan 2–Feb 19 (38 days)	<ul style="list-style-type: none"> – Reports indicating size of area closed, type and amount of moisture conservation measures constructed (if possible supported with pictures and should be indicated on the development planmap) 	2.4%
R2.3	MR2.3	Mar 2 (1 day)	Feb 20 (1 day)	<ul style="list-style-type: none"> – Minutes of agreement on utilization modalities & bylaws for each area closure site (if more than one) 	0.25%

Methods of measuring milestones:

All documents in the table above should be made available and what was planned will have to be checked with what has been achieved. The current utilization should also be checked with agreed upon arrangements/bylaws. Quantity of achievements should also be checked, and this requires minor field survey and transferring the findings to the field form indicated on Annex 2. The quality of the current status including all support practices will have to be also carefully assessed using the guideline for quality assessment in Annex 3. If there is problem in determining the area from available reports, use GPS or other technologies and make sure that the data is transferred to the development plan map using GIS where further analysis is made afterwards. Pictures showing current status should be taken and should be compared with pictures of the area before implementation.

Remark for ME and PA group:

Very recently it was realized that speed of regeneration of closed areas is high when integrated with suitable moisture harvesting structures following the required quality and technical standards. In such cases it was not only the speed of regeneration that is improved but it shows significant positive downstream effects. Thus, the surveyor should check closed areas from three angles: i) speed of regeneration; ii) utilization arrangements and its on-site uses; and iii) its downstream effects. After looking the available documents the surveyor should make a quick visit to closed areas and their adjacent downstream areas to clearly capture the above mentioned outcomes. The surveyor should also take pictures on exact location of the original picture.

Key Activities

Activity 3 (R3): Construction of Soil and Water Conservation measures⁸ on cultivated lands (30% during Start-Up Stage, 45% on Intermediate Stage and 25% on Progressive Stage)

Key requirements:

- Traditional AEZ classified based on rainfall situation
- Major soil types and stone availability
- Slope steepness and level of degradation if possible supported with pictures
- Knowledge of traditional practices

Sub Activities:

Sub-Activity 3.1 (R3.1): Agree with farmers on average vertical interval (VI) and technical standards to fit the VI⁹;

Sub-Activity 3.2 (R3.2): Depending on stone availability and nature of the soil decide type of SWC measures to be constructed, i.e., Stone bund, Stone-faced soil bund, Soil bund or Fanyajjuu (see also PCBWD guideline, Lakew et al, 2005);

Sub-Activity 3.3 (R3.3): Depending on rainfall and soil type decide the gradient of SWC measures to be constructed – graded or level (see also CBPWD guide-line, Lakew et al, 2005) and other technical documents;

Sub-Activity 3.4 (R3.4): Design and construct Soil and Water Conservation measures following the agreed VI and standard, type and gradient on all cultivated lands;

Key milestones

Milestone 3 (MR3): All cultivated lands are treated with SWC measures respecting the required standard and quality (30% during Start-Up Stage, 45% in Intermediate Stage and 25% in Progressive Stage)¹⁰.

Sub-milestones:

Sub-milestone 3.1 (MR3.1): Agreements about the average VI are recorded and documented;

Sub-milestone 3.2 (MR3.2): Based on stone availability and soil type the type of SWC measures are decided for each cultivated land plot;

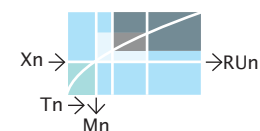
Sub-milestone 3.3 (MR3.3): Depending on the rainfall situation and soil type gradient of SWC measures are decided;

Sub-milestone 3.4 (MR3.4): SWC measures are constructed on all cultivated lands following the agreed VI and required standards based on rainfall, soil type and stone availability.

⁸ SWC measures includes soil and stone bunds, Fanyajjuu, stone-faced soil bund, cutoff drains, water ways, drainage ditches, insitu moisture management practices such as tie ridges, conservation tillage and soil fertility management practices

⁹ VI can be flexible as long as the standards of SWC measures are raised to compensate for the bigger VIs if recommended by the farmer. However, the VI cannot be too big and heavily compromise technical standards.

¹⁰ SWC measures on cultivated lands can be finalized before Progressive Stage provided that communities are active and well mobilized. This is in fact a desired result.



Summary

Activities	Milestones	Time required under each Development Stage			Source of Information (Documents need to be available)	Resource use & requirement in %
		SS	IS	PS		
R3	MR3	Jan 1 – Mar 2 (60 days)	Jan 1 – March 31 (90 days)	Jan 1 – Feb 20 (50 days)		5.0%
R3.1	MR3.1	Jan 1 (0.5 day)	Jan 1 (0.5 day)	Jan 1 (0.25 day)	Document on common decisions and agreements on average VI and standards to fit the VI (minutes of agreements)	0.1%
R3.2	MR3.2	Jan 1 (0.25 day)	Jan 1 (0.25 day)	Jan 1 (0.25 day)	Records on type of SWC decided and reports on type and size of SWC measures	0.1%
R3.3	MR3.3	Jan 1 (0.25 day)	Jan 1 (0.25 day)	Jan 1 (0.25 day)	Records on type of SWC decided (graded or level), rainfall situation, soil type by plot and reports on type of SWC measures constructed	0.1%
R3.4	MR3.4	Jan 2 – Mar 1 (59 day)	Jan 2 – Mar 31 (89 days)	Jan 2 – Feb 20 (49 days)	Reports indicating size of SWC measures constructed (if possible supported with pictures and should be indicated on the development map)	4.7%

Methods of measuring milestones:

All documents on the table above should be made available and what was planned will have to be checked with what has been achieved. Quality of achievements should also be checked, and this requires minor field survey and transferring the findings to the field form indicated on Annex 2. The quality of the current status including all support practices will have to be also carefully assessed using the guideline for quality assessment in Annex 3. If there is problem in determining the area from available reports, use GPS or other technologies and make sure that the data is transferred to the development plan map using GIS and then further analysis is made afterwards.

Remark for ME and PA group:

When SWC was started in the eighties one meter vertical interval was used for all slope classes. This has resulted very narrow space between two terraces, particularly on steep slopes, and hinders cultivation using traditional ox-plough. Similarly only level structures were constructed across all AEZs resulting flood hazards in high rainfall areas. Consequently the farmers hate SWC in many areas. Later on we have learned that VI can be negotiated with farmers without compromising technical requirements and gradient of SWC should be designed based on the AEZ. Thus, the surveyor should check SWC measures from three angles: i) VI and technical standards being agreed and applied; ii) types of SWC constructed and has to be compared with local situation; and iii) types of SWC measures constructed as compared to the AEZ, rainfall and soil type. After looking the available documents the surveyor should make a quick visit to cultivated lands to see whether the above technical requirements are met as per the plan. When necessary recommendations should be made for adjustment.

Key Activities

Activity 4 (R4): Establish nurseries (communal, group or individual) to grow required vegetative materials for various activities within the rehabilitation and economic development phases (20% in Start-Up Stage of P2 and P3, 30% in Intermediate Stage of P2 and P3, 25% in Progressive stage of P2 and P3 and 15% in Transformation Stage of P2 and P3, and 10% in Maturity Stage of P3)

Note

At Maturity Stage it will be leveled as ED7. All the Sub-Activities and Milestones and Sub-milestones will be similar but type of planting materials will be changed as we go along through the different stages. The planting material are both for rehabilitation and economic development.

Key requirements:

- AEZ
- Suitable tree, horticultural and grass species and availability of seed
- Water availability
- Soil type and suitability of potential nursery sites

Sub Activities:

Sub-Activity 4.1 (R4.1): Survey the watershed and select suitable nursery sites that potentially fit the requirements as per the plan (only at SS);

Sub-Activity 4.2 (R4.2): Discuss and agree on management and utilization arrangements for each nursery including guarding, operation and user's fees;

Sub-Activity 4.3 (R4.3): Mobilize required resources and train selected farmers who will be responsible for the management of the nurseries;

Sub-Activity 4.4 (R4.4): Prepare sites and make each nursery functional.

Key milestones

Milestone 4 (MR4): Nurseries (communal, group or individual) are established and the required vegetative materials are continuously produced (20% Start-Up Stage of P2 and P3, 30% Intermediate Stage of P2 and P3, 25% in Progressive Stage of P2 and P3 and 15% in Transformation Stage of P2 and P3, and 10% Maturity Stage of P3)

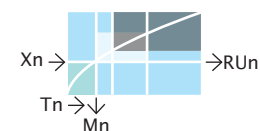
Sub-milestones:

Sub-milestone 4.1 (MR4.1): Survey results indicating selected suitable nursery sites (including mapping) are ready (only at SS);

Sub-milestone 4.2 (MR4.2): Management and utilization arrangements are discussed and agreement documents are produced including guarding, user fees and operation;

Sub-milestone 4.3 (MR4.3): Required resources are mobilized and farmers are trained;

Sub-milestone 4.4 (MR4.4): Selected nurseries are made operational and started producing required vegetative materials as planned.



Summary

Activities	Milestones	Time required (same for all stages)	Source of Information (Documents need to be available)	Resource use & requirement in %
R4	MR4	Feb 1-Jun 30 (150 days)		14%
R4.1	MR4.1	Feb 1-2 (2 days)	Document showing survey results including location mapping for each nursery	0.075%
R4.2	MR4.2	Feb 3 (1 day)	Agreement documents on management and utilization arrangements and progress report on implementation of agreed utilization arrangements including guarding, user's fees, etc.	0.1%
R4.3	MR4.3	Feb 3-13 (10 days)	Report of mobilized resources and trained farmers	0.075%
R4.4	MR4.4	Feb 14 - Jun 30 (137 days)	Report on amount and type of vegetative materials produced in each nursery on yearly basis	2.75% (2.75%*5=13.75 ¹¹)

Methods of measuring milestones:

All documents in the table above should be made available and what was planned should be checked with what has been achieved. The current management and utilization should also be checked against agreed arrangements. Performance of the nurseries has to be checked against reports. The quality of the current status including all support practices will have to be also carefully assessed using the guideline for quality assessment in Annex 3. Make sure that all nurseries are indicated on the development map.

Remark for ME and PA group:

In the past (even for watersheds far from the nurseries), only few government owned nurseries were the source of vegetative materials for all watersheds. This has resulted in poor adaptation and an overall less survival rate of seedlings. This was also proved to be very expensive undertaking. It was very recently that establishment of small private or project supported nurseries within the watershed does better job in producing enough vegetative materials for the watershed. In some cases when nurseries were run by groups or individuals they serve as a source of additional income, which is desirable. Thus, the surveyor should check nurseries from four angles: i) amount and types of seedling they produce and its suitability to the area; ii) utilization arrangements and its benefits; and iii) types of nurseries and effectiveness of each (communal, group, individual, and or government/project); and iv) key challenges in managing nurseries in relation to the demand. After looking the available documents the surveyor should make a quick visit to each nursery to clearly capture the above mentioned outcomes and discuss with beneficiaries.

¹¹ It is assumed that 3% of the available resource will be used every year to run the nurseries (i.e., for 5 years)

Key Activities

Activity 5 (R5): Rehabilitate gullies using a combination of appropriate technologies (20% in Start-up Stage, 45% in Intermediate Stage, and 35% in Progressive Stage)

Key requirements:

- Catchment area feeding the gulley and level of degradation
- Nature of soil where the gulley is formed
- Available local materials
- Reasons for gulley formation and gulley morphology supported with pictures.

Sub Activities:

Sub-Activity 5.1 (R5.1): Discuss and agree on utilization arrangements for each gulley (preferably individual farmers use half of the gulley adjacent to their plot);

Sub-Activity 5.2 (R5.2): Make quick survey and mobilize required resources such as gabion, cement, iron (if needed) stones, brushwood, sacks, nails, etc.;

Sub-Activity 5.3 (R5.3): Design and construct check dams with the available selected material including gulley reshaping, smaller trenches on each side of the gulley and runoff diversion cutoff drains (if applicable) and plantation;

Key milestones

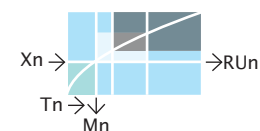
Milestone 5 (MR5): Gullies are rehabilitated and check dams are constructed using combination of appropriate technologies (20% in Start-Up Stage, 45% in Intermediate Stage, and 35% in Progressive Stage)

Sub-milestones:

Sub-milestone 5.1 (MR5.1): Utilization arrangements are discussed and agreement documents are produced;

Sub-milestone 5.2 (MR5.2): Quick survey results are produced and required resources (both local and external) are mobilized on time;

Sub-milestone 5.3 (MR5.3): All check dams are constructed as per the required design including reshaping, trenches on each side, and cutoff drains (if applicable) and planted;



Summary

Activ-ities	Mile-stones	Time required under each Development Stage			Source of Information (Documents need to be available)	Resource use & require-ment in %
		SS	IS	PS		
R5	MR5	Mar 1-31 (31 days)	Apr 1-27 (27 days)	Apr 1-21 (21 days)		5%
R5.1	MR5.1	Mar 1 (1 day)	Apr 1 (1 day)	Apr 1 (0.5 day)	Agreement documents on utilization arrangements	0.25%
R5.2	MR5.2	Mar 2-3 (2 days)	Apr 2-4 (3 days)	Apr 2-3 (2 days)	Document showing survey results including pictures with reference points and report on amount and type of resource mobilized	0.25%
R5.3	MR5.3	Mar 4-31 (28 days)	Apr 5-27 (23 days)	Apr 4-21 (18 days)	Report on type and amount of check dams constructed and other activities on each gulley supported with pictures (before and after)	4.5%

Methods of measuring milestones:

All documents on the table above should be made available and what was planned should be checked with what has been achieved. The current utilization should also be checked against agreed arrangements. Quantity of achievements should also be checked, and this requires minor field survey and transferring of the findings to the field form indicated on Annex 2. The quality of the current status including all support practices will have to be also carefully assessed using the guideline for quality assessment in Annex 3. If there is problem in determining part of the gulley treated from available reports, use GPS or other technologies and make sure that the data is transferred to the development map using GIS and further analysis will be made afterwards. Survey should be supported with pictures exactly on the same location and direction like the original picture.

Remark for ME and PA group:

Very recently it was realized that speed of regeneration of gullies is high when check dams are integrated with other moisture harvesting structures on reshaped side of the gulley following the required quality and technical standards as well as proper reshaping. Thus, the surveyor should check treated gullies from three angles: i) combination of technologies applied and speed of regeneration; ii) utilization arrangements and its on-site benefits; and iii) its downstream effects. After looking the available documents the surveyor should make a quick visit to treated gullies and their adjacent downstream areas to clearly capture the above mentioned outcomes including pictures.

Key Activities

Activity 6 (R6): Construction of Feeder Roads (30% in Start-Up Stage, 50% in Intermediate Stage and 20% in Progressive Stage)

Key requirements:

- Traditional AEZ classified based on rainfall situation
- Nature of rivers, streams, gully and runoff character that the road will cross
- Connectivity and level of use by other communities (current and potential)
- Current and future use and types of transport facilities

Sub Activities:

Sub-Activity 6.1 (R6.1): Undertake careful study about the nature of runoff in streams and rivers the road crosses and possible use load and connectivity with adjacent communities;

Sub-Activity 6.2 (R6.2): Choose suitable standard and conduct survey;

Sub-Activity 6.3 (R6.3): Mobilize required resources (local and external);

Sub-Activity 6.4 (R6.4): Construct the road as per the chosen design and standard.

Key milestones

Milestone 6 (MR6): Community feeder roads are constructed with appropriate design and standard suitable to the area (30% in Start-Up Stage, 50% in Intermediate Stage and 20% in Progressive Stage)

Sub-milestones:

Sub-milestone 6.1 (MR6.1): Study on the nature of runoff and possible use load is finalized to make appropriate design;

Sub-milestone 6.2 (MR6.2): Road design that suits the nature of the area and anticipated use load is completed;

Sub-milestone 6.3 (MR6.3): All resources required for the construction of the road are mobilized;

Sub-milestone 6.4 (MR6.4): Feeder roads are constructed following the design and standard.

Activities	Milestones	Time required under each Development Stage			Source of Information (Documents need to be available)	Resource use & requirement in %
		SS	IS	PS		
R6	MR6	Mar 1-Apr 30 (60 days)	Feb 18-May 30 (100 days)	Mar 1-Apr 20 (40 days)		5.7%
R6.1	MR6.1	Mar 1-2 (2 days)	Feb 18 (1 day)	Mar 1 (1 day)	Study document that captures the nature of runoff in the area, current and possible use load of the road to be constructed and its connectivity to adjacent communities and its implication on the design	0.1%
R6.2	MR6.2	Mar 3-4 (2 days)	Feb 19 (1 day)	Mar 2-3 (2 days)	Document showing survey results and road design including culverts and bridges	0.1%
R6.3	MR6.3	Mar 5-6 (2 days)	Feb 20-21 (2 days)	Mar 4-5 (2 days)	Document showing type and amount of resources mobilized	0.1
R6.4	MR6.4	Mar 7-Apr 30 (54 days)	Feb 22-May 30 (96 days)	Mar 6-Apr 20 (35 days)	Report showing length of road constructed including culverts and bridges	5.4%

Methods of measuring milestones:

All documents on the table above should be made available and what was planned will have to be checked with what has been achieved. Quantity of achievements should also be checked, and this requires minor field survey and transferring the findings to the field form indicated on Annex 2. The quality of the current status including all support practices will have to be also carefully assessed using the guideline for quality assessment in Annex 3. If there is problem in determining the length from available reports, use GPS or other technologies and make sure that the data is transferred to the development plan map using GIS then further analysis is made afterwards.

