The Drylands Development Programme (DRYDEV)

A Farmer-led Programme to Enhance Water Management, Food Security, and Rural Economic Development in the Drylands of Burkina Faso, Mali, Niger, Ethiopia, and Kenya

Final Inception Report

Prepared for: The Ministry of Foreign Affairs, the Netherlands
Prepared by: The World Agroforestry Centre (ICRAF)
Submission date: June, 2015

Ministry of Foreign Affairs of the Netherlands

Contents

Executive Summary

The Drylands Development Programme (DRYDEV) is a five-year initiative (August 2013 to July 2018) funded by the Ministry of Foreign Affairs (MoFA) of the Netherlands, with a substantial contribution from World Vision Australia (WVA). The World Agroforestry Centre (ICRAF) is the overall implementing agency. DRYDEV is designed to provide relevant, contextually appropriate support to smallholder farmers in selected dryland areas of Burkina Faso, Mali, Niger, Ethiopia, and Kenya. It is seeking to meaningfully contribute to the realization of a **vision** where households residing in such areas have transitioned from subsistence farming and emergency aid to sustainable rural development. This is to be achieved by increasing food and water security, enhancing market access, and strengthening the local economy for different categories of farmers.

The programme benefited greatly from its Inception Year (January 2014 to March 2015). This period provided a valuable opportunity to engage with farmers and undertake various studies and planning activities to inform DRYDEV's design. The primary purpose of this inception report, then, is to present the end product: a coherent strategy for how all participating organizations will work together in a meaningful, bottom-up way with farmers to achieve cost-effective impact at scale. Complementary implementation plans have further been developed that detail how this strategy will be implemented.

DRYDEV's strategy is informed by two complementary and overarching 'theories of change' developed during the Inception Year. One is focused on DRYDEV's direct development work with famers, while the other focuses on promoting the uptake of evidence and learning generated under the programme. These theories of change directly inform DRYDEV's revised logical framework analysis (LFA) and include the following mutually reinforcing work packages, sub-outcomes, outcomes, and impacts:

Work Package	Sub-outcome	Outcome	Impact
1. Subcatchment level NRM	1. Appropriate subcatchment level NRM initiatives undertaken	1. Increased water capture & soil conservation/fertility at subcatchment & farm levels 2. Increased production of profitable, climate-smart commodities & food crops 3. Increased sales of targeted value chain commodities by male, female, and vulnerable farmers	1. Sustained improvements in food and water security, livelihoods, and resilience, and the empowerment of women and disadvantaged groups
2. On-farm water & soil management	2. Improved & climate smart on-farm water & soil management practiced		
3. Agricultural commodity production	3. Improved, inclusive & climate-smart production options pursued		
4. Enhancing market access	4. Increased participation of male, female and disadvantaged farmers in lucrative value chains		
5. Financial services linking	5. Increased numbers of famers linked to credit/financial services		
6. Local governance & institutional strengthening	6. Increased capacity of local duty-bearers and farmer organizations & 'duty fulfillment' pressure applied	4. Improved local governance & farmer organization functioning	
7. Planning, M&E, and scaling of learning	7. Key 'scaling stakeholders' identified, find evidence & learning credible and relevant, and actively promote their uptake	5. Critical mass of development actors motivated, able, and resourced to support/directly implement evidenced options	2. Programme outcomes and impacts scaled out to other dry land areas
8. Policy analysis & influencing	8. Awareness raised and attitudes improved among key policy makers and other stakeholders, resulting in their taking desired action	6. More supportive/appropriate policies & wider institutional environment conducive for wide uptake of evidence	

Now that DRYDEV is moving into its full implementation phase, focused efforts have and will continue to identify, implement, review, and refine intervention options to be scaled up in the programme's Inception Year sites and scaled out to others. There are two ways DRYDEV will ensure that this is done right. The first is

through the development and application of seven 'scaling principles' to guide the types of options to be taken forward. The principles specifically require that all supported intervention options be (1) informed by co-learning; (2) contextually appropriate; (3) cost-effective and potentially scalable; (4) inclusive; (5) environmentally and socially benign; (6) climate-smart; and (7) sustainable.

The second way DRYDEV will take its interventions to scale is through the roll-out of the options-by-context (OxC) approach. This approach is founded on the premise that, for most development interventions to work, care must be taken to ensure that they are appropriate for, and adapted to, the contexts in which they are implemented. In other words, one restricted set of options is likely inappropriate, particularly if there is considerable contextual variation within a programme—something that certainly applies to DRYDEV. Undertaking the OxC approach will be an ongoing process, which will involve (a) identifying an initial set of potentially promising options for each targeted site; (b) facilitating 'deep' participatory processes with various groups of farmers to interrogate this initial set and, where relevant, those implemented in the Inception Year; and (c) continuously reviewing and refining supported options together with farmers, as well as devising innovative ways of addressing challenging and contextually rooted issues.

The action-learning and option-review processes core to the OxC approach fall within DRYDEV's Planning, Monitoring, Evaluation, and Learning (PMEL) Framework. This framework also includes (a) the capturing of output and option uptake data; (b) quarterly quality monitoring by joint ICRAF-country lead organization teams; (c) participatory review processes with participating farmer organizations (FOs) and other stakeholders; (d) annual reflection and planning workshops; and (e) the execution of an impact assessment strategy. The latter intends to evidence DRYDEV's impact to inform future investments and policy for drylands development.

Effective programme governance and management are of critical importance. ICRAF has reviewed (and will continue to review) the partner arrangements for the programme across the five countries. In general, the specific roles and responsibilities played by each partner in the Inception Year will continue into the full implementation phase. However, in Burkina Faso action is being taken to strengthen the lead organization's capacity to successfully fulfill its roles and responsibilities. In addition, there are concerns that the level of staffing among some implementing partners deployed to the programme was too high in the Inception Year, resulting in fewer resources being channeled to the community level. Consequently, a rule has been put in place where at least 70% of all country team budgets are to be earmarked for programme delivery. Moreover, in addition to regular financial reporting, finance compliance reviews in each of the five countries will take place on a semi-annual basis. This, together with annual external audits, will ensure the sound management of DRYDEV's financial and material assets.

ICRAF is also putting in place a more substantive management team to promote DRYDEV's cost-effective delivery. Under the direction of the Assistant Director General (Partnerships and Impact), ICRAF's Head of Monitoring, Evaluation, and Impact Assessment is now overall responsible for leading the programme. Programme Coordinators are also currently in place for both the Sahel and East Africa (EA). A Monitoring and Evaluation (M&E) Officer, Finance Office, Communications Officer, and Administrative Assistant are further being recruited for the Sahel, while the EA Coordinator is being supported by a consultant assuming the role of the EA M&E Officer. At the overall programme level, a two person communications team is now in place, and a senior Finance Officer is in the process of being recruited. Various ICRAF technical and administrative staff will continue to provide critical support at both the headquarters and country levels. Finally, a Programme Steering Committee and regional Programme Coordination Committees (PCCs) for the Sahel and EA will be established to enhance governance and strategy and the smooth running of the programme, respectively.

1. Introduction

The Drylands Development Programme (DRYDEV)[1] is a five-year initiative (August 2013 to July 2018) funded by the Ministry of Foreign Affairs (MoFA) of the Netherlands, with a substantial contribution from World Vision Australia (WVA). It is being implemented in five countries in the Sahel and East Africa—Burkina Faso, Mali, Niger, Ethiopia, and Kenya—with the World Agroforestry Centre (ICRAF) as the overall implementing agency. National Lead Organizations (NLOs) include: World Vision in Ethiopia and Kenya; Reseau MARP in Burkina Faso; Sahel Eco in Mali; and Care International in Niger. These organizations are working with other country-level partners to deliver the DRYDEV programme (see Section 2).

The programme benefited greatly from work undertaken in its Inception Year (January 2014 to March 2015).[2] This period provided a valuable opportunity to carry out various studies and engage with participating famers, implementing partners, and other stakeholders to inform its design.

This report presents a comprehensive strategy on how DRYDEV will achieve (and demonstrate) cost-effective impact at scale.

The primary purpose of this document, then, is to present the end product of the Inception Year: a coherent strategy for how ICRAF and all involved partners will work together in a meaningful, bottom-up way with participating farmers to achieve cost-effective impact at scale. ICRAF will be submitting an annual report to MoFA in June 2015, which will describe progress made in the Inception Year in significant detail. Nevertheless, a secondary purpose of this report is to highlight the key achievements and lessons learned thus far. The latter is particularly relevant for DRYDEV's design and delivery mechanisms going forward.

Strongly informed by the adaptive planning paradigm advocated in the 2015 World Development Report (Figure 1), this document presents a robust strategy for how DRYDEV will be delivered to ensure the cost-effective achievement of its intended outcomes and impacts. And its primary sections are based on this strategy's core components.

Following the presentation of relevant background information on the programme (Section 2), Section 3 provides a backdrop for the strategy by presenting key achievements and lessons learned during the Inception Year. Section 4 then follows by revisiting the programme's original logical framework analysis (LFA) by first suggesting areas where it can be improved and second presenting two overarching 'theories of change' for the programme. These two 'theories' then inform DRYDEV's revised LFA.

Now that the programme is moving into its full implementation phase, Section 5 focuses on how it will work to achieve its intended impacts at scale. This begins by presenting a set of 'scaling principles' for the programme. These are intended to guide and set limits on the types of intervention options to be taken forward in the full implementation phase. Moreover, while this document describes the types of options that farmers will

[1] The programme was originally entitled *A Regional Programme in the Sahel and Horn of Africa: Enhancing Food and Water Security for Rural Economic Development*. However, this did not lend itself to a suitable acronym.
[2] The Inception Year was extended by three months, hence why it does not equate with one calendar year.

DRYDEV's programme delivery strategy stresses iterative cycles of participatory review and re-planning, as well as ensuring its interventions are appropriately tailored to the context.

be supported to pursue to achieve DRYDEV's intend outcomes and impacts, these will not be uniform across the five countries. Characterization studies carried out in the Inception Year clearly reveal that conditions vary considerably throughout the programme's targeted areas—both between and within the five countries. Consequently, considerable effort will be made to ensure that the right options are promoted in the right places and in the right ways. This is the hallmark of the options-by-context (OxC) approach, and much of the remainder of Section 5 is devoted to describing how it will be rolled out under the programme.

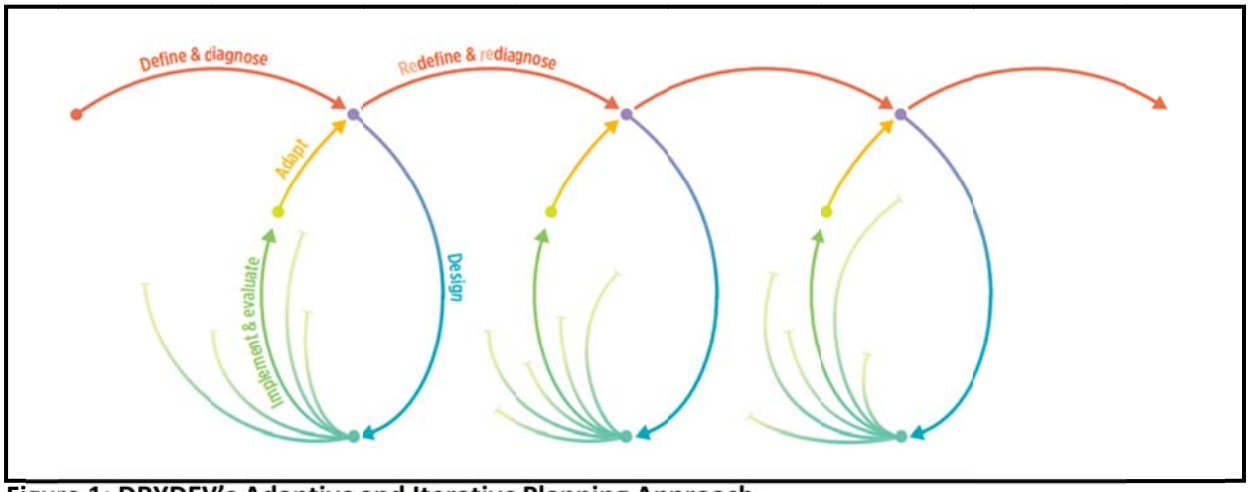


Figure 1: DRYDEV's Adaptive and Iterative Planning Approach
Source: World Bank Development Report 2015

Given the programme's emphasis on adaptive planning, Section 6—which presents DRYDEV's Planning, Monitoring, Evaluation, and Learning (PMEL) framework—is another key section of the report. It starts by describing the various components of this framework, as well as how they are to work together and in synergy with the OxC approach. Given its technical nature, a separate subsection then follows to describe DRYDEV's impact assessment strategy. Section 6 concludes by presenting the key focus of the PMEL framework's measurement work—the programme's reach and sub-outcome, outcome, and impact indicator targets.

Sections 7-8 finalize the report by presenting the programme's communication plan and programme management structure and processes, respectively.

2. Programme Background in Brief

DRYDEV is designed to provide relevant and contextually appropriate support to smallholder farmers residing in semi-arid dryland areas of Burkina Faso, Mali, Niger, Ethiopia, and Kenya. Drylands—agro-ecological zones that include both arid and semi-arid areas—make up 43% of the land area in Africa and are home to about 45% of its population, approximately 325 million people. Relatively neglected by governments and starved of private sector investment, these areas have high rates of poverty. Agriculture is the dominant livelihood, with farmers coping with scarce and highly variable rainfall and eking out primarily subsistence-based livelihoods on largely infertile soils.

ICRAF was keen to develop DRYDEV to facilitate the translation of its scientific insights of dryland systems into interventions with high impact potential.

ICRAF's work is focused on the development of smallholder agriculture in the tropics, with particular attention to the role of trees. Its research is carried out within the framework of the CGIAR's (the Consultative Group on International Agricultural Research) Research Programs (CRPs). ICRAF is considerably involved in CRP1.1, which covers Drylands Systems and is particularly relevant for DRYDEV. By bringing together farmers, scientists, and development partners, DRYDEV offers an opportunity to combine scientific insights and local knowledge to create evidence-informed options that can have a meaningful impact in the drylands—and at scale. Therefore, when the opportunity came to develop the programme with MoFA Netherlands, ICRAF was keen to take this on.

ICRAF, being a research-for-development organization, does not directly implement development interventions. Consequently, drawing on its previous relationships and with additional networking, small teams of implementing partners were carefully selected put in place in each of the five countries to spearhead the programme's implementation. The following table presents both the lead and other participating partner organizations by country:

Country	Lead Country Partner	Other Implementing Partners
Burkina Faso	Reseau Marp	SNV; Tree Aid
Mali	Sahel Eco	OXFAM; AMEDD; AMEPPE
Niger	Care International	OXFAM; World Vision; KARKARA; AREN; RAIL; CRESA
Ethiopia	World Vision	EOC/DICAC; REST
Kenya	World Vision	SNV; CARITAS; ADRA

Given the scale and complexity of drylands systems in the participating countries, DRYDEV is being implemented in areas with rainfall of 400mm-800mm per year—areas commonly classified as 'semi-arid'. Such semi-arid land accounts for 27% of the total land area in Ethiopia; 43% in Kenya; 50% in Burkina Faso; 17% in Mali; and 7% in Niger. Within these semi-arid zones, the programme's interventions are focused on areas where poverty and population density are particularly high and where farmers are struggling to boost productivity and access markets. In addition—and at a time when donor and African governments are shifting from providing relief to building resilience—these are areas where many families are chronically reliant on food assistance due to recurrent crop failure.

Against this backdrop, DRYDEV aims to contribute to the realization of a **vision** of households in such areas transitioning from subsistence farming and emergency aid to sustainable rural development. It aims to do this by increasing food and water security,

enhancing market access, and strengthening the local economy for different categories of farmers. The programme's overarching theories of change for how it is working with farmers and other stakeholders to help realize this vision are presented in Section 4.

DRYDEV was officially launched in September 2013, with field implementation of its Inception Year beginning in January 2014.

3. Key Achievements and Lessons Learned from the Inception Phase

Despite being put in place primarily to inform DRYDEV's design, over 35,000 farmers (over 50% women) were directly reached by various activities in the Inception Year.

3.1 Key Achievements

As explained in Section 1, the Inception Year involved more than undertaking various studies and participatory exercises to inform DRYDEV's design. A number of 'quick win' activities were also implemented. While more detailed information will be presented in the programme's annual report (to be submitted in June, 2015), the following table provides a snapshot of examples of key outputs obtained through the implementation of the 'quick win' activities, as well as the numbers of farmers that were reached. This is structured following the programme's original three outcomes.

Examples of Key Outputs by Original Programme Outcome	Number of Farmers Reached			
	Country	Female	Male	Total
Outcome 1: Improved Food and Water Security				
Improved agricultural practices implemented on 87,257 ha	Burkina	981	1,377	2,358
5,553 viable Moringa trees planted and maintained by women	Mali	4,800	44	4,844
Farmer to farmer training implemented in 106 villages	Niger	140	637	777
High value tree planted in homesteads and degraded land	Ethiopia	1,251	4,909	6,160
Provision of certified drought tolerant seed	Kenya	1,029	1,754	2,783
	Sub-total	**8,201**	**8,721**	**16,922**
Outcome 2: Commercialization of the rural economy				
10 warehouses for crop storage rehabilitated	Burkina	167	158	325
Rehabilitation of water points for market gardens	Mali	218	0	218
Compost training carried out in 16 villages	Niger	140	637	777
Micro-dam and percolation ponds constructed	Ethiopia	6,973	5,735	12,708
3 trade fairs held involving 42 farmer groups	Kenya	1,018	832	1,850
	Sub-total	**8,516**	**7,362**	**15,878**
Outcome 3: Enabling environment				
16 inter-village exchange visits undertaken	Burkina	1,279	1,471	2,750
Participatory consultation workshops	Mali	3,412	475	3,887
	Niger	0	0	0
Establishment and strengthening of farmer organizations	Ethiopia	421	115	536
Capacity assessments of farmer groups conducted	Kenya	2,429	1,018	3,447
	Sub-total	**7,541**	**3,079**	**10,620**
Estimated Net Total of Farmers Reached in Inception Year	Burkina	3,493	4,398	7,891
	Mali	7,902	3,864	11,781
	Niger	267	1,160	1,427
	Ethiopia	4,334	6,780	11,114
	Kenya	2,540	1,064	3,604
	Grand Total	**18,536**	**17,266**	**35,817**

3.2 Lessons Learned

The following four key lessons learned from the Inception Year are critical for the programme going forward:

ICRAF needs to play a stronger role in facilitating, coordinating, and technically guiding the programme.

- **ICRAF should take a more proactive role in guiding and supporting the programme's technical work.**
  ICRAF's monitoring in the Inception Period—as well as insights from the programme's Support Group[3]—revealed quality shortfalls in the implementation of both the characterization studies and the 'quick win' activities. A more hands-on role for ICRAF in DRYDEV's full implementation phase, beyond mere coordination, is important.

- **Processes need to be spearheaded to generate common understanding about the programme and its core approaches among all involved partners.**
  In the initial stages, it is natural for any complex development programme involving multiple partners spanning differing cultures, perspectives, and approaches to experience 'teething pains'. DRYDEV is certainly no exception. More work needs to be done to foster co-ownership over the programme's vision, strategies, and core approaches.

- **While involving partners with different areas of expertise at the country level is potentially highly beneficial, this approach also introduces complexity and action is needed to ensure that this potential is actualized.**
  Simply having in place lead organizations at the country level does not automatically translate into well-functioning, harmonious country programme teams. Experiences from the Inception Year reveal that focused efforts are additionally needed to make the relationships work well. In addition to providing more technical support and guidance, ICRAF—being the overall implementing agency—will play a more proactive role in spearheading such efforts in DRYDEV's full implementation period.

- **There is a need for ICRAF put in place a more substantive team to support DRYDEV's delivery.**
  This directly follows from the above. ICRAF's response is presented in Section 8.

4. Refining DRYDEV's Strategic Framework and Logframe

This section presents a rationale for refining DRYDEV's original logical framework, paving the way for the revised iteration presented in Annex B. This revised logframe is based on two complementary 'theories of change' that have been developed for the programme. The second part of this section introduces these 'theories' and their corresponding work packages.

[3] A Support Group, comprising of several international development professionals, was established in 2012. It initially supported the identification of the programme and subsequently accompanied ICRAF in the development of the full programme's proposal. From 2013, it was contracted by ICRAF to accompany the Inception Phase.

4.1 Revisiting DRYDEV's Logical Framework Analysis (LFA)

Based on experiences and reflection during the Inception Year, the ICRAF DRYDEV team proposes to revisit the programme's original logical framework analysis (LFA). This is for a number of reasons. To start, it places limited emphasis on promoting the uptake of programme-related learning to inform wider policy, practice, and investment decisions. Thus, it misses opportunities for the programme to leverage greater impact. It also pays little attention to bolstering agricultural production to increase household food security and enhance the programme's value chain strengthening efforts. Concepts such as gender, inclusion, resilience, and climate-smart agriculture could further be given greater attention. Moreover, a number of the outcomes and sub-outcomes would benefit from greater specification. A more detailed analysis of DRYDEV's original LFA to the sub-outcome level is presented in Annex A. A proposed revised LFA is then presented in Annex B. This framework is directly informed by two complementary theories of change developed for the programme presented below.

Efforts have been made to better specify DRYDEV's LFA, which is directly informed by two overarching theories of change.

4.2 Getting the Theory of Change Right

As presented in Section 2, DRYDEV's vision is one where rural households (including women and disadvantaged groups) residing in semi-arid areas of the five participating countries have transitioned from subsistence farming and emergency aid to sustainable rural development. It is seeking to help realize this vision in two ways. The first is through the provision of direct development support to at least 280,000 farmers through interventions, such as farm-level water and soil management; watershed restoration; agricultural commodity production; and value chain and institutional development.

The second is by influencing wider policy, practice, and investment decisions. Building on scientific and local knowledge and following the options-by-context (OxC) approach presented in Section 5, systematic efforts will be made to support farmers pursue context-appropriate options pertaining to natural resource management (NRM), agricultural production, and commercialization. The effectiveness and cost-effectiveness of these options will then be rigorously evaluated, either through small-scale participatory field trials and complementary action learning initiatives or the programme's impact assessment strategy (see Section 6). This will facilitate understanding of the programme's progress towards realizing its intended outcomes and impacts; it will also build evidence on what works, for whom, how, and at what cost across DRYDEV's heterogeneous contexts. Through the programme's evidence dissemination and communications work, this learning will be promoted among relevant government institutions and other development actors within (and possibly beyond) the five participating counties. This is expected to leverage significant additional impact.

