Platform for Agricultural Risk Management

Managing risks to improve farmers' livelihoods

Tools assessment

Ethiopia

Study Conducted by:

University of Greenwich
NRI | Natural Resources Institute

In Collaboration with:

Federal Democratic Republic of Ethiopia
Ministry of Agriculture

Feasibility study on sustainable investment plan for capacity development in agricultural risk management

Narrative Report and Action Plan

September 2019

AFD

Cooperazione Italiana allo Sviluppo
Ministero degli Affari Esteri

IFAD
Investing in rural people

german cooperation

KFW

NEPAD
TRANSFORMING AFRICA


PARM
PLATFORM FOR
AGRICULTURAL RISK
MANAGEMENT

Platform
for Agricultural
Risk Management

Managing risks to improve farmers' livelihoods

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for the Platform for Agricultural Risk Management (PARM)

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Cover photo: @PARM/Carlos Tomas Lora Acosta

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List of acronyms

ADLI	Agricultural Development-led Industrialisation
AFD	Agence Française de Développement
AgDA	Agriculture Development Agent
APHRD	Animal and Plant Health Regulatory Directorate
ARM	Agricultural Risk Management
ATA	Agricultural Transformation Agency
ATVET	Agricultural, Technical and Vocational Education Training Centre
BOA	Bureau of Agriculture
CAADP	Comprehensive Africa Agriculture Development Programme
CBE	Commercial Bank of Ethiopia
CD	Capacity development
CSA	Central Statistical Agency
DFID	Department for International Development
DRR	Disaster Risk Reduction (Planning)
EARI	Ethiopian Agricultural Research Institute
ECX	Ethiopia Commodity Exchange
EGTE	Ethiopia Grain Trading Enterprise
EOS (NOS)	Ethiopia (or National) Occupational Standard
ESS	Ethiopia Socioeconomic Survey
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FCA	Federal Cooperative Agency
FCUs	Farmers' Cooperative Unions
FEWSNET	Famine Early Warning Systems Network
FTC	Farmers' Training Centre
GDP	Gross Domestic Product
GOE	Government of Ethiopia
GTP	Growth and Transformation Plan
IFAD	International Fund for Agricultural Development
JICA	Japan International Cooperation Agency
LINKS	Livestock Information Network and Knowledge System
MF	Model farmer
MFI	Microfinance Institution
MOA	Ministry of Agricultuire
MOE	Ministry of Education
MOFEC	Ministry of Finance and Economic Cooperation
MOU	Memorandum of Understanding

NDRMC	National Disaster Risk Management Commission
NEPAD	New Partnership for Africa's Development
NGOs	Non-Governmental Organizations
NISCO	Nyala Insurance Company
NRI	Natural Resources Institute
PADETES	Participatory Demonstration and Training Extension System
PARM	Platform for Agricultural Risk Management
RAS	Risk Assessment Study
RBOA	Regional Bureau of Agriculture
SMMEs	Small, Medium and Micro Enterprises
SNNPR	Southern Nations, Nationalities, and Peoples' Region
TOR	Terms of Reference
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WFP	World Food Programme
WRS	Warehouse Receipt Systems

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Executive summary

Background of study

This feasibility study was commissioned by the Platform for Agricultural Risk Management (PARM) to produce a sustainable investment programme to develop the capacity of smallholder farmers in Ethiopia to assess, prioritise and manage agricultural risks. It forms part of activities agreed between PARM and the Government of Ethiopia (GOE) to promote the mainstreaming of Agricultural Risk Management (ARM) into Ethiopian agricultural sector programmes. It follows from the signing of a Memorandum of Understanding (MoU) to formalize collaboration between PARM and the GOE through the Ministry of Agriculture and Livestock Resources (MOALR), now the Ministry of Agriculture (MoA) and the Agricultural Transformation Agency (ATA).

The terms of reference for the assignment requires the development of a plan to include ARM training in the Agricultural Technical and Vocational Education and Training Centres (ATVETs) as well as the development of the capacity of smallholder farmers including training at the Farmer Training Centres (FTCs). It is also required that recommendations will be made to create a cascade effect from training activities towards reaching smallholders at the national level through the delivery of training on ARM by extension service personnel or Agriculture Development Agents (AgDAs). Furthermore, the proposed CD programme should contribute to strengthening the capacity of the national extension service, agricultural service providers, as well as farmers in general and farmers' organizations.

The methodology adopted and activities undertaken as part of the feasibility study included reviewing the framework for training activities in ATVETs, FTCs and similar vocational institutions as well as consulting with relevant stakeholders, including policymakers in the Ministries of Agriculture and Education. In addition, relevant legal, regulatory and policy documents were reviewed and field visits undertaken in order to consult with some staff of ATVETs (Holeta ATVET and Alage ATVET) and to the Berek Woreda Agricultural Bureau and the FTC at Sendafa in the Oromia Region. The emerging conclusions and recommendations from the study were presented at a Technical Workshop held at the Friendship Hotel in Addis Ababa on 3rd October 2018.

The team which undertook the feasibility study was comprised of Dr Gideon E. Onumah of the Natural Resources Institute (NRI), the University of Greenwich in the United Kingdom; as well as Mr Getachew D. Bedane and Mrs Engdawork M. Kassaye, both from the National Disaster Risk Management Commission (NDRMC). The outcomes of the study was share in a technical workshop in October 2018, where a range of government officials gave out their inputs. All comments were integrated to form this narrative report. However, no formal validation was received from the GOE though the report is fully reognised by the MoA and ATA.