Remark for ME and PA group:

Very recently we have learned that well designed feeder roads can actually enhance connectivity and also food security. They can also serve as means to diversify production, increase market access and improve the overall development of any watershed. Thus the surveyor should check feeder roads from three angles: i) appropriateness of their design as per the initial study; ii) The quality of the construction and whether it is according to the design, and iii) current level of use and its sufficiency. When necessary, recommendations have to be made for adjustment.

Key Activities

Activity 7 (R7): Develop springs and/or shallow wells for water supply as per the plan using appropriate technologies (40% in Start-Up Stage, 40% in Intermediate Stage and 20% in Progressive Stage)

Key requirements:

- Nature of spring including its flow regime throughout the year and nature of ground water
- Nature of soil, rock formation and vegetation around the spring and shallow well site
- History of the spring and farmer's perception
- Current use arrangements and constraints
- Level of degradation of the catchment feeding the spring or the shallow well

Sub Activities:

Sub-Activity 7.1 (R7.1): Survey and compile all required information for each spring and/or shallow well site including flow patterns, geology, soil type, level of degradation, types of vegetation around and current use load, arrangements and impacts;

Sub-Activity 7.2 (R7.2): Design spring and/or shallow well development scheme fitting the demand and nature of surrounding environment (human only, human, cattle and washing, storage structure if needed, etc.);

Sub-Activity 7.3 (R7.3): Discuss and agree on utilization arrangements for each spring and/or shallow well including guarding, user's fee, operation and maintenance and use of over-flow water;

Sub-Activity 7.4 (R7.4): Develop the spring and/or shallow well as per the agreed design and scheme;

Sub-Activity 7.5 (R7.5): Train selected community members on operation, maintenance and management and provide essential equipment.

Key milestones

Milestone 7 (MR7): Springs and shallow wells are developed as per the design and using appropriate technologies (40% in Start-Up Stage, 40% in Intermediate Stage and 20% in Progressive Stage)

Sub-milestones:

Sub-milestone 7.1 (MR7.1): Survey results are compiled and analyzed to guide proper design of springs and shallow wells;

Sub-milestone 7.2 (MR7.2): Design of spring and shallow well development schemes finalized for each spring and shallow well;

Sub-milestone 7.3 (MR7.3): Utilization arrangements are discussed and agreement documents are produced including guarding, user fees and operation and maintenance;

Sub-milestone 7.4 (MR7.4): Development of springs and/or shallow wells is finalized as per their design;

Sub-milestone 7.5 (MR7.5): Selected farmers are trained on operation and maintenance and essential equipment are provided.

Summary

Activities	Milestones	Time required under each Development Stage			Source of Information (Documents need to be available)	Resource use & requirement in %
		SS	IS	PS		
R7	MR7	Apr 1-18 (18 days)	Apr 12-30 (18 days)	Apr 15-30 (15 days)		3%
R7.1	MR7.1	Apr 1-3 (3 days)	Apr 12-13 (2 days)	Apr 15-16 (2 days)	–Document showing survey results and proposed design requirements for each spring and shallow well	0.25%
R7.2	MR7.2	Apr 4-5 (2 days)	Apr 14-15 (2 days)	Apr 17-18 (2 days)	–Document showing design schemes for each spring and shallow well	0.25%
R7.3	MR7.3	Apr 5 (0.5 day)	Apr 16 (1 day)	Apr 18 (0.5 day)	–Agreement documents on utilization arrangements and progress report on implementation of agreed utilization arrangements including guarding, user's fees, etc.	0.1%
R7.4	MR7.4	Apr 6-17 (12 days)	Apr 17-29 (12 days)	Apr 19-29 (10 days)	–Report on developed springs and shallow wells including their use and challenges	2%
R7.5	MR7.5	Apr 18 (1 day)	Apr 30 (1 day)	Apr 30 (1 day)	–Report on trained farmers in handling operation and maintenance and available essential equipment for this purpose	0.4%

Methods of measuring milestones:

All documents in the table above should be made available and what was planned should be checked with what has been achieved. The current management and utilization should also be checked against agreed arrangements. Quality of achievements should also be checked and this requires minor field survey and transferring of the findings to the field form on Annex 2. The quality of the current status including all support practices will have to be also carefully assessed using the guideline for quality assessment in Annex 3. Make sure that all developed springs and shallow wells are indicated on the development plan map.

Remark for ME and PA group:

Over the years we have learned that proper survey prior the design, proper discussion and agreeing on utilization arrangements as well as training of community members on operation and maintenance are key actions for sustainability of developed springs and shallow wells. Proper conservation of the watershed that feeds the springs and shallow wells proved in improving water yield of springs and shallow wells. Thus, the surveyor should check the following five issues: i) Appropriateness of the design, ii) utilization arrangements and its benefits, iii) level of treatment of the watershed, iv) trends of water yield both for springs and wells, and v) community concerns on sustainable utilization of developed springs and shallow wells. After checking the available documents the surveyor should make a quick visit to developed springs and wells and discuss with beneficiaries.

Key Activities

Activity 8 (R8): Establish woodlots, make enrichment plantation on area closure sites, and make stabilization plantations on gullies and along SWC structures¹² (20% in Start-Up Stage, 30% in Intermediate Stage, 25% in Progressive Stage, 15% in Transformation Stage and 10% in Maturity Stage)

Key requirements:

- AEZ
- Suitable tree, forage and horticultural species for the area
- Soil type, depth and its soil moisture holding capacity
- Rainfall situation of the area

Sub Activities:

Sub-Activity 8.1 (R8.1): Prepare plantation sites with appropriate moisture conservation structures¹³;

Sub-Activity 8.2 (R8.2): Discuss and agree on management, protection and utilization modalities for all plantation sites including communal woodlots, closed areas, gullies and plantations on individual plots including those on SWC measures;

Sub-Activity 8.3 (R8.3): Plant seedlings on prepared sites during the onset of rainfall and manage sites to improve survival rate;

Sub-Activity 8.4 (R8.4): Closely monitor survival rate, correct mistakes and organize enrichment plantation. This activity will be the first activity afterwards (after SS).

Key milestones

Milestone 8 (MR8): Woodlots are established and plantations are conducted on appropriate sites including in area closure sites, gullies and on SWC measures (20% in Start-Up Stage, 30% in Intermediate Stage, 25% in Progressive Stage, 15% in Transformation Stage and 10% in Maturity Stage)

Sub-milestones:

Sub-milestone 8.1 (MR8.1): Management, protection and utilization arrangements are discussed and agreement documents produced;

Sub-milestone 8.2 (MR8.2): Plantation sites are prepared with appropriate moisture conservation structures suitable to the area;

Sub-milestone 8.3 (MR8.3): Plantations are implemented on all prepared sites and properly managed;

Sub-milestone 8.4 (MR8.4): Survival rate are monitored, shortcomings are identified and enrichment plantations are conducted. This activity will be the first activity afterwards (after SS).

¹² This excludes all forms of plantation related to homestead development

¹³ No matter how good the rainfall is, it is learned that the survival rate of seedlings is high when seedlings are planted using suitable moisture conservation structure

Summary

Activities	Milestones	Time required under each Development Stage			Source of Information (Documents need to be available)	Resource use & require-ment in %
		SS	IS	PS, TS & MS		
R8	MR8	Jul 1-15 (15 days)	Jul 1-18 (18 days)	Jul 1-15 (15 days)		3%
R8.1	MR8.1	Jul 1-2 (2 days)	Jul 3 (0.5 day)	Jul 2 (1 day)	Agreement documents on management, protection and utilization arrangements and progress report on implementation of agreed utilization arrangements	0.1%
R8.2	MR8.2	Jul 3-10 (8 days)	Jul 4-16 (13 days)	Jul 3-10 (8 days)	Report on amount and type of moisture conservation measures prepared for the different plantation sites	1.5%
R8.3	MR8.3	Jul 11-15 (5 days)	Jul 17-18 (2 days)	Jul 11-15 (5 days)	Report on amount and type of vegetative materials planted and when including its management on different niches.	0.9%
R8.4	MR8.4		May 1-2 (2 days)	May 1 (1 day)	Report on survival rate, major shortcomings and amount and type of enrichment plantation with corrected actions (Note: this activity only starts at intermediate stage) and will be the first activity afterwards	0.5%

Methods of measuring milestones:

All documents in the table above should be made available and what was planned should be checked with what has been achieved. The current management, protection and utilization of plantation sites should also be checked against agreed arrangements. Performance of plantation sites (survival, growth, management, etc) has to be checked against reports. The quality of the current status including all support practices will have to be also carefully assessed using the guideline for quality assessment in Annex 3. Make sure that all plantations are indicated on the development plan map and pictures taken during the survey.

Remark for ME and PA group:

In the past it was only plantation pits that were used to plant seedlings irrespective of moisture condition, soil type and depth. This has, of course, resulted in poor survival rate of seedlings in many parts of the country. It was very recently that plantation supported with suitable moisture conservation structures and putting the seedling on the right place considering the rainfall situation improves survival rate of seedlings provided that there is good protection as well. Thus, the surveyor should check plantation sites from four angles: i) amount and types of seedlings planted on each site, ii) amount and type of moisture conservation structures constructed in each site; iii) utilization arrangements and its benefits; and iv) key challenges in improving survival rate of seedlings. After looking the available documents the surveyor should make a quick visit to each plantation site to clearly capture the above mentioned outcomes and discuss with beneficiaries.

Phase III: Economic Development Phase



Key Activities

Activity 1 (ED1): Introduce improved livestock production and management system (for all stages, SS up to MS)

Key requirements:

- Knowledge about current management of livestock and culture in the watershed
- Knowledge about linkage of livestock to farming system in the watershed
- Knowledge about major animal health problems, forage availability and market outlets
- AEZ and suitability for livestock production

Sub Activities:

Sub-Activity 1.1 (ED1.1) As per the agreed bylaws facilitate the implementation of zero-grazing with appropriate feeding shade, feeding troughs and watering facilities at household level;

Sub-Activity 1.2 (ED1.2): As per the assessment related to livestock health problems, facilitate actions to address animal health problems including establishment of community based animal health service (CAHS);

Sub-Activity 1.3 (ED1.3): Introduce improved livestock management system such as AI, introduction of improved breeds, limit livestock size, etc;

Sub-Activity 1.4 (ED1.4): Facilitate improved forage production on all available niches such as around homesteads, farm boundaries, closed areas, gullies, on farm terraces, etc. and link it to improved feed management;

Sub-Activity 1.5 (ED1.5): Demonstrate and scale-up appropriate farm technologies that help substitute animal labour in the farming system, forage processing and product management

Sub-Activity 1.6 (ED1.6): Facilitate market linkages and establish market outlets (including organizing farmers for marketing) for livestock and livestock products

Sub-Activity 1.7 (ED1.7): Assess potential feed sources and design feed collections and storage systems, prepare simple guideline and communicate to land users and DAs;

Note

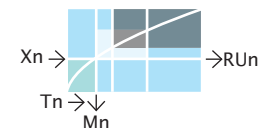
Some feed collection and management is expected to be implemented on December during the preparatory phase at the beginning of the project

Key milestones

Milestone 1 (MED1): Improved livestock management and production system suitable to the area developed and implemented (for all stages, SS up to MS)

Sub-milestones:

Sub-milestone 1.1 (MED1.1): Zero grazing is implemented as per the agreed bylaws and technical backstopping on shading, feed troughs and watering system provided and implemented;



Sub-milestone 1.2 (MED1.2): Comprehensive livestock health improving actions taken and if appropriate community based animal health service (CAHS) established and training provided;

Sub-milestone 1.3 (MED1.3): Improved livestock management system such as AI, introduction of improved breeds, and others introduced;

Sub-milestone 1.4 (MED1.4): Improved forage production on all available niches such as around homesteads, farm boundaries, closed areas, gullies, on farm terraces, etc., implemented and linked to improved feed management practices;

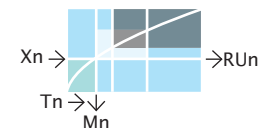
Sub-milestone 1.5 (MED1.5): Appropriate farm technologies that help substitute animal labour in the farming system, forage processing and product management demonstrated and scaled-up;

Sub-milestone 1.6 (MED1.6): Market linkages and outlets (including organizing farmers for marketing) for livestock and livestock products established and implemented;

Sub-milestone 1.7 (MED1.7): Potential feed sources are assessed, guideline on feed collection and storage facilities designed and training provided to farmers and DAs.

Summary

Activities	Milestones	Time required under each Development Stage		Source of Information (Documents need to be available)	Resource use & requirement in %
		(SS)	(IS-MS)		
ED1	MED1	Feb 1-Dec 31 (334 days)	Jan 1-Dec 31 (365 days)		4.75%
ED1.1	MED1.1	Feb 1-Dec 31 (334 days)	Jan 1-Dec 31 (365 days)	Agreed bylaws on zero grazing, design on shade, feeding trough and watering system, and number of households applied the design, reports on defaulters and actions taken	0.5%
ED1.2	MED1.2	Mar 1-May 31 (92 days)	Jan 1-Dec 31 (365 days)	Report on animal health treatments, functionality of CAHS and benefits, training provided and training materials	0.25%
ED1.3	MED1.3	May 1-Dec 31 (215 days)	Jan 1-Dec 31 (365 days)	Report on number of AI given, improved breeds by type introduced, number of beneficiaries and benefits, challenges encountered	2.5%
ED1.4	MED1.4	June 1-Dec 31 (184 days)	Jan 1-Dec 31 (365 days)	Report of types of improved forage species introduced, performance, utilization arrangement document, amount of biomass harvested, and linked feed management practices	0.25%
ED1.5	MED1.5	Oct 1-Dec 31 (92 days)	Jan 1-Dec 31 (365 days)	Type and amount of improved farm technologies introduced and report on use and challenges, training materials, farmers opinions	0.5%
ED1.6	MED1.6	Oct 1-Dec 31 (92 days)	Jan 1-Dec 31 (365 days)	Report on market linkages created with market outlets, types of product and organizational arrangements including numbers of beneficiaries and income, value addition efforts and technologies	0.5%
ED1.7	MED1.7	Nov 1-Dec 31 (62 days)	Nov 1-Dec 31 (62 days)	Report on feed packages linked to local and introduced forage sources, packaging guidelines, training materials and amount trained	0.25%



Methods of measuring milestones:

All documents in the table above should be made available and what was planned should be checked against the achievements. The surveyor should check if the bylaws on zero grazing is respected or not through discussion and observations including those following standard zero-grazing packages such as shading, feeding troughs, watering and some of the challenges associated to it. The performance of new forage species their linkage with feeding packages, utilization arrangements and introduced technologies should be checked. It is also important to check how the improved livestock management including AI service and animal health services are performing. Market linkages created, outlets, organization arrangements and benefits of local communities need to be also checked. It is also important to discuss with beneficiaries on each of the components to capture their perception, benefits, challenges and recommendations.

Remark for ME and PA group:

Although livestock plays vital role in the rural livelihoods, it has not been integrated in overall watershed development planning or often sidelined. Because of its poor integration in the planning process, it was the major cause of unsustainability of many of past watershed development efforts. The benefit the farmer could get from its integration is another loss. Thus, the surveyor should check the livestock development from four angles: i) the implementation of the zero-grazing bylaws, its packages and challenges associated to it including perception of communities; ii) the performance of introduced improved livestock management practices and the perception of farmers, iii) the performance of forage production efforts on all niches, utilization arrangements and its integration with the feed package and their perception; and iv) how the farmers are coping with the new market linkages and areas that need improvement. The surveyor is advised to conduct sample field survey to check each of the above components and should discuss with beneficiaries.

Key Activities

Activity 2 (ED2): Design and implement homestead development initiatives with packages suitable to the area – this include but not limited to high value horticultural development in and around homesteads (home gardens and fruit trees), bee keeping, poultry production, high value forage development, small scale fattening, small scale dairy, production of small ruminants, compost making, use of fuel saving stove, revolving fund, water development, etc. (10% in Start-Up Stage, 30% in Intermediate Stage, 25% in Progressive Stage, 25% in Transformation Stage and 10% in Maturity Stage)

Key requirements:

- AEZ
- Suitable horticultural species for the area and their market demand
- Market availability for all products and value addition requirements
- Skill upgrading requirements

Sub Activities:

Sub-Activity 2.1 (ED2.1): Identify potential homesteads for the different interventions as indicated in the development plan (consider sequential order of activities such as forage development should come first before fattening but some activities can be for all such as compost making);

Sub-Activity 2.2 (ED2.2): Make necessary preparation including training of different groups, establishment of revolving fund, etc., and mobilization of required resources;

Sub-Activity 2.3 (ED2.3): Implement the identified homestead interventions and plan for up scaling;

Sub-Activity 2.4 (ED2.4): Identify marketing outlets, make arrangements and organize marketing groups;

Sub-Activity 2.5 (ED2.5): Introduce value addition technologies for the different homestead development interventions and strengthen the marketing linkage.

Key milestones

Milestone 2 (MED2): Homestead development interventions are implemented and livelihoods are improved (10% in Start-Up Stage, 30% in Intermediate Stage, 25% in Progressive Stage, 25% in Transformation Stage and 10% in Maturity Stage)

Sub-milestones:

Sub-milestone 2.1 (MED2.1): Potential homesteads are identified for various homestead development packages;

Sub-milestone 2.2 (MED2.2): Farmers are trained, revolving fund established (if applicable) and the required resources are mobilized;

Sub-milestone 2.3 (MED2.3): The identified homestead interventions are implemented and periodic up-scaling is continued;

Sub-milestone 2.4 (MED2.4): Market outlets are identified, arrangements are made and marketing groups are formed and made functional;

Sub-milestone 2.5 (MED2.5): Value addition technologies are introduced, values are added on products and market linkages are strengthened.