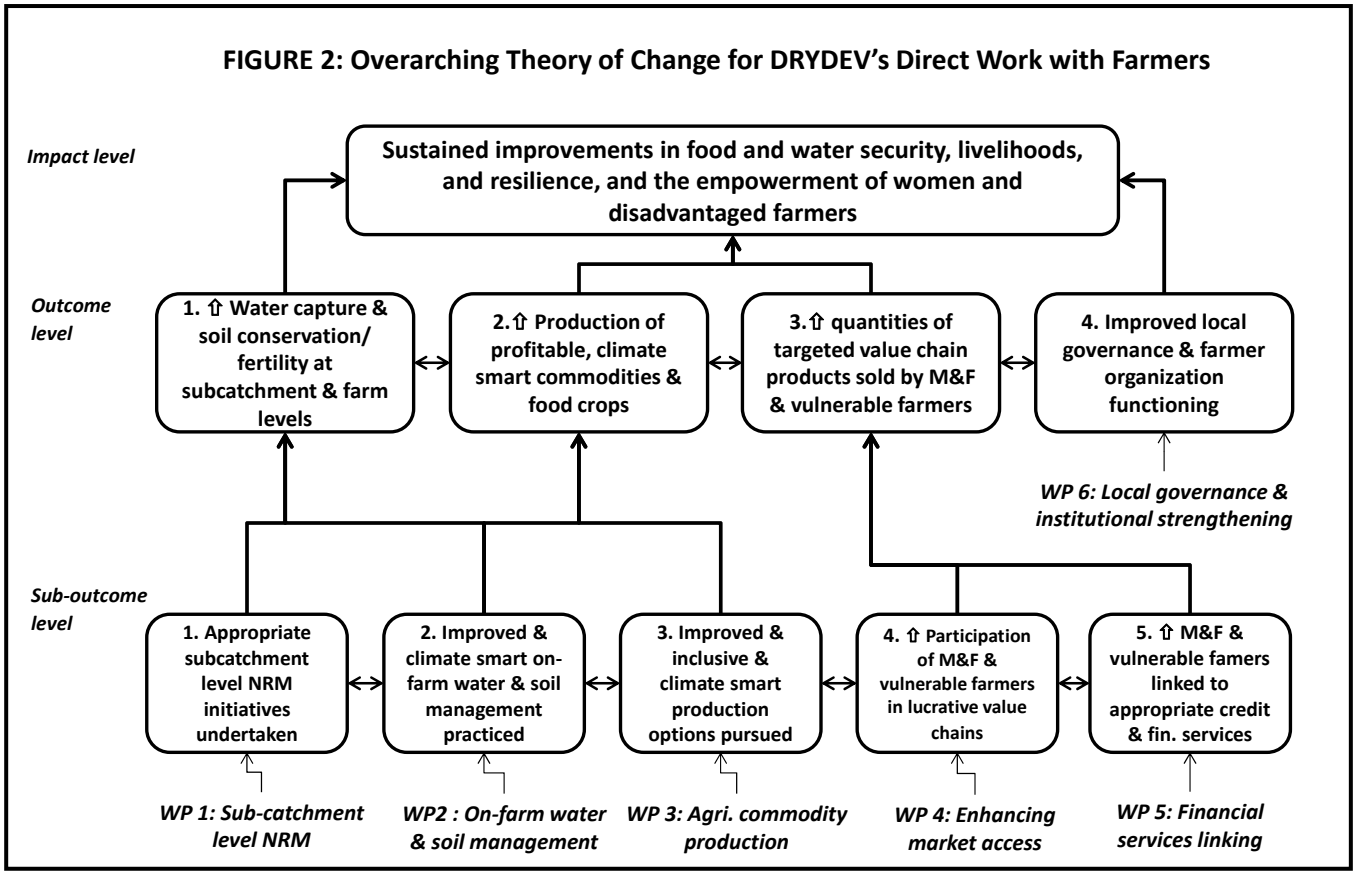
DRYDEV also will also seek to influence policy and practice by carrying out analyses and action research to identify barriers in the wider policy and institutional environment that militate against the successful adoption, effectiveness, and sustainability of appropriate options for promoting sustainable economic development in the targeted areas. This is being complemented with lobbying and networking efforts to influence

DRYDEV is directly supporting farmers to adopt contextually appropriate and inclusive options, as well as actively promoting their uptake elsewhere.

and/or directly work with policy makers and other stakeholders to address these barriers.

Given DRYDEV's focus on generating impact both directly through its development work and indirectly by influencing wider policy and practice, two corresponding and overarching theories of change were developed for the programme, following critical reflection on its Inception Year. These are presented visually below. They both correspond with DRYDEV's original outcomes and sub-outcomes, but relevant details and interrelationships are more clearly specified. While similar work packages exist across the programme, the specific outputs and activities being pursued under each are both country and context specific.

FIGURE 2: Overarching Theory of Change for DRYDEV's Direct Work with Farmers



The top box presented in Figure 2 corresponds to DRYDEV's intended impacts. The emphasis of the programme's purpose statement on obtaining water and food security is maintained, but its focus on driving economic development (which is a process, rather than a result) is restated in terms of improvements in livelihoods and resilience. In addition, the empowerment of women and disadvantaged farmers is given explicit attention, given DRYDEV's focus on promoting inclusive and equitable development.

This theory of change assumes that the above stated impacts will be maximized through the achievement of nine mutually reinforcing outcomes and sub-outcomes. Outputs and

DRYDEV's intended impacts are to be realized by enhancing water capture; soil conservation and fertility; agricultural production; value chain participation; and local governance and institutional functioning.

specific activities are not included—simply work packages. This is because the theory of change applies to the entire programme across the five countries, and room is intentionally left so that such outputs and activities can be contextualized.

The theory of change's first outcome—increased water capture and soil conservation and fertility at both the sub-catchment and farm levels—is to be achieved by

a) restoring watersheds through contextually appropriate options such as water harvesting and management, controlled grazing, and/or reforestation (Sub-outcome 1); and
b) improving on-farm water and soil management (sub-outcome 2).

The successful achievement of Outcome 1 is expected to directly improve water security. Complemented by the provision of direct support to farmers (leading to the achievement of Sub-outcome 3), Outcome 1 is further expected to increase the production of profitable, climate-smart agricultural commodities and household food crops (Outcome 2).

Together, Outcome 2 and Outcome 3—increased sales of targeted value chain products among participating male, female, and vulnerable farmers—are intended to bolster livelihoods and resilience and empower women and disadvantaged farmers. Moreover, Sub-outcome 4 (increased participating of male, female, and vulnerable farmers) and Sub-outcome 5 (farmers linked to credit and financial services) are intended to work together to support the realization of Outcome 3.

Outcome 3 in DRYDEV's original LFA is: *Environment that enables increased water and food security and economic growth created*. The programme proposes to continue to work towards this but in two different ways. The first is by undertaking efforts to strengthen local governance and institutions (including farmer organizations) in areas pertinent to its interventions and desired results. These efforts are intended to lead to the realization of Outcome 4. Experience during DRYDEV's Inception Year revealed that there are a number of local-level governance and institutional issues that are likely to significantly influence both the achievement and sustainability of the programme's expected outcomes and impacts. Addressing these, therefore, is important for maximizing programme success.

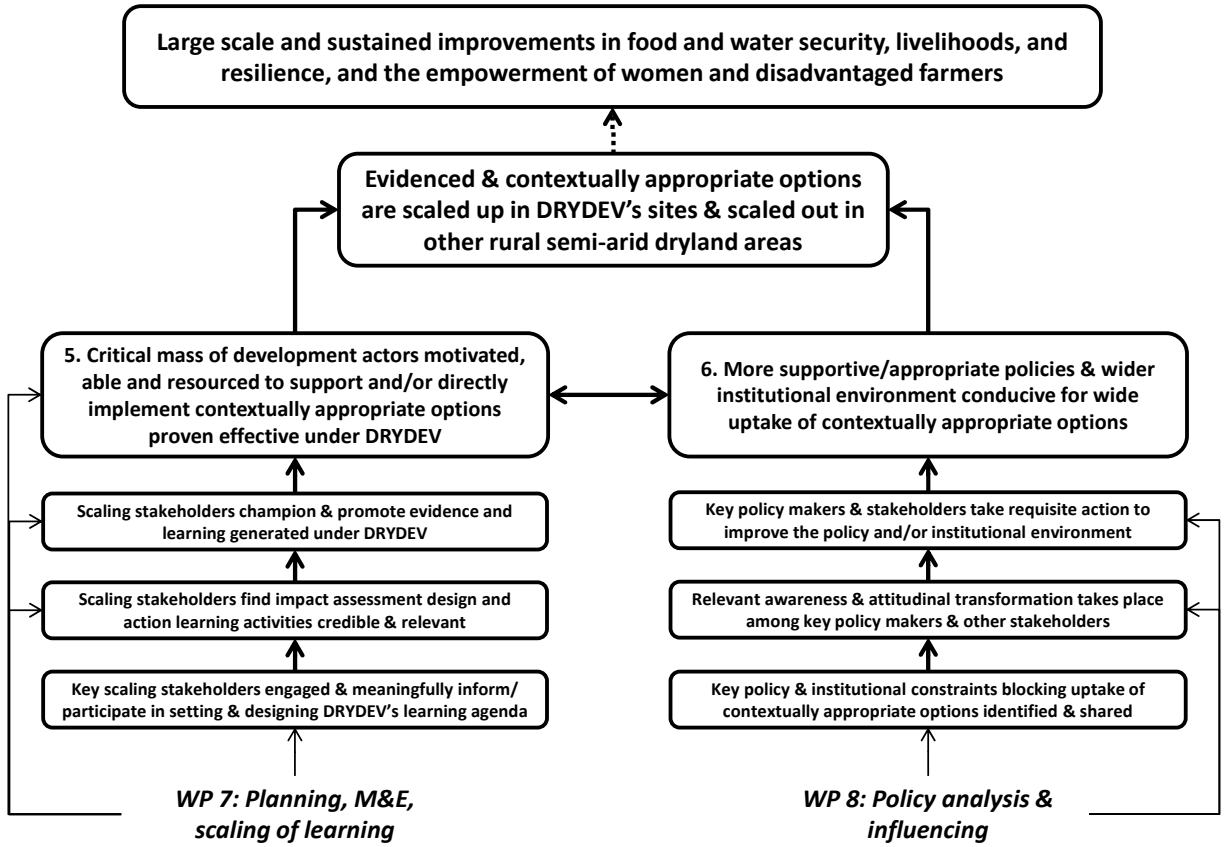
Another way of articulating and summarizing the relationship between WPs 1-6 is as follows: Intensive NRM restoration efforts will take place at both the subcatchment and farm levels (WPs 1-2). This is expected to increase the potential for increased production, and support will be provided to help actualize this potential (WP 3), thereby enhancing both food security and on-farm income. Efforts will further be made to bolster the latter via WPs 4-5. Activities under WP 6 are cross-cutting and are intended to enhance the overall effectiveness and sustainability of DRYDEV's direct support to farmers.

The second way DRYDEV is seeking to bring about a more enabling environment is through its higher level policy and institutional influencing efforts. This is specifically to remove barriers militating against—as well as ensuring widespread support for—the

Uptake of programme-generated evidence and learning will be promoted by cultivating 'scaling champions' and influencing policy makers.

uptake of contextually appropriate options for promoting sustainable economic development in rural semi-arid dryland areas in the five participating countries. However, even if this influencing is effective, most of the 'fruits' will likely not be realized until the latter stages of the programme or even thereafter. Indeed, DRYDEV's programme team proposes that this work be explicitly part of another complementary 'theory of change' for the scaling programme generated evidence and learning, thereby potentially brining about a much greater impact return on MoFA's investment in this programme.

FIGURE 3: Overarching Theory of Change for Scaling Programme Generated Evidence & Learning



This second theory of change is presented in Figure 3 and is—again—overarching, thereby requiring detailing at the country level. The intended impacts of this theory of change are the same as the first but at a much larger scale. This is to be achieved through the widespread scaling out of interventions proven to be effective under DRYDEV's direct work with farmers by other actors. There are two key outcomes (again, mutually reinforcing) that are to be realized to facilitate this. The first (Outcome 5) is for a critical mass of development actors (e.g. government institutions, donors, and non-governmental and multilateral organizations) that are motivated, able, and resourced to support and/or directly implement learning and options proven effective under DRYDEV. This is to be achieved through efforts falling under DRYDEV's planning, M&E,

and scaling of learning work package. This will require key 'scaling stakeholders' to be meaningfully engaged in the learning process, find it credible and relevant, and—in turn—actively champion and promote the resulting lessons.

The programme team also proposes that a specific work package focusing on policy analysis and influencing be adopted. As stated above, DRYDEV seeks to bring about more appropriate policies and institutional arrangements supportive of widespread uptake of contextually appropriate options in the drylands (Outcome 6). This is assumed to require awareness and attitudinal transformation among relevant policy makers and other stakeholders, followed by their undertaking of relevant action to improve the situation.

In summary, the programme team proposes that two complementary, overarching theories of change be adopted for DRYDEV—one pertaining to its direct development work with farmers and another that describes how evidence and learning generated under the programme are to be scaled out. In accordance with these theories of change, which directly inform DRYDEV's revised LFA (Annex B), the programme's work is structured into eight work packages.

5. Strategy for Achieving Impact at Scale

Following the inception phase, concerted efforts will be made to take the programme to scale. However, if DRYDEV's potential to generate significant, cost-effective, inclusive, and sustainable impact is to be realized, a departure from the status quo is required. The following describes how this departure will take place. This begins with the presentation of general scaling principles to inform the types of interventions to be scaled up and scaled out. This is followed by describing the option-by-context (OxC) approach and how it will be applied to increase the likelihood that the right things will be done in the right places and in the right ways.

Scaling principles have been developed to guide decision-making on the types of options to be scaled up and scaled out.

5.1 Scaling Principles

As explained in Section 3, considerable achievements were made during DRYDEV's Inception Year. In addition to undertaking various characterization and baseline studies to inform the programme's design, this work also included the implementation of various 'quick win' interventions that reached over 35,000 farmers. As the programme transitions into its full implementation phase, those 'quick win' interventions deemed contextually appropriate will continue to be scaled up in the existing sites and scaled out to others. However, some interventions will be phased out, with others added as appropriate to actualize the theories of change presented in Section 4.

Key decisions, therefore, were and will continue to be made on the particular interventions that will be implemented in DRYDEV's full implementation phase. It is obvious that not all possible interventions can be supported under the programme, despite the fact that they may have the potential to generate significant, desirable impact. Some, for example, may be too costly and, therefore, difficult to take to scale.

Others, while potentially effective in achieving their intended results, may be associated with significant and adverse environmental and/or social externalities.

Following the above, the programme and country teams found it useful to define a set of 'scaling principles' for DRYDEV to inform decision-making on the types of interventions that will be scaled up and out under the programme. Such principles have the added advantage of capturing and communicating DRYDEV's core values. Many of the following scaling principles can be found in various sections of the programme's original proposal, but efforts were made to make them more explicit.

DRYDEV's Seven Scaling Principles:

Interventions to be scaled up and out under DRYDEV will be

1. **Informed by co-learning**. DRYDEV is striving to support farmers pursue options that will work. Given the programme's context, this not a straightforward exercise. A purely top-down, 'expert'-led approach is unlikely to be effective, given high levels of imperfect knowledge and the absence of local ownership. On the other hand, undertaking superficial participatory processes where local farmers generate 'wish lists' of desired support is also unlikely to deliver significant value for money. Moreover, the optimal 'intervention mix' for a particular context can be difficult to establish at the onset. This is more likely to emerge following several cycles of review and refinement. Given the above, DRYDEV has adopted a co-learning paradigm. Here, efforts are being made to bring together local and expert knowledge and insights in a mutually reinforcing and synergistic way. In particular, joint participatory processes with farmers, scientists, and local experts will be facilitated to select, refine, and review the contextual appropriateness and performance of various options, against the backdrop of DRYDEV's intended outcomes and impacts.

'Quick win' initiatives inconsistent with DRYDEV's scaling principles will be phased out.

2. **Contextually appropriate.** Despite falling in the semi-arid zone, the various areas in which DRYDEV is being implemented—both between and within the five participating countries—are far from homogenous. The programme's contexts differ in important ways with regard to agro-ecological features, history and culture, population densities, market access, land holding size, and other factors. These differences are likely to influence both the adoption and performance of the various development options promoted under DRYDEV. Consequently, significant efforts are needed to tailor the programme to its heterogeneous contexts.

3. **Cost-effective and potentially scalable.** The resources at DRYDEV's disposal—particularly when spread across the five countries—are a fraction of what is needed to meet the demand. However, the programme desires to provide as many farmers with meaningful support as possible. It intends to do this in two ways: The first is by directly supporting farmers pursue promising, cost-effective options, and the second is by promoting the uptake of options proven effective under the programme. The latter is less likely to happen if the intervention in question is very costly vis-à-vis the number of people that are expected to benefit. This is also the case if a high level of technical input is needed to support farmers' adoption of the

option in question. As such, the interventions pursued under DRYDEV should be both potentially cost-effective and scalable.

Proactive measures will be taken to ensure that women and disadvantaged farmers meaningfully benefit from the programme.

4. **Inclusive.** Unless proactive measures are taken, DRYDEV may fail to ensure that the less powerful and resourced members of the targeted communities derive meaningful benefit from its interventions. Indeed, elite capture and related issues are real risks that require mitigation and continuous monitoring. DRYDEV is striving to ensure that its interventions are amenable to the meaningful participation of women and disadvantaged community members, so that they benefit substantially. This will be a key criterion used to judge the programme's success.

5. **Environmentally and socially benign.** Concerted efforts will be made under DRYDEV to avoid the generation of adverse programme-induced environmental impacts (e.g. deforestation) and/or social impacts (e.g. community conflict), or—when such potential impacts cannot be avoided—measures will be put in place to ensure their appropriate mitigation.

6. **Climate smart.** The programme will support farmers pursue options that are appropriate, given *both* current and predicted future levels of climatic variability and disaster risk. In addition, supported options should ideally enhance household resilience to shocks, or, at the very least, they should not undermine resilience (e.g. by encouraging intense specialization in a crop that is susceptible to climatic variability and/or sharp fluctuations in market price). Finally, where possible, supported options should help reduce emissions and/or sequester greenhouse gases.

7. **Sustainable.** Many externally initiated interventions collapse—and, by extension, fail to generate their expected benefits—soon after project closure, due to inadequate efforts to put in place measures to ensure their sustainability. Given that DRYDEV is seeking to generate long-lasting impacts, the options its supports should be, by their very nature, potentially sustainable. They should also be backed up by proactive measures to ensure that this potential is realized, e.g. through the provision of quality capacity development and/or linking of farmers to reliable sources of technical or financial support.

5.2 Participatory Tailoring of Options-by-Context (OxC)

Complementary resources have been leveraged to provide more substantive support to country teams to deliver DRYDEV across its heterogeneous contexts.

As captured by the second scaling principle presented in the previous subsection, considerable effort will be made to ensure that the options to be scaled up and out in DRYDEV's full implementation phase are appropriately tailored to the programme's heterogeneous contexts. This is to both ensure and maximize cost-effective impact. The purpose of this subsection is to spell out how this will be achieved.

As described in Section 3, noteworthy accomplishments took place during DRYDEV's Inception Year, including the implementation of various 'quick win' activities. However, the programme has always planned to use information from the characterization studies and further participatory engagement to identify and design a more optimal

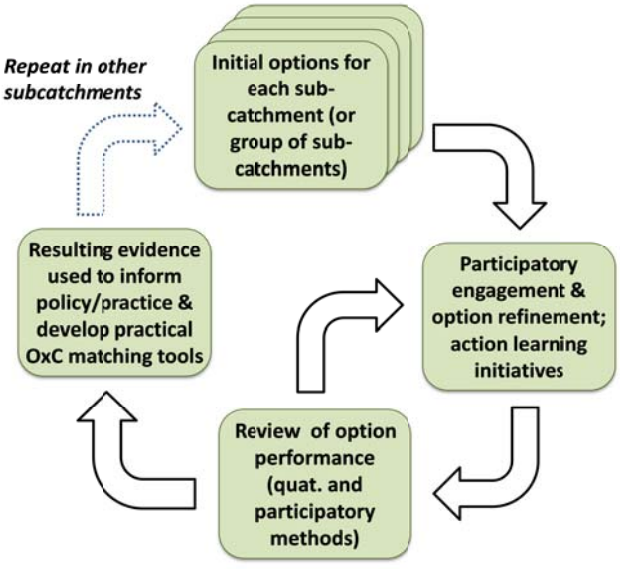
portfolio of interventions for the full implementation phase. The country PIPs, which are presented in an accompanying document, reflect this to a large extent. However, as presented in Section 8, these plans have also been intentionally designed to permit the ongoing contextual refinement of DRYDEV's various interventions. ICRAF intends to work closely with DRYDEV's country teams to support this process, with a particular focus on operationalizing the OxC approach.

This approach will be pursued in the following way and as depicted in Figure 4:

- DRYDEV's country PIPs and corresponding 2015 Detailed Implementation Plans (DIPs) indicate general options that country teams will support farmers pursue in the targeted subcatchments. The specific details associated with each option will be informed by the realities of the local context and farmer priorities. One of the initial activities slatted for 2015 is to work with relevant local authorities to support community members develop Subcatchment Action Plans (SCAPs).[4]
- While the participatory processes to develop the SCAPs will initially focus on WPs 1-2, options associated with WPs 3-5 will also be identified and pursued. However, the nature of these options will likely evolve and become more sophisticated over time. In particular, the subcatchment level and on-farm NRM interventions are expected to create more favorable conditions for agricultural production. This, coupled with DRYDEV's value chain development work, is thus expected to offer farmers new opportunities as the programme matures.

The OxC approach is DRYDEV's primary means of meaningfully operationalizing its co-learning scaling principle.

FIGURE 4: Option-by-Context (OxC) Approach Under DRYDEV



[4] At the time of writing, programme guidelines were the process of being developed for both ICRAF staff and partners for the OxC approach and its relationship to subcathcment management planning. These are being informed by officially recognized approaches to subcatchment management planning in the five participating countries.