Justification of investment in CD in ARM

Evidence summarised from the Risk Assessment Study (RAS) by PARM (2016) shows that agricultural risks lead to substantial losses to farm households and at the national level when aggregated in Ethiopia. It is quite apparent that, though farmers are aware of the prevalent risks, their capacity requires strengthening in order to prioritise the risks and adopt effective ARM tools in a holistic manner. Meeting this need is one of the main justifications for the proposed CD in ARM programme. The CD will also help fill a gap in the delivery of extension services, enabling AgDAs to better incorporate holistic risk management in the provision of extension advice, thereby ensuring greater uptake of their services. By mainstreaming holistic ARM in the planning process, the CD is also expected to improve the quality of planning and implementation of sector development interventions and policy actions. The synergy between the CD programme and other major sector-linked programmes and strategies has also been outlined, demonstrating its overall importance to farmers, GOE and other stakeholders. In the next chapter we outline the key elements of the CD programme.

Main activities to be undertaken

Though smallholder farmers are at the centre of the CD programme, considerable investment is proposed in training trainers at various levels. It is proposed that the staff of the ATVETs are trained in ARM by selected universities e.g. Hawassa University using materials used during the pilot training in ARM but further customised to suit the focal regions and translated into local languages. Agricultural Development Agents (AgDAs) will be the main resource persons trained by the ATVETs to train farmers. This training will be through two channels: one will involve training of existing AgDAs whilst the other is through training prospective AgDAs by means of incorporating ARM in the curriculum. The ATVETs will also train selected model farmers (MFs) – with relatively larger farms, usually better-endowed and quite influential in their communities. The MFs are expected to assist the AgDAs in training other smallholder farmers during specific programmes organised at the FTCs. They are also expected to share information on ARM with other farmers through an informal process – MFs are part of 5-member clubs in the kebeles.

The main means of communicating with farmers will be through audio-visual aids and illustrative posters and flyers, the latter are shown in the link below:
https://drive.google.com/file/d/1CqKHwpGqEVEtzau0fx0m51INVQoT8YJd/view

Extension officials at regional, zonal and woreda levels will also be trained in ARM in order for them to assist in the organisation and quality control of training at the FTCs. Furthermore, their training will equip them with skills to incorporate ARM in woreda-level planning and projects as well as to become effective channels for communicating feedback to providers of ARM tools and policymakers.

Policymakers, providers of ARM tools and donors/NGOs involved in ARM-related projects and programmes will be sensitised on a regular basis to ensure that a holistic approach to ARM is mainstreamed into planning and investment decisions in the sector, especially where it involves participation by smallholder farmers.

Phased approach for the implementation of CD programme

A phased approach was proposed for the implementation of the CD programme. It included a **Pre-Implementation Phase**, which run from September to December 2018 and involved the following activities:

a. Validation of the report and recommendations on the feasibility of the CD programme during a workshop in October 2018.

b. Confirmation of funding commitments for the CD programme by government agencies and donors – this was part of discussions during the proposed workshop and is expected to continue afterwards.

c. Setting up coordination structure for the implementation of the CD programme.

The **Pilot Phase** will involve the following activities:

a. January-April 2019: Training of trainers, including staff of ATVETs, selected officials at the zonal and woreda levels, and DAs.
   - Also preparation and translation of training materials and teaching aids (including videos, flyers and posters).
   - Selection of FTCs for farmer-training.

b. April-May 2019: Training of MFs.

c. Training of farmers at selected FTCs in May/June, August-September and October-December.

d. CD programme evaluation and refinement of plan for scaling up. The evaluation will be based on the logframe for the programme (Annex 5).

The third – Consolidation/Scaling-up Phase will involve the following activities:

a. Implementation of consolidation/scaling up plan.

b. CD programme evaluation.

Funding and programme management

The total budget for implementation of the proposed CD programme over a 5-year period, details of which are in Annex 3, is estimated at Birr 113.474 million (approximately US$4.089 million). The breakdown of this budget on an annual basis is as detailed in Table 8 – the exchange rate applied was US$ 1.00 = Birr 27.75 (September 2018).

Table A: Breakdown of annual cost of CD programme in Ethiopia

Year/cost	Annual cost (Birr)	Annual cost (US $)
Year 1	11,637,000	419,351
Year 2	11,978,450	431,656
Year 3	19,787,195	713,052
Year 4	31,612,435	1,139,187
Year 5	38,459,018	1,385,911
Total	**113,474,097**	**4,089,157**

A future implementation of such CD programme could potentially include a budgetary contribution of GOE that currently allocates funds for regular extension trainings to the woredas and zonal level, the latter through the National Disaster Risk Management Commission (NDRMC). In particular, it was discussed with relevant stakeholders that such contribution could correspond to about 8.5% of the total budget and could be shared by the following GOE sources:

a. Budget for FTC per extension training session, which is Birr 20,000 or (US$720) per woreda. This is justified on the assumption that the ARM training will fit into regular extension training as proposed in this report. The projected contribution for the target FTCs during the 5-year period is estimated at Birr 4.4 million (US$159,000).

b. Training zonal and woreda officers is aligned to the programme by the NDRMC, which can therefore contribute to the budget for this line which is estimated at Birr 5.2 million (US$186,500).

The funding gap for which contributions are required is estimated at Birr 103.9 million (approximately US$3.74 million). This is required over a 5-year period, and the funding requirement rises from a relatively low base until it peaks in Year 5 allowing for programme managers to mobilise resources as the programme proceeds.

Donors who are potentially targeted for supporting the CD programme include those who are already supporting the activities of the NDRMC as well as the PARM process. These include WFP, the World Bank (through its GFDRR programme), Spanish Aid, the European Union and USAID (through the Feed the Future Programme). It is also anticipated that providers of ARM tools will contribute in the production of teaching aids, such as video documentaries, posters and flyers as it is in line with the promotional activities.