Summary

Activities	Milestones	Time required under each Development Stage		Source of Information (Documents need to be available)	Resource use & requirement in %
		SS to TS	MS		
ED2	MED2	Feb 1-Dec 31 (305 days) ¹⁶	Jan 1-Sep 30 (271 days)		20%
ED2.1	MED2.1	Feb 1-15 (15 days)	Jan 1-15 (15 days)	Document indicating homesteads selected and their character and detail plans	0.25%
ED2.2	MED2.2	Feb 16-31 (16 days)	Jan 16-31 (16 days)	Copy of training material, number of trainees for different interventions and reports assessing effectiveness of the training including revolving fund amount and mechanisms	1.25%
ED2.3	MED2.3	March 1-Nov 30 (211 days)	Feb 1-Sep 30 (242 days)	Report on amount and type of homestead interventions implemented and their impact	11.5%
ED2.4	MED2.4	Aug 1-Sep 30 (61 days)	Apr 1-Aug 31 (153 days)	Report on market outlets, arrangements made and marketing groups formed and their effectiveness	2%
ED2.5	MED2.5	Oct 1-Dec 31 (92 days)	May 1-Aug 31 (123 days)	Report on type and amount of introduced value addition technologies, their use and extra revenue gained as a result	5%

Methods of measuring milestones:

All documents in the table above should be made available and what was planned should be checked against the achievements. The performances of homesteads and market linkages established have to be checked against the original plan. Any modification made has to be recorded together with major reasons. Quality and quantity of interventions has to be checked (at least those on the ground) and this requires minor field survey and transferring of the findings to the field form indicated on Annex 2. The quality of the current status including all support practices will have to be also carefully assessed using the guideline for quality assessment in Annex 3. Make sure selected homesteads are indicated on the development map (if not difficult) and pictures taken.

Remark for ME and PA group:

In the past focus was given only to rehabilitation of watersheds and less was done on activities that enhance income at household level. This was proved wrong over time as rehabilitation intervention alone didn't enhance income within short time and as a result many watershed development interventions fallback to previous situations. Over the years we have learned that any watershed development intervention should have economic development interventions as a major component of the watershed development plan and this was best organized

¹⁶ The dates indicated here are arbitrary as some of homestead development interventions can be yearlong and it is a continuous process every year, while implementing ongoing activities continue planning for new homesteads.

in the form of homestead development intervention. We have seen that many households graduated from food insecurity through the combination of rehabilitation and economic development interventions. Thus, the surveyor should check homestead development interventions from five angles: i) amount and type of homestead interventions; ii) effectiveness of each intervention in enhancing income at household level and empowering women; iii) performance of the market linkage created and marketing groups; iv) the use of value addition technologies and revenues created as a result; and v) the need for further specialization and diversification. After looking the available documents the surveyor should make a quick visit to major homestead development intervention sites to clearly capture the above mentioned outcomes and discuss with beneficiaries.

Note

All the sub-activities in this activity will be slightly modified in each stage as the Homestead Development will improve so also the requirement. The user can adjust them as per the plan and site-specific requirements in each stage.

Key Activities

Activity 3 (ED3): Construct shallow wells and roof water harvesting mainly for small-scale irrigation as part of homestead development initiative (28% in Start-Up Stage, 52% in Intermediate, 20% in Progressive Stage, and 10% in Transformation Stage)

Key requirements:

- Nature of ground water
- Nature of soil and parent material
- Nature of catchment area including level of degradation and its linkage with foot slope areas and nature of roof including its size
- Local knowledge and experience about potential shallow well sites

Sub Activities:

Sub-Activity 3.1 (ED3.1): Conduct preliminary survey to locate potential shallow well sites using a combination of modern and local knowledge and site for roof water storage;

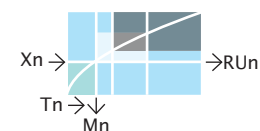
Sub-Activity 3.2 (ED3.2): Conduct a detail survey on selected sites including ground water potential, soil type, parent material and re-chargeability potential of the area and design for roof water storage;

Sub-Activity 3.3 (ED3.3): Construct shallow wells and roof water system on selected sites;

Sub-Activity 3.4 (ED3.4): Discuss and fix management and utilization modalities for shallow wells meant for communal or group use;

Key milestones

Milestone 3 (MED3): Shallow wells are constructed and used on selected potential sites (28% in Start-Up Stage, 52% in Intermediate, 20% in Progressive Stage, and 10% in Transformation Stage)



Sub-milestones:

Sub-milestone 3.1 (MED3.1): Preliminary survey was conducted and potential shallow well sites and roof water storage stites are selected for further investigation;

Sub-milestone 3.2 (MED3.2): Detail survey was conducted on selected sites and final potential sites are selected including design for storage systems;

Sub-milestone 3.3 (MED3.3): Shallow wells and roof water storage systems are constructed on selected sites;

Sub-milestone 3.4 (MED3.4): Management and utilization modalities are developed in a participatory process.

Summary

Activ-ities	Mile-stones	Time required under each Development Stage			Source of Information (Documents need to be available)	Resource use & require-ment in %
		SS	IS and PS	TS		
ED3	MED3	Feb 1-19	Feb 1-Mar 5 (35 days)	Feb 1-15 (15 days)		3%
ED3.1	MED3.1	Feb 1-2 (2 days)	Feb 1-2 (2 days)	Feb 1 (1 day)	Preliminary survey document including criteria used (local and modern knowledge) to select potential shallow well and roof water sites.	0.1%
ED3.2	MED3.2	Feb 3-4 (2 days)	Feb 3-5 (3 days)	Feb 1 (1 day)	Detail survey document for each potential site and list of finally selected shallow well sites including design for roof water storage	0.3%
ED3.3	MED3.3	Feb 5-18 (14 days)	Feb 6-Mar 4 (30 days)	Feb 2-14 (13 days)	Report on number of shallow well sites and roof water system constructed and their benefit	2.3%
ED3.4	MED3.4	Feb 19 (1 day)	Mar 5 (1 day)	Feb 15 (1 day)	Document showing management and utilization modalities for communal and group shallow well and roof water sites	0.3%

Methods of measuring milestones:

All documents in the table above should be made available and what was planned should be checked against the achievements. The performance of each shallow well and roof water systems utilizations arrangements needs to be checked against the original plan. Quality and quantity of interventions has to be checked and this requires minor field survey and transferring of the findings to the field form indicated on Annex 2. The surveyor should also check water use efficiency of each shallow well and roof water collection system as part of quality assessment. The quality of the current status including all support practices will have to be also carefully assessed using the guideline for quality assessment in Annex 3. Make sure that each shallow well and roof water collection sites are indicated on the development plan map.

Remark for ME and PA group:

Constructing shallow wells and roof water harvesting system as source of water for drinking and irrigation purposes within a watershed development context were a recent undertaking mainly driven by farmers experience in semi-arid areas of the country. It proved to be a good source of water have helped many farmers to improve their food security substantially. Thus, the surveyor should check shallow well sites and roof water collection systems from three angles: i) number of shallow well and roof water collection systems constructed and their current status; ii) effectiveness of each set-up in providing the required water and enhancing income at household level; and iii) management and utilization of each scheme particularly the water use efficiency. After looking the available documents the surveyor should make a quick visit to each scheme (if too many then random sampling technique should be applied) to capture the above mentioned outcomes and discuss with beneficiaries.

Key Activities

Activity 4 (ED4): Construct irrigation diversions and canals and use them for crop production (20% in Start-Up Stage, 50% in Intermediate Stage, 20% in Progressive Stage and 10% in Transformation Stage)

Key requirements:

- Nature of stream including volume of flow during dry season
- If possible peak runoff volume of the spring
- Nature of catchment area including level of degradation and type of sediment transported by the peak runoff
- Nature of soil for canal routes

Sub Activities:

Sub-Activity 4.1 (ED4.1): Conduct appropriate survey of the catchment area to understand the nature, level of degradation and select suitable site for diversion;

Sub-Activity 4.2 (ED4.2): Design diversion dams and canals;

Sub-Activity 4.3 (ED4.3): Mobilize required resources (local and external) and train farmers on irrigation agronomy and agricultural water management;

Sub-Activity 4.4 (ED4.4): Discuss and fix management and utilization modalities;

Sub-Activity 4.5 (ED4.5): Construct diversion dams and canals as per the approved design and start production;

Sub-Activity 4.6 (ED4.6): Introduce appropriate technologies for managing perishable products.

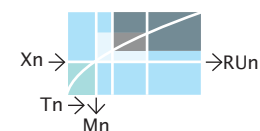
Key milestones

Milestone 4 (MED4): Irrigation diversion and canals are constructed as per their design and serve the purpose they are built for (20% in Start-Up Stage, 50% in Intermediate Stage, 20% in Progressive Stage and 10% in Transformation Stage)

Sub-milestones:

Sub-milestone 4.1 (MED4.1): The catchment area is properly surveyed and suitable sites are selected for diversions;

Sub-milestone 4.2 (MED4.2): The technical design for each diversion and ca-



nals are completed;

Sub-milestone 4.3 (MED4.3): Required resources are mobilized and farmers are trained on irrigation agronomy and agricultural water management;

Sub-milestone 4.4 (MED4.4): Management and utilization modalities are developed in a participatory process.

Sub-milestone 4.5 (MED4.5): Diversion dams and canals are constructed as per the approved design and production started;

Sub-milestone 4.6 (MED4.6): Appropriate technologies are introduced to better manage perishable products.

Summary

Activ- ities	Mile- stones	Time required under each Development Stage				Source of Information (Documents need to be available)	Resource use & require- ment in %
		SS	IS	PS	TS		
ED4	MED4	Feb 1- Mar 16 (44 days)	Jan 1-Apr 21 (100 days)	Jan 1-Feb14 (44 days)	Jan 1- 22 (22 days)		5%
ED4.1	MED4.1	Feb 1-2 (2 days)	Jan 1-5 (5 days)	Jan 1-4 (4 days)	Jan 1-2 (2 days)	Survey document including location of each diversion site and canals on development map	0.3%
ED4.2	MED4.2	Feb 2-3 (2 days)	Jan 6-11 (6 days)	Jan 5-10 (6 days)	Jan 3-5 (3 days)	Document showing the design for each diversion and canal	0.5%
ED4.3	MED4.3	Feb 4-6 (3 days)	Jan 11- Jan 20 (10 days)	Jan 12- Jan 16 (5 days)	Jan 6-10 (5 days)	Report on type and amount of resources mobilized, report of amount of farmers trained and copy of training materials	0.5%
ED4.4	MED4.4	Feb 7 (0.5 days)	Jan 21-22 (2 days)	Jan 17 (1 day)	Jan 11 (0.5 day)	Document showing manage- ment and utilization modalities for each irrigation scheme	0.1%
ED4.5	MED4.5	Feb 8- Mar 15 (35 days)	Jan 23- Apr 17 (87 days)	Jan 23- Apr 13 (28 days)	Jan 12-21 (10 days)	Report on irrigation scheme constructed and their use for prodctuion and amout produced	3%
ED4.6	MED4.6	Mar 16 (1 day)	Apr 17-21 (5 days)	Feb 14 (1 day)	Jan 22 (1 day)	Report of type and amount of appropriate technologies introduced and their impacts	0.6%

Methods of measuring milestones:

All documents in the table above should be made available and what was planned should be checked against the achievements. The performance of each irrigation scheme and utilizations arrangements needs to be checked against the original plan. Quality and quantity of interventions has to be checked and this requires minor field survey and transferring of the findings to the field form indicated on Annex 2. The surveyor should also check water use efficiency of each scheme as part of quality assessment. The quality of the current status including all support practices will have to be also carefully assessed using the guideline for quality assessment in Annex 3. Make sure that each irrigation scheme is indicated on the development plan map.

Remark for ME and PA group:

Irrigation was least considered as part of watershed development effort in the past. But small scale community irrigation schemes developed as part of the watershed development scheme shows significant impact on livelihoods and sustainability of the watershed development efforts. Allocation of the resource and water use efficiency was seen as a major challenge in many schemes. Thus, the surveyor should check irrigation schemes from three angles: i) number of schemes constructed and their current status; ii) effectiveness of each scheme in providing the required water and enhancing income at household level; and iii) management and utilization of each scheme particularly the water use efficiency. After looking the available documents the surveyor should make a quick visit to each scheme to capture the above mentioned outcomes and discuss with beneficiaries.

Key Activities

Activity 5 (ED5): Introduce improved crop production and management system (for all stages, SS up to MS)

Key requirements:

- Knowledge about current management of crop production and culture in the watershed
- Knowledge about major crop production related challenges such as pest and disease, genetic limitation and market outlets
- AEZ and suitability for crop production

Sub Activities:

Sub-Activity 5.1 (ED5.1): Assess major crops produced, their potential and limitations such as genetic potential, pests and disease, weeds, machinery requirements, etc;

Sub-Activity 5.2 (ED5.2): Introduce improved crop production systems including demonstration and pre-scale-up of improved crop varieties, farm machineries, agronomic practices supported with simple guideline for each;

Sub-Activity 5.3 (ED5.3): Organize and train farmers on the improved crop production system including operation and maintenance of introduced improved farm machineries;

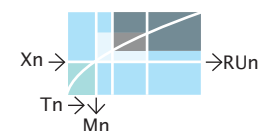
Sub-Activity 5.4 (ED5.4): Facilitate market linkages and establish market outlets (including organizing farmers for marketing) for their crop products.

Key milestones

Milestone 5 (MED5): Improved crop production and management system suitable to the area developed and implemented (for all stages, SS up to MS)

Sub-milestones:

Sub-milestone 5.1 (MED5.1): Major crops produced, their potential and limitations such as genetic potential, pests and disease, weeds, machinery requirements, etc. are assessed comprehensive improved crop production plan developed;



Sub-milestone 5.2 (MED5.2): In collaboration with research, improved crop production systems including demonstration and pre-scale-up of improved crop varieties, farm machineries, agronomic practices supported with simple guideline for each are introduced and promoted;

Sub-milestone 5.3 (MED5.3): Farmers organized and trained on the improved crop production system including operation and maintenance of introduced improved farm machineries;

Sub-milestone 5.4 (MED5.4): Market linkages and outlets (including organizing farmers for marketing) for their crop products is established and made functional.

Summary

Activities	Milestones	Time required under each Development Stage		Source of Information (Documents need to be available)	Resource use & requirement in %
		(SS)	(IS-MS)		
ED5	MED5	Mar 1-Dec 31 (306 days)	Jan 1-Dec 31 (365 days)		3.5%
ED5.1	MED5.1	Mar 1-31 (31 days)	Mar 1-31 (31 days)	Document that shows crop production related changes, potentials and proposed improved production system and report on actions taken	0.5%
ED5.2	MED5.2	Apr 1-Dec 31 (275 days)	Jan 1-Dec 31 (365 days)	Report on implementation of the proposed improved crop production system, machineries introduced and their performance	0.25%
ED5.3	MED5.3	May 1-20 (20days)	May 1-20 (20days)	Report on number of farmers trained, modules (training materials), organizations formed and their function	2.5%
ED5.4	MED5.4	Nov 1-Dec 31 (62 days)	Nov 1-Dec 31 (62 days)	Report on types of market linkages created, outlets and major crops linked to this. Include also report on farmers organization created to address specific commodity marketing and their function	0.25%

Methods of measuring milestones:

All documents in the table above should be made available and what was planned should be checked against the achievements. The surveyor should check if the proposed improved crop production systems are working including the performance of improved crop varieties and farm machineries, perception of farmers and challenges they face. Market linkages created, outlets, organization arrangements and benefits of local communities need to be also checked. The training modules and knowledge gained by farmers should be checked through face to face discussion with trained farmers. It is also important to discuss with beneficiaries on each of the components to capture their perception, benefits, challenges and recommendations.

Remark for ME and PA group:

In the past watershed development planning used to focus only on natural resources management and improving crop production was not part of the plan. Because of this the benefit the farmers got from watershed development efforts were rather small and long-term. That also affected sustainability of many of the watershed development efforts. Thus, the surveyor should check the crop production effort from three angles: i) the implementation of improved crop production packages and their benefits including farmers perception and challenges particularly related to farm machineries; ii) the knowledge gained by farmers through training modules; and iii) how the farmers are coping with the new market linkages and areas that need improvement.

Key Activities

Activity 6 (ED6): Construct ponds and SS-dams for various purposes mainly for small scale irrigation (25% in Start-Up Stage, 40% in Intermediate Stage, 25% in Progressive Stage and 10% in Transformation Stage)

Key requirements:

- Purpose of each pond and SS-dam
- Rainfall-runoff nature of the area
- Nature of catchment area for each pond and SS-dam including size, topography, level of degradation and soil type
- Potential evaporation losses for the area

Sub Activities:

Sub-Activity 6.1 (ED6.1): Conduct appropriate survey of the catchment area and select suitable site for each pond and SS-dam;

Sub-Activity 6.2 (ED6.2): Design each pond and SS-dam fitting their planned use and the nature of selected catchment area;

Sub-Activity 6.3 (ED6.3): Construct ponds and SS-dams as per their design;

Sub-Activity 6.4 (ED6.4): For communal or group ponds, discuss and fix management and utilization modalities.

Key milestones:

Milestone 6 (MED6): Ponds and SS-dams are constructed and serve the purpose they are built for (25% in Start-Up Stage, 40 in Intermediate Stage, 25% in Progressive Stage and 10% in Transformation Stage)

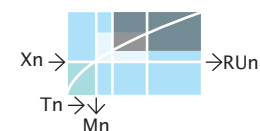
Sub-milestones:

Sub-Milestone 6.1 (MED6.1): The catchment area is properly surveyed and appropriate sites are selected for each pond and SS-dam;

Sub-Milestone 6.2 (MED6.2): The design for each pond and SS-dam fitting their purpose and nature of their catchment area is completed;

Sub-Milestone 6.3 (MED6.3): Following the design and construction of ponds and SS-dams are completed;

Sub-Milestone 6.4 (MED6.4): For communal and group ponds management and utilization modalities are developed in a participatory process.