- While both geographical information systems (GIS) and remote sensing (RS) associated with both the characterization studies and further complementary work will be used to customize the options to be pursued in the targeted subcatchments, concerted efforts will be made to communicate and meaningfully involve farmers and local leaders in this process. Particular efforts will also be undertaken to ensure that women and disadvantaged farmers actively participate. The interface between modern technology and expert opinion on the one hand and local knowledge and insights on the other is expected to lead to the identification of refined subcatchment development options that—if implemented well—will create the necessary production foundation for achieving DRYDEV's intended outcomes and impacts.
- The initial product emerging form the subcatchment planning process will be a set of options that all stakeholders—particularly the participating farmer groups—believe are promising and appropriate and that are in line with DRYDEV's scaling principles. The performance of these options will be further reviewed as part of the programme's co-learning approach, as elaborated in Section 6.
- As the first phase of the OxC approach is carried out, there may be considerable uncertainty about the local appropriateness of potentially promising options and the conditions under which they might work, as well as how to address particular issues critical for the successful realization of DRYDEV's expected outcomes and impacts. This will prompt the design and facilitation of various participatory action learning initiatives with farmers, e.g. the setting up of farm trials and experimental plots to test the technical efficacy, as well as the economic and social appropriateness, of particular options across a range of conditions. The resulting learning will be fed into management decision-making to enhance the programme's effectiveness in the context in question and generate evidence to inform programme and investment decisions elsewhere. Supporting both the partners and participating farmers groups through the OxC process will also serve to strengthen their capacity, as well as a means of empowering the latter. How the OxC approach fits in with DRYDEV's Planning, Monitoring, Evaluation, and Learning (PMEL) framework is presented in Section 6.

Solutions to local challenges will not always be immediately apparent. As such, space has been built into the programme to support farmers to experiment with potentially promising options and customize them to local conditions.

5.3 Identification of Programme Areas

The country PIPs document both the areas where the Inception Year's 'quick win' activities were implemented and indicative areas where programme activities will be expanded to in the full implementation period. The latter, however, will be critically reviewed through field visitation, mapping, and discussions with partners and other relevant stakeholders in the first half of 2015 to ensure that the initial proposals are sensible and technically sound. Specific consideration will be made for striking an appropriate balance between achieving scale on the one hand and a requisite level programming intensity and quality on the other.

6. Planning, Monitoring, Evaluation, and Learning (PMEL)

The OxC approach presented in the previous section is fully embedded in the programme's Planning, Monitoring, Evaluation, and Learning (PMEL) framework. The primary purpose of this section is to present this framework. A specific subsection is further devoted to describing the programme's impact assessment strategy, which is an essential part of it. The section concludes by presenting DRYDEV's reach and sub-outcome, outcome, and impact indicator targets, progress towards which will be gauged through the PMEL framework's operationalization.

DRYDEV is unlikely to maximize value for money if it sticks to a pre-defined and pre-designed set of options. Its PMEL framework will ensure that all pursued options are subjected to critical, participatory review and ongoing refinement.

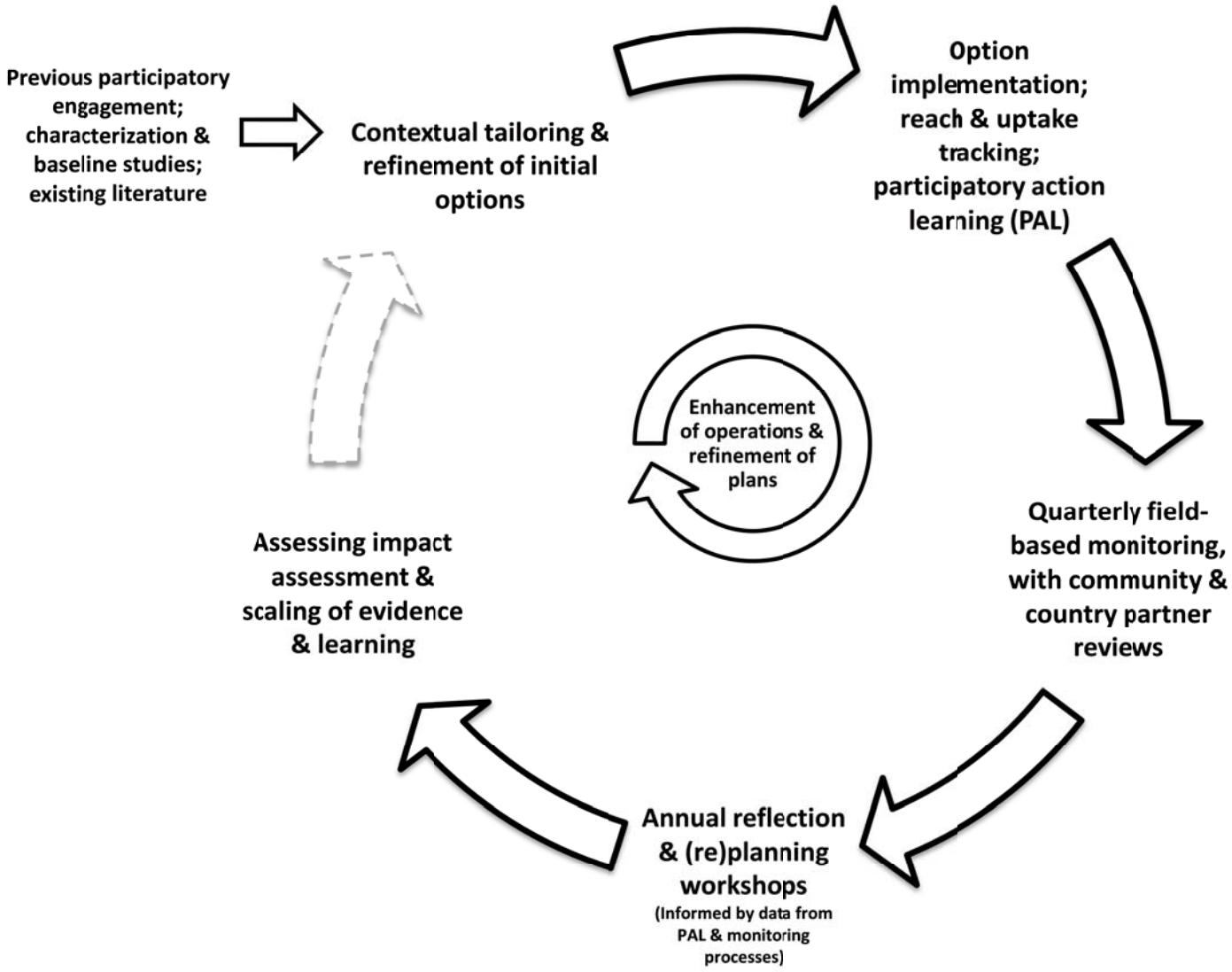
6.1 Planning, Monitoring, Evaluation, and Learning (PMEL) Framework

DRYDEV's proposed PMEL Framework is presented in Figure 5. As is readily apparent, it is intimately linked to the OxC approach presented in the previous section. The characterization and baseline studies, reflections on the 'quick win' activities, initial engagement with farmers, and views of the Support Group have generated many ideas of what could be done to most effectively and efficiently realize DRYDEV's intended outcomes and impacts. The OxC approach is a means of narrowing this down to those options that are most likely maximize value for money across the various contexts in which the programme is being implemented.

The country implementing partners will be both heavily involved in the OxC process and responsible for supporting the participating farmers pursue the identified options in each targeted subcatchment site. As per their own internal project management processes, they will be responsible for monitoring and supervising their activities under the programme and held accountable for doing so properly by both the lead country organizations and ICRAF. In addition, they will be responsible for *reach tracking*, i.e. tracking the numbers of farmers (disaggregated by sex and sex of household head) supported by each specific option. This will be complemented by semi-annual 'option uptake' tracking, where the implementing partners will carry out systematic site inspections of the programme's watershed-level interventions and what is being practiced in farmer fields.

To systematize option uptake tracking at the farmer field level, the implementing partners will be trained in and apply lot quality assurance sampling (LQAS). This will involve randomly selecting a relatively small number of supported households in each site (e.g. 19) and carrying out field inspections to assess (a) whether they have actually attempted to put in place the option in question, e.g. zai pits; and, if so, (b) how the introduced option is faring. Simple checklists will be developed to support this. While the small samples used will fail to generate precise statistics for each particular site, the resulting data will be aggregated at the country programme level to give a clear picture on the state of option uptake. Moreover, the hallmark of the LQAS method is that it will enable those sites where farmer level uptake is faring very well to be distinguished from those where it is faring poorly. This will, thereby, enhance programme management efficiency by helping to direct relatively more effort and resources to those sites that would benefit from additional participatory engagement and/or learning with farmers.

FIGURE 5: DRYDEV's Planning , M&E, and Learning (PMEL) Cycle



Following the OxC context approach and alongside the option implementation processes presented above, various participatory action learning initiatives will take place. Recall from Section 5 that, where there is considerable uncertainty, this may be to test the efficacy of a potentially promising option across a range of conditions. In other cases, involving farmers in simple observational studies may prove useful. For example, the integration of fertilizer trees in farmer fields may appear promising. However, some farmers may be reluctant to pursue this out of fear that the trees would attract birds, thereby resulting in crop damage. Involving farmers in a systematic process of comparing fields with and without trees may serve to either confirm or alleviate their fears. Either way, the resulting learning will serve to strengthen programme effectiveness, i.e. by enhancing the uptake of an effective option or downplaying the promotion of an option that may be contextually inappropriate. Indeed, the resulting learning is expected to not only make the programme more effective but also help inform future investment decisions and wider policy and practice.

The OxC approach and related co-learning processes on the one hand and DRYDEV's PMEL framework on the other have been brought together in an innovative way to enhance programme effectiveness.

From a larger programme perspective, it will further be useful for programme stakeholders who are not involved in either direct intervention implementation or the facilitation of action learning processes to periodically monitor the quality of what is taking place in the field. This will include facilitating participatory review exercises with participating farmer organizations. To this end, country level **Joint Quality Monitoring Teams** (JQMTs) be established, which will include relevant ICRAF and country lead organization staff. Each JQMT will conduct several days of purposively directed field-based monitoring and participatory M&E exercises, followed by review meetings with all country partner organizations. The latter will entail co-reflection on what is going well and not so well operationally, followed by the development of corrective action plans to address the latter.

Annual reflection and (re)planning workshops will also take place, where partners and other key stakeholders will be brought together at the regional level. One such event is planned at mid-term at the overall programme level as well. One key purpose, of course, will be to share general learning and experiences and facilitate programmatic synergy. This will include critically reflecting on progress related to both the work carried out under DRYDEV's work packages and the unfolding of its two overarching theories of change (see Section 4). Data collection from the programme's monitoring and participatory action learning (PAL) processes will strongly inform such reflection, thereby ensuring that any resulting decisions are informed by evidence. Country teams will, furthermore, be given hands-on support to develop their work plans and budgets for the upcoming year, which will take into account results of the reflection processes.

DRYDEV's impact assessment and scaling of learning form the last step in DRYDEV's PMEL cycle. The former is explicated in the following subsection. It is useful to point out here, however, that this step will not commence at the end of the programme. Rather, efforts have been made to build the impact assessment strategy into DRYDEV's design, which includes collection of baseline data in both intervention and comparison (business as usual) sites as explained below. Considerable monitoring, review, and re-planning will further take place on efforts being undertaken to encourage uptake (scaling) of the evidence being generated from both DRYDEV's impact assessment and participatory action learning initiatives. This is to ensure that the programme leverages

additional impact above its direct support to farmers. (See theory of change for scaling DRYDEV's impacts presented in Section 4.)

6.2 Impact Assessment Strategy

DRYDEV's impact assessment strategy is designed to generate robust and relevant evidence to inform policy and future investment decisions for the drylands.

DRYDEV intends to support the effective implementation of natural resource management, agricultural production, value-chain, and local governance and institutional strengthening options that will yield significant, cost-effective impact. As implied by the theory of change for scaling evidence and learning generated under DRYDEV, this is not restricted only to farming families *directly reached* by its activities. In particular, if the options are also taken on by other development actors and/or programme-related learning informs government policy, additional impact will be leveraged—*and possibly on a much larger scale*. However, this is unlikely in the absence of credible evidence on the effectiveness of the options being pursued under the programme across its various contexts. As explained in the previous subsection, efforts will be made to generate such evidence. This subsection focuses on DRYDEV's impact assessment strategy.

To date, baseline studies have been undertaken in Ethiopia and Kenya. While potentially useful for planning purposes, the resulting data were not necessarily obtained from the specific communities/households that will actually participate in the programme. In addition, these studies were not informed by a rigorous impact evaluation design, e.g. one involving comparison groups. Rather, the approach undertaken assumes that the impact of the programme can be assessed by comparing baseline and endline data on key outcome indicators (i.e. before-and-after analysis).

While such an approach can be useful for identifying priority areas for intervention or tracking trends over time, it is discredited in the impact evaluation field as a means—particularly when used in isolation—for assessing the impacts of the vast majority of social development programmes. The reason for this is simple: During a programme's implementation, the status of most outcome variables (e.g. crop productivity) is simultaneously affected by various uncontrollable and non-programme related factors, e.g. rainfall patterns. Consequently, an observed change in the status of such variables may have nothing to do with the programme.[5] Given these limitations, a new framework for assessing DRYDEV's impacts will be pursued.

For a large-scale programme such as DRYDEV, the most straightforward approach for assessing impact is to compare farming families and other entities (e.g. fields or watersheds) targeted by the programme with others that are very similar but were not

[5] The situation can be different if there are repeated measures of the outcome variable both before and after the intervention (which is unfortunately rare for most social development programmes). If such data are available, one can assess whether there is a break in the evolution of the outcome variable over time which coincides with the implementation of the programme. However, this does not necessarily rule out the possibility that the break may have been caused by some other non-programme related factor. This is known as the interrupted time design.

(including by another similar programme). Impact can then be estimated by comparing the two groups with respect to the key outcome and impact indicators.[6]

Given attribution issues, simple before-and-after indicator analysis provides inadequate evidence of impact.

Given that DRYDEV's country teams have already started implementing activities in specific sites, unfortunately, it is not possible to include these sites as part of the impact assessment. Consequently, DRYDEV's rigorous impact assessment work will focus on geographical areas where the programme has yet to be implemented. However, this does not mean that smaller-scale farmer field trials to test the performance of particular options (or other complementary action learning initiatives) cannot take place in the 'quick win' sites. On the contrary, this will be actively encouraged, as part-and-parcel of the OxC approach described above.

From a quantitative impact assessment perspective, the ideal way to assess DRYDEV's effectiveness would be to first identify a large number of subcatchments that are independent from a hydrological perspective, separated by a reasonable degree of distance, and meet the programme's targeting criteria. These subcatchment units would then be randomly assigned into programme intervention and comparison groups, with representative baseline and endline data being collected and compared between the two. Better still, particular subcatchments would be randomly assigned to different programme components, thereby testing the relative effectiveness of each.

Unfortunately, pursuing such a cluster randomized control trial (RCT) was rendered infeasible for the DRYDEV programme following recent engagement with the participating country teams. The reason is that the watershed units (technically sub-sub-catchments) the programme will expand into during the full implementation phase are too few in number. The purpose of random assignment is to ensure that units (e.g. households) assigned to the intervention and comparison groups are statistically balanced. This is in relation the baseline status of the outcome variable itself and both observable and unobservable factors that may affect the evolution of this variable over time. This only works when a large number of units are randomly assigned.

As a consequence, a quasi-experimental impact evaluation design—based on the difference-in-differences method coupled with propensity score matching (PSM)—will be pursued. This will be augmented by the theory-based evaluation approach and complementary qualitative research. For the quantitative component, efforts will be undertaken to purposively match each subcatchment unit targeted for programme expansion to at least one comparison subcatchment unit that is (a) relatively nearby but not so close that it could be subjected to significant programme spill over; (b) has similar biophysical characteristics (e.g. slope, rainfall patterns, and soil conditions) and socioeconomic characteristics (e.g. poverty levels and land use patterns); and (c) is part of the same larger watershed, yet independent from being affected by the programme's NRM interventions from a hydrogeological perspective.

[6] Such impact evaluation designs are more robust when they compare both groups in relation to how the outcome indicators have changed over time (i.e., by comparing the difference in the differences) or, better still, when they ensure that programme participation takes place at random. If done properly, the latter ensures that both groups are similar at baseline (at least on average) in terms of both the outcome variable itself and the various observable and non-observable factors unrelated to the programme that can affect its evolution over time.

A theory-based quasi-experimental impact evaluation design will be pursued, which will be complemented by the use of qualitative and participatory evaluation methods.

Baseline and endline data will be collected from representative samples of the same farming households and fields via a household questionnaire and remote sensing (see subsection 6.3). In addition to the collection of data on DRYDEV's key outcome and impact measures, data associated with key characteristics likely to be correlated with these measures (e.g. education levels, sex of household head, and land holding size) will also be collected. During data analysis, these observable characteristics—together with the baseline outcome measure in question—will be used to compute propensity scores. The intervention and comparison observations will subsequently be matched on the basis of these scores to balance the two groups in relation to their observable characteristics. The two groups will then be compared in relation to the average change they have experienced over time in relation to the outcome and impact measures of interest. Statistical interaction tests will further be used to assess whether particular groups (e.g. more prosperous farmers and female headed households) were differentially affected by the programme.

Following the theory-based impact evaluation method, the extent to which farmers in the targeted subcatchments have improved along the causal chain vis-à-vis their comparators will be assessed.[7] Qualitative and participatory research methods will furthermore be used both to triangulate and add depth to the quantitative results and interrogate the mechanisms of how and why the expected changes expected from the programme have or have not occurred. More detailed protocol pertaining to DRYDEV's impact assessment strategy will be developed prior to the baseline data collection exercise.

Implementing DRYDEV's impact assessment strategy will be challenging, but ICRAF will work closely with its Research Methods Group to ensure its successful execution. It sees that this investment is certainly worth making to enhance evidence-informed investment and policy-related decision-making, thereby leveraging DRYDEV's impact and delivery of value for money.

6.3 Key Reach, Sub-outcome, Outcome, and Impact Indicators & Targets

A key focus of the measurement work of DRYDEV's PMEL framework is to capture data on the programme's key output, sub-outcome, outcome, and impact indicators. These indicators and their respective targets are presented in detail in DRYDEV's revised LFA (Annex B). Given the programme's relatively short lifetime and assuming it will be significantly effective, it is likely that many of its longer term impacts will only fully materialize after the programme has officially closed. As such, the programme should be primarily accountable for achieving its reach, sub-outcome, and outcome indicators and targets by this time, rather than those specified to measure longer-term impact. DRYDEV's effectiveness against the LFA's

[7] See: White, Howard. (2009) *Theory Based Impact Evaluation: Principles and Practice*. International Initiative for Impact Evaluation, Working Paper 3.
http://www.3ieimpact.org/media/filer_public/2012/05/07/Working_Paper_3.pdf

The programme seeks to directly provide at least 227,000 famers (minimum 50% women) with meaningful support, as well as generate relevant evidence for investment and policy decision-making.

impact indicators will, nevertheless, be assessed before the close of the programme. Moreover, given the importance of impact measurement, ICRAF will seek to leverage additional resources to carry out another end-line survey several years thereafter to more fully gauge DRYDEV's impacts. The programme's farmer reach targets for Work Packages 1-5 and the revised LFA's impact, outcome, and sub-outcome indicators and targets are presented in summary form in the two tables below.

Direct Farmer Reach Targets for Work Packages 1-5

Work Package	Overall Farmer Reach Targets	
	Total	Female
1. Landscape-level natural resource management (NRM)	227,071	119,203
2. On-farm water & soil management	157,335	82,535
3. Agricultural commodity production	169,971	87,034
4. Enhancing market access	112,435	58,266
5. Financial services linking	82,555	44,172
Net Total of Farmers Targeted for Support	**227,071**	**119,203**

7. Programme Communications

Effective external and internal communication is critical to DRYDEV's aim of achieving cost-effective impact at scale. It is needed, for example, to foster appropriate synergy among all participating partners and other stakeholders; to facilitate the reciprocal flow of information to and from farmers; to influence policy makers; and to promote the uptake of options and approaches proven effective under the programme by other actors, thereby magnifying DRYDEV's impact. Given the integral role communications play in programme implementation and efforts to scale out programme-generated evidence and learning, such work is planned and budgeted for under Work Package 7: Planning, M&E, and Scaling of Learning. This is with a clear realization that communications interfaces with the other work packages as well.

During the Inception Year, a Communications Task Force (CTF) was established for the programme, which includes representatives from ICRAF and the lead country partner organizations. It developed a communications strategy with the following four objectives:

- To foster understanding about the programme and its core approaches among all of its stakeholders, particularly the participating partner organizations and farmers.
- To strengthen the programme's management and delivery by ensuring effective information and knowledge sharing among the participating partner organizations, MoFA, and other stakeholders.

DRYDEV's Impact, Outcome, and Sub-outcome Indicators and Targets (*M*=median)

	Core Indicators (in summary form)	Target
Impact Level		
Sustained improvements in food and water security, livelihoods, and resilience, and the empowerment of women and other disadvantaged groups	% of senior men and senior women in HH consuming 5 or more of the Minimum Dietary Diversity food groups	7% > comparison sites
	% HHs predicted to be above the national poverty line	5% > comparison sites
	% of HHs > median of comparison group on HH asset index	5% > *M* of compar. sites
	% of HHs who are multi-dimensionally poor	5% < comparison sites
	Women Empowerment in Agricultural Index (WEAI): % of men & women scoring positively on over 2/3 of weighted indicators	10% > comparison sites
	% of HHs scoring positively on over 2/3 of weighted indicators of resilience index	10% > comparison sites
Outcome Level		
1. Increased water capture & soil conservation/fertility at watershed & farm levels	Predicted soil organic carbon content (remote sensing)	15% > *M* of compar. sites
	Predicted erosion prevalence & rood depth restriction (remote sens.)	15% < *M* of compar. sites
	Enhanced vegetation & herbaceous cover indices (remote sensing)	15% > *M* of compar. sites
	% of HH farm plot(s) serviced by irrigation in last growing season	15% > comparison sites
2. Increased production of profitable, climate-smart commodities & food crops	Crop water productivity—yield (biomass)/ evapotranspiration (r.s.)	10% > *M* of compar. sites
	Estimated cash value of main food crops last main harvest	15% > comparison sites
	Estimated cash value of main market crops last main harvest	15% > comparison sites
3. Increased sales of targeted value chain commodities sold by male, female, and vulnerable farmers	Estimated cash value of agricultural commodities sold by male & female HH members in last 12 months	20% > comparison sites
4. Improved local governance & farmer organization functioning	# of M&F farmers reporting improved agricultural local gov. services	15% > comparison sites
	# of M&F farmers participating in & reporting benefits from FOs	30% > comparison sites
5. Critical mass of development actors motivated, able, and resourced to support or directly implement evidenced options	# and type of development institutions promoting evidenced options	200% increase
	# and value of projects being implemented in participating countries supporting options evidenced by programme	200% increase
6. More supportive/appropriate policies & wider institutional environment conducive for the wide uptake of evidenced options	Policies in place and plans implemented pertaining to agricultural development in dryland area, including extent of implementation	Improvement evidenced
	Level of constraints faced in wider institutional environment constraining uptake of desirable options for drylands development	Reduction evidenced
Sub-outcome Level		
1. Appropriate landscape/watershed level NRM initiatives undertaken	Proportion of sub-catchments covered by expected 'foot prints' of the sub-catchment level NRM initiatives	30%
2. Improved & climate smart on-farm water & soil management	% of farmers practicing promoted practices on-farm water and soil management practices	50%
3. Improved & inclusive & climate-smart production options pursued	% of farmers practicing promoted production practices	50%
4. Increased participation of male, female and disadvantaged farmers in lucrative value chains	# of men and women in HH participating in targeted value chains	25% > comparison sites
5. Increased numbers of famers linked to credit & financial services	# and value of loans accessed by men & women in HH in last 12m	15% > comparison sites
	# of male & female HH members provided with business training, advice, and/or mentoring support in last 12 months	20% > comparison sites
6. Capacity of local duty-bearers and farmer organizations developed and/or 'duty fulfillment' pressure applied	Extent to which targeted local duty bearers and farmer organizations have skills, knowledge, resources, and/or motivation to fulfill functions	Improvement evidenced
7. Key 'scaling stakeholders' find evidence/learning credible and relevant & promote its uptake	% of identified 'scaling stakeholders' actively promoting uptake of evidence and learning generated under the programme	30%
8. Awareness raised and attitudes improved among key policy makers/ other stakeholders, resulting in their taking action	% of targeted policy makers and other relevant stakeholders meaningfully seeking to bring about targeted policy and institutional reforms	25%

- To promote the widespread uptake of evidence and learning generated under the programme by relevant government institutions, NGOs, donor agencies, and other development actors.
- To enhance capacity development initiatives spearheaded under the programme by ensuring that these are based on communication methods appropriate for the target group in question.