To ensure localisation of the CD programme we propose that a Coordinator is appointed, who will be stationed at the Extension Department of the MoA and be responsible for the implementation of the CD programme. He/she should be supported by a Coordinating Committee with representation from the MoA, Ministry of Education, the NDRMC, the ATA and representatives of selected providers of ARM tools (e.g. insurance companies, ECX, the FCA). The Coordinator should report regularly to the Committee and then to the State Minister for Agriculture and the PARM Secretariat.

For at least the first two years of implementation of the CD programme, it is proposed that the position of the Coordinator and the administrative cost of running activities, which is estimated at Birr 832,500 (US$30,000) per annum should be covered by the PARM Secretariat. After this the position should be mainstreamed into the regular structure in the MoA.

A project logframe has been provided (Annex 5) which details activities and outcomes which are targeted for the CD programme. One of the first tasks of the Project Coordinator should be to benchmark these per quarter. The quarterly reports submitted to the Coordinating Committee and thereafter to the State Minister and the PARM Secretariat. This will make it possible monitor progress in terms actions implemented and results achieved.

It is further proposed that there be an evaluation at the end of Year 2, to assess progress and provide a basis for scaling up actions. A final evaluation is also recommended at the end of Year 5 – the results of which will inform decisions and plans by GOE to scale up the CD programme at national level – covering all regions and woredas in the country.

Participant evaluation will also be mainstreamed into the CD programme, not only as a means of generating information for improving the delivery of requisite knowledge and skills but, even more crucially, to create a sustained participatory process which will enrich the range (number of) and quality of ARM tools available to smallholder farmers and other actors in agricultural value chains in Ethiopia.

1. Introduction

1.1. Background and objectives of assignment

This draft narrative report and proposed action plan is submitted as part of the feasibility study on capacity development on Agricultural Risk Management (ARM) for extension service personnel in Ethiopia. The feasibility study builds on earlier activities undertaken under the agreement between the Government of Ethiopia (GOE) and the Platform for Agricultural Risk Management (PARM) to promote mainstreaming of ARM into Ethiopian agricultural sector programmes. It follows the signing of a Memorandum of Understanding (MoU) to formalize collaboration between PARM and the GOE through the Ministry of Agriculture (MoA) and the Agricultural Transformation Agency (ATA). The report is in line with the Terms of Reference (TORs) for this study, which is attached as Annex 1.

The specific objective of the feasibility study is to develop a sustainable programme which will empower smallholder farmers in Ethiopia in assessing, prioritising and managing agricultural risks. This includes steps required to incorporate and mainstream ARM capacity development (CD) activities into the training of agricultural extension services personnel, who constitute the frontline of interactions with smallholder farmers. It also seeks to underpin the proposed programme with an investment plan which will ensure sustainable delivery. As required under the TOR, the narrative report focuses on four main areas:

a. The development of a plan and methodology on how to include the curriculum of the pilot ARM training course (attached as Annex 2) into the training programmes of Farmer Training Centres (FTCs), Agricultural Technical and Vocational Education and Training Centres (ATVETs), and/or other vocational schools to reach both current and prospective national agricultural extension workers. The content of the curriculum could be subject to variation based on the emerging needs of MoA and vocational schools.

b. Creating a *cascade effect* from such training activities towards reaching smallholders at the national level through the delivery of training on ARM by extension service personnel or Agriculture Development Agents (AgDAs). The cascade effect has to be formalized in a way to include a strategy, plan of activities, budget, resources to train a certain number of DAs and consequently a certain number of farmers.

c. Strengthening the capacity of the national extension service, agricultural service providers, as well as farmers in general and farmers' organizations such as cooperatives to analyse, mitigate and address agricultural risks in order to better assist smallholder farmers.

d. Help in the identification of needs to support extension services within the Extension Services Directorate of the MoA.

e. In addition, it is anticipated that a positive spill-over effect of the study will be identification of institutions to develop a platform for managing different ARM tools.

1.2. Methodology adopted and activities undertaken

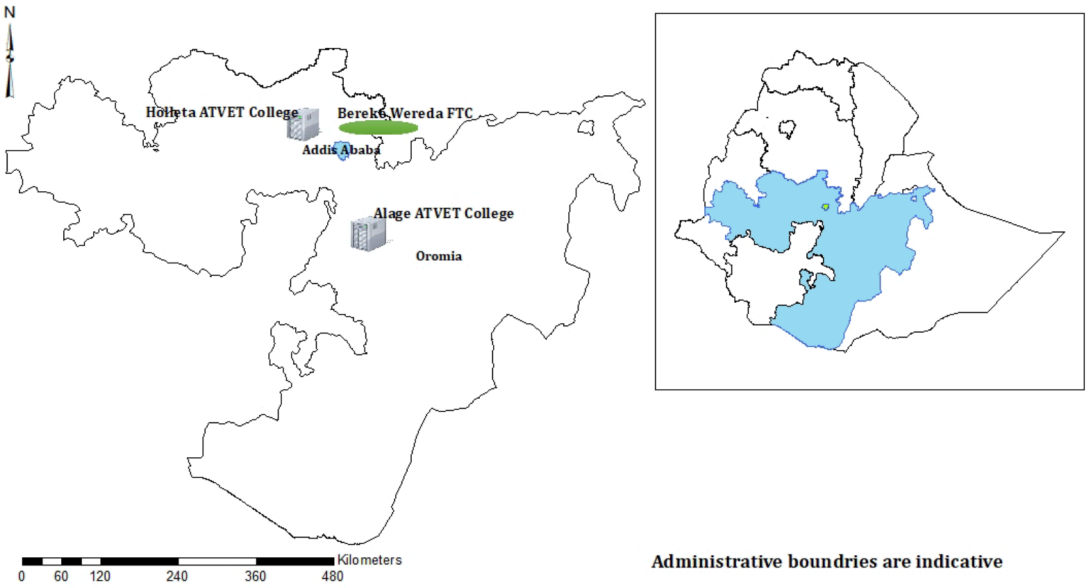
To achieve the above objectives and deliverables of the study as outlined in the TORs, the methodology adopted includes the following:

- Reviewing of framework for training activities in ATVETs, FTCs and similar vocational institutions which provide training for extension services personnel (see list of references).
- Consulting with relevant stakeholders, including policymakers, for example, in Ministries of Agriculture and Education; training institutions, and ARM service providers by means of semi-structured interviews (see list of stakeholders consulted).

- Reviewing legal, regulatory and policy documents relevant to the study, including reports on projects and experiences related to similar projects implemented or on-going with support from international organizations such as IFAD, FAO, WFP, the World Bank as well as NGOs in Ethiopia such as Oxfam America and Bioeconomy Africa.
- Undertaking field visits to training centres, projects and/or initiatives to incorporate views of farmers and local stakeholders in the analysis. Consultations were held with representatives of Holeta ATVET and Alage ATVET (shown in Figure 1 below) as well as Berek Woreda Agricultural Bureau and the FTC at Sendafa in the Oromia Region. This process included participation of the lead consultant in the pilot ARM training organised by the Hawassa University from 29th May to 2nd June 2018.
- Propose training programmes and carry out cost-benefit analysis of different options for delivery of proposed programmes and incorporate them within an investment strategy with appropriate financial estimates, which will be adopted for implementation by GOE.
- The draft narrative report and related investment plan was presented to stakeholders for feedback during a validation workshop organised jointly by PARM and MoA in October 2018. The outcome of the workshop has been incorporated in this final report and investment plan.

The team which undertook the feasibility study comprised of Dr Gideon E. Onumah of the Natural Resources Institute (NRI), the University of Greenwich in the United Kingdom; as well as Mr Getachew D. Bedane and Mrs Engdawork M. Kassaye, both from the National Disaster Risk Management Commission (NDRMC).

Figure 1: Location of two ATVETs visited during study



1.3. Structure of narrative report

The rest of this report is structured as follows: Chapter 2 provides a framework for the feasibility study, including basic definitions of capacity development, agricultural risks and risk management. The objectives of the CD programme and its alignment with existing sector-related programmes and strategies are discussed in this chapter as a basis for justification of the programme. In Chapter 3 we set out the key principles underpinning the CD programme and identify target stakeholders and their capacity development needs. Also outlined in this chapter are the anticipated institutional roles in implementation of the CD programme. The programme action plan, including specific training programmes to be implemented, are set out in Chapter 4, whilst Chapter 5 focuses on implementation issues including phasing and management/coordination as well as monitoring and evaluation.

2. Capacity Development in ARM: basic justification

As stated in Section 1.1, capacity development (CD) in agricultural risk management (ARM) is a key component of the programme implemented by PARM to mainstream ARM in its focal African countries. In Ethiopia, in particular, the CD programme has been initiated in specific response to demands made by the GOE. In this chapter we discuss the justification for the CD programme as well as the objectives and synergies with other development programmes and policy actions in the agricultural sector in the country. The discussions also include identification of key stakeholders and their capacity development needs in relation to ARM. However, we start off with some basic definitions in the next section.

2.1. Basic definitions

2.1.1. Definition of capacity development

Borrowing from definitions by various development agencies, we define CD in ARM as a process through which individuals, organizations and communities obtain, strengthen and/or optimise their abilities, skills, understandings, attitudes, relationships, behaviours, motivations, resources and conditions which enable them to manage agricultural risks and achieve their investment or development objectives over time[1]. This definition implies that CD is not just about transferring, sharing or disseminating skills, knowledge/information for solving problems facing individuals, organizations and societies. A World Bank report prepared by Otoo et al. (2009)[2] also stresses that CD is also about ensuring the availability of resources as well as efficient and effective means by which individuals, organizations and societies can pursue their development goals on a sustainable basis.

Noting that CD is about transformations which empower individuals, organisations and societies to pursue development objectives, UNDP (2009) emphasises that it goes beyond training, which must be seen as part of a comprehensive programme to equip target players to deploy available means and technologies (or tools). The tools utilised, in this context to manage agricultural risks, should be suited to individuals or organisations and there should be in-built incentives to encourage uptake. Hence, CD needs to be perceived as encompassing the following three levels[3]:

- **The individual**: the skills, experiences and knowledge that allow each person to perform, some of which are acquired formally, through education and training and others informally, through doing and observing.
- **Organizational level**: includes, in addition to the above, the internal structures, policies and procedures that determine how individuals perform and impact an organization's effectiveness.
- **The enabling environment**: that is the framework within which individuals and organizations function, including the rules, laws, policies, power relations and social norms that govern civic engagement.

UNDP (2009) also stresses that capacity development has to be locally-driven, including involving local resource persons. These considerations are taken into account in identifying and proposing specific actions to meet the capacity development needs of target players including smallholder farmers.

1 The definition borrows in particular from what is adopted by the Canadian International Development Agency (CIDA) "Capacity Development: why, what and how", CIDA's Capacity Development Occasional Series.