Summary

Activities	Milestones	Time required under each Development Stage				Source of Information (Documents need to be available)	Resource use & requirement in %
		SS	IS	PS	TS		
ED6	MED6	Apr 1-May 30 (60 days)	Apr 1-Jun 23 (84 days)	Apr 1-May 23 (53 days)	Apr 1-Apr 21 (21 days)		5.15%
ED6.1	MED6.1	Apr 1-2 (2 days)	Apr 1-3 (3 days)	Apr 1-2 (2 days)	Apr 1-2 (2 days)	Survey document including location of each pond and SS-dam on development plan map	0.5%
ED6.2	MED6.2	Apr 3-4 (2 days)	Apr 4-6 (3 days)	Apr 3-5 (3 days)	Apr 3-4 (2 days)	Document showing the design for each pond and SS-dam	0.25%
ED6.3	MED6.3	Apr 5-May 29 (55 days)	Apr 7-Jun 22 (77 days)	Apr 6-May 22 (47 days)	Apr 5-20 (16 days)	Report on amount and type of ponds constructed and their impact	4.15%
ED6.4	MED6.4	May 30 (1 day)	Apr 23 (1 day)	May 23 (1 day)	Apr 21 (1 day)	Document showing management and utilization modalities for communal and group ponds and SS-dam	0.25%

Methods of measuring milestones:

All documents in the table above should be made available and what was planned should be checked against the achievements. The performance of each pond and SS-dam utilizations arrangements need to be checked against the original plan. Quality and quantity of interventions has to be checked and this requires minor field survey and transferring of the findings to the field form indicated on Annex 2. The quality of the current status including all support practices will have to be also carefully assessed using the guideline for quality assessment in Annex 3. Make sure that each pond and SS-dam is indicated on the development map.

Remark for ME and PA group:

In the past attention was given to safely drain excess runoff from the watershed. Over time it was learned that storing excess runoff can be beneficial for multiple purposes such as for drinking (human and livestock, for small scale irrigation and for recharging the ground water). However, matching the storage capacity with that of the intended use was a challenge as there was very little experience in the past. Often there is too much expectation from small ponds. Thus, the surveyor should check ponds and SS-dams from three angles: i) number and type of ponds constructed as per their design; ii) effectiveness of each scheme in storing the required water and enhancing income at household level; and iii) management and utilization of each scheme. After looking the available documents the surveyor should make a quick visit to each scheme to capture the above mentioned outcomes and discuss with beneficiaries.

Key Activities

Activity 7 (ED7): Establish key community service facilities as per the development plan such as community water supply (human and livestock), flour mill, storage facilities (such as diffused potato light store, bridges, market places, etc. (20% in SS, 40% in IS, 20% in PS, 10% in TS and 10% in MS)

Key requirements:

- Knowledge the development plan and recommended service facilities
- Knowledge about past experiences (positive and negative) about management and sustainability of community service facilities

Sub Activities:

Sub-Activity 7.1 (ED7.1): Critically review the need for community service facilities and developed separate document including mechanism of implementation such as cost sharing arrangements, involvement of other NGOs, sector plans (priority setting) including timing;

Sub-Activity 7.2 (ED7.2): Identify sites as per action plan, survey and develop design documents and agree on modality of use, operational and maintenance including cost sharing arrangements with communities;

Sub-Activity 7.3 (ED7.3): Establish community service facilities as per their design and make them functional.

Sub-Activity 7.4 (ED7.3): Together with the direct public office conduct regular supervision and provide hands of technical backstopping on operation maintenance

Key milestones

Milestone 7 (MED7): Community service facilities are established as per the development plan and needs assessment document and made functional (20% in SS, 40% in IS, 20% in PS, 10% in TS and 10% in MS)

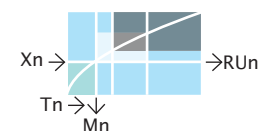
Sub-milestones:

Sub-milestone 7.1 (MED7.1): The needs for community service facilities are critically reviewed and separate document developed including mechanism of implementation such as cost sharing arrangements, involvement of other NGOs, sector plans (priority setting) including timing;

Sub-milestone 7.2 (MED7.2): Implementation sites identified following the action plan, survey and design documents developed and agreement reached on modality of use, operational and maintenance including cost sharing arrangements with communities;

Sub-milestone 7.3 (MED7.3): Community service facilities are established as per their design, agreed time plan and made functional.

Sub-Milestone 7.4 (MED7.4): Regular supervision and hands on technical back-stopping on operation maintenance is provided together with the public office which has direct link to each of community facilities.



Summary

Activities	Milestones	Time required under each Development Stage		Source of Information (Documents need to be available)	Resource use & requirement in %
		(SS)	(IS-MS)		
ED7	MED7	Apr 1-Dec 31 (275 days)	February 1-Dec 31 (334 days)		3.5%
ED7.1	MED7.1	Apr 1-30 (30 days)	Feb 1-Mar 31 (59 days)	Document that shows recommended community service facilities with their potential benefit and proposed time plan	0.5%
ED7.2	MED7.2	May 1-Dec 31 (245 days)	Apr 1-Dec 31 (275 days)	Survey and design documents that also show mode of operation and use	0.25%
ED7.3	MED7.3	June 1-Dec 31 (214 days)	May 1-Dec 31 (245 days)	Report on the established community service facilities, their use, mode of operation and performance	2.5%
ED7.4	MED7.4	July 1-Dec 31 (184 days)	Feb 1-Dec 31 (334 days)	Report that shows frequency of supervision and technical backstopping by designated sector offices and project	0.25%

Methods of measuring milestones:

All documents in the table above should be made available and what was planned should be checked against the achievements. The surveyor should check if the proposed community service facilities are established as per the document and action plan. It is also important to check their performance, mode of operation, use and support provided (including periodic supervision) by project and designated sector offices. It is also important to discuss with beneficiaries on each of the components to capture their perception, benefits, challenges and recommendations.

Remark for ME and PA group:

Except water supply and in some cases feeder roads, community service facilities were not considered as part of the watershed development plan in the past. If they are created and often they are hijacked by individuals or groups and the benefit to communities are often dwarfed. Or there was no proper operation and maintenance systems and capacity because of that you could easily observe dismantled community service facilities. This is mainly to lack of proper plan and lack of close supervision and backstopping. However, if properly managed they can improve livelihoods and environmental quality. They are useful ladders to ensure sustainability of a watershed and transformation. Thus, the surveyor should check the development of community service facilities from three angles: i) history of its establishment, mode of operation and their performance; ii) opinions of farmers on each of the community service facilities; and iii) adequacy of supervision and technical backstopping provided by the designated sector office and project. It is also recommended that the surveyor should check each community service facilities, see their status and discuss with beneficiaries.

Key Activities

Activity 8 (ED8): Organize enablers befitting the watershed development plan such as WUA, credit and saving groups, producers and marketing groups, coop-eratives, etc. and made them functional (15% in SS, 30% in IS, 30% in PS, 15% in TS and 10% in MS)

Key requirements:

- Knowledge the plan and its organizational requirements
- Knowledge of traditional organizational systems or enablers and their mode of operation
- Knowledge about past experiences (positive and negative) about enablers in the area

Sub Activities:

Sub-Activity 8.1 (ED8.1): Assess requirements of potential enablers that will facilitate successful implementation of the development plan and available legal frameworks;

Sub-Activity 8.2 (ED8.2): Design organizational documents and establish and make them functional as per the periodic action plan;

Sub-Activity 8.3 (ED8.3): together with the direct public institute responsible for the different enablers, conduct periodic supervision, and provide hands of technical backstopping including training.

Key milestones

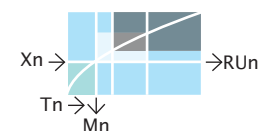
Milestone 8 (MED8): Required enablers befitting the watershed development plan such as WUA, credit and saving groups, producers and marketing groups, coop-eratives, etc. are established and made functional (15% in SS, 30% in IS, 30% in PS, 15% in TS and 10% in MS)

Sub-milestones:

Sub-milestone 8.1 (MED8.1): The requirement for potential enablers that will facilitate successful implementation of the development plan and available legal frameworks assessed and document produced;

Sub-milestone 8.2 (MED8.2): Organizational documents for each enablers developed and all enablers established as per the periodic action plan and made functional;

Sub-milestone 8.3 (MED8.3): Periodic supervision and hands-on technical backstopping including training are provided to enablers together with the direct public institute responsible for the different enablers.



Summary

Activ-ities	Mile-stones	Time required under each Development Stage		Source of Information (Documents need to be available)	Resource use & require-ment in %
		(SS)	(IS-MS)		
ED8	MED8	May1-Dec 31 (245 days)	Mar 1-Dec 31 (306 days)		3.5%
ED8.1	MED8.1	May 1-31 (31 days)	Mar 1-31 (31 days)	Document that shows potential enablers suitable for the area and proposed comprehensive watershed development plan	0.5%
ED8.2	MED8.2	June 1-Dec 31 (214 days)	Apr 1-Dec 31 (275 days)	Report on implementation of the proposed enablers as per the action plan and their performance	0.5%
ED8.3	MED8.3	July 1-Dec 31 (184 days)	May 1-Dec 31 (245 days)	Report on technical backstopping provided, sectors involved and major findings about the performance of each enablers	2.5%

Methods of measuring milestones:

All documents in the table above should be made available and what was planned should be checked against the achievements. The surveyor should check if the proposed enablers are established as per the document and action plan. It is also important to check their performance and support provided (including periodic supervision) by project and sector offices. It is also important to discuss with beneficiaries on each of the components to capture their perception, benefits, challenges and recommendations.

Remark for ME and PA group:

In the past organizing enablers was not part of watershed development plan. If they are created often they are hijacked by individuals or groups and the benefit to communities are most often dwarfed. This is mainly linked to lack of proper plan and lack of close supervision and backstopping. However, if properly followed and supported their benefit to improve both quality of life and environment could be high. For instance, they can improve negotiating power of communities as groups. They are useful ladders to ensure sustainability of watersheds. Thus, the surveyor should check the development of enablers and their functionality from three angles: i) history of their formation, membership, functionality and performance, ii) opinions of farmers on each of the enablers, and iii) adequacy of supervision and technical backstopping provided to them by the designated sector office and project. It is also recommended that the surveyor should check each enablers and discuss with members.

Key Activities

Activity 9 (ED9):¹⁷ Following the result of training needs assessment undertake on the job-training for professionals working in the watershed and communities including KWT and CWT (30% in Start-Up Stage, 40% in Intermediate Stage, 15% in Progressive Stage and 15% in Transformation Stage)

Key requirements:

- Knowledge of capacity gaps at different levels
- Knowledge of past training and their effect
- Perception of local authorities and communities on the job training modalities

Sub Activities:

Sub-Activity 9.1 (ED9.1): Depending on identified capacity gaps and requirements in relation to the proposed development interventions, design training modules fitting different requirements and groups;

Sub-Activity 9.2 (ED9.2): Organize suitable training sites for each training modules and mobilize required materials;

Sub-Activity 9.3 (ED9.3): Conduct various trainings as per their schedule;

Sub-Activity 9.4 (ED9.4): Design training effect monitoring mechanism and regularly monitor to make sure the knowledge is used effectively;

Key milestones

Milestone 9 (MED9): On the job trainings are conducted for various groups in the watershed and knowledge used effectively CWT (30% in Start-Up Stage, 40% in Intermediate Stage, 15% in Progressive Stage and 15% in Transformation Stage)

Sub-milestones:

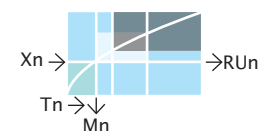
Sub-Milestone 9.1 (MED9.1): Training modules are designed fitting the training needs assessment and requirements;

Sub-Milestone 9.2 (MED9.2): Suitable sites and materials are prepared to conduct training;

Sub-Milestone 9.3 (MED9.3): On the job trainings are conducted for various groups as per their schedule;

Sub-Milestone 9.4 (MED9.4): Effectiveness of trainings and use of knowledge created are regularly monitored.

¹⁷ While regular training is expected to be given during the preparatory phase, this is a special training focusing on economy development.



Summary

Activities	Milestones	Time required under each Development Stage				Source of Information (Documents need to be available)	Resource use & requirement in %
		SS	IS	PS	TS		
ED9	MED9	Apr 1- May 31 (61 days)	Apr 1-30 (30 days)	Apr 1-30 (30 days)	Apr 1-30 (30 days)		3.5%
ED9.1	MED9.1	Apr 1-3 (3 days)	Apr 1-3 (3 days)	Apr 1-3 (3 days)	Apr 1-3 (3 days)	Training modules prepared for various groups	0.5%
ED9.2	MED9.2	Apr 4 (1 day)	Apr 4 (1 day)	Apr 4 (1 day)	Apr 4 (1 day)	Report on training schedule, training sites and materials mobilized	0.25%
ED9.3	MED9.3	Apr 5- May 30 (50 days)	Apr 5-29 (24 days)	Apr 5-29 (24 days)	Apr 5-29 (24 days)	Report on number of trainings conducted and number of participants including names for each module	2.5%
ED9.4	MED9.4	May 31 (1 day)	Apr 30 (1 day)	Apr 30 (1 day)	Apr 30 (1 day)	Document used to regularly monitor effectiveness of training and regular monitoring reports	0.25%

Methods of measuring milestones:

All documents in the table above should be made available and what was planned should be checked against the achievements. The effectiveness of the training should be carefully checked against the results in the watershed and reports from regular monitoring of effectiveness. It is also important to discuss with beneficiaries each module on the effectiveness of the knowledge gained and the future needs.

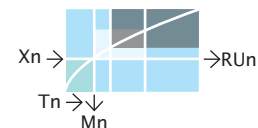
Remark for ME and PA group:

Giving training both for professionals and communities in the watershed is not new undertaking. However, trainings are often given without careful needs assessment. In addition effectiveness of training is not often assessed in coordinated manner. Very recently there is a good trend of linking training to local needs and developments within the watershed. This has to be further strengthened through systematic regular monitoring on the use of knowledge created and shortcomings. Thus, the surveyor should check on the job trainings from three angles: i) number of training modules prepared and conducted including list of trainees for each module; ii) effectiveness of each module; and iii) preliminary recommendation for the future. After looking the available documents the surveyor should make a quick discussion with sample trainees of each module.

Note

Activity code refers to major activities as indicated on Annex 3. For instance for Gully it will be G1, G2... Sub-activities refers to sub-activities under major activities (see Annex 3.7) For instance for Gully it will be check dam, reshaping, moisture harvesting etc. The volume of work refers to sub-activities unless major activities has no sub-activities. Quality will be for sub-activities. The columns 5, 6 and 7 refers major activities.

[illegible]



7.3 Annex 3: Simple guideline for quality assessment and data collection in Annex 2

1. Codes for major activities

Gn–Gulley rehabilitation; **ACn**–Area closure; **CUn**–Cultivated land conservation; **Fn**–forest or woodlot; **Rn**–Rural road; **Nn**–Nursery; **HOn**–Homestead development; **IHcn**–Irrigated horticulture (mixed fruits and vegetables); **IVn**–Irrigated vegetable production; **ICn**–Irrigated crop production (such as maize, cereals, pulses, etc) ; **Pn**–pond construction; **Wn**–water well construction; **IDC_Wn**–Irrigation diversion canal with masonry; **IDC_En**–Irrigation diversion canal of earthen ditch; **WSn**–water supply springs or boreholes; **Bn**–Beehives

2. Codes for status indicators

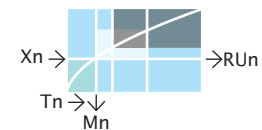
n – (n= 1,2,3..10); **PT**–Planned and treated; **PNT**–Planned but not treated;

Example: **G1PT**–Gulley 1 (code) planned and treated; **G1PNT**–Gulley 1 planned but not treated

3. Quality description

VG–Very Good: When all what have been achieved are in a very good state. (E.g. A gulley is well rehabilitated, check dams or gabion are in good state, vegetation is dense and well protected, and almost all parts of the gulley are well covered by grass and woody biomass)



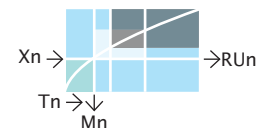


G-Good: All what have been achieved are in good states with some additional maintenance or plantation works needed to make them perfect. Damages could be partly from design, lack of proper protection or some climatic factors such as extreme flood or drought. (E.g. A gulley is rehabilitated well (good quality structures, well-shaped and planted with appropriate vegetative materials) but some plants are dried or destroyed by animals or due to slight neglect, some of the check dams or Gabion need maintenance, etc)



P–Poor: The major parts of what have been achieved are destroyed or are in bad shape or are not functional or are in poor standard (E.g.1: A gully is not rehabilitated well, most check dams are destroyed either by animals or because of poor design and quality, most of planted materials are either dried or destroyed by animals or human intervention or lack of follow-up or shortage of key resources such as water or design failure; E.g.2: A pond that is cracked and is without water, or most of the installations (such as pumps, pipes, etc) are malfunctioning, etc).





Note: Codes for similar activities (i.e., if there are more than one gulley) can be assigned before the survey started using the development map. E.g. If there are three gullies in the watershed and are located in the development plan map, their code will be G1, G2 and G3. This will facilitate parallel survey and will avoid confusion of codes and information.