Focused communications work will both enhance DRYDEV's effective delivery and promote the uptake of evidence and learning.

The CTF has devised the following tools to aid in fulfilling these objectives:

Information, Education and Communication (IEC) Materials: Much of DRYDEV's success will depend on participating farmers adopting improved NRM, production, and marketing practices. To this end, they will need to understand the potential effectiveness of new and co-developed innovations and how to practically implement them. Consequently, the use of effective extension methods—combined with effective IEC—will be critical. Country teams will therefore be given significant support to apply and adapt existing—as well as develop new—practical extension-focused IEC materials.

Online Communication: A website will be set up for internal as well as external communications, mainly focused on sharing information among the participating partners and other relevant stakeholders. The website will include programme updates, pictures, and blogs, as well as an electronic newsletter.

Public Relations: To further share information on programme progress and learning, the CTF workshops and seminars will be organized and short videos and documentaries produced to promote understanding about the programme and its approaches.

Knowledge Management System: ICRAF operates a knowledge management system, which is an online tool for its internal and partner-related communications. A site within it will be set up, so that programme documentation can be readily shared both internally and with partners. It will also act as a platform where ICRAF and the partners can discuss issues and share contact information.

Press Releases, Evidence Briefs, and Academic Publications: Press releases will be sent to various news outlets on interesting stories and learning emanating from the programme. Evidence briefs will also be developed for dissemination to policy makers and other development actors. The rigour and credibility of the programme-generated learning will be further accentuated through the production of a number of academic publications.

The execution of DRYDEV's communications strategy will be led and coordinated by the programme's newly created Communications Team (see Section 8).

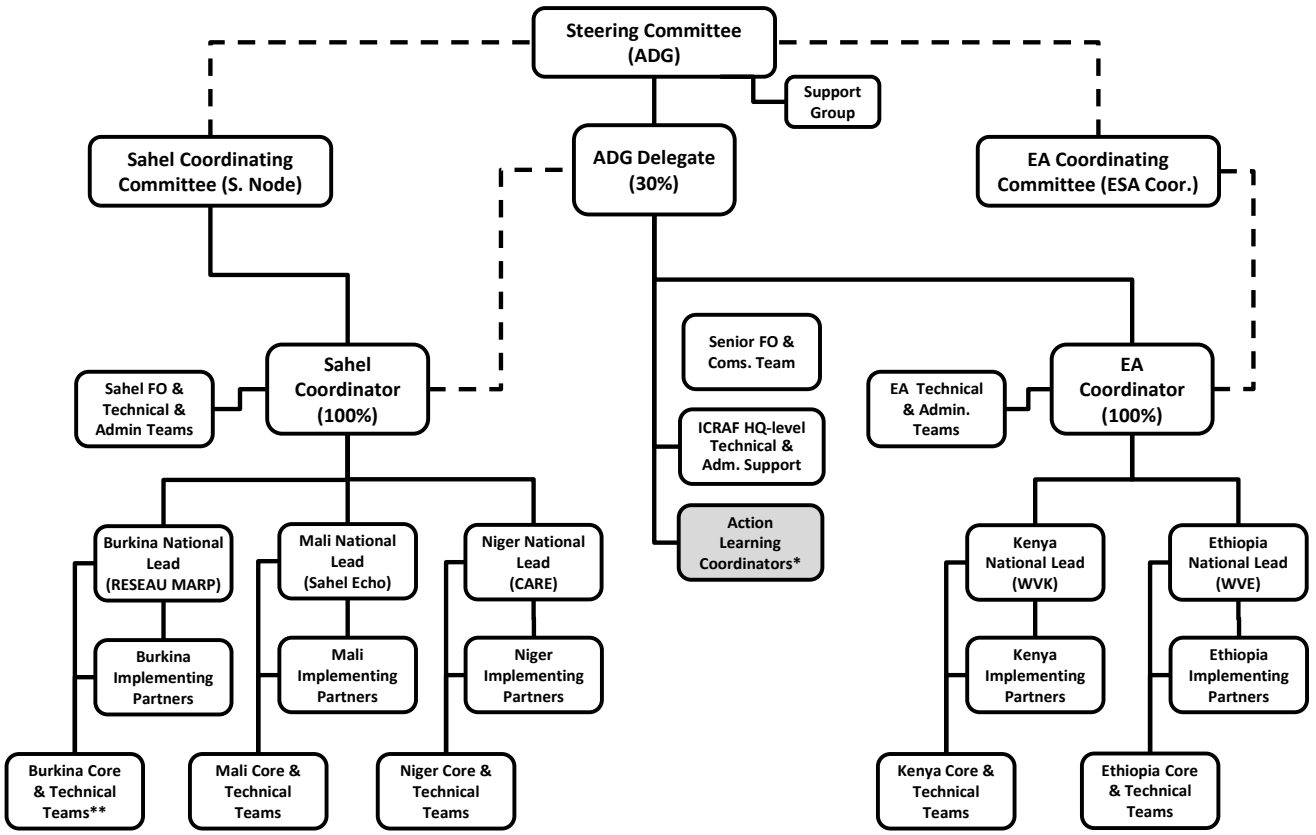
8. Programme Management

8.1 DRYDEV's Governance and Delivery Structure

ICRAF is putting in place a more substantial team to facilitate DRYDEV's cost-effective delivery.

As explained above, ICRAF intends to play a much greater role than it did during the Inception Year to facilitate and technically support the effective and efficient delivery of the programme. Plans to establish a full programme management team within ICRAF have always existed. However, while a Programme Manager was successfully appointed and, as always envisaged, a number of ICRAF staff actively supported various programme initiatives, these plans were not implemented during the Inception Year. Now that DRYDEV is moving into its full implementation phase, it is critical that this be addressed. Indeed, experiences during the Inception Year reveal that this team needs to be more substantive than originally conceptualized. To this end, Figure 8 presents DRYDEV's governance and delivery structure for the full implementation phase of the programme.

FIGURE 8: DRYDEV Governance & Delivery Structure



*Positions funded from other sources
**ICRAF Country Representatives part of Core Teams

As always planned, a Steering Committee will be set up to provide high-level oversight and strategic guidance. Its proposed role and composition are presented in Subsection 8.2. ICRAF's Assistant Director General (ADG), who is overall responsible for the Programme, will sit on this committee as an observer, along with several other senior ICRAF staff members. There is a desire for the Programme Support Group (PSG) to continue its independent work in reviewing programme progress, as informed by field visits and discussions with DRYDEV's various stakeholders. The PSG will, of course, provide direct guidance to the ICRAF team, but will have a more formal role in relation to advising the Steering Committee as well via its independent progress reports. More details on the specific purpose and terms of reference for the various structures depicted in Figure 8 are presented in Annex C.

ICRAF's Head of Monitoring, Evaluation and Impact Assessment acts as the ADG's delegate to direct and programmatically steer the programme. However, DRYDEV's day-to-day management and coordination is being undertaken be two regional Programme Coordinators, one based in the Sahel and one based in East Africa. As the programme matures, these two positions will take on more responsibility, and the time of the ADG Delegate on the programme will be commensurately reduced. The Sahel Coordinator will be support by a Finance Officer and Administrative Assistant, both positions of which are in the process of being recruited.

A small Communications Team is also in place for the overall programme, and a Senior Finance Officer is in the process of being recruited. He or she will spend half of his or her time on the programme. There are also various technical (e.g. water and value chain experts) and administrative ICRAF staff members—based at both the headquarters and regional levels—who will continue to play a key role in supporting the programme on a demand driven basis. ICRAF has further leveraged additional funding to support the roll out of the OxC process as described above, and several Action Learning Coordinators operating at both the country and regional levels will facilitate this work. One such coordinator is already in place supporting the Ethiopia DRYDEV team.

DRYDEV has a generic partnership model for each country, but with a different mix of partners fulfilling different roles.

DRYDEV's country team model incudes:

- A National Lead Organization (NLO) to effectively manage and support DRYDEV's operation in the country
- Implementing Partners (IPs) with assigned responsibilities for implementing and/or technically guiding one or more of the programme's core work packages
- A Core Team, which includes key staff from the NLO and IPs, as well as ICRAF's Country Representative, to oversee and help steer programme implementation processes.

The table below lists the lead organizations and implementing partners in the five countries, as well as their primary role in the programme.

Partner	Primary Role
Burkina Faso	
Reseau MARP	Country lead organization & lead on NRM
SNV	Lead on agricultural value chains
TREE AID	Lead on non-timber forest products value chains
Mali	
Sahel Eco	Country lead organization; Implementer in the Mopti region
OXFAM	Lead on value chains & saving for change in all programme areas
AMEDD	Implementer in the Sikasso region
AMEPPE	Implementer in the Segou region
Niger	
Care International	Country lead organization; overall coordination in Niger
OXFAM	Networking, capacity building, value chains & policy influencing
WORLD VISION	Implementer in Toridi in Tillabery region
KARKARA	Implementer in the municipality of Douroun in the region of Zinder
AREN; RAIL	Implementer in the municipality of Aguie, Maradi region
CRESA	Innovation platforms in all programme areas
Ethiopia	
World Vision	Country lead organization & implementer in Tigray Region
EOC/DICAC	Implementer in Rift Valley
REST	Implementer in Tigray Region
Kenya	
World Vision	Country lead organization & implementer in Machakos Country
SNV	Value chain lead & implementer in all the three counties
CARITAS	Lead on NRM in Makueni County
ADRA	Lead on NRM in Kitui County

8.2 Programme Implementation Plans

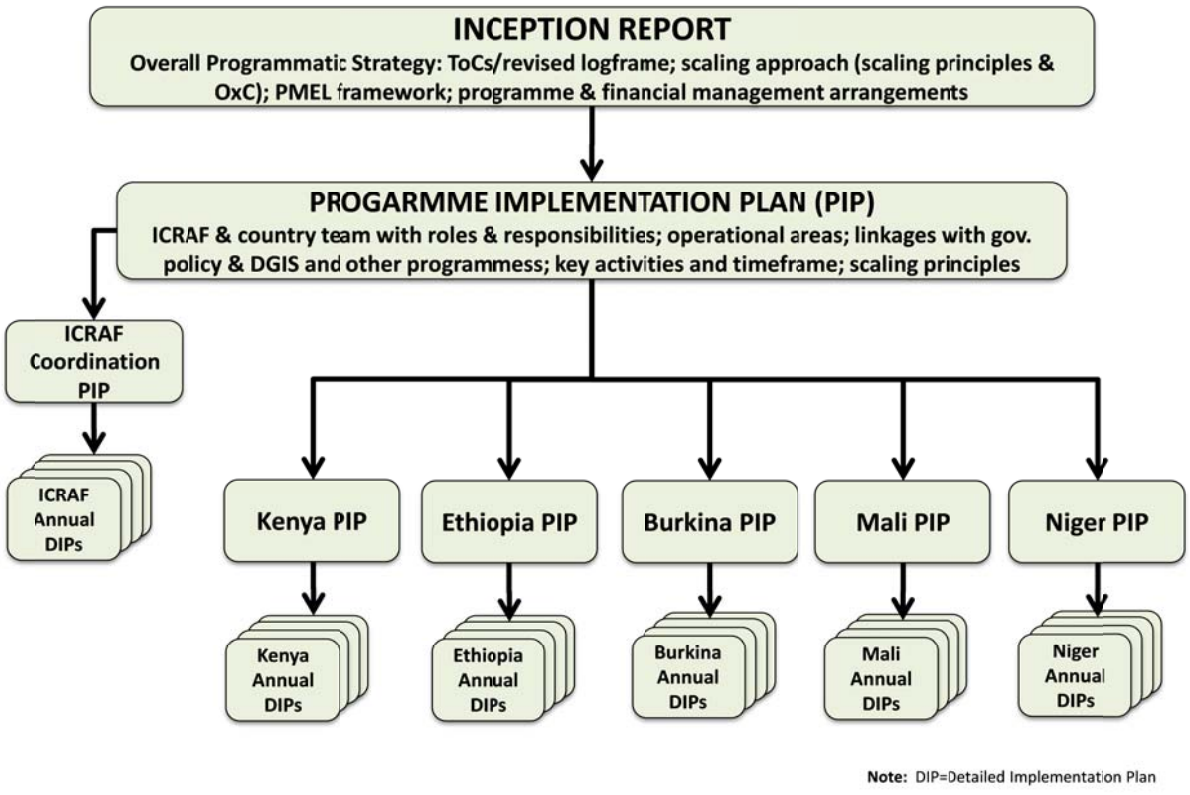
The strategy outlined in this report will be made operational by overall country level plans and more detailed annual plans.

Figure 9 presents DRYDEV's proposed planning structure. This Inception Report details DRYDEV's overall programme delivery strategy, including its guiding and overarching theories of change and accompanying LFA, scaling strategy, PMEL framework, and programme and financial management arrangements. This strategy will be brought to life through DRYDEV's Programme Implementation Plan (PIP). This is a compilation of a coordination PIP for ICRAF and PIPs for each of the five countries. The latter outline the country team, including the roles and responsibilities of each partner; linkages of DRYDEV to government policy and DGIS supported and other relevant programmes; key activity areas with a general implementation schedule; country-specific threats to DRYDEV's scaling principles, as well as strategies to eliminate or mitigate these threats; and an overall country budget for the programme's full implementation phase. Exit strategies and policies pertaining to the provision of inputs to farmers are further included as annexes.

Each year, country teams will develop and submit annual Detailed Implementation Plans (DIPs) and accompanying detailed activity-based budgets. These will strongly informed by the annual reflection and planning workshops discussed in Section 6. ICRAF will also develop its own DIP for its role in the programme, together with an

accompanying detailed budget. These will then form the basis of the annual funding tranche requests to DGIS.

FIGURE 9: DRYDEV Planning Structure



8.3 Financial Management and Compliance

Following the appointment of headquarters- and Sahel-based Finance Officers for the programme, ICRAF's role in ensuring the sound management of its finances and material assets will be strengthened. The country lead organizations will continue to be supported to develop detailed budgets on an annual basis to implement the country in question's annual Detailed Implementation Plans (DIPs). These will be reviewed by the regional DRYDEV Coordinators, the ADG Delegate, senior financial staff, and the Steering Committee prior to being submitted to DGIS, as part of annual disbursement requests. Once approved and the annual tranche is received from DGIS, the funds will, in turn, be transferred to the NLOs.

The NLOs will, thereafter, sub-grant to the other implementing partners, based on their respective budgets as specified in the DIPs. The NLOs will be required to submit semi-annual financial reports that document expenditure against the annual

DIP budgets for ICRAF's review, along with certified supporting documentation. They will also engage independent external auditing firms (approved by ICRAF) to audit programme activities annually. The auditors' reports and management responses will be shared with ICRAF no later than three months after the end of the grant's financial year. ICRAF will complement this by conducting compliance review visits to all NLOs on a semi-annual basis, coupled with visits to a purposive sample of the other implementing partners. In addition to reviewing pertinent financial documentation, these visits will involve an assessment of how material assets procured with the programme's funds are being used.

Annex A: Analysis of Original Logical Framework Analysis

Original	Areas for Improvement
General:	• The programme can potentially generate impact in two ways—directly and indirectly. While its overall budget and complementary resources are significant (overall), when divided across the five countries, it is apparent that only a fraction of the smallholders that require support will be directly reached. While the successful realization of Outcome 3 would benefit other farmers indirectly, it is believed that the program has the potential of leveraging much greater impact (albeit also indirectly) by evidencing effective approaches and further taking action to ensure that this evidence informs wider policy, practice, and investment decisions. In other words, there is a desire for more emphasis under the program on *scaling out learning*, thereby, bringing about a much greater return on DGIS' investment. This would have the further benefit of ensuring that ICRAF's involvement as research organization is fully justified and exploited. • There is no direct reference to 'climate smart agriculture' or the concept of 'resilience' in the logframe. Given that the programme's beneficiaries are arguably already being impacted by climate change and are likely to be affected more severely into the future, this deserves explicit attention. • There is no sub-outcome (or similar focus) on increasing agricultural production, whether this in relation to food crops to directly increase household food security (Outcome 1) or commodities associated with the value chains that are being enhanced and developed. While this may be implied, it would be beneficial for this to be given greater emphasis. • While referenced in several of the sub-outcomes, more could be done to highlight gender and inclusion in the logframe.
Outcome 1: Improved Water & Food Security	• Water and food security are two different longer-term changes targeted by the programme, and increasing water security is arguably a means of bolstering food security via enhancing agricultural production. In addition, water and food security are already imbedded in the program's purpose statement and, therefore, are higher level results (impacts) the program is seeking to achieve, rather than intermediary steps along the causal chain.
Sub-Outcome 1.1: Integrated on-farm water and soil management practiced.	• This sub-outcome remains appropriate.
Sub-Outcome 1.2: Securing water availability in the watershed.	• This is (at least as currently phased) a process, rather than an intermediary outcome. Moreover, even if it were restated as a result, it is already expressed in Outcome 1, thereby rendering it redundant. As such, a more specific outcome pertaining to watershed rehabilitation is desirable.
Outcome 2: Commercialization of the Rural Economy	• This outcome statement is very broad and vague. While useful for lumping sub-outcomes together under a common theme, a more specific outcome statement is desirable to support result based management and indicator selection and measurement.
Sub-Outcome 2.1: Increased participation of different categories of farmers in strengthened value chains of selected inputs and commodities	• This sub-outcome remains appropriate, but perhaps could be viewed as an outcome, rather than a sub-outcome.
Sub-Outcome 2.2: Access to credit and	• While this sub-outcome is generally appropriate, the programme is not set up to provide credit and financial services directly to farmers. Rather, it is to either

Original	Areas for Improvement
financial mechanisms by different categories of farmers improved.	facilitate the establishment of savings and lending groups and/or facilitate linking to such services. While the intended result is to increase access to such services, it is felt that stressing the linking aspect is important to avoid country partners being tempted to provide farmer groups directly with loans where such linking possibilities are limited.
Outcome 3: Environment that enables increased water and food security and economic growth created	• Similar to Outcome 2, this outcome statement is broad and vague. Consequently, it too would benefit from greater specificity.
Sub-Outcome 3.1: Policies adjusted to the interests of different categories of farmers.	• While appropriate, this is perhaps something that should be a standalone outcome.
Sub-Outcome 3.2: Institutional framework to upscale integrated water and soil management techniques and value chain development adapted to different categories of farmers.	• This, again, is vague and would benefit from greater specificity.
Sub-Outcome 3.3: Inclusive and integrated approach developed and applied.	• This is the equivalent to saying that one of the expected sub-outcomes to contribute to an improved enabling environment (Outcome 3) is for the programme's design to be successfully implemented. Including such a sub-outcome is unnecessary or should be better specified along the lines of testing various options and approaches and then scaling out the findings to improve policy, practice, and investment decisions.

Annex B. Revised Logical Framework Analysis

Objectives	Verifiable Indicators[8]	Indicator Targets	Means of verification	Key Assumptions
OVERALL PROGRAMME AIM				
• The **vision** of the programme is that rural households have transitioned from subsistence farming and emergency aid to sustainable rural development by increasing food and water security, better access to markets, and strengthening of the local economy for different categories of farmers				
PROGRAMME PURPOSE				
• The **programme purpose** is to sustainably increase the water and food security and drive economic development of the rural population in target zones in Ethiopia, Kenya, Burkina Faso, Mali and Niger.				
Impact Level				
Sustained improvements in food and water security, livelihoods, and resilience, and the empowerment of women and other disadvantaged farmers (Note: Subgroup analysis to be undertaken to assess differential impacts/outcomes on various socio-economic categories)	• % of senior men and senior women in HH consuming 5 or more of the Minimum Dietary Diversity food groups http://www.fantaproject.org/monitoring-and-evaluation/minimum-dietary-diversity-women-indicator-mddw	7% > comparison sites	HH survey with senior man and senior women being interviewed separately with recall of food groups consumed during previous day	Increases in agricultural income & HH food production will directly translate into improved diets.
	• % of HHs predicted to be above the national poverty line http://www.progressoutofpoverty.org/about-ppi	5% > comparison sites	HH survey model informed by progress out of poverty country specific measures	Peace and stability Few catastrophic climate events Urban and export food markets will grow to enable the sale of increased agricultural production at scale
	• Household asset index constructed with principal component analysis (% of HHs above median of comparison group)	5% > median of comparison sites	HH survey with list of locally relevant HH wealth assets	
	• Multidimensional Poverty Index (MPI) (% of HHs who are multi-dimensionally poor) http://www.ophi.org.uk/multidimensional-poverty-index/mpi-2014-2015/mpi-methodology/	5 % < comparison sites	HH survey to capture data on components of index	
	• Women Empowerment in Agriculture Index (WEAI) (% of respondents scoring positively on more than 2/3 of weighted indicators plus Gender Parity Index) http://feedthefuture.gov/lp/womens-empowerment-agriculture-index	10% > comparison sites	HH survey administer to both senior adult man and woman of household	The participation of women/other disadvantaged group in value chains with directly translate to their increased empowerment
	• HH resilience index constructed from data from both HH survey and remote sensing (see below) (% of HHs scoring positively on over 2/3 of the weighted indicators) http://policy-practice.oxfam.org.uk/publications/a-multidimensional-approach-to-measuring-resilience-302641	10% < comparison sites	HH survey + remote sensing to capture data on HH characteristics assumed to promote resilience	Value chain participation will not result in overspecialization, thereby undermining resilience
OUTCOME LEVEL				
Outcome 1: Increased water capture & soil conservation/fertility at watershed & farm levels	• Predicted soil organic carbon content	15% > *M* of com. sites	Remote sensing undertaken by ICRAF senior scientists	Programme areas do not experience exceptional drought and/or extreme flooding (thereby, destroying water
	• Soil erosion prevalence & root depth restriction	15% < *M* of com. sites		
	• Enhanced vegetation & herbaceous cover indices	15% > *M* of com. sites		
	• Proportion of HH farm plot(s) serviced by irrigation in	15% > comparison sites	Self-reported through HH survey	

[8] The indicators presented here (the ones associated with remote sensing in particular) have been developed in initial consultation with ICRAF scientists. There is likely to be some refinement as the corresponding methods and instruments are fully developed and piloted.