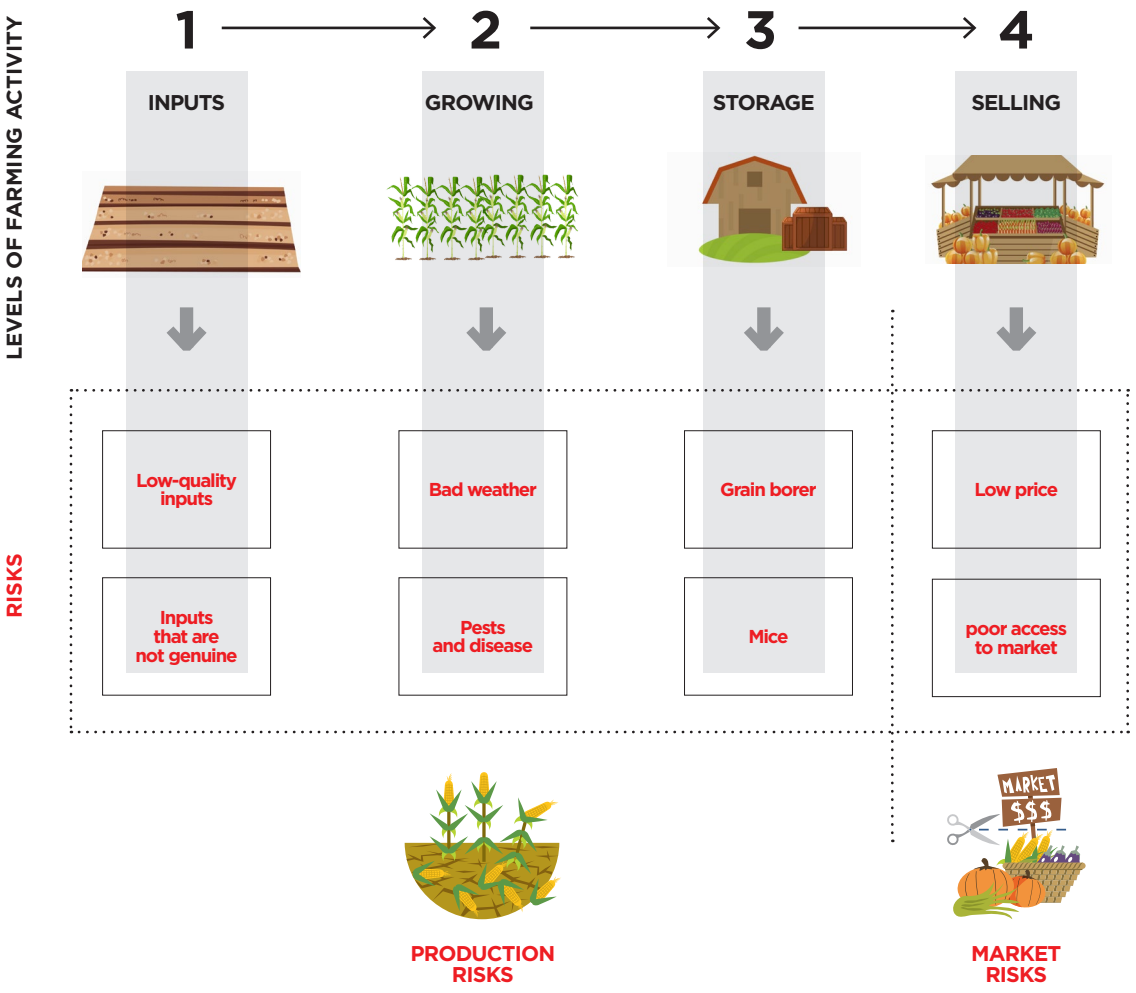
2 Otoo S., N. Agapitova and J. Behrens (2009) "The Capacity Development Results Framework: A strategic and results-oriented approach to learning for capacity development", The World Bank Institute, Learning for Development, Washington, 2009.

3 UNDP (2009) "UNDP Capacity Development Primer", UNDP, New York, October 2009:

2.1.2. Definition of agricultural risks and distinction from challenges

The definition of agricultural risks adopted by PARM is based on the ISO (2009) definition of risks as the effect of uncertain events (potential situation or scenario) involving exposure to danger or loss of something of value. Hence, a risk can typically impede the achievement of the objectives of individuals or organisations. Specifically, PARM (2014) defines agricultural risks as involving potential loss or damage in agricultural production, farm household income, or access to food. These risks may be idiosyncratic, that is, usually affect only individual farms or farmers including, for example, illness in family, plant pests and animal diseases. The risks may also be described as covariate risks, where they affect many farmers simultaneously. Figure 2 illustrates production and postharvest risks in crop farming, including droughts, floods and erratic rainfall as well as volatility in output prices.

Figure 2: Risks in crop production and marketing



Source: PARM (2018). "Managing risk at the farm level - Manual". (I. Tedesco, ed.) PARM/IFAD: Rome, Italy

Agricultural risks, as defined above, differ from challenges and constraints in the sector in that though the latter are important limiting factors they cannot be described as risks, mainly because they exist and are known and their effects can be anticipated with certainty. Examples of these include lack of good physical infrastructure, such as roads, storage facilities and processing facilities. We emphasise that the focus of this feasibility study is not to address (known) challenges and constraints in the sector but rather on the capacity to manage risks.

2.1.3. Definition of agricultural risk management

Though risks usually imply damage or loss, it is also acknowledged that they often drive innovations in agricultural value chains and/or encourage good entrepreneurship due to the possibility of obtaining higher returns (PARM, 2014). In this context, we define agricultural Risk Management (ARM) as a process involving anticipating potentially loss-causing events and planning solutions in advance in order to limit negative consequences. This entails assessing risks; taking decisions on tools to put in place to manage the risks; and monitoring and evaluating the effectiveness of tools and strategies adopted. PARM (2018) notes that risk assessment encompasses the following:

- Frequency/probability of occurrence: the likelihood of experiencing any natural or human hazard at a location/region at a particular time;
- The elements at risk: identifying the elements which would be affected by the hazard if it occurs; and
- Severity or potential expected losses from a hazard to a specific element at risk.