G1PT Part of the gulley which was planned and has been treated

G1PNT Part of the gulley which was planned but not treated

6. Explanation note for utilization arrangements

C communal;

G group use,

GI Group-Individual sharing;

I Individual use,

Y distributed to landless youth in group or individually

5. Explanation for Reasons of current status (quality)

HCT high commitment and appropriate technological choice and good quality of work

LFE lack of follow-up by extension

LFF lack of proper follow-up by the farmer

LFC lack or loose framework conditions

SW Shortage of water

ECE extreme climatic events (drought, flood, pest, etc)

PD poor design

PTC poor technology choice

PM poor market access and availability

LSP lack of support practices such as credit, training, technological innovation, etc.

UA utilization arrangements

ZG zero grazing

FG Free grazing

8. Explanation for framework conditions and support practices

a) Basic framework conditions

Zg Zero grazing

Gu guarding

Mn maintenance of structures and measures that belong to individual farmers

Blo other bi-laws such as penalties agreed by communities (need to be specified)

a) Support practices

Cr credit support – saving and credit group (association) or microfinance

Se Improved seed supply

Sel seedling support

St Specialized training

Ma market access or connection (facilitated or created)

It other improved technology support (need to be specified)

7. Key sub-components and management possibilities of major activities

Ac for area closure where the following activities or combination of activities can be done

- Hillside terraces
- Deep trench
- Cut of drain
- Other water harvesting structures such as half-moon micro basin, eyebrow-basin, etc.
- Enrichment plantation
- Enrichment grass seeding
- Guarding (mgt)
- Cut and carry (mgt)

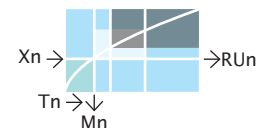
G For gully treatment where the following activities or combinations can be done

- Check dams – Gabion, concrete, loose rock check dams, brush wood check dams, sacks filled with soil check dams,
- Gully side reshaping – full, partial, etc., smaller water harvesting structures on shaped gully side
- Re-vegetation – grass or legumes, perennial woody trees or shrubs, etc.
- Cut off drains to divert excess runoff to avoid head cut (if applicable)
- Guarding (mgt) – better social protection
- Cut and carry (mgt) – utilization arrangement

CU – For management of cultivated land where the following possible combination of activities can be done:

- Soil and water conservation measures – soil bund, stone bund, stone-faced band, *fanyajuu*, bench terraces, grass strips
- Water diversion or disposal structures – water ways, cut of drains
- Moisture harvesting structures – tie-ridges, simple trench, etc
- Irrigation of different kind (canal, drip, etc)
- Soil fertility management – compost application, green manuring, mulching, zero or minimum tillage, etc.
- Agro-forestry – multi story, plantation along and on soil and water conservation structures, alley cropping, farm boundary plantation, etc
- Improved seeds and/or improved planting materials
- Guarding (mgt) specially agro forestry areas
- Cut and carry (mgt)

F For forest or woodlots where the following activities can be combined



- Moisture harvesting structures: micro basin, eyebrow basin, trench, etc
- Fencing and Guarding
- Cut and carry (grass)
- Other forest or tree management practices

N For Nursery where the following activities can be combined

- Fencing and guarding
- Compost
- Arboretum (to develop mother trees)

R For Rural Roads the following activities can be combined

- Roadside plantation
- Culverts
- Check dams
- Cut-off drains
- Bridges

HO For homestead development where the following activities can be integrated

- Horticulture (Vegetable (home gardens including spices) and fruits)
- Compost
- Backyard forage development
- Small scale animal fattening
- Small scale dairy
- Energy saving stove – ‘Mirt’
- Honey production – Apiculture
- Poultry production
- Water development (shallow wells, ponds or roof water harvesting)
- Live fencing

IH For Irrigated Horticulture where the following activities can be integrated

- Moisture harvesting structures such as broad furrows, tie-ridges, broad micro-basins,
- Mulching
- Drip irrigation
- Compost
- Improved materials (seed and grafted fruit seedlings)

IV For irrigated vegetable – similar activities like that of IH can be integrated

IC For irrigated crop production – similar activities like that of IH can be integrated except grafted fruit seedlings

P For ponds where the following activities can be integrated:

- Cement or plastic lining
- Shade
- Water lifting devices (pedal or hand pumps)
- Drip irrigation systems
- Fencing

W For water well where the activities mentioned under pond above can be applied

IDC For irrigation diversion canals where the following activities can be integrated

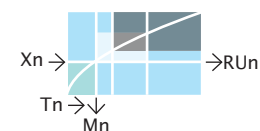
- Making diversion canals masonry
- Cut-off drains
- Boundary plantation to make the canal more stable mainly grass and shrubs

WS For water supply points where the following can be integrated

- Fencing and guarding
- Schedule usage
- Canals for irrigation to use the excess flow (if any)

B For beehive (honey production) outside homesteads such as in closed areas where the following activities can be integrated

- Fencing band guarding
- Enrichment plantation with flowering bushes and trees or grasses
- Filtering and packaging technologies

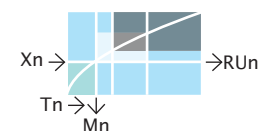


7.4 Annex 4: Criteria and guideline to assess economic development stage of sub-classes

The status of the watershed in relation to the economic development phase can be assessed using sequence of activities. The assumption is that most activities related to economic development follow sequential order. There are activities that will be implemented at Start-Up Stage and other activities that will come after sometime. For instance fruit seedling plantation can be a Start-Up Stage intervention. But income from fruit sell or packaging or improving nutrition will be at later stage; forage plantation could be Start-Up Stage, but fattening or dairy could be after the forage is well established. So, using this logic we can fairly determine the stage of the watershed under the economic development phase as indicated below.

No	Economic Development activities or income generated from other rehabilitation activities (or indicators)(A)	Possible Development Stage within the ED Phase (0-100 scale) (B)	Explanations and guideline for decision(C)
1	Fruit seedling distribution and plantation, Forage seed distribution and forage establishment, Vegetable seed distribution and plantation, Compost preparation Fuel saving-stove distribution and use, Irrigation canal construction, Pond construction, Any other economic development initiatives	Start-Up Stage (less than 10%)	These activities are often implemented during 1st or end of 1st year and beginning of second year. Guide: no matter what the volume will be the starting of at least 50% of the activities listed under A and at least 40% of beneficiaries are women
2	Income generated from sell of grass both from gullies and protected areas (closed areas) – (at least 10% of the HHs), Distribution and use of improved agricultural inputs and production (at least 20% of the HHs), Production using irrigation water from diversion, ponds and wells (at least 10% of the HHs), Distribution of beehives and beginning of honey production (at least 10% of the HHs), Establishment of nurseries and seedling production for income (group and individual)- (at least one smaller nursery with production capacity of 100,000 seedlings), Plantation on farmlands and around homesteads (agro-forestry) – (at least 60% of HHs), Establishment of revolving fund (for at least 20% of the HHs), Establishment of woodlots (at least two, either individual or communal including plantation on closed areas)	Intermediate stage (10-25%)	Most of these activities are implemented second year or beginning of third yearGuide:: the achievement of at least 60% and above of the activities listed under A and at least 40% of beneficiaries are women

No	Economic Development activities or income generated from other rehabilitation activities (or indicators)(A)	Possible Development Stage within the ED Phase (0-100 scale) (B)	Explanations and guideline for decision(C)
3	Beginning of small scale fattening and dairy (at least 10% of the HHs), Honey production and marketing (at least 10% of the HHs), Beginning of additional Income from productions using irrigation (at least 25% of the HHs), Establishment of producers and marketing groups (at least 5% of HHs), Well organized revolving fund and rural finance (at least for 25% of the HHs), Plantation on farmlands and around homesteads (agro-forestry) – (at least 80% of HHs)Others	Progressive stage (25-50%)	Most of these activities initiated/implemented either on third year or end of second year. Guide: at least 50% and above of the listed activities under A should be accomplished and at least 50% of the beneficiaries should be women
4	Beginning of income generation from fruits (at least 50% of HHs), Entry of specialized production, grouping and marketing , establishment of producers cooperatives (at least 50% of HHs), Beginning of shaping the farming system, use of improved technologies including farm tools (at least 25% of the HHs), Beginning of small-scale processing, packaging and marketing (at least on one high-value product), Availability of strong rural finance (for at least 25% of the HHs), Beginning of rural transportation (at least 25% use animal drawn carts)Beginning of income from woodlots (at least 10% of HHs)Plantation on farmlands and around homesteads (agro-forestry) – (100% of HHs)	Transformation stage (50-75%)	Activities on this category can be started from late third year or beginning of fourth year. Guide: the achievement of at least 50% of listed activities under A and at least 50% of the beneficiaries should be women
5	Better income from woodlots and agro-forestry plots including homestead plantations (at least 25% HHs), Heavy use of improved agricultural technologies including farm tools (tillage, harvest and postharvest product management) – (at least 75% of the HHs), Entry of large-scale processing, packaging and marketing (at least 10% of the HHs), Well organized rural transportation (at least 50 of HHs use animal drawn and motor driven transportation system), Well-functioning rural infrastructure – roads, market, rural-banking, etc (at least 90% of the H, Hs are benefiting from rural infrastructures)	Maturity stage (75-100%)	Activities on this category are expected often after end of 4th year of well-functioning and interlinked (with other watersheds) watershed development Guide: - the achievement of at least 60% of listed activities under A and at least 60% of the beneficiaries should be women



7.5 Annex 5: Indicators of watershed sustainability factors

(Note: this form must be filled at the end of the PA survey through FGD by surveyor with Woreda expert, TC, DA and CWT representatives following the guideline in PART II)

A: Indicators for Social Response (SR)

No	Issues to be checked	NA	If applicable, rate each under a, b & c with x if NA do not rate them		
			a	b	c
SR1	Do women have tangible role in the planning and implementation process in the watershed?				
SR2	Do the communities implement specific activities that address women's interests or needs?				
SR3	Are there functional self-help groups, such as saving and credit, producers group, marketing group, etc.?				
SR4	Do communities actively participate on meetings related to their watershed development?				
SR5	Is there visible motivation and action to adapt or use new technologies and practices?				
SR6	Is there motivation and investment on development of communal resources such as road, bridges, irrigation canals or diversion dams, water points, closed areas, etc.?				
SR7	Are communities responsive in modifying or changing land use systems as per the technical advice, training and observations?				
SR6	Do community members replicate some of successful activities by themselves?				
	Sum of scores under a, b, and c separately				

Note: Rating a: Very Good and weighted value of 6, b: Good with weighted value of 4 and c: Poor with weighted value of 1

NA: represents 'Not Applicable' if one or more indicators is/are not applicable to the particular watershed under evaluation. Which means this factor will be deducted from 'N' under Equation 6.

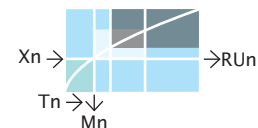
Guide for the overall Rating: follow the procedure outlined under Section 6.6.3 and Eq 4-7

Any Remark:

B: Indicators for Economic Response (ER)

No	Issues to be checked	NA	If applicable, rate each under a, b & c with x if NA do not rate them		
			a	b	c
ER1	Is additional income being generated from the sale or use of grass from gullies, closed areas, etc?				
ER2	Is additional income being generated from the homestead development activities such as honey, fruits and vegetables, fattening, dairy, etc?				
ER3	Is additional income being generated from woodlots developed as a result of the watershed intervention? (at least grass, honey indirectly at the beginning)				
ER4	Are major parts of communities using fuel saving stoves introduced as part of the watershed development which resulted in additional income and saving?				
ER5	Is additional income and saving being generated from the use of revolving funds introduced by the watershed development project? (saving and credit group, cooperatives...)				
ER6	Is additional income being generated from the use of improved agricultural technologies such as improved seed, compost, farm tools, selling seedlings, irrigation, etc introduced by the watershed development project?				
ER7	Is additional income being generated from working on FFW or CFW within the watershed? (if applicable)				
ER6	Is market linkage developed and made functional for new products and additional produces?				
	Sum of scores under a, b, and c separately				

Any Remark:



C: Indicators for Ecological Response (ECR)

No	Issues to be checked	NA	If applicable, rate each under a, b & c with x if NA do not rate them		
			a	b	c
ECR1	Do you observe increased overall vegetation cover (grass and woody biomass) as compared to the baseline situation?				
ECR2	Is the recovery and regeneration of degraded closed areas (grass and woody biomass) high?				
ECR3	Are rehabilitated gullies well stabilized and vegetated?				
ECR4	Do you observe regeneration of springs and strengthening of weaker base flows?				
ECR5	Do you observe an improvement on the availability (depth) of groundwater at foot slope areas?				
ECR6	Is flood damage on downstream areas reduced after the watershed treatment?				
ECR7	Do you see reduction in visible soil erosion such as rills and gullies on cultivated lands and hillsides as compared to the baseline situation?				
ECR6	Do you observe an improvement on soil fertility of cultivated lands?				
	Sum of scores under a, b, and c separately				

Note: A simple regular monitoring technique need to be established for almost all of the indicators. For instance simple photo monitoring can be used for ECR1, ECR2 and ECR3 against the picture during the baseline survey.

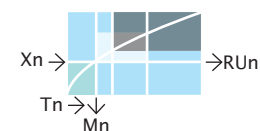
Any Remark:

D: Indicators to capture commitment of woreda leaders - CWL

No	Issues to be checked	NA	If applicable, rate each under a, b & c with x if NA do not rate them		
			a	b	c
CWL1	Do you think woreda leaders have good knowledge about the project?				
CWL 2	Do woreda leaders give the required support in mobilizing the required experts from the woreda?				
CWL 3	Do woreda leaders give the required support and effort in mobilizing communities?				
CWL 4	Do woreda leaders have strong follow-up of resource utilization and mobilization?				
CWL5	Do woreda leaders have strong follow-up of activities and the regular reporting requirements?				
CWL6	Do woreda leaders easily accessible for consultation by project staff and management team?				
CWL7	Do woreda leaders took action to enforce bylaws set by communities?				
CWL8	Do woreda leaders undertake regular actions to improve capacity of experts and communities?				
	Sum of scores under a, b, and c separately				

Note: Woreda leaders refers to Woreda Department of Agriculture/Pastoral Development Office and Woreda Administration

Any Remark:



E: Indicators to capture commitment of Kebele leaders - CKL

No	Issues to be checked	NA	If applicable, rate each under a, b & c with x if NA do not rate them		
			a	b	c
CKL 1	Do Kebele leaders undertake quick and swift action in mobilizing communities?				
CKL 2	Do Kebele leaders support and regulate the CWT to effectively undertake their responsibilities?				
CKL 3	Do Kebele leaders set strong bylaws with participation of communities and ownership?				
CKL 4	Do Kebele leaders take practical actions in enforcing bylaws?				
CKL 5	Do Kebele leaders have strong follow-up of activities and the regular reporting requirements?				
CKL 6	Do Kebele leaders undertake regular supervision in controlling sustainability of activities?				
CKL 7	Do Kebele leaders responsive in mobilizing local resources from communities?				
	Sum of scores under a, b, and c separately				

Any Remark:

F: Indicators to capture commitment of Communities - CC

No	Issues to be checked	NA	If applicable, rate each under a, b & c with x if NA do not rate them		
			a	b	c
CC1	Do communities actively participate in the planning process?				
CC2	Do communities actively participate in the implementation process?				
CC3	Do communities undertake self-motivated and regular maintenance of activities (individual and in group)?				
CC4	Do communities set bylaws to ensure sustainability of their watershed?				
CC5	Do communities follow and respect their bylaws?				
CC6	Is the CWT active in coordinating the watershed planning and development process (including regular ME and annual plan revision processes)?				
CC7	Are communities supportive and implement youth and women development initiatives?				
CC 8	Do communities actively participate in watershed users association and different working groups?				
	Sum of scores under a, b, and c separately				

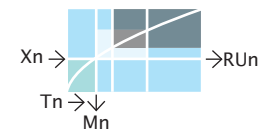
Any Remark:

[illegible]

Note: The remaining plan will quantify the sub components under each major activity

7.7 Annex 7: Guide for rounding values for sustainability matrix

For final Ws			For Rsf with 7 point Indicators			For Rsf with 8 point Indicators		
Total points	Max values with Equation-8	Rounded Values	Total points	Max values with Equation-4	Rounded Values	Total points	Max values with Equation-4	Rounded Values
36	8.00	6	42	8.00	6	48	8.00	6
35	5.83	6	41	5.86	6	47	5.88	6
34	5.67	6	40	5.71	6	46	5.75	6
33	5.50	6	39	5.57	6	45	5.63	6
32	5.33	5	38	5.43	5	44	5.50	6
31	5.17	5	37	5.29	5	43	5.38	5
30	5.00	5	36	5.14	5	42	5.25	5
29	6.83	5	35	5.00	5	41	5.13	5
28	6.67	5	34	6.86	5	40	5.00	5
27	6.50	5	33	6.71	5	39	6.88	5
26	6.33	4	32	6.57	5	38	6.75	5
25	6.17	4	31	6.43	4	37	6.63	5
24	6.00	4	30	6.29	4	36	6.50	5
23	3.83	4	29	6.14	4	35	6.38	4
22	3.67	4	28	6.00	4	34	6.25	4
21	3.50	4	27	3.86	4	33	6.13	4
20	3.33	3	26	3.71	4	32	6.00	4
19	3.17	3	25	3.57	4	31	3.88	4
18	3.00	3	24	3.43	3	30	3.75	4
17	2.83	3	23	3.29	3	29	3.63	4
16	2.67	3	22	3.14	3	28	3.50	4
15	2.50	3	21	3.00	3	27	3.38	3
14	2.33	2	20	2.86	3	26	3.25	3
13	2.17	2	19	2.71	3	25	3.13	3
12	2.00	2	18	2.57	3	24	3.00	3
11	1.83	2	17	2.43	2	23	2.88	3
10	1.67	2	16	2.29	2	22	2.75	3
9	1.50	2	15	2.14	2	21	2.63	3
8	1.33	1	14	2.00	2	20	2.50	3
7	1.17	1	13	1.86	2	19	2.38	2
6	1.00	1	12	1.71	2	18	2.25	2
Note: if all score 6 or VG the max point is 36 and average points is 6			11	1.57	2	17	2.13	2
			10	1.43	1	16	2.00	2
			9	1.29	1	15	1.88	2