Objectives	Verifiable Indicators[8]	Indicator Targets	Means of verification	Key Assumptions
	last growing season			harvesting, irrigation, and soil erosion control structures.)
Outcome 2: Increased production of profitable, climate-smart commodities & food crops	• Crop water productivity—yield(biomass)/ evapotranspiration	10% > *M* of com. sites	Remote sensing undertaken by ICRAF senior scientists	
	• Estimated cash value of main food crops at last harvest	15% > comparison sites	Self-reported through HH survey	
	• Estimated cash value of main market crops last harvest	15% > comparison sites		
Outcome 3: Increased sales of targeted value chain commodities sold by male, female, and vulnerable farmers	• Estimated quantity of all value chain products sold by male & female HH members in last 12 months	20% > comparison sites	Self-reported through HH survey	Market demand and other conditions remain favourable for targeted commodities, as well as for women's meaningful participation.
Outcome 4: Improved local governance & farmer organization functioning	• # of M&F farmers reporting improved agricultural local government services over past two years	15% > comparison sites	Self-reported through HH survey	Behaviour change of local duty bearers and institutions is possible in current policy & institutional environment.
	• # of M&F farmers participating in and reporting benefits from FOs	30% > comparison sites		
Outcome 5: Critical mass of development actors motivated, able, and resourced to support and/or directly implement evidenced options	• # and type of development institutions promoting evidenced options	200% increase	Stakeholder and project mapping combined with process tracing to interrogate the extent things change over time and factors responsible.	Policy direction of targeted institutions remains stable but malleable.
	• # and value of projects being implemented in country supporting options evidenced by programme	200% increase		
Outcome 6: More supportive/appropriate policies & wider institutional environment conducive for the wide uptake of evidenced options	• Policies in place pertaining to agricultural development in dryland area, including extent of implementation	Significant improvement	Policy and institutional analysis combined with process tracing to interrogate the extent things change over time and the factors responsible.	Policy and institutional environment remains receptive to change and no major political development take place to wipe out any policy reform gains made.
	• Level of constraints faced in wider institutional constraining uptake of desirable options for drylands development	Significant reduction		
SUB-OUTCOME LEVEL				
Sub-Outcome 1: Appropriate landscape/watershed level NRM initiatives undertaken	• Proportion of sub-catchments covered by expected 'foot prints' of the sub-catchment level NRM initiatives	30%	Subcatchment NRM initiative mapping, as part of programme's PMEL system	Farmers are willing to put in place and maintain structures, etc.
Sub-Outcome 2: Improved & climate smart on-farm water & soil management practiced	• % of farmers practicing promoted practices on-farm water and soil management practices	50%	Farm inspection using lot quality assurance sampling method, as part of programme's PMEL system	Farmers internalize capacity development efforts, find the new methods appropriate, and are motivated and able to put them into practice in their own farms.
Sub-Outcome 3: Improved & inclusive & climate-smart production options pursued	• % of farmers practicing promoted production practices	50%		
Sub-Outcome 4: Increased participation of male, female and disadvantaged farmers in lucrative value chains	• # of men and women in HH participating in targeted value chains	25% > comparison sites	Self-reported in HH survey	Willing to take risks on the part of participating farmers
Sub-Outcome 5: Increased numbers of famers linked to credit & financial services	• # and value of loans accessed by men & women in HH in last 12 months	15% > comparison sites	Self-reported in HH survey	Locally accessible presence of relevant services, with conditions farmers find attractive.
	• # of male & female HH members provided with business training, advice, and/or mentoring support in last 12 months	20% > comparison sites		

Objectives	Verifiable Indicators[8]	Indicator Targets	Means of verification	Key Assumptions
Sub-Outcome 6: Capacity of local duty-bearers and farmer organizations developed and/or 'duty fulfillment' pressure applied	• Extent to which targeted local duty bearers and institutions have skills, knowledge, resources, and/or motivation to fulfill functions	Improvement evidenced	Case studies with process tracing to interrogate the extent things change over time and the factors responsible	Minimal turnover of staff of local institutions Higher level policy direction remains stable.
Sub-Outcome 7: Key 'scaling stakeholders' identified, find evidence/learning credible and relevant, and actively promote its uptake	• % of identified 'scaling stakeholder' actively promoting uptake of evidence and learning generated under the programme.	30%	Stakeholder activity tracking using outcome mapping tools.	Turnover of 'scaling stakeholders' and policy makers working in targeted institutions remains manageable.
Sub-Outcome 8: Awareness raised and attitudes improved among key policy makers/ other stakeholders, resulting in their taking desired action	• % of targeted policy makers and other policy relevant stakeholders meaningfully seeking to bring about targeted policy and institutional reforms	25%		

Annex C: Terms of Reference for Key Structures in DRYDEV's Governance and Programme Delivery Structure

Unit	Terms of Reference (ToRs)	Remarks/Membership
Programme Steering Committee	**Purpose**: *To provide overall strategic guidance to the programme, advising on and setting strategic direction, including priorities and strategic partnerships* • Reviewing general programme progress towards DRYDEV's intended outcomes and impacts, followed by the provision of corresponding strategic direction • Reviewing and approving the programme's annual work plans, budgets, and progress reports prior to their submission to DGIS • Promoting the programme among potential 'scaling stakeholders', policy makers, and relevant development actors • Advising on the development of effective partnerships with the private sector, public sector institutions, and civil society organizations	• Chaired by non-ICRAF member, meeting annually • ICRAF serves as secretary to the committee • Meet once a year face to face to review Support Group reports and approve the annual work plans and budgets prior to their submission to DGIS for formal approval **Membership:** • Development professional from relevant multilateral technical organizations (e.g. IFAD, FAO, UNEP) from EA and Sahel • Senior ICRAF Staff (Deputy Director, Head of Programme Development & Head of Finance and Administration) participate with observer status only • Netherlands MoFA or embassy representatives can attend as observers as well
Programme Support Group (PSG)	**Purpose**: *To independently review programme progress from a technical perspective and provide corresponding technical guidance* • To review programme plans, reports, and pertinent technical documents and provide objective, constructive feedback and suggestions for improvement • To carry out field monitoring and hold review meetings with programme stakeholders to independently review programme progress and advise on practical measures that can be taken to strengthen the programme • To develop independent progress review reports for presentation to DRYDEV's Steering Committee	• Programme plans, reports and other documents send to MoFA (DGIS) also sent to Support Group (as earlier drafts where possible) • Members of PSG support to undertaken field visits to programme sites, including holding interview and focus group discussions (FDGs) with key programme stakeholders
Regional Programme Coordination Committees (EA and the Sahel)	**Purpose:** *Oversight to ensure effective coordination and delivery of the programme, as well as functional partnerships and cross learning* • Receive and review programme updates presented by NLOs and ICRAF technical team • Review overall programme performance, discuss, debate and agree on issues related to the strategic directions and implementation plans. • Review and agree on budget allocations, budget adjustments, funding mechanisms • Review program progress/evaluation reports and provide guidance on follow-up action plans. • Review Audit reports and provide guidance on follow up action plans	• Coordinated and convened by ICRAF Programme Rotationally/Alternately Lead Organizations • Minutes on highlights prepared and distributed by party hosting the meeting. **Membership:** • ICRAF Regional Coordinators • Programme Managers and Senior Staff of Lead Organizations • Other country implementing partners as required

Unit	Terms of Reference (ToRs)	Remarks/Membership
	• Explore, document and make recommendations for addressing the needs for capacity building in each region, pertinent to implementation • Conduct regular field visit to ensure the quality of the project implementation • Table and resolve any issues or concerns related to the smooth functioning of the project.	
National Lead Organizations	**Purpose:** *Manage/Coordinate implementation undertaken by national implementing partners and other service providers, as well as subgranting to the former* • Manage the implementation of the programme at country level • Sub-contracting and monitoring of other implementing partners, both programmatically and financially • Facilitate production and submission of country budgets, plans and reports • Monitoring and coordination of the activities of the service delivery organizations, including the (process) monitoring of the field interventions. • Organization of the quarterly meetings for the platform of partners • Participating in Joint Quality Monitoring & review meetings with ICRAF	• National-level responsibility for coordinating and overseeing and coordinating the programme, with support from ICRAF country representatives
Country Core Teams	**Purpose:** *Ensuring harmonized application of approaches and methods, and timely, cost-effective and efficient field level programme delivery* • Coordination and planning of the activities to be implemented • Facilitate preparation of program plans and budgets • Monitor and ensure programme's synergies with evolving (national/ local political climate), national policy developments and new legislative directives • Table and resolve any issues or concerns related to activity sequencing and the smooth functioning of the programme at field level	• Convened, co-chaired by NLO Programme Manager/Director and ICRAF Country Rep, meeting once every month • Programme leaders from Implementing Partners also members
Country Technical teams	**Purpose:** *Development and execution of the country plans* • Develop and implement programme activities once approved by Core Teams • Develop and discuss new ideas, concepts, innovations concepts and processes to be considered in improving or scaling up program performance • Conduct programme performance monitoring activities and report program achievements and lessons learnt • Team building and knowledge sharing • Advocacy and exchange with government structures.	• Country Core/Coordination team • All programme technical staff from lead organization, implementing partners and ICRAF

ANNEX D: COUNTRY CHARACTERIZATION SUMMARY REPORTS

D1.Ethiopia Characterization Report Summary

Food and Water Security Profile

Target zones and villages

In Ethiopia DRYDEV operates in 6 districts or woredas in Oromia and Tigray regional states (See Figure 1). In Oromia, the programme operates in Boset, Gursum and Jarso woredas, while in Tigray T. Emba, Kilte Awlaelo and Samre woredas are covered (**Table 1**).

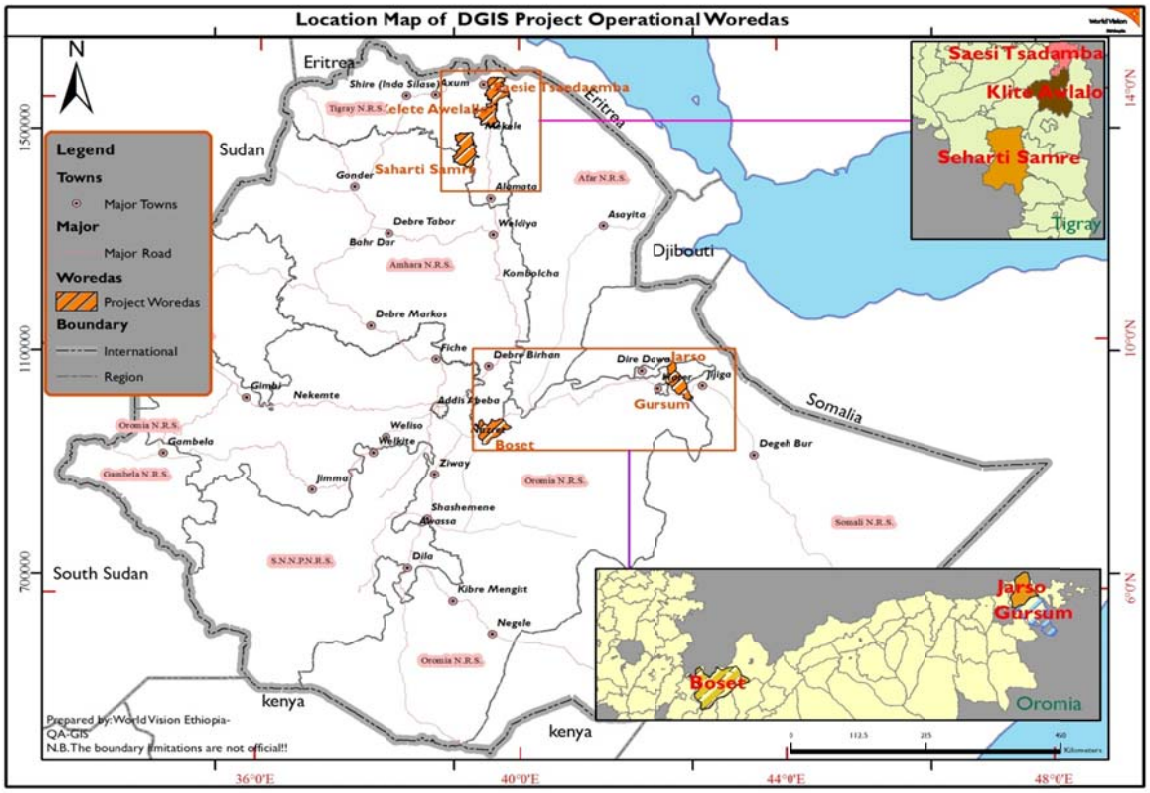


Figure 1 Map of Programme target sites in Ethiopia

Table 1 DRYDEV Specific intervention sites in Ethiopia

Region	Woreda	Specific Areas
Tigray	Tseada Emba	Alenta, Takot, Dimello, Mainefait, Da Cherkos, Da Petros, May Hantso, May Raza
	Kilite Awlalo	Ma'ago, Gosemiti, Metseko, Agona
	Samre	5-sub-watersheds- TBI with the help of ICRAF Eth researcher
Oromia	Boset	Sara, Doni, Sifa, Nurase ,Bose Deche, Kawa
	Gursum	Anbela, Santala, Ejo gobensa
	Jarso	5-sub-watersheds- TBI –with the help of ICRAF Eth researcher

Biophysical characteristics

The dominant land use in the six target sites is agriculture (Figure 2). Sites in Tigray have more land allocated to crop production (59-69%) than Oromia, where shrub land is important for grazing livestock. The farmers in all sites cultivate teff, sorghum, wheat and maize. Other crops produced are sesame, horse bean, lentil, Niger seed, cotton and spices. The forest cover at all sites is low (2.6-9.47%). Due to high biomass demands and transfers, soils suffer from poor organic matter content and fertility. Land degradation is particularly high in Oromia. In considering the watersheds of the programme sites, Oromia is more abundant in surface and groundwater resources than the drought prone Tigray region.

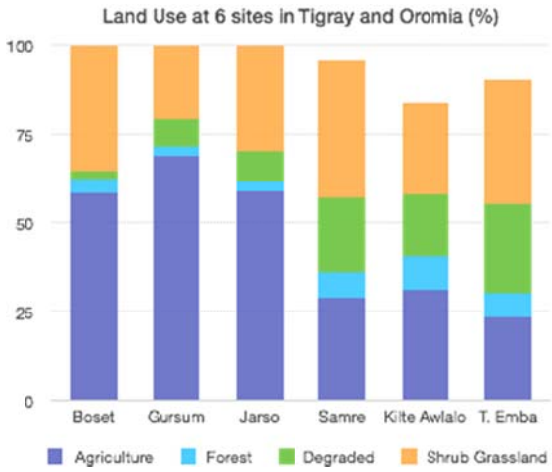


Figure 2 Land Use at Programme sites in Ethiopia

Water security situation in the watersheds

Water security can be increased in the Oromia region through a diversion canal from the Awash River in Boset, or the rehabilitation of existing rivers, natural lakes and ponds in Gursum and Jarso in conjunction with extraction and management systems. Construction of new structures is not possible in the soils of the Oromia region. Watershed maps and plans (such as Figure 3) will guide interventions.

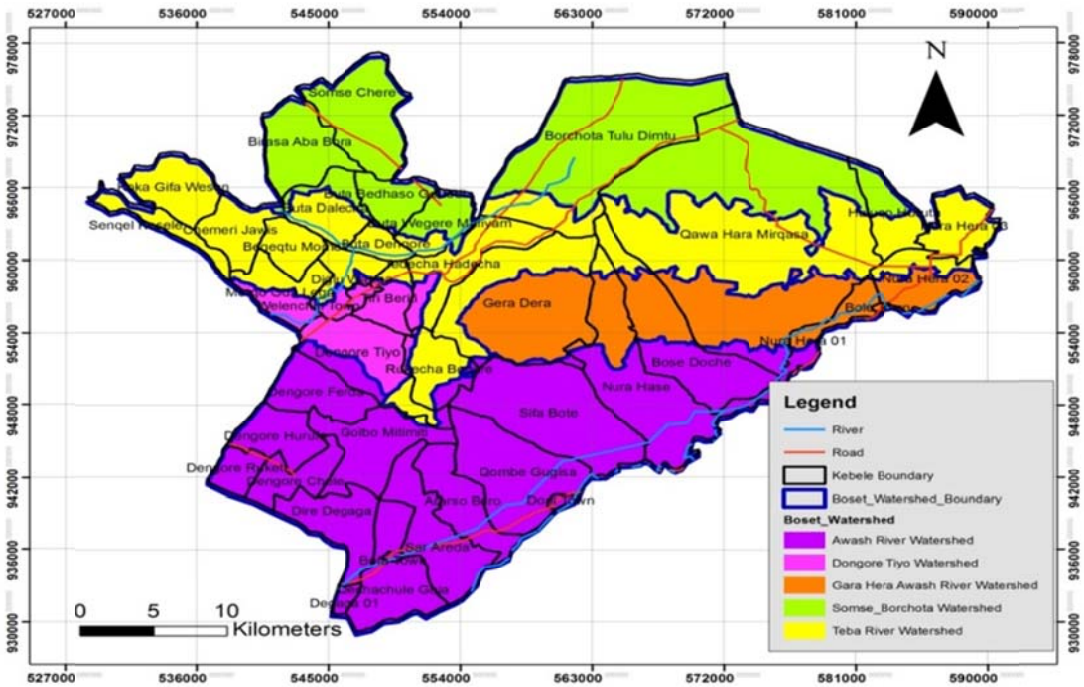


Figure 3 Boset watershed

In Tigray, rehabilitation of vegetation cover has great potential to improve the hydrologic functions of the landscapes and increase groundwater buffers. In addition, bench terraces, stone lines, trenches and check dams are promoted. Communities also utilize river diversions, community ponds, and lakes for irrigation purposes at community or group level and plastic tankers or reservoirs to harvest rainwater for irrigation purpose at individual or group level.

Socio-economic characteristics

The Tigray Regional state is one of the food insecure regions of the Ethiopia, with only 3 of the 34 woredas of the region (Kafta-Humera, Welkayte and Tsegede) considered to be food secure. Compared to the national average of 44%, more than 58% of the total population lives in absolute poverty (earning less than a dollar a day). Approximately 90% of the population live in rural areas as subsistence smallholders, practicing mixed farming and face major challenges such as poor yields, erratic rainfall, low levels of commercialization and value-adding opportunities. Charcoal and firewood are the primary fuels for cooking and heating, further adding to environmental degradation.

Development domains for integrated technological practices and approaches

Farmers' knowledge of the benefits of improved soil and water management for enhancing yield and production is generally high. For instance in 2013, Oromia farmers planted more than 21 million seedlings, constructed more than 15,000km of terraces and are regenerating forest on areas with slope greater than 30%. In Tigray, 2,500 hectares of land is under watershed management.

Value chain development in Ethiopia

Twelve value chains were selected for analysis based on both growth potential (unmet demand, importance as a cash crop and value addition opportunities) and potential for poverty alleviation (proportion of smallholder farmers engaged in the value chain, importance for food consumption, potential for women's integration and availability of land for future development). The potential value chains analysed for strengthening were: **honey, goat fattening, tomato, wheat, poultry (commercial layers), teff, haricot bean, onion, cattle fattening, groundnuts, potato and coffee**. Participation of women in most of the selected value chains is currently low, with the exception of the poultry value chain. However there is potential to integrate women in value chains like vegetables and shoats fattening, because they require limited start-up capital and land resources. The youth have the potential to be integrated in most of the value chains where they can provide business development services to the actors. Table 1 summarises findings from the analysis of the selected potential value chains.