2.2. Objectives and importance of CD in ARM in Ethiopia

The primary objective of the CD in ARM is to empower smallholder farmers in Ethiopia to identify, prioritise and holistically manage agricultural risks, using the best available ARM tools. Achieving this objective will contribute to the attainment of the goal of the Government of Ethiopia to boost agricultural productivity and resilience among smallholder farmers in Ethiopia as well as increase their household income, thereby reducing rural poverty. Prioritising CD in ARM is important for a number of reasons, including the three reasons which we briefly discuss in the subsections below.

2.2.1. Agricultural risks lead to quantifiable losses in Ethiopia

Evidence reported in PARM's agricultural Risk Assessment Study (2016) shows that Ethiopia's agriculture faces a range of risks – similar to those illustrated in Figure 2. The identified risks were prioritised based on analysis of the frequency and severity of impact, both in an average year and in the worst-case scenario. Weather risks, especially drought and erratic rainfall, emerged among the top priority risks. Plant and livestock diseases and pests were also ranked very high. The other priority risks include volatility in output prices, uncertain access to output markets, and such inputs risks as rising prices and access uncertainty. The RAS (2016) estimates annual cost per year due to the prevalent agricultural risks at about US$ 275 million but in the worst-case scenario, usually the El Nino years, the losses could exceed US$ 2.25 billion.

From focus group discussions carried out during the RAS, it clearly emerged that the perceived prioritisation of risks among smallholder farmers in the country coincides with the outcome of the study. However, when it comes to the tools to manage the risks, there is a major divergence. The report cites a number of ARM tools available in Ethiopia, including technology-oriented tools, e.g. irrigation schemes, improved planting materials and livestock breeds, and supply of animal health facilities. Also identified are market-based tools such as insurance (both the traditional indemnity-based insurance and more recent index-based insurance) as well as some cases of de-risked financing products. In addition are tools to manage output marketing risks such as forward contracting tools and exchange trading.

However, as illustrated in Table 1, most smallholders opted for coping mechanisms which tend to reduce household assets and/or well-being. Resort to "spiritual efforts" is also quite common primarily as a reflection of the high level of vulnerability but limited access to more tangible and effective ARM tools. Hence, the CD programme seeks to foster awareness of and effective capacity to assess and take up available ARM tools.

Table 1: Options commonly adopted by smallholder farmers in response to risks

	Rise in food price		Illness of hh member		Rise in input price
Relied in own savings	20.3		22.9		26.1
Sold livestock	20.5		16.9		16.5
Engaged in spiritual efforts	13.8		10.6		10.8
Took on more employement	4.5		5.6		10.5
Received unconditional help from relatives	5		7.2		1.5
Obtained credit	2.9		1.6		1
Adult members had to find work	5.1		3.2		1.7
Received unconditional help from government	2.6		1.4		2
Changed eating pattern	1.4		2.6		0.5
Received unconditional help from NGOs	0.7		1.7		0.2
Sold durable assets	0.3		8		4.2
Sold land, buildings	0.3		0.1		0 (...)
Sold crop stock	0.8		0.2		0
Household members migrated	0.3		1.8		0.4
Reduced expenditures	0.3		1.4		0.5
Sold agricultural assets	0.8		0.5		0.5
Sent children to live elsewhere	0.1		0.1		0
Other	2.5		2.6		3.3
Did not do anything	17.6		11.9		20.5
Region participants	**First**	**Second**	**Third**	**Fourth**	**Fifth**
Oromia (cereal producers)	Faith and prayer	Selling proprerty	Dependence on relatives	Saving	Dependence on goverment
Oromia (pastoralists)	Faith and prayer	Social network	Saving and migration	–	–
SNNP (coffee producers)	Iqub and insurance	Loan from bank	Iddir	Saving	–

Source: PARM, Ethiopia Agricultural Risk Assessment Study (RAS) (2016)

2.2.2. Failing to mainstream ARM negatively impacts extension delivery

As in many African countries, agricultural extension in Ethiopia focuses significantly on promoting yield-enhancing technologies – especially higher yielding crop varieties and livestock breeds. Anecdotal evidence exists, which shows that, sometimes, the new technologies promoted by extension personnel tend to accentuate risks to which farmers are exposed to. For instance, as shown in Box 1, livestock farmers who opted for more productive dairy cows did not necessarily gain as marketing-related losses substantially reduced the profitability of their investment. Consequently, farmers are discouraged from adopting not only the technologies which prove financially unsustainable because of limited capacity to manage associated risks, but generally aversion to adopting new farming practices and technologies increases as a result of past negative experiences. Evidence of this was also found during interactions with agricultural development agents (AgDAs) in the Berek Woreda (reported in Box 1). There was general aversion among farmers to uptake new farm implements promoted by the AgDAs, who kept focusing on "pushing uptake" rather than understanding the fundamental basis of the aversion.

Box 1: Farmers lose interest in more productive dairy cows due to marketing risks

The consultations were held in the Berek Woreda and involved farmers, AgDAs, Woreda agricultural expert, and a federal official of the MoA. A Model Farmer (MF) and another smallholder farmer shared their experience in investing in new more productive dairy cows – which were reportedly 10 times more productive than their traditional breeds. Both sold their old cows after demonstrations by DAs. The message had focused on the productivity of the new breed and their experience confirmed this. However, two new risks emerged with the new breed. First, the new breed was more vulnerable to livestock diseases and no effort had been made to improve access to animal health facilities to manage this risk. One farmer lost the two new cows he had acquired as a result of this. The MF, on the other hand, was able to secure the health interventions required, but faced major challenges in marketing the substantial surplus milk which was produced. This is because introduction of the more productive breed was not accompanied by plans to develop a reliable collection system for the surplus milk. The DAs and woreda official who participated confirmed that this experience was quite common in their efforts to push (promote) new technologies. They also admitted that such experiences made it more difficult to share new information with farmers.