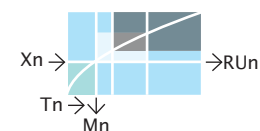


For final Ws			For Rsf with 7 point Indicators			For Rsf with 8 point Indicators		
Total points	Max values with Equation-8	Rounded Values	Total points	Max values with Equation-4	Rounded Values	Total points	Max values with Equation-4	Rounded Values
			8	1.14	1	14	1.75	2
			7	1.00	1	13	1.63	2
			Note: if all score 6 or VG the max point is 42 and average points is 6			12	1.50	2
						11	1.38	1
						10	1.25	1
						9	1.13	1
						8	1.00	1
						Note: if all score 6 or VG the max point is 48 and average points is 6		

7.8 Annex 8: Cost breakdown for a standard watershed - 500ha for five years

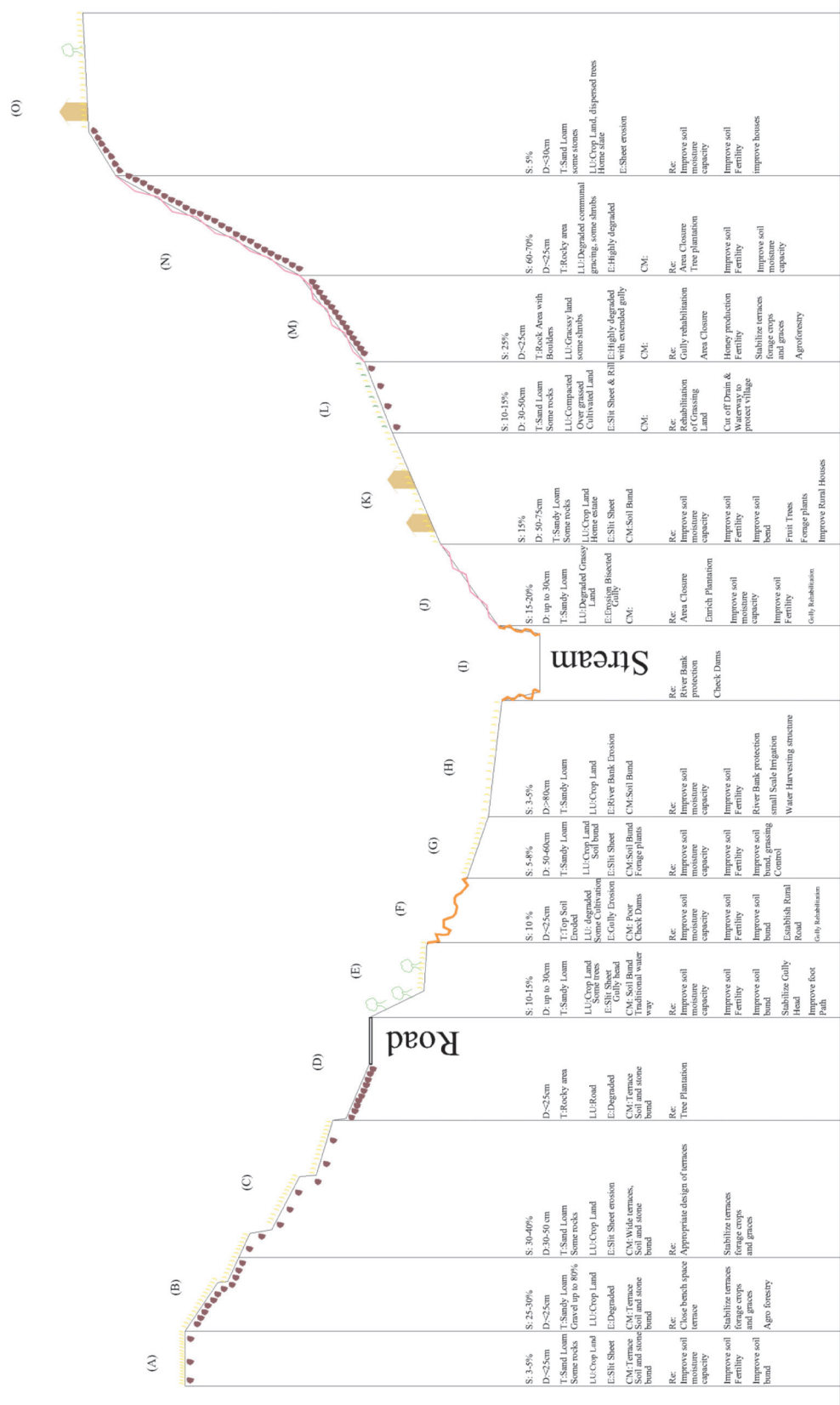
Code	Major Activities with % contribution of communities	Cost (USD)	% of the total cost	Activity Phase relation
I1-I3	Participatory Watershed Development Planning	16,000	5	P1
R1	Preparation for implementation including equipment & initial training	17,600	5.5	60%P2, 40%P3
R2	Area closure with HT, T (up to 70% comm. cont)	9,280	2.9	P2
R3	SWC on cultivated lands (70% comm. cont)	16,000	5	P2
R4	Nursery (20% cont)	44,800	14	40%P2, 60%P3
R5	Gulley rehabilitation (40% cont)	16,000	5	P2
R6	Construction of Feeder Roads	15,040	4.7	P2
R7	Spring Development and Shallow Wells for water supply	9,600	3	P2
R8	Woodlot and other plantations (65% cont)	9,600	3	40%P2, 60%P3
ED1	Improved livestock management and production (55% Cont)	15,280	4.75	P3
ED2	Homestead Dev. (60% cont)	48,000	15	P3
ED3	Shallow wells and Roof Water Harvesting for Irrigation linked to Homesteads (50% cont)	9,600	3	P3
ED4	Irrigation diversions and canals (20% cont)	16,000	5	P3
ED5	Improved crop production and management (70% cont)	11,200	3.5	P3
ED6	Ponds & SS-dams for multiple economic development use (20% cont)	16,400	5.15	P3
ED7	Community service facilities (70% cont)	11,200	3.5	P3
ED8	Establishing enablers (50% cont)	11,200	3.5	P3
ED9	On the job training for ED activities	11,200	3.5	P3
CC	ME and operation costs	11,200	5	40%P2, 60%P3
	Total	320,00	100	

Note: INS = Initiation Stage, SS = Start-up Stage, IS = Intermediate Stage, PS = Progressive Stage, TS = Transformation Stage, and MS = Maturity Stage



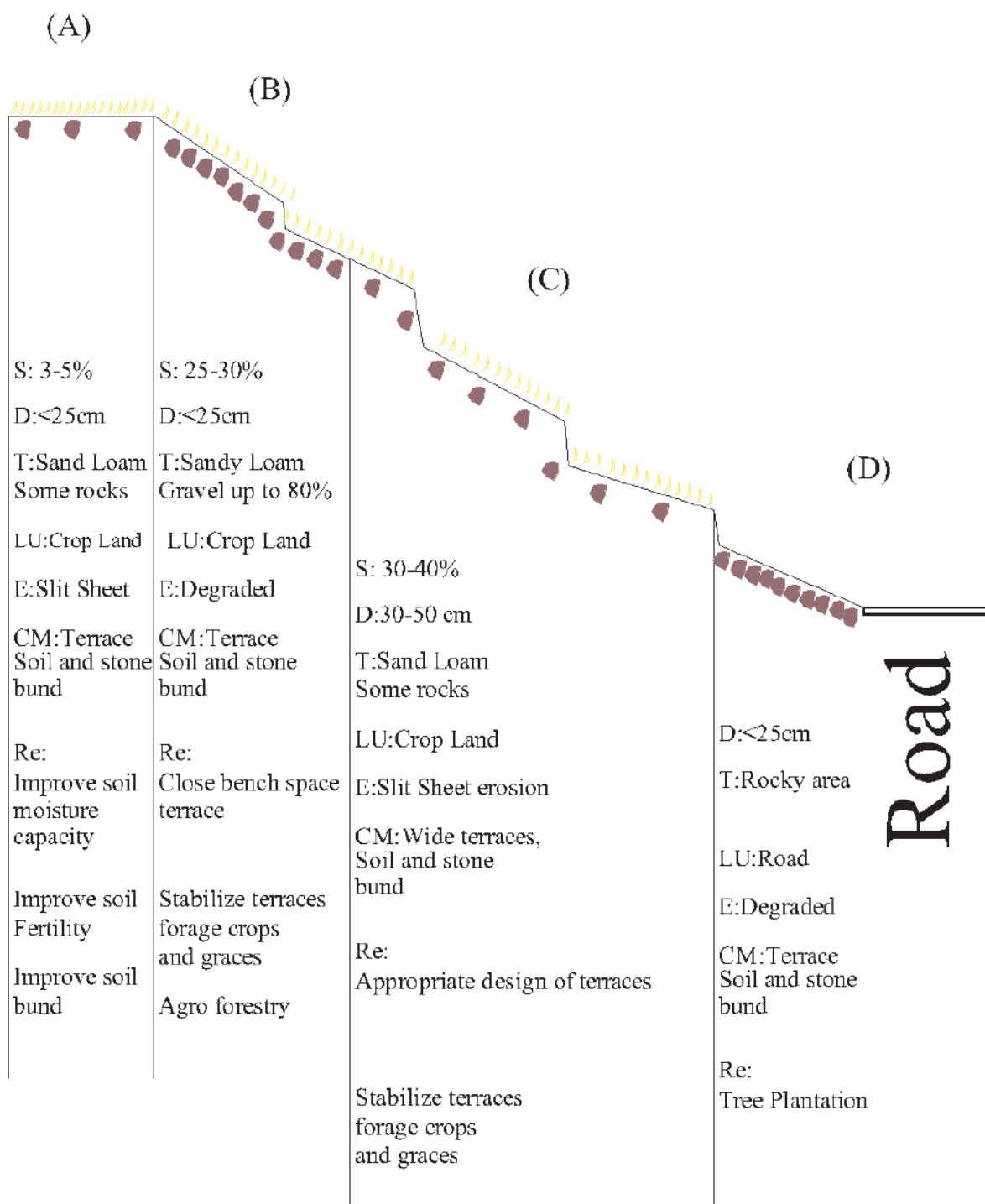
	Percent distribution of activities across Phases and stages (P1, P2 & P3)	ODS/DS by phase/Resource Use for each ODS (in%)					
		INS	SS	IS	PS	TS	MS
		(P1) %	(P2 & P3) %	(P2 & P3) %	(P2 & P3) %	(P2 & P3) %	(P3) %
	100% P1	5					
	35%-P2-1 & P3-1, 25% P3-2 & P3-3, 25%P2-3 & P3-3, 15%P2-4 & P3-4		1.925	1.45	1.375	0.85	
	60% P2-1, 40% P2-2		1.7	1.16			
	30% P2-1, 45% P2-2, 25% P2-3,		1.5	2.25	1.25		
	20% P2-1 & P3-1, 30% P2-2 &P3-2, 25% P2-3 &P3-3, 15% P3-4, 10% P3-5		2.85	4.37	3.5	2.6	1.45
	20% P2-1, 45% P2-2, 35% P2-3		1.0	2.25	1.75		
	30% P2-1, 50% P2-2, 20% P2-3		1.41	2.35	0.94		
	40% P2-1, 40% P2-2, 20% P2-3		1.255	1.2	0.6		
	20% P2-1 & P3-1, 30% P2-2 &P3-2, 25% P2-3 & P3-3, 15% P2-4 & P3-4, 10%P3-5		0.6	0.9	0.75	0.45	0.3
	20%P3-1, 30%P3-2, 25%P3-3, 15%P3-4, 10%P3-5		0.95	1.425	1.19	0.81	0.55
	25% P3-1, 35% P3-2, 20% P3-3, 15% P3-4, 5% P3-5,		3.85	5.25	3.55	2.35	0.85
	28% P3-1, 52% P3-2, 10% P3-3, 10% P3-4		0.86	1.56	0.3	0.3	
	20% P3-1, 50% P3-2, 20% P3-3, 10% P3-4		1	2.5	1	0.65	
	20% P3-1, 35% P3-2, 25% P3-3, 10% P3-4, 10% P3-5		0.7	1.225	0.875	0.35	0.35
	25% P3-1, 40% P3-2, 25% P3-3, 10% P3-4		1.65	2.06	1.35	0.65	0.35
	20% P3-1, 40% P3-2, 20% P3-3, 10% P3-4, 10% P3-5		0.75	1.4	0.7	0.45	0.4
	20% P3-1, 30% P3-2, 25% P3-3, 15% P3-4, 10% P3-5		0.7	1.05	0.875	0.55	0.45
	30% P3-1, 40% P3-2, 12% P3-3, 18% P3-4		1.05	1.4	0.42	0.63	
	25% P2-1 & P3-1, 24% P2-2 & P3-2, 19% P2-3 & P3-3, 13% P2-4 & P3-4, 19% P3-5		1.25	1.2	0.95	0.86	0.95
	Resource use by stage	5	25	35	20	10	5
	Cumulative Resource Use	5	30	65	85	95	100

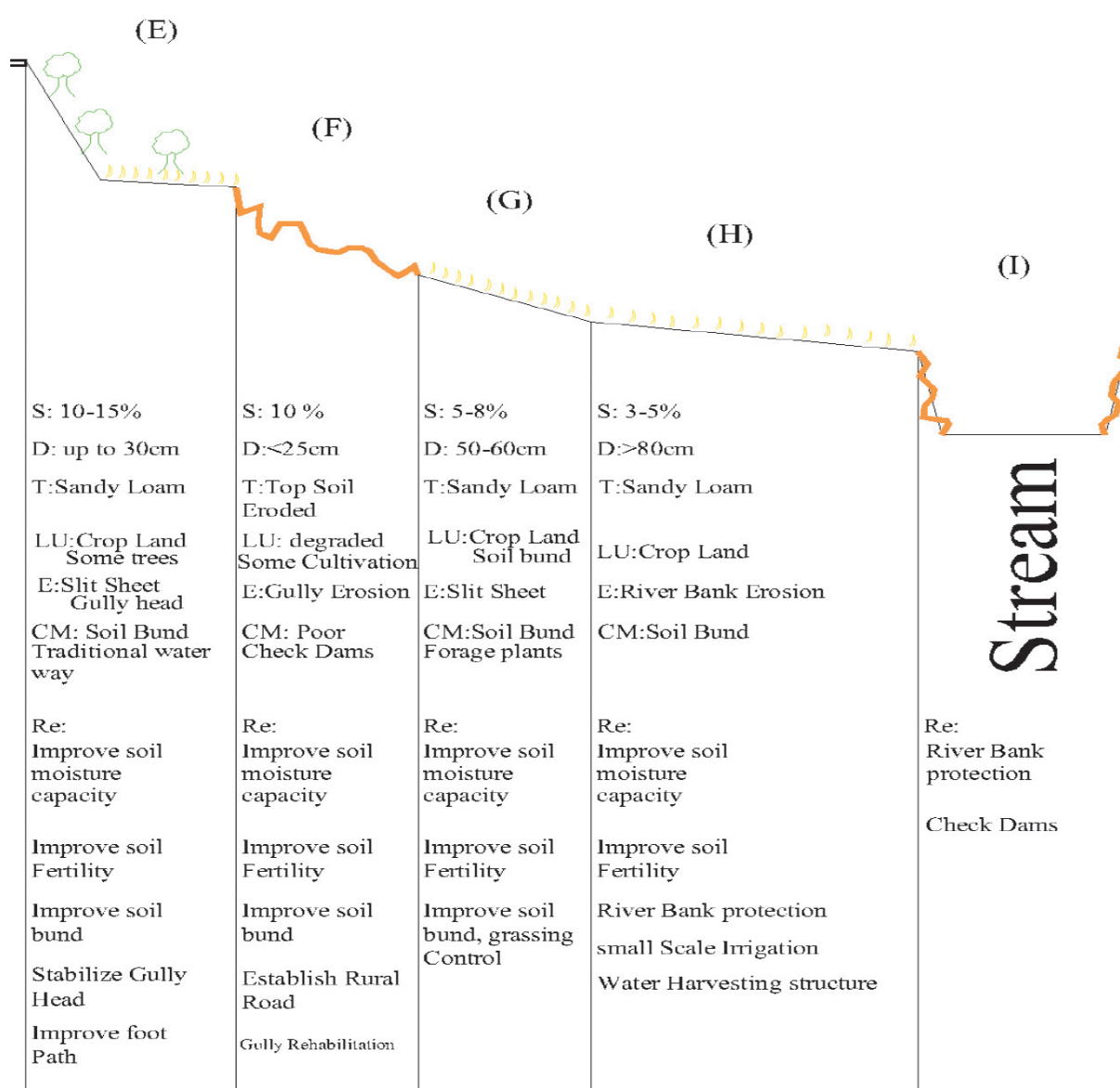
7.9 Annex 9: Example of transect walk report



Note: this is part of a full transect walk assessment report made by one of the trainee groups during a training course on integrated watershed development for experts in Easter Nile Region at Bahir Dar, November 2009.