Table. 1 Constraints to and opportunities for developing selected value chains in Ethiopia

Constraints	Opportunities	Strategy for VC development	Chain actors, supporters, enablers
• Limited access to post-harvest handling techniques and equipment because of high cost (e.g. bulking, testing), lead to high post-harvest losses and poor quality products, which cannot compete in the international market. • Disorganised or unstructured markets, as long term contractual arrangements between producers and buyers are limited, resulting in unreliable supply of raw materials, weak bargaining power among producers and exploitation of producers by brokers, as well as mistrust among actors. • Weak enforcement of quality and safety standards leading to poor quality products on the market due to adulteration by traders and producers. • Low levels of business skills and business orientation among the producers • Limited access to credit by producers to invest in farming and cooperatives and other actors like retail traders to expand their businesses. • Prevalence of livestock diseases because of limited access to veterinary drugs and vaccines as well as technical advice	• Agro ecology is suitable for producing most of the products. • Availability of rural institutions such as farmer groups and cooperatives to leverage on • Presence of organisations that provide business development services (BDS) to the actors such as MFIs like DECSI, ADEDAY and DEDEBIT that are willing to lend to farmers and REST that provides training to farmers on agribusiness management and technical advice on animal health and husbandry. .	• Capacity building of the producers on technological packages such as water harvesting techniques, crop husbandry, animal husbandry and health; pre-and post-harvest handling techniques, agribusiness, skills, and financial management through training and exposure visits. • Strengthening the extension system by incorporating other innovative approaches such as volunteer farmer, farmer field schools and Landcare approaches. • Capacity building of farmers on crop husbandry (GAP), technological application and overall farm management e.g. improvement in the delivery of extension messages and use of other innovative extension approaches like volunteer farmers, farmer field school and Landcare approach • Linking smallholder producers and small scale traders and processors to MFIs to access loans for purchasing inputs and equipment for post-harvest handling (testing, bulking) by negotiating for and developing with the MFIs financial products that are tailored to the needs of the actors.	• Chain actors • Producers; collectors; wholesalers, retailers; processors; exporters • Chain supporters • Input suppliers • Cooperatives, individual agro-vet dealers • Financial service providers • There are a number of commercial banks, which lend to traders, processors, and exporters with high value collateral. They are neither preferred by the farmers nor willing to lend to them because farmers are not able to raise the required collateral. For instance, assets like livestock need to be insured to qualify as collateral. • **MFIs** such as DECSI lend to small-scale producers engaged

• Farmers have limited knowledge of improved production techniques (e.g. sound agronomic practices, livestock feeds and feeding practices) • Shortage of livestock feeds, particularly during the dry season, because livestock keepers have limited knowledge of livestock feed preservation methods • Shortage of quality certified seeds (vegetables, teff, potato) leading to high prices. • Low yields because of poor quality seeds and poor soil fertility. • Limited access to water harvesting techniques to enable producers to synchronise production and fetch higher prices during off-season. • Underdeveloped road and market infrastructure, particularly markets for livestock, thus leading to high transaction costs • Limited supply of high quality wheat for processing, because of low adoption of technologies for producing durum wheat. • Control of prices of some produce such as wheat by the government leads to inefficiency in the chain. • Weak institutional and policy framework to set up and regulate weights and standards of agricultural produce. • Inadequate storage facilities encourages disposal of the produce by farmers at low prices- • Lack of well-defined market information system to convey information about prices of outputs and inputs as well as availability of other services to value chain actors • Lack of access to technical information on animal health and husbandry, because of weak livestock extension system • Limited attempts to diversify into other non-traditional export markets for livestock • Double taxation of export produce	• Availability of land for forage establishment and pasture improvement as well as forage species that are adapted to the environment • Supportive policies and institutional framework to improve access to water harvesting structures. For instance, the government has laid down water harvesting strategies. The presence of Water Users Association can be tapped to improve efficiency of water use by upstream and downstream users • Growing domestic, regional and international demand for the products (wheat, teff, meat, eggs, vegetables, potatoes) • Universal Rural Access Road program is likely to provide avenues for farmers to access alternative markets • Proximity to food deficit countries like Somalia, Djibouti	• Strengthening revolving fund schemes and village saving SACCOs by training them on financial management and linking them to MFIs and commercial banks to help them build savings and improve farmers' access to credit. • Public-private partnerships in infrastructural development, especially cool storage, transportation, and shared collection centres. • Strengthening existing producer groups and marketing cooperatives through capacity building on business and financial management skills, governance and collective bargaining. • Creating multi-stakeholder platforms (Innovation platforms) to develop trust and create market linkage between producers, traders and other actors. • Strengthening agricultural market information system to streamline flow of information and prevent information asymmetry and exploitation of the actors (ICT based platforms) • Developing mechanisms for setting up and enforcing standardisation and grading systems to curb exploitation of producers by buyers • Formalising market systems through contracting or out grower schemes to enable producers to meet quality and quantity requirements (economies of scale), be able to negotiate for embedded business development services with the buyer, access shared facilities such as transport, collection centres and appropriate storage facilities • Strengthening seed supply system by linking farmers to national research institutions and Woreda Agricultural Office to set up informal seed multiplication systems, provide technical backstopping to the farmers and finally help formalise the seed distribution system.	on low risk businesses like goat, sheep and cattle fattening, dairy and tomato production. ADEDAY, another MFI, mainly women based, lends to enterprises such as shoats fattening, petty trade and restaurant businesses • Oromia Credit and Saving Share Company (OCSSC) lends to small scale farmers, but the demand exceeds the available savings • Rural savings and credit cooperatives with limited financial capacity to lend many borrowers are another source of credit to small-scale farmers. • Market information • EXC- links producers to buyers through mobile phone services • Extension • Woreda Agricultural Office • REST- capacity building of actors and provision of technical advice • Other NGOs • Research Institutions • Universities – research on improved technologies • Chain enablers • Woreda Trade and Market Development Office

Enabling Environment: Policies, Institutions and Inclusivity

Existing policies and institutions that favour the programme and constraints

The Ethiopian federal constitution includes a four-tier decentralization framework consisting of regions, zones (cluster of districts), woredas (or districts) and kebeles (wards or neighbourhoods). The Ministry of Agriculture and respective regional Bureaus of Agriculture, coordinate watershed management. At woreda level, there is a natural resource management section, and watershed committees at the grassroots level, responsible for bylaw development to govern watershed activities. Despite some successes in bylaw development, not all watersheds have documented bylaws yet. Although other ministries such as ministries of Water, Irrigation and Energy, Natural Resources and Forestry, River Basin Authorities, and the Biodiversity Institute, are involved in watershed management, there is weak coordination amongst them. Federal level policies are used as reference by different regions. Some regions have specific water guidelines for management of water supply and irrigation. Policy formulation and implementation involves different sectors, and groups. These include smallholders, private sector, women, disabled, youth. The main decision makers from regions and federal level include; Ministry of Agriculture, Agriculture and Rural Standing Committee members of the House of Peoples' Representatives, and Regional Bureaus of Agriculture (RBoA).

Table 2 Major policies related to smallholder farmer development

Policies	Bottlenecks	Possible solution
Policy on Agricultural Cooperatives Sector Development	Weak accountability mechanisms due to either existing laws or lack of capacity by the concerned institutions	Development of enforceable procedural guidelines and transparent working environment
Policy on Household Irrigation	Policy and research environment is not yet linked to support smallholders	Institutional support across agencies and appropriate regulatory enforcement, directed research agendas
Policy on Chemical Fertilizers	Inefficient fertilizer import processes, transportation, storage and distribution thereby impacting on prices	Policies that encourage private sector involvement
Seed Policy	The certification and quality control systems are complicated and lack transparency	Policy needs revision to be more flexible, and encourage competition
Policy on Agricultural Financing	Lack of both bank-specific and general ICT infrastructure to support the build up of remote banking channels,	Policy analysis, stakeholder consultation

Inclusive and integrated approaches

Cooperative associations earn income and provide saving and credit services. Enabling policies for women include The National Policy on Women and The Revised Family Law and Revised Criminal code. However, active participation by women in cooperatives is constrained due to local gender norms and unequal gender relations. Gender disparity is a key challenge to accelerating growth and social development. Business is conducted through cooperatives in rural areas and micro and small enterprises (MSEs) and consumer cooperatives in urban setting. While the cooperative sector is very crucial in the development of smallholder farmers in Ethiopia, there is strict control of cooperatives and unions by the government.

D2.Kenya Characterization Report Summary

Food and Water Security Profile

Target zones and villages

The DRYDEV Programme operates in six sites across three counties of Kenya: Lower Yatta (Kanyangi) and Mwingi (Waita) in Kitui county, Kalawa and Mtito Andei in Makueni county and Yatta and Mwala Divisions of Machakos county (**Figure 4**). **Table 3** below shows the specific sub and sub – sub catchements selected for intervention at each site.

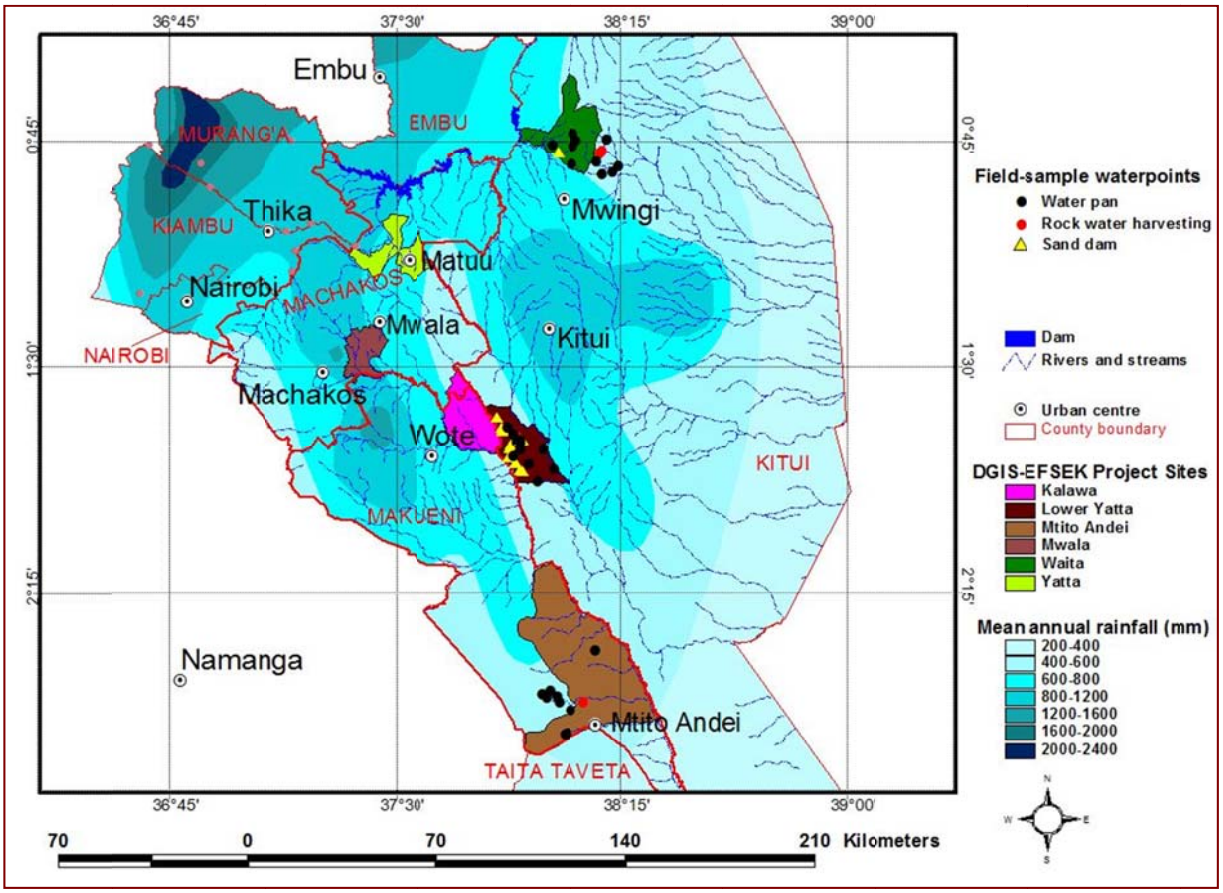


Figure 4 Kenya DRYDEV programme sites

Table 3 Sites targeted by the DRYDEV Kenya Programme

County	Sub-county	Sub-catchment	Sub-sub-catchments – Specific areas of intervention
Kitui	Mwingi Central	Upper Enziu	Thonowa, Waita & Endui, Katitika & Nyanya
	Kitui Rural	Mid Tiva	Kanyangi & Kiseuni (within Mandongoi)
Makueni	Mbooni	Kyanzonzo	Kathulumbi, Syotuvali ,Miangeni
	Kibwezi East	Upper Kambu	Kathekani (Nzambani &Thongoni) Masongaleni & Mukange
Machakos	Yatta	Ekalakala	Ndalani, Kavingoni. Matuu (Kaluluini and Kathulani)
	Mwala	Miindu	Kyawango, Mianyani, Mianyani and may consider Kibau

Biophysical characteristics

The dominant land cover is grassland savannah with closed to open herbaceous vegetation. Waita, Yatta, and Mwala sites have experienced an overall significant decline in vegetation cover since 2000, yet the remaining three sites have seen an increase in land cover. These trends are also reflected in soil erosion risk as shown in **Figure 5**. Soils include shallow but well drained sandy clays, generally with very low carbon contents, a challenge for agricultural purposes.

Water security situation in the watersheds

The programme sites range from 779 m 1362 m above sea level and all have sufficient network of rivers and streams, including the large Athi River. Salinity is a major problem with ground water quality. The water tables are also very low. Water management and harvesting technologies such as sand dams, water pans and pond, earth dams, water abstraction, conveyance, distribution and application systems, renewable energy, technologies for value addition and storage, have potential to be enhanced, to increase water availability for agricultural production in the programme sites.

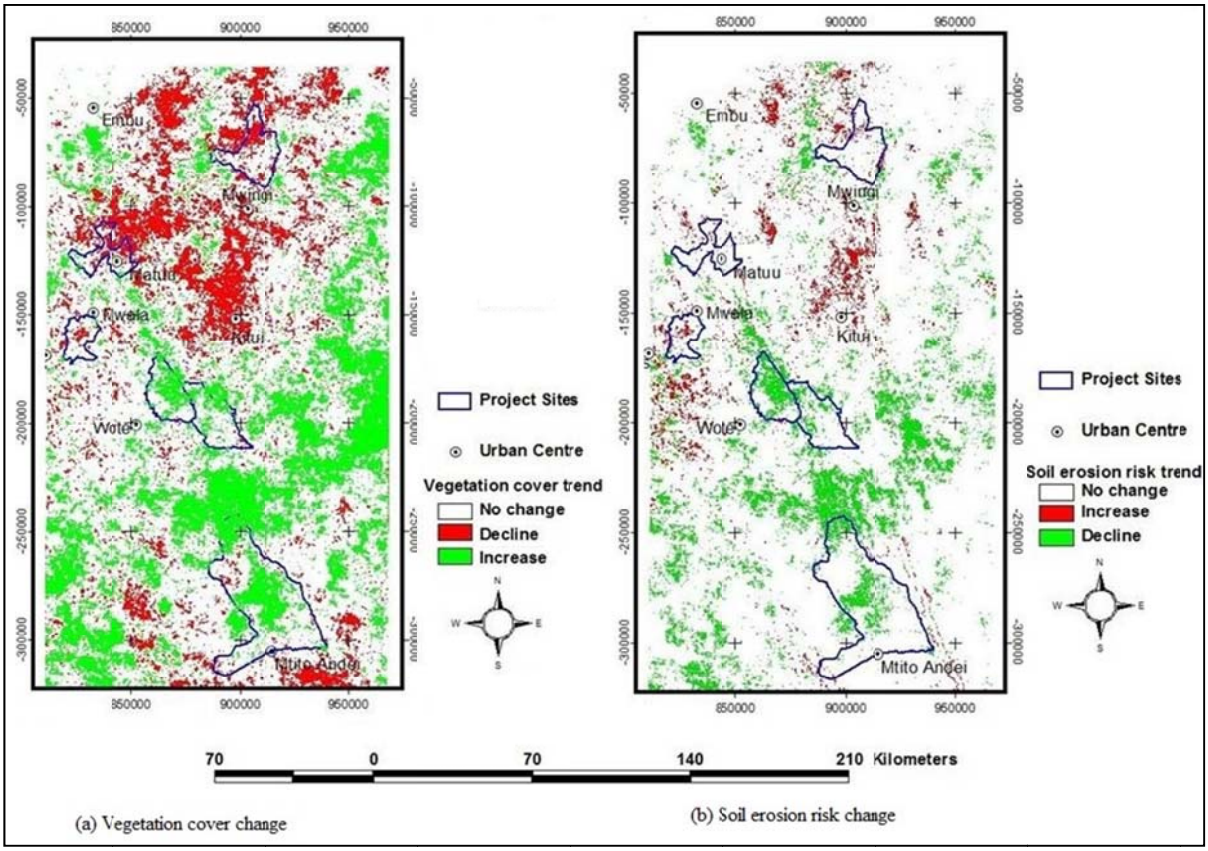


Figure 5 Vegetation cover change and soil erosion risk trend between 2000 and 2013

Socio-economic characteristics

Population growth at the sites has been higher than the Kenyan average. Poverty levels are also higher than the national average (47.2%), in Machakos at 52%, Kitui at 63.5% and 64.1% in Makueni. Food insecurity is most prevalent in the dry months, ranging between Jan to July at the different sites. Maize

is the most common crop planted in the target areas, with 43.8% of farmers growing it. Most farmers also grow millet and sorghum but only on a small proportion of their farm, despite these being very important food security crops. Other common crops grown beans, pigeon peas and green grams, also vegetables such as kales and tomatoes are grown though on lower scale. In addition to crops, the majority (73% - 90%) of households across the sites also own livestock, small animals or pack animals. Food insecurity is high in the target area with between 60 – 80% of households in the target sites, not having enough food to meet their families' needs all year round, requiring them to use coping strategies such as borrowing money or buying food on credit. External food aid was required by between 5 and 18% of households in the 6 sites at some point over the last 12 months.

Development domains for integrated technological practices and approaches

The communities are organized in common interest groups. The groups are mainly involved in the construction of farm ponds and digging Zai pits for enhancing agricultural production. In fact during the inception year a number of new groups were formed to engage in other DRYDEV activities. The group practice table banking and use the money to construct water storage infrastructure.

Value chain development in Kenya

Four value chains namely, **mango, green grams, cow peas** and **pigeon peas** were selected by key stakeholders based on their potential to commercialize the rural economy through employment creation and diversification of income base. Other potential value chains identified during the validation of characterization studies, but were not subjected to further analysis; include horticulture (small scale vegetable production under irrigation particularly for the youth), indigenous poultry (women), beekeeping and goats. Men were found to dominate the mango value chain, with women participating only in the production and retailing nodes of the chain. The value chains for green grams, cow peas and pigeon peas are however entirely dominated by women, as production is generally for subsistence with the little surplus being sold to augment household income. The youth are less involved in the production node of the value chains, but there are opportunities for them to provide business development services such as private rural advisory services, production and supply of fruit tree seedlings, and provision of motorised spraying services to mango growers among others. Table 1 summarises the identified constraints and opportunities for development of these value chains in the programme sites in Kenya.

Table. 1 Constraints to and opportunities for developing selected value chains in Kenya

Constraints	Opportunities	Strategy for VC development	Chain actors, supporters, enablers
• Water shortage due to frequent droughts and rain-fed production, limits synchronization of production with the market demand resulting in unstable prices. • Prevalence of pests (e.g. Mango seed weevil and fruit fly) and diseases (powdery mildew and anthracnose) affect quality and quantity produced for the market • Shortage of planting materials/grafted seedlings and quality certified seeds for pulses, means inferior low yielding seedlings/seeds are used which are susceptible to pests and diseases infestation • Farmers have limited knowledge of improved production techniques (sound agronomic practices) • Producers have poor access to credit making it difficult to purchase critical inputs like motorised pumps for effective pest management and fertiliser • Poor post-harvest handling techniques, storage and transport infrastructure leading to significant losses and/or immediate sales at low prices • A lack of organised collection centres, standardised grading systems, packing facilities close to the point of production,	• On-going research on Cost effective storage facility (coolbot) by the University of Nairobi and UC Davis to curb post-harvest losses and pro-long shelf life of mangoes and other horticultural crops in Makueni • Existing farmer groups that can be trained on group dynamics and business management skills to engage in mango production and marketing. • Financial institutions such as Equity, BIMAS and K-Rep with products that are attractive to farmers and other actors • Saving culture among farmers (ROSCAs, ASCAs and table banking).	• Linking smallholder farmers to relevant institutions and investors to access irrigation and technical skills for phasing production, to access higher prices during off-season • Capacity building of farmers on crop husbandry (GAP) and overall farm management through improvement of extension messages and approaches • Public-private partnership in infrastructural development, especially cool storage and transportation, shared collection centres. • Strengthen existing farmer groups for collective marketing, governance and bargaining • Participatory quality management of the supply chain to improve the quality of	**Chain Actors:** • Producers (small and a few large scale), Retailers, Wholesalers, Processors (small and large scale) • Supermarkets (Nakumatt, Uchumi), Exporters (Fresh) **Chain enablers:** • Regulatory institutions • Kenya Bureau of Standards (KEBS) - quality control and certification of all products. • Pest Control Produce Board- regulate the use of products for controlling pests (importation, distribution) • Kenya Plant Health Inspectorate Services- control quality of planting materials • Horticultural Crops Development Authority

means higher quality produce cannot be separated to fetch premium prices, or stored for higher prices. • No collective bargaining on the prices by farmers • Farmers lack the necessary information on alternative marketing possibilities and value addition options. • Production of pulses is mainly for subsistence, thereby limiting the potential of farmers' to exploit opportunities associated with economies of scale • Lack of well-defined market information system to convey information about prices of outputs and inputs as well as availability of other services to value chain actors. • Traders have poor access to credit making it difficult to finance business operations. • There is little incentive for farmers to invest in value addition such as sorting, grading, packaging and branding because brokers offer the same price irrespective of the quality • Poor enforcement of policies that regulate packaging and quality standards of the produce. • Mango processors experience insufficient plant capacity and supplies, as better quality fruits are exported, necessitating them to import concentrates from Mauritius, Egypt and South Africa • Competition from imported juices from Mauritius, South Africa and Egypt, (with preferential tariffs under the regional trade agreement, COMESA) and locally manufactured chemically sweetened mango flavoured soft drinks. • Inability of mangoes from Kenya to compete internationally due to pest damage, wrong varieties and high costs of freight, and failure to comply with the EUREPGAP and traceability standards • Price instability in the international market and stiff competition from other countries like India, Pakistan, Brazil, Mexico and Costa Rica, which incur low freight costs	• Trained and licenced nursery operators to produce and supply quality planting material • A growing demand for fruits and pulses in the domestic and regional markets • County government plans to invest in water harvesting structures. • Other government initiatives to improve the actors' access to finance such as Women Development fund, Uwezo Fund, Youth Enterprise Fund • HCDA framework to formalise the activities of brokers through licencing • Development NGOs such as Technoserve and FARM CONCERN and the private sector (Coca cola) with an interest in value chain development for mangoes and green grams. • Research institutions working on quality germplasm such as KALRO, ICRAF, ICRISAT with training centres in Thika and Machakos	produce for export • Developing incentive mechanisms for producers to invest in value addition in form of sorting, packaging, and branding for pulses, and drying for mangoes to target up-market consumers in the domestic markets, as well as regional and international markets. • Strengthen capacity of farmer groups to build savings and link to MFIs, SACCOs and commercial banks for loans and negotiation of flexible repayment period in line with the production cycle • ICT based market information platforms to prevent information asymmetry and exploitation • Developing to curb exploitation of producers by buyers • Formalising market systems through contracting to set quality and quantity requirements and share facilities such as transport, collection centres and appropriate storage • Linking farmers with public institutions like KALRO, KEPHIS and the MoALF to strengthen seed multiplication and distribution system.	(HCDA)-regulates horticultural industry through licencing of actors **Chain supporters:** • Extension-MoALD, NGOs • Input supply- KALRO, private agro-dealers • Transporters • Financial service providers: • Financial institutions exist in the region, but producers are reluctant to take credit, particularly for the production of subsistence crops. Often more attractive to commercial farmers due to: (i) fast loan processing (ii) flexible repayment terms (iii) relevant products such as asset financing (iii) reasonable lending rates (iv) larger amounts of loan and (v) embedded services like training Informal sources of credit, (ROSCAs, ASCAs, village saving banks and table banking), are preferred, but credit ceiling is too low for most borrowers. Microfinance institutions like BIMA lend to smallholder farmers as well, but there are collateral requirements that deter the farmers from borrowing from them.