Source: Meeting between team and farmers, DA and Woreda Expert at FTC on 7th July 2018.

The holistic approach adopted under the proposed CD programme will help correct this situation by re-orienting the AgDAs to be similarly holistic in transfer of extension information and promotion of yield-enhancing technologies. It is also expected that regular feedback under the CD programme will enable researchers and providers of ARM tools to be similarly holistic in their offer to farmers.

2.2.3. Holistic ARM approach will improve design of sector projects

The lacuna in farm extension delivery – limited or non-inclusion of ARM dimension – can sometimes be observed in the design and implementation of major physical infrastructure investments and projects in the sector. During the pilot ARM training at Hawassa University one of the participants cited the case of a small-scale irrigation project which specifically targeted the production of tomato for the urban market. The project design incorporated all elements required to optimise output but did not factor in market access risk. As a result, the target farmers had an unmanageable surplus and found participation financially unattractive. The expectation is that by engaging players at middle-to-senior level in policymaking and project implementation, the CD programme will improve the quality of sector projects and motivate participation by farmers – who are also able to "question" project design from an informed basis.

2.3. Synergies of ARM with other sector actions in Ethiopia

The primary objectives of the CD in ARM are consistent with major sector policies and development programmes such as the Growth and Transformation Plan II (GTP II), the New National Agricultural Extension Strategy, National Policy and Strategy on Disaster Risk Management, and the National Technical & Vocational Education & Training Strategy. The synergies between these and the proposed CD programme are briefly discussed in the subsections below.

2.3.1. The Growth and Transformation Plan

Ethiopia's economic growth performance since 2010 has been very impressive, due in part to implementation of its Growth and Transformation Plan (GTP). Between 2010 and 2015, when average GDP growth rate was about 11%, the agriculture contributed over 30% of the growth recorded. The impressive growth performance impacted positively the country's social indicators: per capita income rose; incidence of poverty declined (from 38.7% in

2004/05 to 26% in 2012/13); illiteracy rate similarly fell as school enrolment rose; and food poverty declined[4]. The agricultural sector is expected to continue to overall pro-poor economic growth in the country, in particular through generating foreign exchange by increasing production of export crops; driving domestic industrial growth by increasing supply of agricultural raw materials and sustaining employment generation as it accounts for the largest share of the workforce in employment.

To ensure that the sector can make optimum contribution to the national growth and development agenda, the identified weather and other risks faced by farmers and other players in the sector need to be effectively managed, as noted by Lemma (2018). Furthermore, uptake of yield-enhancing inputs such as fertiliser and improved seed needs to be boosted. This will require better access to inputs finance, which can be achieved only if the risk profile of farmers is improved through adoption of effective ARM tools. It is expected that effective implementation of the CD in ARM for farmers will contribute to the attainment of the objectives of the GTP II by enhancing their uptake of yield-enhancing inputs, leading to increased farm output and productivity as well as rising household income and reduction in rural poverty.

2.3.2. New National Agricultural Extension Strategy

To achieve the objectives of the GTP and within the framework of the GoE's Agricultural Development-Led Industrialization (ADLI) strategy, the government has re-framed its extension policy[5] as part of the agricultural transformation agenda. One of the key pillars of the new extension strategy is to "enhance knowledge and information services" targeting. Under Pillar 6 the strategy focuses on ARM-related actions including promoting use of climate smart agricultural technologies and agro-metrological information as well as paying attention to environmental sustainability. Furthermore, under Pillar 4, the strategy advocates policy focus extending beyond increasing production and productivity and paying attention to linkages which improve access output markets and effective use of market information to manage uncertainty in such markets.

The CD is expected to respond directly to these needs by discussing how the risks entailed are identified and prioritised relative to the context of farmers in particular communities and also providing details on available ARM tools in the country and they can be used to manage identified risks.

Pillar 1 of the new extension strategy identifies Farmer Training Centres (FTCs) as hubs for knowledge and information-sharing, as well as promoting best practices in modern production management methods and provision of agricultural extension advisory services. There are about 12,500 FTCs which have land used as test plots for farmers as well as offices for the AgDAs and meeting rooms. The strategy envisages that FTCs will be major transformational institutions which spur rural commercialization and industrialization, including encouraging young female and male farmers to take up entrepreneurial opportunities in agriculture as producers, agro-processers, and marketers.

However, currently, it is reported that most FTCs are under-utilised in terms of involving farmers and attracting them to participate in activities such as training in farming practices or testing of new production technologies. They do not often use the influential MFs in training activities even though it is acknowledged that many of them are better at communicating their experiences with other farmers than some of the AgDAs who lack required knowledge and skill.

As elaborated in Chapters 3 and 4, the approach under the proposed CD programme aims to deploy AgDAs and model farmers (MFs) in the kebeles as the key resource persons in the transfer of knowledge and understanding of ARM practices to smallholder farmers. The FTCs will be key locations for this activity, thereby boosting utilisation of the facilities – in line with the objectives of Pillar I of the extension strategy.