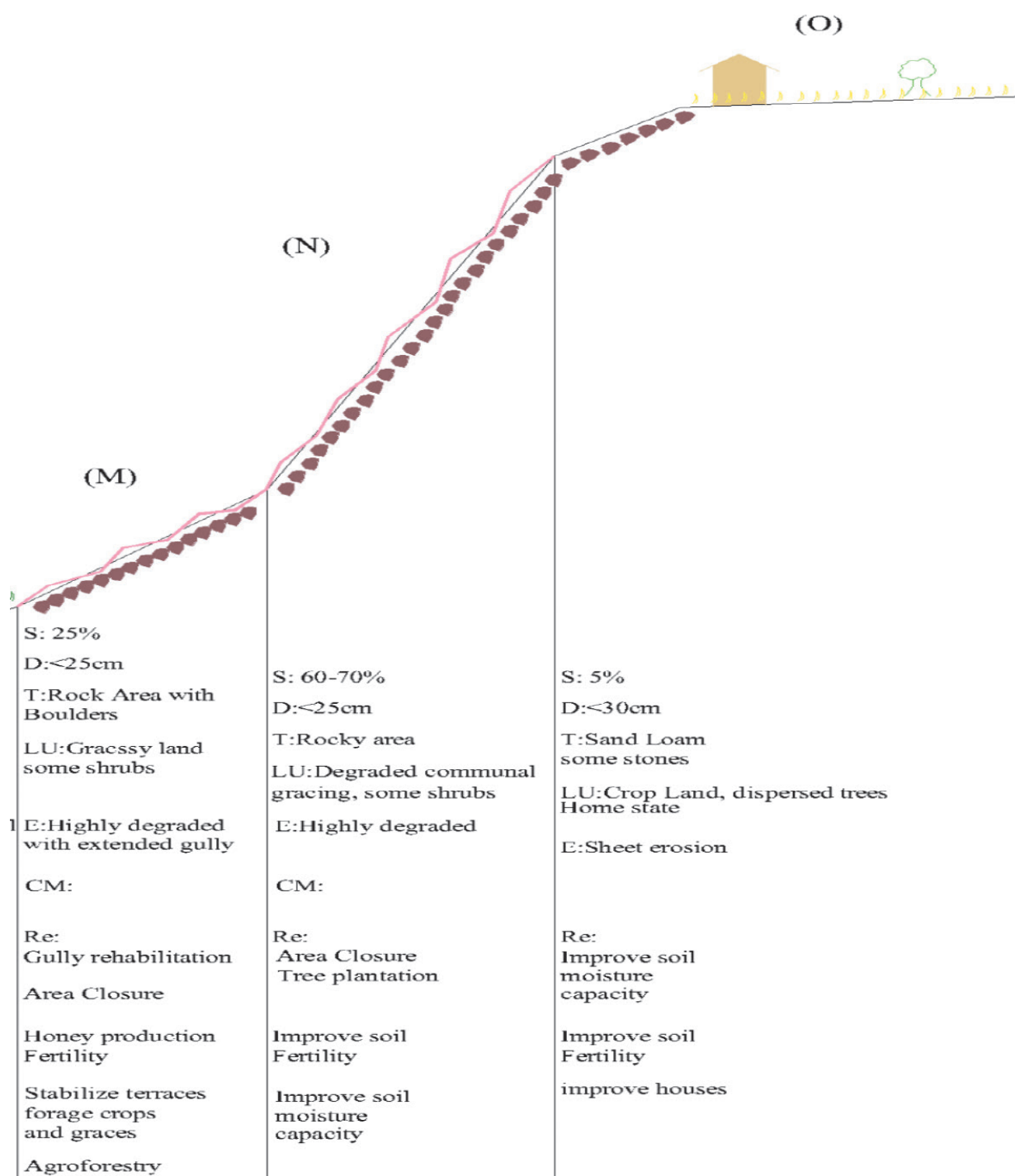
(Source: Gete Zeleke, 2009)

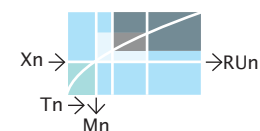




(L)		
(J)	(K)	
S: 15-20%	S: 15%	S: 10-15%
D: up to 30cm	D: 50-75cm	D: 30-50cm
T: Sandy Loam	T: Sandy Loam Some rocks	T: Sand Loam Some rocks
LU: Degraded Grassy Land	LU: Crop Land Home estate	LU: Compacted Over grassed Cultivated Land
E: Erosion Bisected Gully	E: Slit Sheet	E: Slit Sheet & Rill
CM:	CM: Soil Bund	CM:
Re: Area Closure	Re: Improve soil moisture capacity	Re: Rehabilitation of Grassing Land
Enrich Plantation		
Improve soil moisture capacity	Improve soil Fertility	Cut off Drain & Waterway to protect village
Improve soil Fertility	Improve soil bend	
Gully Rehabilitation	Fruit Trees	
	Forage plants	
	Improve Rural Houses	







7.10 Annex 10: Example of vision of change exercise prepared by communities

Note: this was prepared during a training course at Bati Woreda, Leg-Hagameessa
–08 Sub watershed on 2005

No	Vision	Realization
1	Wishing to see quality road (Asphalt) and good network in the area ✗	Possible to upgrade the existing road to RR10 but not asphalt
2	Wishing to establishing airport/air strip in the area and using air transport to Bati and somewhere else ✗	Impossible to do with the project period
3	Wishing to see clean sub watershed with all facilities ✓	Spring development and hand pumps could be installed in some key areas to get potable water for the community at large
4	Wishing to establishing better houses and filled with quality furniture ✗	Possible to construct our house with corrugated iron sheet and improve some of our furniture
5	Wish to have cars at HH bases ✗	Possible to construct our house with corrugated iron sheet and improve some of our furniture
6	Wished to see all degraded lands covered by green forests ✓	Possible to do with the project period
7	Seeing irrigation scheme expanded and utilized efficiently ✓	Possible to do with the project period
8	Wishing to have surplus production of horticultural crops ✓	Possible to do with the project period
9	Wishing to have a school up to 8th grade in the area /Roreso ✓	Possible to do with the project period
10	Wishing to see our village developed as a big town ✗ ✓	Impossible to develop as big town but very small town could be established during the project period
11	Wishing to establish a health centre in their area ✓	Improve the health condition to some extent by establishing a Health post.
12	Wishing to use TVs, Satellite dish, Tape recorders etc. ✗	Impossible to do with the project period
13	Using transport facilities without any constraint ✗	Possible to improve the road condition and utilize public transport
14	Getting adequate potable water supply for every household ✓	Possible to develop Springs and hand pumps could be installed in some key areas to get potable water for the community at large
15	Using tractors instead of oxen plough ✗	Impossible to use tractors but possible to use improved farm implements and technologies suitable for that specific area with the project period
16	Wishing to see our children well educated and their life changed ✓	Possible to educate our children
17	Wishing to use improved livestock and see livestock productivity ✓	Possible to do with the project period
18	Wishing to use telephone including mobiles at their locality ✗	Impossible to do with the project period may be radio telephone
19	Seeing that everybody is using electricity in their area ✗	Impossible to do with the project period

7.11 Annex 11: SIMPLE GPS DATA COLLECTION GUIDE GARMIN MAP 60CSx

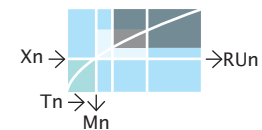
Contents

1. General overview of the Garmin Map GPS 60csx
2. Garmin Map GPS 60csx Main Pages
3. Getting started with the Satellite Page
4. Setting the GPS Receiver
5. How to mark a waypoint
6. How to edit or Delete a Waypoint
7. How to add waypoint of Interest to the GPS
8. How to see the collected waypoints
9. How to Collect GPS Tracks
10. How to calculate Areas using GPS

1. General functions of the units

1. To turn the unit on/off press black button (hold down to turn off)
2. To page through/between screens press PAGE/QUIT buttons
3. To find the menu press MENU button twice
4. To cancel out of a screen and not save press QUIT





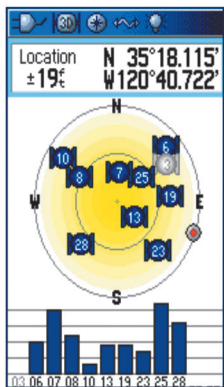
1. Auxiliary GPS connector
2. USB Connector port-provides interface to a PC for faster data transfer
3. Battery component locking
4. Battery component cover
5. GPS Helix Antenna-provides quick satellite acquisition
6. Auxiliary connector mount-provides convenient access when walking or riding



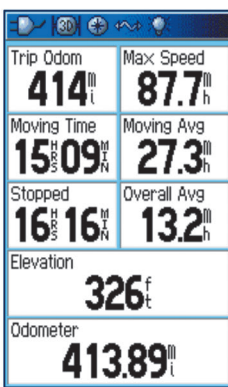
2. GPS UNIT MAIN PAGES

The GPS units has six main pages:

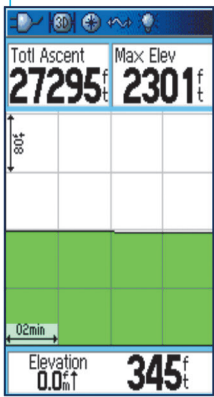
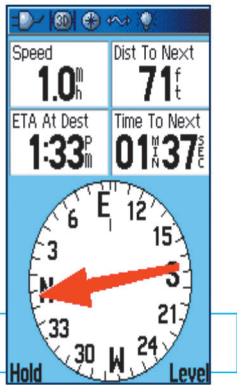
- 1. Satellite Page - Shows number of satellites it has acquired, signal strength and current location
- 2. Trip Computer Page-- Records and displays travel data
- 3. Map Page-Graphically shows you your current location, as well as track log or a route you may wish to follow
- 4. Compass Page -Indicates the direction you are travelling in or the direction you need to travel in to reach a destination
- 5. Altimeter Page-
- 6. Main Menu -



Satellite Page



Map Page

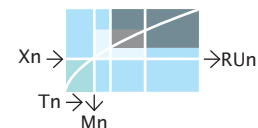


Altimeter Page



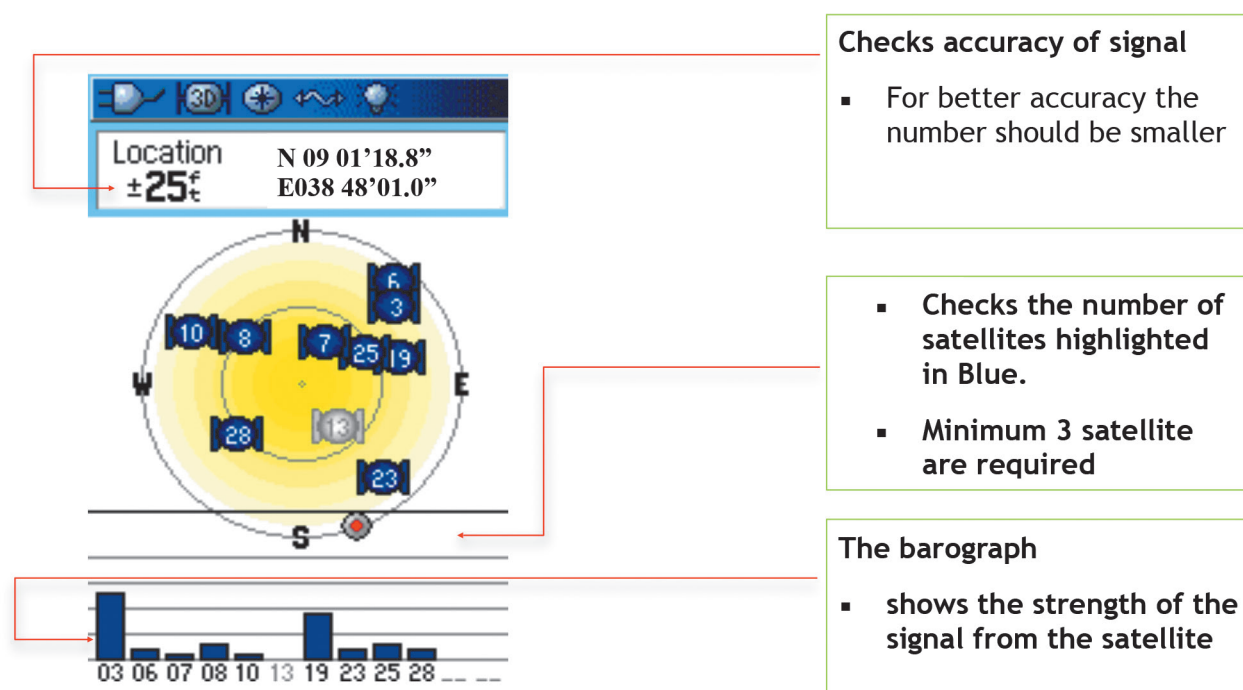
Menu Page

3. Getting started with the Satellite Page



3. GETTING STARTED WITH THE SATELLITE PAGE

1. Stand in a clear area
 - Tall buildings, trees and other structures may obstruct satellite
2. Press Power Button Located on top of device
3. You will see a Satellite Page
4. Wait for enough satellites to be acquired for current position to be determined.
 - When GPS receiver has signal from at least 3 satellites, the screen will change and show to indicate position accuracy and location
5. The satellite page is the first of Five Pages that you can scroll through
6. Check the accuracy of the satellite signal before you start to collect data



4. Setting the GPS Receiver

1. Either Press PAGE until you reach the menu page or Press MENU twice
2. Scroll down to SETUP
3. Press ENTER
4. Select SYSTEM
5. Press ENTER

System settings should be as below:

- GPS Normal
- WAAS Disabled
- Batter Type Alkaline
- Text Language English

6. QUIT
7. Scroll down to TIME
8. Press Enter

Time Settings should be as below:

9. Time Format 24 hour
10. Press QUIT
11. Scroll down to UNITS
12. ENTER

UNIT Settings should be as below:

- Position Format hddd.ddddddd
- Map Datum WGS84
- Distance/Speed Metric Elevation Meters
- Depth Meters
- Temp Celsius

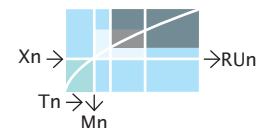
13. Press QUIT
14. Scroll across to HEADING
15. Press ENTER

Note: The setting WGS84 is generally the best option which is currently being used in most mapping

HEADING Settings should be as below:

- Display Degrees
- North Reference True

16. Press QUIT twice to return to main menu



5. How to mark a waypoint

A waypoint is any point on a map that you mark and is stored in the GPS's memory. You can mark a point from any page or screen of the GPS by selecting MARK.

1. Press Mark
2. Use the ROCKER key to highlight symbol.
3. Press ENTER
4. Select appropriate Symbol and press ENTER
5. Use the ROCKER key to highlight name field
6. Press ENTER and type the name of waypoint

6. How to edit or Delete a Waypoint

1. Press FIND button.
2. Highlight WAYPOINTS and press ENTER. A list of waypoints stored in the memory will be shown on the screen.
3. Use ROCKER key to highlight the waypoint you want.
4. Press ENTER

TO EDIT WAYPOINT—You can now use the ROCKER button to highlight and make any changes to the waypoint (name/symbol etc.).

TO DELETE WAYPOINT—Use the ROCKER button to highlight DELETE and press enter.

1. Press QUIT to close and save the changes.
2. To Move a Waypoint
3. Press FIND button.
4. Highlight WAYPOINTS and press Enter
5. Use ROCKER key to highlight the waypoint you want.
6. Press ENTER
7. Use ROCKER key to highlight MAP and press Enter. This will display the waypoint on the map.
8. Press ENTER again to activate the MAP PLANNING arrow.
9. Use ROCKER button to move to the waypoint

7. How to add waypoint of Interest to the GPS

1. Press MARK
2. Use ROCKER button to move up and highlight LOCATION
3. Press ENTER
4. Use the arrow keys > < to move across the waypoint coordinate and change the numbers to what you want. To do this, highlight the arrow keys > < and Press ENTER.
5. Press OK when finished.
6. Change Symbol and name of waypoint if needed.
7. Press OK to save the waypoint.
8. Repeat for any further waypoints

8. How to see the collected waypoints

1. Press FIND button
2. WAYPOINTS should be highlighted. Press Enter Highlight Waypoint you wish to go to and press, ENTER
3. Highlight GOTO and press ENTER
4. The map screen will appear showing your location and the location of the waypoint you wish to go to.