Enabling Environment: Policies, Institutions and Inclusivity

Existing policies and institutions that favour the programme and constraints

Comprehensive policies, legal frameworks, strategies that favour the DRYDEV programme objectives in Kenya include:

- Agriculture Sector Development Strategy (ASDS)
- National Food and Nutrition Policy (2011)
- National Environment Policy (2013)
- National Climate Change Response Strategy (2010) and Action Plan
- Kenya National Agribusiness Strategy (2012)
- National Policy for Sustainable Development of Northern Kenya and Other Arid Lands (2012),
- Fertilizer Cost Reduction Strategy
- National Accelerated Agricultural Inputs Access programme
- Economic Stimulus Package.

Implementation of these policies and strategies is however limited by low implementation capacity, resources, uncoordinated efforts among the different entities and conflicts between economic interests and conservation efforts. In particular, though agriculture is devolved to county level administration, water, environment and natural resource conservation are all shared between both the county and national government administration, hindering integrated development efforts though communities have formed interest groups with respect to natural resources management and agribusiness development; there is limited awareness on the policies and legal provisions.

The Ministry of Agriculture was highly ranked as the preferred extension service provider by farmers. Other extension service providers available include community members such as progressive farmers and farmer groups as well as agricultural research institutions, agricultural shows, and contract farmers.

Inclusive and integrated approaches: marginalization, vulnerability and gender issues

Involvement of rural households in collective action through membership in farmer groups is generally less than 50% of the total households in the project area. Moreover, farmer groups' participation in money generating activities as well as partnerships with the private sector is at most minimal. Farmer groups have significant potential, to support development and their capacity can be enhanced by catalysing multi-stakeholder platforms, increasing their awareness of available opportunities and assisting in rural enterprise development.

Legal provisions have not fully taken into account the extent of marginalization of women and vulnerable groups [youth, elderly, widows, people living with disabilities (PWD) and people living with HIV and AIDs [PLWHA] in agriculture and its value chains. There is however an opportunity to mainstream gender responsive local policies in the new political dispensation. It is noteworthy that gender inclusiveness and integration is influenced by cultural practices where men are dominant in the agricultural production and value chains.

D3.Mali Characterization Report Summary

Food and Water Security Profile

In Mali, the programme is targeting 15 sub catchments in 15 communes in six districts in the south of the country (**Error! Reference source not found.**). **Table 4** provides population and intervention sub catchments in each of these areas.

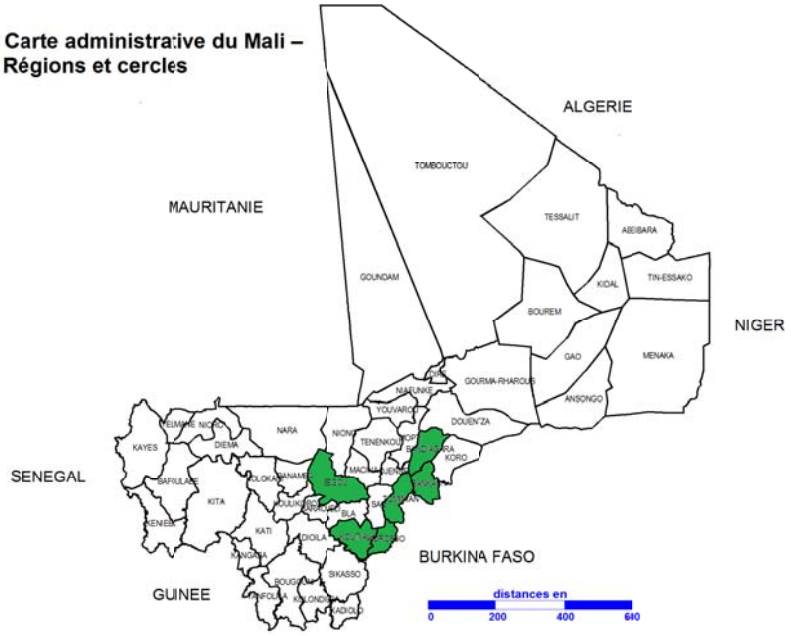


Figure 6 Target sites for the DRYDEV programme in Mali

Table 4 Target Sites, Population, and intervention sub catchments in Mali

Region	District	Communes	Population	Intervention Sub-catchments
Sikasso	Koutiala	Sorobasso	10,731	Sorobasso
		Zanfigué	17,325	Zanfigué
	Yorosso	Menamba1,	12,534	Menamba1
		Kifosso1	29,152	Kiffosso 1
		Koumbia	37,158	Koumbia
Ségou	Ségou	Cinzana	37,205	Koundia Garo
		Kamiandougou	15,362	Nkaro et Nongo Were
	Tominian	Tominian	29,885	Kondala
		Mandiakuy	24,422	Mandiakuy
		Mafouné	26,963	Mafouné (MOWE)
Mopti	Bandiagara	Soroly	5,784	Soroly
		Bara-Sara	15,033	Mandali
	Bankass	Kani-Bonzon	15,427	Gouri Sadia
		Ségué	25,530	Kogo Yolotchi
		Diallassagou	27,053	Begoué

Biophysical characteristics

A detailed biophysical mapping of the selected 15 communes was conducted in Mali. The mapping captured the geographic location, demographic and socio-economic characteristics, climate, flow and hydrology, land use and cover, vegetation and important biodiversity.

Across the target area, the wet season generally lasts 4 to 5 months (June-October). The dry season presents two periods: a cold period (November to February) with minimum temperatures of 15° to 20° and a hot period (March to May) with maximum temperatures varying between 39° and 42°.
The zone is also characterised by the harmattan (a hot, dry wind) that prevails from January to May, and the monsoon bringing rain, that prevails between June and July. The quantity of rain is poorly distributed during the period and not enough for the needs of the crops and this amply explains successive years of poor harvests. Evapotranspiration rates in several communes may exceed the average rainfall volumes.

Water security situation in the watersheds

Hydrological systems in the targeted sub catchments are characterized by temporary streams that all dry up from the month of January/February. Small temporary watercourses (ponds and shallow dips in the land) are fed by rainwater and also dry up after the wet season, generally in November.
Several communes have permanent rivers such as the **Tiontiéri River**, which crosses the communes of Kiffosso, Zanfigué, Sorobasso, and Kouniana, Moribila, providing significant water. The River Bani and the River Koulandiè retain water until the month of January and provide a site for watering animals. Several lakes exist across the programme area that may have potential for development as part of this programme for fisheries and irrigation. These can be found in Cinzane and Kamiandougou. Potable water comes from boreholes and traditional wells, though generally these are not treated, and may not all be in working order. Micro-dams exist in some villages, but few are in good condition. The construction of dams and ponds is a possibility given that rainfall is good.
Hydrological mapping has been done for all communes and sub catchments in the target area. Figure 7 shows Mafoune commune's fourteen sub-watersheds.

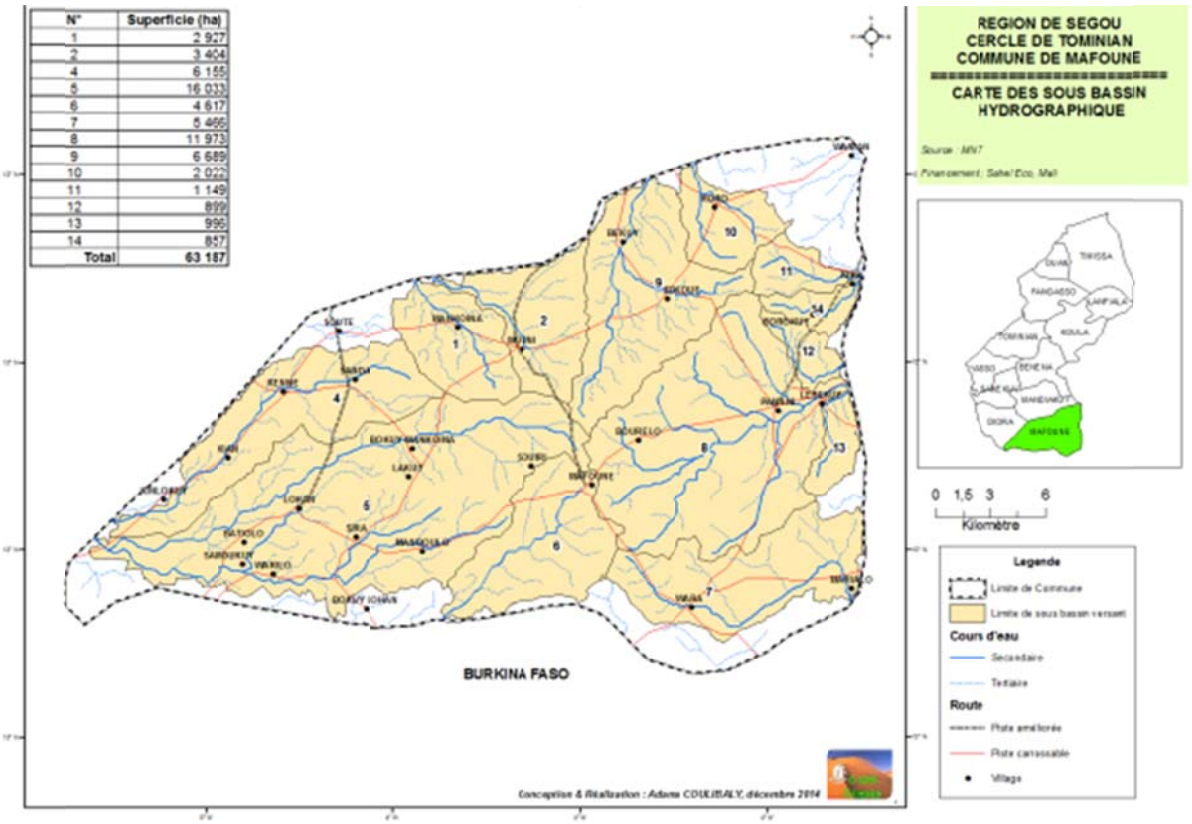


Figure 7 Map of the hydrogeological network of the Commune of Mafouné

Socio-economic characteristics

The majority of the Malian households are small agricultural producers dealing with subsistence-oriented agriculture. Poor productivity of Malian agriculture is due to decreasing soils fertility, climatic hazards, the insufficiencies of agricultural use of inputs and the weak development of the markets and infrastructure. The main crops grown in the communes include cotton, millet, sorghum, maize, groundnuts, rice, soybeans, and forage crops. Farmers can be clustered into four different groups based on their socio – economic status and vulnerability. These groups and their characteristic in the programme area are described in **Table 5**.

Table 5 Farmer groups in Mali

Group	Description	Comments
1	**Very vulnerable:** producers whose production only covers a period of 0 to 4 months per year.	This cluster of farms is widely found in Diallassagou with a proportion of 47%, followed by Kamiandougou with 17%, Soroly with 15% and 13% in Segué and a very low proportion in Cinzana (1%), Koumbia (6%). This cluster of farmers does not exist in the nine (9) other communes.
2	**Moderately vulnerable**: producers whose food production covers a period of 4 to 8 months per year.	With the exception of the commune of Zanfigué, this group is present in all other communes in variable proportions: around 17% at Kanibonzon and 11% at Segué.
3	**More or less self-sufficient**: Producers whose food production covers a period of 9 to 12 months per year	This cluster of farms is noted in all the 15 communes with the highest proportion in the communes of Cinzana (17%), Bara-Sara (15%), and between 2 to 8% in the others communes.
4	**Self-sufficient:** producers whose production covers a period of more than 12 months. This group normally has enough food for their family and sometimes surplus for markets.	This cluster of farmers is widely noted in Zanfigué, Cinzana, Kiffosso, Sorobasso and Mandiakuy, and moderately in the communes of Mandiakuy, Mafouné, Tominian, Koumbia, Soroly and Menamba. This type of farmers is not found in the commune of Kamiandougou, Kanibonzon Segué and Diallasagou.

Development domains for integrated technological practices and approaches

To support the development of integrated agro- sylvo – pastoral systems in the programme area of Mali, the following are priority activities were identified:

- **Soil conservation activities**: soil erosion control, soil fertility, water harvesting, fixing dunes, stabilization and protection of water rivers banks;
- **Management and rehabilitation of the water storage infrastructure:** micro dams for fish farming, vegetable growing, rice cultivation and livestock drinking, rehabilitation of boreholes and wells, management of ponds
- **Management of sub-watersheds:** Enrichment of grazing areas and forests, Agroforestry, Farmer Managed Natural Regeneration (FMNR) and fodder cultivation

Value chain development in Mali

Potential value chain selected value chains for upgrading in Mali include **cereals (Maize, Fonio (clean fonio), sorghum, millet, rice)** and **vegetables (Shallots, onions, tomatoes, pepper, cabbage, Okra), Livestock (cattle, goat and sheep fattening), Oilseeds (sesame, groundnuts), Non-wood forest products (Shea, Zaban, M'péku, N'gunan, Néré and Ziziphus mauritiana).** Women dominate non-wood forest products and vegetable value chains, which are generally underdeveloped. Men dominate the cereals, oilseeds and livestock fattening value chains, with women participating only in certain nodes of these value chains where dexterity and patience is required such as processing of cereals (shelling and

winnowing) and small scale processing of oilseeds. Nevertheless, men are currently gaining interest in the processing of oilseeds and in the collection and processing of non-wood forest products as the value chains become more commercialized.

Table. 1 Constraints to and opportunities for developing selected value chains in Mali

Constraints	Opportunities	Strategy for VC development	Value chain Actors, supporters, enablers
• Low productivity of crops because of poor soil fertility and limited use of productivity enhancing inputs (fertilizer, improved seeds) • Women have limited access to and control over land for cultivation • Limited access to high quality (certified) seeds • Production of vegetables is mainly for subsistence, preventing economies of scale • Poor quality produce (sesame) because of adulteration by producers and traders • Limited awareness and enforcement of laws and regulations governing forest products • Inadequate knowledge on sustainable exploitation of forest products • Limited attempts to establish and enforce quality and food safety standards for processed forest products, and other agricultural and livestock products • Unavailability of cost effective modern equipment for processing agricultural and forest products • Low volumes of forest products, which limit the producers' potential to exploit advantages associated with economies of scale and bargain for better prices • Low demand for processed forest products in the domestic market • Lack of appropriate storage facilities • Limited availability of inputs such as vaccines • Inadequate supply of livestock (cattle, sheep and goats) for fattening	• Availability of good national road network facilitates the distribution of produce from deficit to surplus regions • Good network of NGOs that support the value chains in various capacities such as capacity development of producers on marketing strategies such as bulking and collective marketing; supporting food security initiatives through promotion of alternative income generation activities; provision of technical advice, enhancing access to finance by nurturing saving culture among others. Such NGOs include AMASSA, AMAPROS, USADF, IER, Sahel ECO, World Vision, CRS, CARITAS • Presence of existing farmer groups or producer groups, cooperatives • Growing demand for agricultural and forest products in the domestic and regional markets	• Capacity building of the producers on technological packages such as water harvesting techniques, crop husbandry, animal husbandry and health; pre-and post-harvest handling techniques, agribusiness, skills, and financial management through training and exposure visits. • Strengthening the extension system by scaling up and incorporating other innovative approaches such as volunteer farmer, farmer field schools and Landcare approaches in the project areas. • Public-private partnership in infrastructural development, especially cold storage, transportation, shared collection centres, agro vet dealer units • Strengthen existing farmer groups to set up collective farmers' bodies responsible for marketing and interacting with other stakeholders and bulk produce and. build their capacity on governance and collective bargaining. • Participatory Quality management of the supply chain to improve the quality of produce for export • Developing incentive mechanisms for producers to invest in value addition in form of sorting, processing, packaging, branding and certification schemes to target up-market consumers in the domestic markets, as well as regional and international markets. • Linking smallholder producers and small scale traders and processors to MFIs to access loans for purchasing inputs and equipment for post-harvest handling (testing, bulking) by negotiating for and developing with the MFIs financial products that are tailored to the needs of the actors. • Strengthening revolving fund schemes and	**Actors** • Producers organized into cooperatives (Farmers' Union, Women Network of the commune of Kamiandougou) • Collectors/aggregators • Processors Network of women entrepreneurs of Segou region, Other small scale individual private millers) • Wholesalers (exporters): large scale private investors e.g. OLEA limited **Enablers** • Malian Cotton Development Authority- supervise the farmer cooperatives; millers; wholesale traders; consumers **Chain supporters** Financial service providers • Commercial banks such as Malian Development Bank (BIM-sa), Eco Bank, National Agricultural Development Bank, Atlantic Bank, and Bank of Africa are available but they do not lend to smallholder producers and SMEs. Producers and small scale processors, particularly women occasionally borrow from MFIs such as Kafo Jiginè, Nyèsigiso, and Soro Yiriwaso, but the high interest rates, non-flexible repayment periods and limited understanding of the terms and conditions of borrowing deter

• Inadequate capital to expand businesses because of limited access to credit since MFIs, the only financial institutions that are willing to lend to small-scale producers, charge exorbitant interest rates. • Prevalence of diseases, which reduce the quality of livestock products and limit their export potential • Limited use of supplement feeds because of lack of awareness and knowledge of feed formulation, feed preservation and storage techniques • High cost of farm inputs and processing equipment • Inadequate access to technical advice because of high farmer to extension agent ratio • Low level of organization of the actors (lack of coordination among the actors), because of inadequate knowledge and the requisite skills such as entrepreneurial and financial management skills to operate efficiently • Limited availability of permanent water sources for abstracting irrigation water for vegetable production • Lack of well-defined market information system to convey information about prices of outputs and inputs as well as availability of other services to value chain actors • Low levels of literacy among actors particularly small scale women producers, traders and processors • Unavailability of cost effective modern processing equipment • Limited attempts to establish and enforce regulations that govern quality and food safety standards for	village saving SACCOs by training them on financial management and linking them to MFIs and commercial banks to help them build savings and improve farmers' access to credit. • Strengthening agricultural market information system to streamline flow of information and prevent information asymmetry and exploitation of the actors (ICT based platforms) • Developing mechanisms for setting up and enforcing standardization and grading systems to curb exploitation of producers by buyers • Formalizing market systems through contracting to enable producers to meet quality and quantity requirements (economies of scale), be able to negotiate for embedded business development services with the buyers, access shared facilities such as transport, collection centres and appropriate storage facilities • Strengthening seed supply system by linking farmers to national research institutions, national extension system, and regulatory bodies to set up informal seed multiplication systems, provide technical backstopping to the farmers and finally help formalize the seed distribution system. • Building capacity of actors on business and financial management, and post-harvest handling techniques	majority from taking loans. • Women's Savings groups are common sources of funds for financing the value chains, but the savings are generally too low for all the applicants to secure the required amount of funds • Retailers/traders sometimes provide loans and inputs on credit to small scale farmers • Large-scale private traders located in the urban centres provide interlinked credit to some farmer organizations farmers in terms of inputs and farm equipment. They give loans to collectors to facilitate bulking of the produce. • WFP and Malian Food Office partner with the large traders Transport services: • Large private transport companies such as SATRACOM and AIR BWATUN • Other small transporters like FADIGA and brothers and CAMARA and transporters • Technical advice/extension service provide by the government, development NGOs

processed products

- Limited awareness of quality standards
- Poorly developed road and market infrastructure (livestock market), especially in the main production zones

Enabling Environment: Policies, Institutions and Inclusivity

Existing policies and institutions that favour the programme

A diversity of relevant institutions and national and international legal instruments exist in Mali providing a favourable basis for attaining food security. However, limited technical support for producers, and knowledge of these legal frameworks is hindering their full implementation. There is need to harmonize these public policies to address the constraining sector-based vision of production systems and incomplete legal frameworks. Further there is need for integration of local practices and customary laws with formal legal perspectives.

Producers' organizations also exist, but are limited by internal capacity, insecure agricultural land tenure, and poor access to credit and inputs. Likewise, local water committees (CLE/LWCs) also exist, and can be strengthened through DRYDEV.

Inclusive and integrated approaches

Issues of gender inclusion were also analysed in the various socio-professional groups of farmers/herders, producer groups and forestry operators. Findings from the project note that the level of involvement of women in agricultural practices is quite low. Low capacity of grassroots institutions is an obstacle to active engagement with other state stakeholders. There is therefore need to establish effective partnerships in order to increase productivity and avoid over dependency on external support.

D4. Burkina Faso Characterization Report Summary

Food and Water Security Profile

Target zones and villages

The programme target zone in Burkina Faso covers six provinces including Bam, Passoré, Sanguié, Sourou, Yatenga and Zondoma. Administratively, these provinces are part of the four regions namely the North, North-Centre, West-Center and the Boucle of Mouhoun (**Table 6**).

Table 6 DRYDEV Programme sites in Burkina Faso

Province	Subcatchment	Communes	Area Micro catchment (km2)	Villages
Sourou	B07	Kiembara Tougan	198.79	Gouéré, Sissillé, Sissilé, Kiembara, Kiembara-Secteur 1, Kiembara-Secteur 2, Kiembara-Secteur 3, Kiembara-Secteur 4, Kiembara-Secteur 5, Niassono, Kouygoulo
Zondoma et Yatenga	B08	Oula, Bassi Tougo	213.63	Bouskoudougou, Boussoum, Dabla, Ipala, Kounga-Mossi, Kounga-Peulh, Omsom, Pelkisga, Sindilo, Bassi, Koura-Douré, Lintiba, Rondolga, Saye, Songodin, Tougouya-koko, Tourgo-Silmi-Mossi, Noungou, Raméssé, Roba Toumigo, Zondoma
Yatenga	B09	Zogoré, Tangaye	108.81	Leh, Boulounssi, Nango-Foulbé, Nango-Yarcé, Téonsgo, Torobo, Viré-Songdin, Zogoré
Bam	B13	Tikaré, Kongoussi	143,30	Birou, Bognam-Foulbé, Bogonam, Loagha, Loagha-Foulbé, Sakou, Sakou-Foulbé, Yougounini, Baribsi, Gonga, Horé, Kilou, OuampÞga, Ritimyinga, Tamiga, TampÞlga, Tikaré-Secteur 3, Yelkoto, Zano
Passoré	B16	Arbollé, Kirsi	131.36	Pathiri, Ranéon, Sagaré, Sikouinsi, Tancé, Toyendé, Kapon, Ribou
Sanguié	B27	Tenado, Réo, Khyon, Koudougou	147	Koudougou-secteur 10, Kyon, Ekoukoala, Kilsio, Poun, Tenado-Secteur 3, Tenado-Secteur 4

The target zone covers an estimated area of 27,945km^2, which is about 10.2% of the national territory. The population of the 54 communes within this area is 1,816,999 as of 2006, representing 13.1% of the national population. The average density of 65 people per km^2 is higher than the national average of 51.8/km^2.