9. How to Collect GPS Tracks

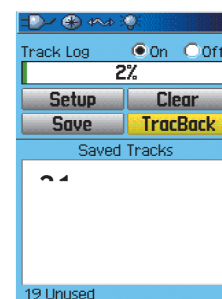
Tracking is another method of using the GPS to collect data. Tracks work in a similar manner to waypoints, but in tracking mode the GPS unit automatically takes points at preset distance or time intervals

There are three options for collecting data using the tracking function. These are

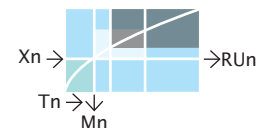
- Distance –points will be collected at specified distance
- Time- points will be collected at specified time interval
- Auto. Does not give specific value when data will be collected

Setting the Collection Method for Tracks

1. Press MENU twice
2. TRACKS should be highlighted. Press ENTER
3. Use the ROCKER button to select ON. Press ENTER.
4. Use the ROCKER select CLEAR to remove the previous track logs
5. Use ROCKER button to select SETUP. Press ENTER.
6. Do not chuck the WRAP WHEN FULL because it replaces the old track by the recent if the track log is full
7. RECORD METHOD. Use ROCKER to highlight and press enter. You can select either Distance, Time or Auto.
8. Press QUIT twice to return to main menu and then continue to press either QUIT or PAGE to bring up the map screen.
9. Find Main Menu
10. Highlight TRACKS and press ENTER
11. Use the ROCKER key to highlight SAVE
12. Press ENTER
13. It will ask if you wish to save entire track, Press ENTER



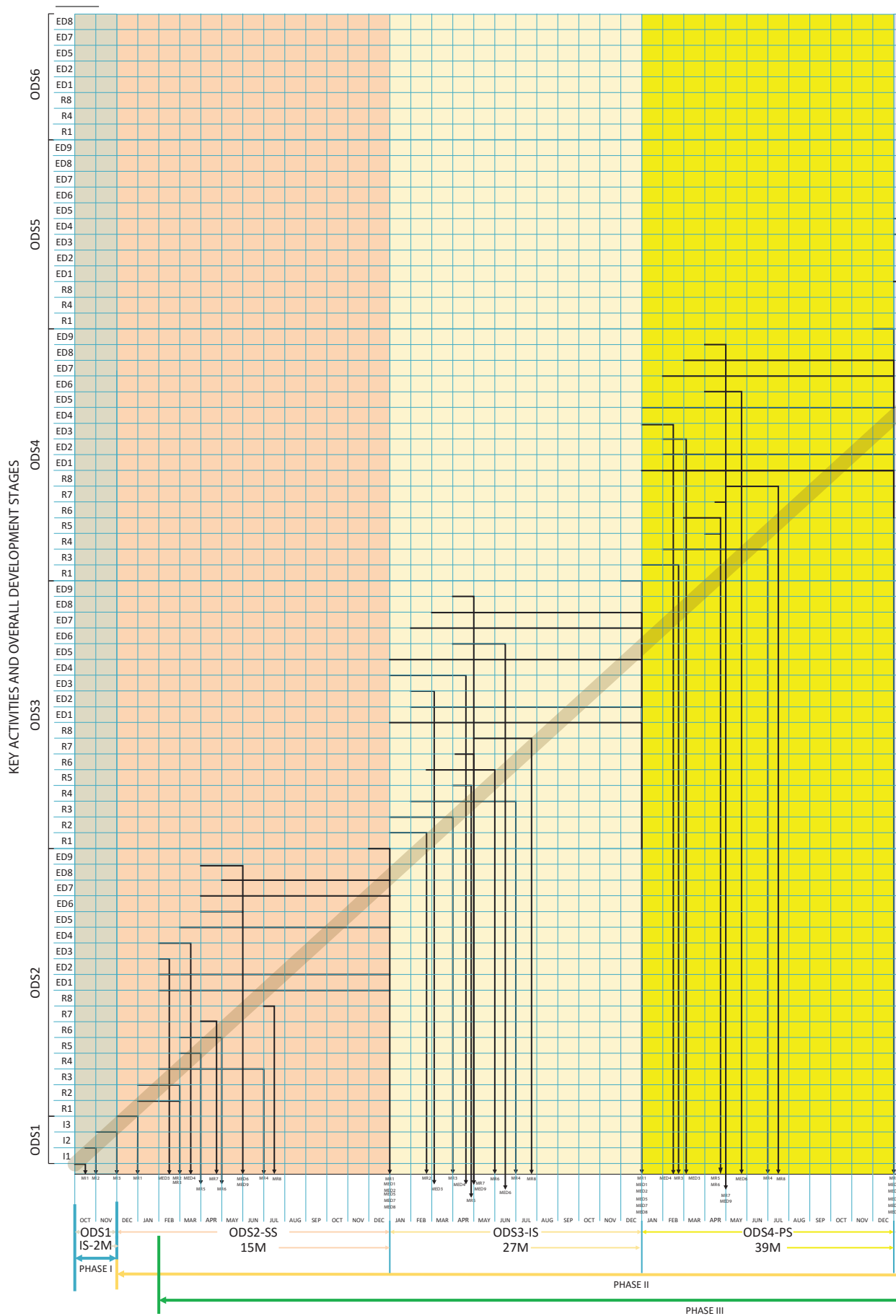
Note: Track function is best to collect data on farm boundaries, roads, river banks

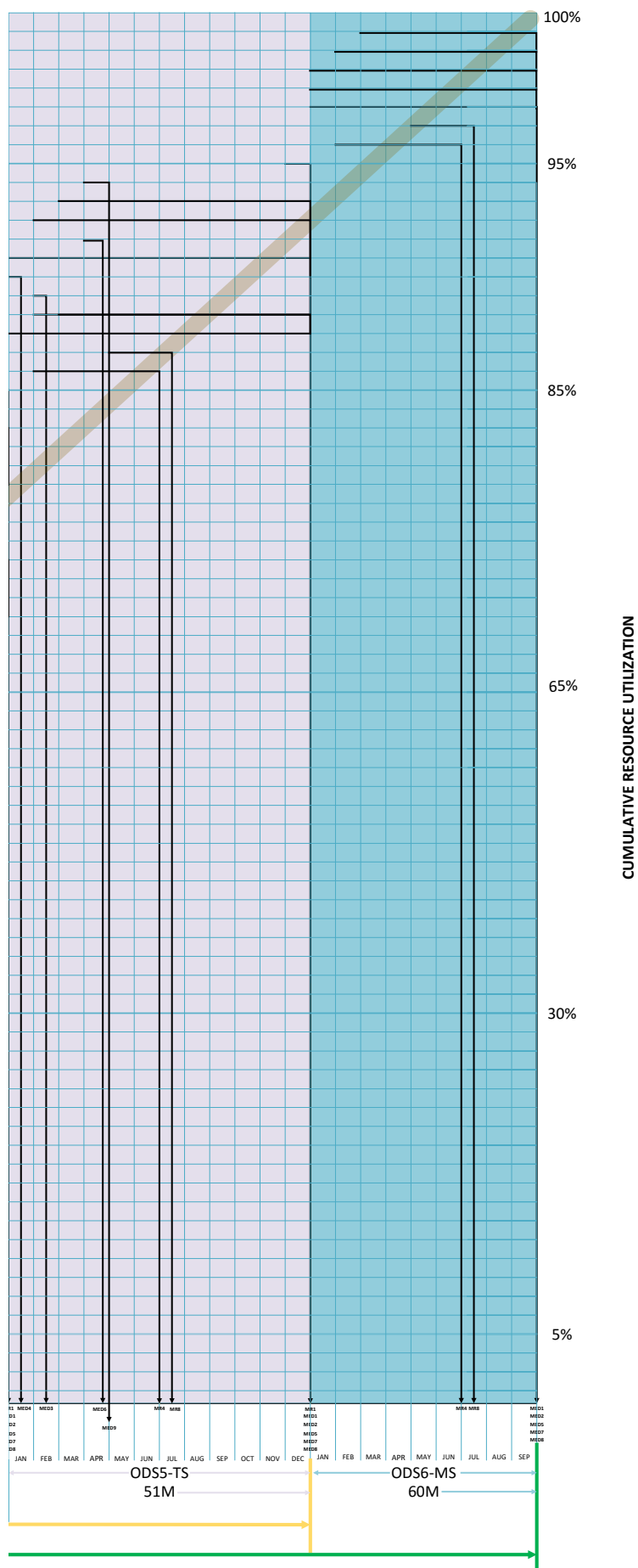
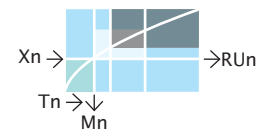


10. How to calculate Areas using GPS

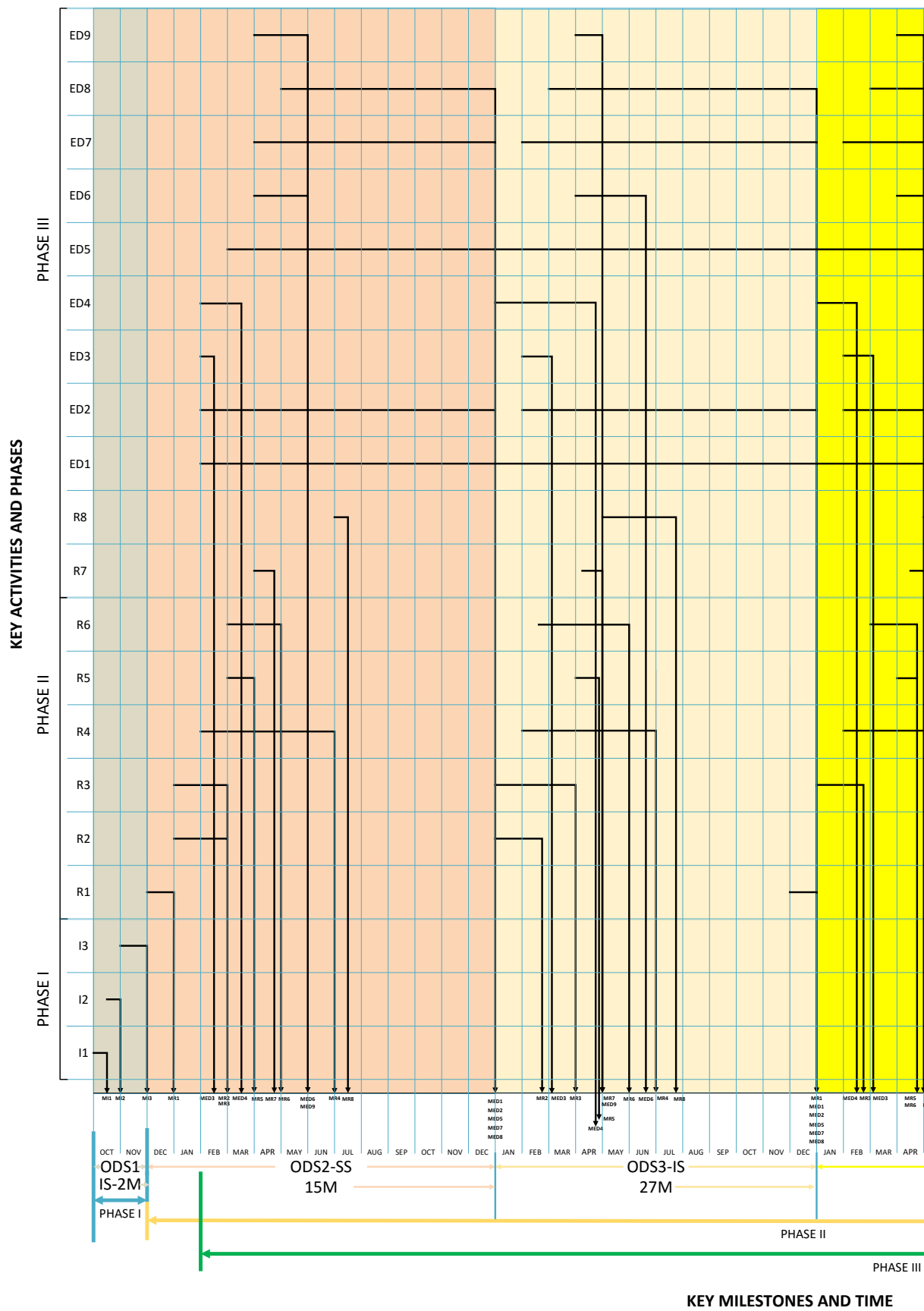
1. Return to MAIN MENU
2. Ensure TRACKS is highlighted and press ENTER
3. Press MENU
4. AREA CALCULATION should be highlighted. Press ENTER.
5. START should be highlighted. Ensure you are at the start of the area you wish to calculate. Press ENTER.
6. Walk or drive around the area of interest.
7. You do not have to return exactly to the location you started but for better accuracy, you should return close to where you began.
8. STOP should be highlighted. Press ENTER.
9. SAVE should be highlighted. Press ENTER.
10. The below screen will appear. It has the details of the area you have calculated. Using the ROCKER key, you can highlight NAME, change it, change the style and elect to show it on the map.

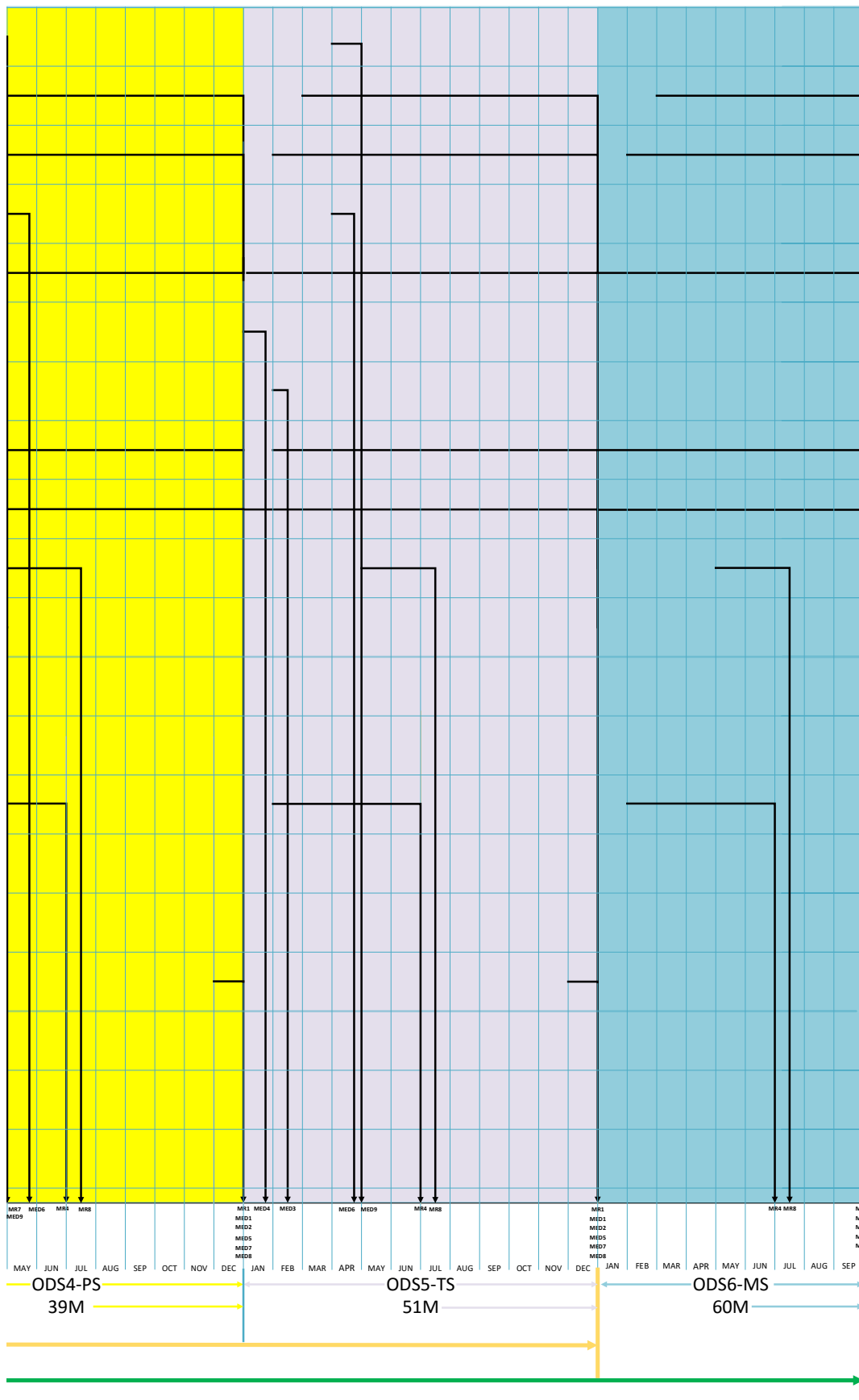
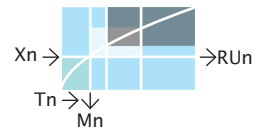
7.12 Annex 12 The three dimensional view of the exit strategy framework





Note:- Preparation for implementation (R1) for each Phase starts end of the preceding Phase !





7.13 Annex 13:

A table showing rating of a hypothetical watershed that has three major activities and their possible sub-activities

Gully rehabilitation (3 gullies in different parts (G1, G2, G3))

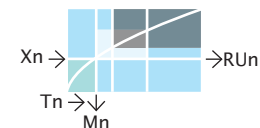
Major Activities	Quality of sub Activities						Quality of Major Activity (using Eq. 1)
	Check Dam	Reshaping	Water harvesting structures	Plantation	Diversion	Management	
G1	4	1	4	4	6	4	3.8 ~ 4
G2	1	1	4	1	4	1	2
G3	6	4	6	6	6	4	5.3 ~ 5

Average quality of the major entry (gully in this case) using Eq-2 = $3.7 \sim 4$, it means it is average (Good).

Area closure (three closed areas in different parts (AC1, AC2 and AC3))

Major Activities	Quality of sub Activities						Quality of Major Activity (using Eq. 1)
	Hillside Terrace	Moisture Harvesting	Enrichment Plantation	Zero-grazing	Protection	Management (cut & carry)	
AC1	6	6	1	1	1	4	3.16 ~ 3
AC2	6	6	6	4	4	4	5
AC3	4	4	6	4	4	4	4.3 ~ 4

Average quality of the major entry (Area closure in this case) using Eq-2 = $4.15 \sim 4$, it means it is average (Good)



Cultivated land conservation (four major cultivated areas (CU1, CU2, CU3, CU4))

Major Activities	Quality of sub Activities						Quality of Major Activity
	SWC	Biological Measure	Cut-off Drain	Water Way	Soil Fertility management	Zero-Grazing	(using Eq. 1)
CU1	6	1	4	1	1	4	2.83 ~ 3
CU2	6	4	1	1	1	1	2.3 ~ 2
CU3	4	1	1	1	1	1	1.5 ~ 2
CU4	1	1	1	1	1	1	1

Average quality of the major entry (Cultivated land conservation) using Eq-2 = 1.9~ 2 (Poor)

Overall quality of activities in the watershed using Eq.3 = 3.25~3, (between good and poor)

Note: for each of the sub-activities you can use equation 1. That will be more realistic than simple judgement by observation. For instance the SWC can be evaluated based on its size of the structure, depth of the ditch, compaction or stone layers quality, alignment, length, its link to water ways, etc.