Biophysical characteristics

The annual rainfall varies between 400 and 800 mm and lasts only 3-5 months between late May and early October. Temperature ranges are large, from an average low of 17.8°C to an average high of 43°C. The landscape has a flat morphology with an average altitude range of 200 - 500 m. The four soil types include: Lithosols, Ferruginous tropical leached and indurated soils, Ferruginous tropical leached having stains and concretions and Hydromorphic soils.

From North to South regions, the vegetation naturally corresponds to the Sahelian climate and Sudano-Sahelian division, with six major plant types including shrubby steppe, wooded steppe, shrubby savannah, grassy savannah, and marginally, the striped bush. Towards the East-South regions, there is a low proportion of gallery or riparian forest in the municipalities of Kyon and Didyr.

Water security situation in the watersheds

The intervention area has 27 sub-watersheds (Figure 8) Primary sources of water include rainfall, rivers, lakes, dams (present in approximately half the selected sub watersheds) and boreholes (present in all the selected sub watersheds). In 2014, there were 202 dams, 88 *boulis*, 18 pools and three lakes in the intervention area.

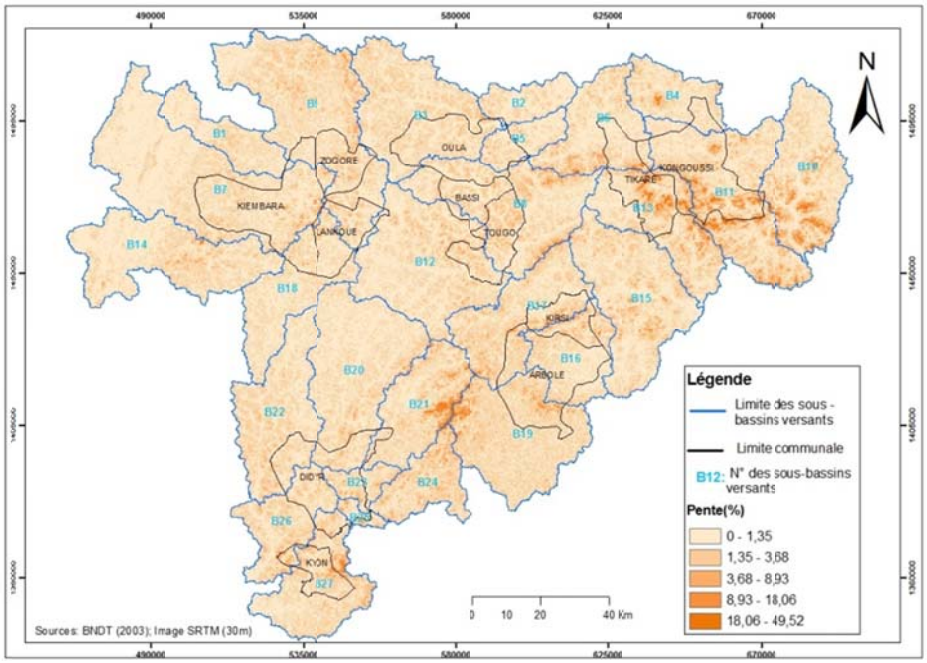


Figure 8 Sub-watersheds in the Burkina Faso target zone

Socio-economic aspects

Agriculture is the main socio-economic activity in the target area. The main modes of getting access to land and other resources are inheritance and borrowing.

Farmers can be grouped based on their resource endowments as either; very poor (50%), poor (20%), average (25%), rich/model households (5%). Farmers in the target area were classified into these groups based on land ownership, access to inputs and level of self-sufficiency. Following this analysis, it was found women formed the majority of the poor, with less access to land (only through borrowing) and agricultural inputs and equipment.

Table 7 Social-economic groupings of farmers in Burkina Faso

Category	Features	% Population
Very poor households	- Own small size of land, which is supplemented with borrowed land from other people for temporary use - Limited use of purchased inputs including seeds. Use of owned recycled seeds, with limited guarantee on quality is common Low productive labour force that relies on simple hand tools for cultivation. Hand hoe is the sole working tool. Limited use of productivity enhancing inputs including soil and water conservation practices to improve the quality of land Heavily reliant on external support, particularly from other people like relatives (remittances)	50% mainly made up of women

Poor households	- Have a relatively more productive labour force than that of Category 1, and some few small agricultural intensification developments that are not of high quality - Have limited means of production (poor quality land, no livestock including poultry) - Are able to meet their food needs during a major period of the year but are their nutrition security is low.	20%
Average households	- Own small herd of breeding cattle and land of average productive quality - Use of improved seeds and own at least a plough and a donkey - Are food secure during an average-rainfall year; - Are vulnerable in case there is a decrease in the rainfall.	25%
Model or rich households	- Have the following in addition the average household: - Productive animals and especially draft animals; - Use of improved seeds; - Use recommended agronomic and animal husbandry practices; - Cultivate cash crops such as sesame in addition to market gardening - Engage in farm and non-farm activities such as village shops (petty trade)	5%

Value chain development

Five value chains namely; beans, poultry, peanut, Shea butter and vegetables (marrow, squash) were selected for further analysis following a discussion with key informants. Prioritization of value chains was based on three criteria namely, market potential (whether local, regional, sub-regional, or international), production potential (e.g. scale of production, quantity produced per province, opportunities for value addition and productivity growth opportunities) and potential to have large-scale socio-economic impact. In majority of the sites, beans and poultry are the preferred value chains followed by shea butter, peanut and vegetable marrow squash.

While the five value chains have the potential to commercialise the rural economy in Burkina Faso, the actors face a number of challenges. These challenges include high transaction costs with regard to access to improved seeds and inputs, limited value addition, limited access to finance and weaknesses in organisational development and networking. Small animals play a significant role in the livelihoods of the poor in rural areas, yet production is subsistence oriented and lacks market orientation. Low market orientation among producers is due to lack of reliable, profitable markets and low levels of marketable surplus as well as limited access to finance. Non-forest timber products, like Shea butter, play a significant role in the livelihoods of the rural people in Burkina Faso, particularly women. Despite the involvement of several organisations in promoting the exploitation and marketing of NTFPs in Burkina Faso, rural women face a number of challenges. They are usually confronted with informal and unstructured markets that make their operations expensive; unclear policy and regulatory framework that govern the exploitation of NFTP, limited access to market information and they have limited business skills and the resources to compete in the regional and international markets. In addition, NFTPs are scarce in supply since they have to be exploited from the forest.

Strategies that are likely to be critical for upgrading the selected value chains include strengthening capacity of poor rural households on enterprise development and basic business development skills, strengthening their organizational, advocacy and lobbying capacity; promoting producer organizations and networking to improve product quality and quantity, more cost-effective transportation and increased negotiating skills. Likewise, other strategies such as facilitating links between actors in the value chain to improve access to market information and microfinance; crowding-in new players to

enhance the functioning of the market systems by building collaboration, exchange, networking and strategic partnerships with relevant public and private market players; enhancing producers groups' technical capacity and organizational know-how for sustainable resource management, facilitating an enabling environment for rural NTFPs enterprises development by influencing NTFPs market system players, especially policy makers and the private sector through policy dialogue are critical in strengthening the value chains, particularly that of NFTPs.

Enabling Environment: Policies, Institutions and Inclusivity

Existing policies and institutions that favour the programme

The number of policies, strategies and legislative texts governing rural areas, is indicative of governments strong will to support rural development. However the synergies between such texts is not clear, and the low level of knowledge and technical capacity to support them is hindering their implementation. This is leading to:

- Inadequate funding to implement actions
- Low ownership of certain policies and strategies / by actors both centrally and in the field due to the communication failure
- Weak coordination and harmonization of interventions
- Weak monitoring and evaluation systems

Rural development and food security policies and strategies that were reviewed often had the following limitations:

- **Lack of Strategies and Operational Plans** to specify the activities to be undertaken, actors responsibilities and funding arrangements for implementation
- **Lack supporting actions** such as agricultural research, communication, processing, marketing, rural access, literacy, agricultural risk management, consideration of vulnerable populations
- **Insufficient reforms** related to access to inputs and equipment, access to credit and financing, land tenure security, taxation etc.

In response to these challenges the Burkina Faso government adopted the NRHP, a single planning framework to guide budgeting and implementation of interventions in the rural sector on the 24 October 2012.

The Ministry for Agriculture houses the government extension service. However the current constraints of the public services have led to poor supervision, a lack of transportation for extension workers, inadequate training, and poor collaboration with other advisory support services on the ground.

Inclusive and integrated approaches

There is need to address tenure systems that inhibit women and migrants from owning and accessing productive land. There is also need to address the poor and very poor farmer categories by enhancing their access to inputs as well as other farm technologies through affirmative action (e.g. subsidies). In respect of access to credit and financing, the actors face difficulties due to lack of collateral, but also because of the weakness of the financial products offered by banks and microfinance institutions. This results in a particularly low women's access to credit and financing

While subsidies and other policy measures on inputs, the practice of subsidizing agricultural inputs and equipment and livestock are generally satisfactory to many stakeholders, women and vulnerable groups still lack access to such input subsidies and equipment.

D5.Niger Characterization Report Summary

Food and Water Security Profile

Target zones and villages

The target municipalities are located in a band along the southern edge of the country in the semi-arid Sahel with an average annual rainfall that varies between 350mm (north of Dogon Kiria) to 650 mm (south of Torodi). As depicted in Figure 9, the target municipalities include Torodi, Malbaza, Dogon Kiriya, Aguie and Droum. Specific intervention sites have been selected in the form of 12 scaling-up catchments, each with specific sub-catchments selected, and 11 impact assessment sub-catchments, within or nearby the 6 municipalities shown below.

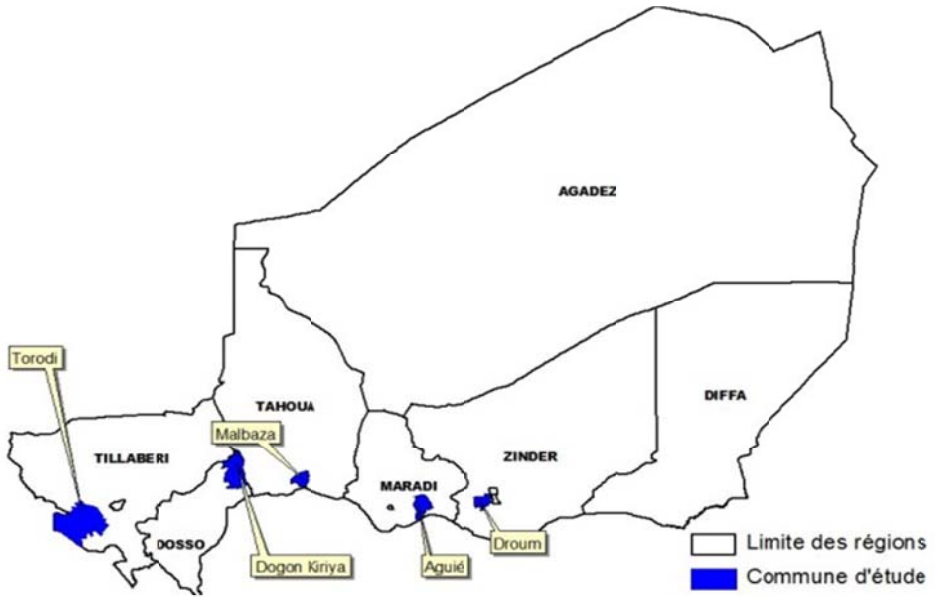


Figure 9 Target zones for DRYDEV Programme in Niger

These selected catchments and sub catchments in each of these municipalities are:

Municipality	Catchments	Specific Areas (sub catchments)
Torodi	Digbari Middle	9 - Koka – Kogorou, Tiouridi, Banikaboye, Nialaré, Central, Fermani, Soura – Bangou Kouka, Yabal, Seno –Toutoure
	Goroubi East	4 - Kobadie, Ouro Djoribe, Kankantouti, Panoma
	Goroubi west	3 - Kourfa – Ouro Djanno , Brimpeni Tolba – Bima , Korogoussou – Bomanga
Dogon Kiria	Dallol North	1 - Koutoumbou
	Dallol Middle –East	2- Mai kayine, Makourdi sub catchment
	Dallol South	3 – Bougou, Dongon Kiria, Karchabou
Malbaza	Maggia West	4 - Guidan Idder, Salewa, Laweye Dan Hayi, Tchouroutt
	Maggia North	1 - Infrikawane
	Maggia South –East	1 - Maggia south –east
	Maggia South	1 - Around Tounga Sani –Kototoria area
Aguie	Goulbin Kaba North -East	1 - Goulbin Kaba north.
	Goulbin Kaba South –East	2 - Goulbin Kaba South –East, North-East part of Goulbin Kaba catchment in Aguié bordering with Tessaoua municipality

Droum	SC Korama Damagaram North East	2 – Droum, Machaya Tchalliga
	SC Korama Damagaram South East	2 – Koudouma, Tagamawa

Biophysical characteristics

Land use in the target areas is primarily agro-pastoralism. The area has a high level of animal and human movement between the drier pastoral zone to the north and the wetter agricultural zone to the south, accentuating the potential for conflicts between mobile herders and sedentary farmers in all municipalities. Recurrent rainfall deficits and continued exploitation of forest resources is leading to vegetative cover loss and wind and water erosion. Other challenges include gully erosion and reduction in pond storage capacity owing to siltation. Invasive species such as *Sida cordifolia* considerably reduce forage availability. The main soil types and uses for each municipality are summarized in **Table 8**.

Table 8 Soil types and uses per municipality in the Niger DRYDEV programme target zone.

Torodi	Dogon Kiria	Malbaza	Aguié	Droum
- Sandy clay soils in valleys (cropland) -Sandy soils on plateaus (cropland) -Gravelly soils on plateaus (barren degraded) -Clayey silt soils in large valleys (cropland)	- Mineral soils on sand (pasture land) -Laterite brown red soils on sand or clay (pasture and crop land)	-Rocky soils on plateaus (pasture land) -Sandy soils (cropland) -Sandy clay soils (pasture and cropland) -Clay hydromorphic soils in valleys and depressions (cropland, especially dry season)	-Sandy soils on stable sand dunes (cropland) -Clayey sand soils in depressions and Goulbi valley (cropland, especially dry season)	-Sandy and sandy clay soils on stable sand dunes (cropland) -Clayey sand and silty sand soils in depressions and valleys (cropland, especially dry season)

The most westerly municipality (Torodi) lies on primary bedrock, without a continuous aquifer. It is possible to exploit crevasses in the rock with boreholes, but flow rates are low. The other municipalities lay on quaternary, tertiary or secondary rock, often with productive but deep aquifers (50m to over 100 m). Where alluvial aquifers exist in the valleys and depressions, they are exploited for domestic use and irrigated agricultural production (dry season gardens), especially in the municipalities of Torodi, Malbaza and Droum. The three municipalities possess potential for the development of small irrigation.

Water security situation in the watersheds

The drainage systems are more developed in the two municipalities in the west of the country (Dogon Kiria and Torodi) where variations in relief are more pronounced resulting in more runoff. Malbaza (further east) has compacted soils prone to high runoff generation, but the flat relief increases the time of concentration for runoff thus reducing runoff flow rates. The two municipalities further east (Aguié and Droum) have poorly developed drainage systems on terrain characterized by low relief and permeable sandy dune soils. Surface water bodies are nearly exclusively natural, with only one artificial reservoir in Droum.

All municipalities in the programme have low coverage rates of drinking water supply. In some parts of Dogon, Kirya women spend between 6 and 8 hours per day fetching water.

The alluvial water resources in the valleys of the Droum and Malbaza municipalities are subject to pollution due to the overuse of chemical pesticides and fertilizers in the desire to get higher yields. The

challenge will be to generate awareness within the community towards these risks, and train them in best practices for behavioural change in the way they grow crops.

Socio-economic characteristics

In Niger, global statistics on rural poverty estimates that the incidence of poverty is about 54.6%. The situation in the programme intervention areas is as follows: Tillabéri: 56.0%, Dosso: 52.9%, Tahoua: 47.9%, Maradi: 57.8%, Zinder: 47.7% with a national average of 48.2%. Agricultural production in all five-target municipalities provides food for the average family for a period of less than 6 months of the year. The period is even less than four months in the municipalities of Aguié and Droum.

In addition, almost 90% of heads of households have crop production as their main occupation and the remaining 10% are livestock breeders, processors of agro-sylvo-pastoral products, traders, fishermen or craftsmen. The municipalities of Droum and Aguié have a high rate of land saturation (90%+) leading to fragmentation of family fields, and the colonisation of rangelands for agriculture. Livestock currently coexists with agriculture in all of the target municipalities. However, insecure land title in combination with a lack of management, has led to the degradation of rangelands and increasing conflicts between pastoralists and farmers.

Development domains for integrated technological practices and approaches

The agro-sylvo-pastoral production systems encountered in the five municipalities are predominately rain-fed subsistence-based, with a small minority of farms using animal traction and purchased inputs including fertilizers. Agricultural land use saturation limits the use of fallow periods to restore soil fertility, notably in Aguié and Droum where fallows have disappeared. The prevalence of agroforestry practices (FMNR most notably) is directly proportional to the degree of land saturation. Farmers also practice low-input small-scale dry season irrigated agriculture and sylvoculture where water and land resources are readily accessible. Further potential for investment in small-scale irrigation exists in selected areas where either surface water or high water tables are present.

Value chain development

Value chains identified during the characterization study include: **sorghum and millet** as the staple crops cultivated by a majority of the population for consumption, **maize (corn)** as a promising value chain and **wheat** as another promising value chain, when used to add value to millet and cow peas. Important legumes include cowpea, groundnuts and Bambara nuts. While women dominate the Bambara nut value chain, both men and women participate in the aforementioned cereals and legumes value chains. Other crops that are generally cultivated as tradable crops include nutsedge, sorrel and sesame. The value chain for nutsedge is dominated by wealthy men, while women cultivate sorrel and sesame on small plots, but they dominate the retailing and processing nodes of the nutsedge, sorrel and sesame value chains through women groups (associations). Other value chains identified include vegetables (cabbage, tomato, onion, lettuce), tuber crops (potato, sweet potato and cassava), sugarcane (which is the main cash crop in Droum) and moringa.

Livestock value chains are common in the Torodi and Droum regions, because of proximity to livestock markets, mainly in Nigeria and Burkina Faso. The dairy value chain, although underdeveloped, has great potential and is dominated by women. Likewise, poultry keeping, particularly indigenous chicken is

widely practiced by about 95% of small-scale producers and is an important source of income and food for the poor. This value chain is competitive, given the growing demand for indigenous poultry products in the rural and urban markets.

A number of challenges exist that are likely to prevent the actors from exploiting the potential of the value chains identified. For instance, there is a lack of potato seed, because producers rely on seed from Nigeria or the Netherlands. In general, the value chains are characterized by unreliable supply of the produce because of low productivity; disorganized or unstructured markets (spot market as opposed to contractual arrangements); lack of coordination and organization among actors; limited value addition, weak producer organizations; and limited bargaining power among producers. In addition, majority of the actors are not aware of or do not comply with the policies and regulations governing trade, standardization, quality and food safety standard.

Availability and access to business development services is limited in terms of quality and quantity. For example, access to agricultural and marketing information by the producers and other actors is limited, leading to exploitation of the producers. While micro-finance institutions (MFIs) seem to be the main source of credit to traders and processors, they do not lend to farmers because they are considered as high risk. Moreover, financial products available in commercial banks are less diversified, non-inclusive (not pro-poor), and do not take into account the specificities of the agricultural sector. Women, in particular, have very limited access to credit with which to finance their processing activities.

Value chain upgrading strategies which will be critical in transforming the rural economy of Niger from subsistence to commercial oriented economy include: (i) formalizing the market system through contracting; (ii) building capacity of the actors, particularly smallholders and women entrepreneurs, on agribusiness skills, financial management, collective bargaining and post-harvest handling; (iii) linking producers and other actors to financial institutions by negotiating for financial products that suit resource needs of the actors; (iv) strengthening producer organisations by building their capacity on collective bargaining and governance and linking them to buyers; (v) establishing and/or strengthening agricultural market information system to prevent information asymmetry and exploitation, and (vi) encouraging public-private partnership in investment in market infrastructure (storage facilities, shared collection centres, processing equipment) to reduce post-harvest losses.

Environment for rural economic growth

Existing policies and institutions that favour the programme

Generally, in Niger all local products are exempt from taxes. This tax exemption is also enshrined in Decision No. C/DE/8/11/79 in the framework of the liberalization of trade in scheme effective community area on 1 January 1990. Formalizing internal trade requires the acquisition of the Tax Identification Number (TIN). But in reality, not all traders are registered at the Chamber of Commerce with the majority working in the informal sector of the economy.

Numerous policies, frameworks and regulations exist governing land, water, environment and livestock, related to the program, though some (such as livestock regulations) are less well developed than others.

Each municipality is guided through its own Municipal Development Plans. There are numerous areas of convergence between these plans and the vision of the DRYDEV programme, including:

- Improvement of agro-pastoral production and fight against food insecurity and malnutrition
- Environmental protection and restoration of the productive base
- Development of economic infrastructure and communication
- Improving conditions for social and economic development of the youth and other vulnerable groups
- Strengthening local governance to create optimal conditions for the participation of local actors in the municipal development process

The local government institutions play an important role in local development and therefore are important actors to gain support and commitment from to ensure sustainability of programme outcomes. In this context a commitment from the Mayors is necessary to legitimize and support Programme activities.

The characterisation studies suggest the necessity to boost synergy, including consultation by stakeholders to bring multiple changes and reforms needed on certain regulations whose implementation is still inadequate. It is particularly in the areas of (i) access to and control over natural resources and land (ii) credit financing (iii) sectoral policies in general, and (iv) integrated water management. The innovation platforms proposed by the program seek multiple stakeholders to unite and encourage profound changes in policies, regulatory frameworks and bring about positive changes in socio-economic conditions for rural producers.

The DRYDEV programme has the opportunity to improve the local economy by championing effective implementation of the legal framework for the benefit of economic operators.
In addition, support of the local authorities in a multi-stakeholder process for proper mobilization and allocation of shared resources is critical.

Inclusive and integrated approaches: Marginalization, vulnerability and gender issues

The majority of villagers in the target area agro pastoral producers (87%). The number of craft processors remains low (10%) except in Kirya (28%) and Droum (36%) where cowpea and peanuts are processes respectively. The majority of these crafts people are women. Several analysis in the field of gender show only 4.6% of households headed by women, have a farm field, while only 8% of women are employed in the non-agricultural sector. Special attention will need to be paid to the promotion of value addition (processing) and conservation around the women's groups to strengthen the position of women and the emergence of local businesses for wealth creation and employment opportunities especially for young people.