4 Source: PARM RAS (2016).

5 The Agricultural Extension Strategy of Ethiopia (2017) by MoA and the Agricultural Transformation Agency (ATA).

2.3.3. National Policy and Strategy on Disaster Risk Management

As noted in the RAS (PARM 2016), Ethiopia's institutional framework for responding to disasters, is acclaimed as a worthy case study in Africa. During consultations with an official of the NDRMC it emerged that though the El Nino-linked drought of 2015 was of about the same magnitude as what occurred in the country in the 1980s, its impact was substantially assuaged as a result of significantly enhanced disaster management capacity[6]. GOE is building on this success in the new National Policy and Strategy on Disaster Risk Management[7]. The GOE is moving away from a "system that mainly focused on drought and supply of life-saving emergency relief assistance" to a comprehensive disaster risk management approach.

Implementation of the new approach is, however, facing challenges. It is reported that contingency plans produced at the woreda level are limited in scope and not yet fully aligned to overall national framework. They also do not cover all major hazards to which the communities are exposed. The involvement of communities, including farmers in the rural communities, is very limited and is holding back diffusion of knowledge about effective risk mitigation measures. Based on risk assessment results, NDRMC also prepares disaster risk mitigation and adaptation plans for sectors at woreda level. This is an opportunity where ARM can be linked with DRR planning activities at woreda level to increase farmers' resilience to risks.
One of the main strengths of the NDRMC is provision of early warning information. The Commission acknowledges that whilst data collection has been a strength of theirs, the use of the data and information disseminated in assessing risks and planning responses remains rather weak, a situation it considers as "a lost opportunity".

It is expected that the proposed CD will help bridge the gap between provision of early warning information and enhanced capacity to utilise that in appropriate ARM tools at community and/or farmers level. To achieve this will involve directly linking woreda-level information dissemination and training activities with similar information-sharing and capacity development at the community-level through the DAs. This synergy is further elaborated in Chapter 3.

2.3.4. National Technical & Vocational Education & Training Strategy

As noted in Section 2.2.3, the ATVETs have a central role to play in the proposed CD programme as the institutional focus for training prospective DAs and those who are already in the field. The vision of the ATVETs as spelled out in the National Technical and Vocational Education and Training Strategy is to create a pool of competent and self-reliant citizens who can contribute to the economic and social development of the country. The strategy envisages the following key features/principles:

a. An outcome-based system, meaning that the teaching, training and learning the ATVETs provide is based on identified competences needed in the labour market. Competence in this context is defined broadly as comprising possession and application of a set of skills, knowledge and attitudes which are necessary to successfully compete for jobs and to be a productive and adaptable employee or entrepreneur (self-employed).

b. A decentralized ATVET system under which federal authorities formulate national policy, set relevant standards for training and learning as well as assessment, certification and drawing up accreditation rules; whilst the ATVETs and the relevant authorities (especially in the case of regional colleges) develop their own curricula based on the specific needs of the target groups/communities. The regional authorities are required to ensure that the appropriate curricula adopted is implemented.

c. Self-employment, which requires that training provided goes beyond promoting technical competence in a particular field but also fostering self-confidence, creativity, realistic assessment of markets, basic business management skills and capacity to assess and manage risks.

6 Pers. comm with Ato. Tadesse Bekele, Senior DRM Advisor, NDRMC on 6th July 2018. He indicated that in 2015 there was no reported loss of human life attributable to drought-induced food shortages because of effective response to the disaster.

7 Produced by the NDRMC in February 2017.

Anecdotal evidence obtained during the feasibility study showed that though ATVETs are being run in conformity with the two principles of an outcome-based and decentralised system, the objective of producing entrepreneurial graduates who will be self-employed has not been achieved on any significant scale. This is attributable, in part, to the training provided being focused on the on technical competence, with profitability as rather marginalised. Another gap in the curriculum is assessment of agricultural risks and the implications for enterprise viability.

The proposed CD can address this gap in the curriculum of the ATVETs. The normal route for changes in the curriculum of ATVETs is to conduct analysis of labour market demand, including examining employment trends by sectors and occupations and identifying requisite skill gaps. This is continuous process and key sources of information include the Ministry of Labour and Social Affairs, the National Statistics Agency and the Regional Medium and Small Enterprises Development Agencies (ReMSEDAs). A review was completed recently, resulting in the National Occupational Standards (NOS) being revised by the Federal ATVET Agency of the Ministry of Education in consultation with the MoA. The new NOS are to be circulated to the ATVETs by end of September 2018.

During consultations with officials of the MoA and the Ministry of Education it was acknowledged that inclusion of ARM in the curriculum of ATVETs will fill an acknowledged gap. Recommendations regarding areas for inclusion of ARM in the revised NOS are to be discussed with officials of the Federal TVET Agency during the validation workshop.

Getting the training of the ATVET staff right is crucial in assuring the quality of knowledge transfer further down the line. The Hawassa University has had a leading role in this. It used generic material produced by PARM in conducting the pilot ARM training in May 2018. The material has to be further customized to the needs of the country and translated into Amharic. This process is expected to be undertaken during the Pre-implementation Phase of the CD programme. In addition to the experience it has gained during the pilot training, the Hawassa University is also well-located to provide training for the staff of the ATVETs in three regions selected for initial implementation of the CD programme.

2.3.5. Under-exploited ARM initiatives

Ethiopia has a number of ARM-related initiatives which can benefit farmers but, in many cases, the tools are under-utilised. Examples include piloting supply of both crop and livestock insurance with support by many donors. The pilots include schemes implemented by the WFP in collaboration with the MoA, the World Bank and the Ethiopia Insurance Corporation, USAID in partnership with other development partners under the Horn of Africa Risk Transfer for Adaptation (HARITA Programme), as well as by Oxfam and Rockefeller Foundation. Most of the pilots have been weather-indexed and some involved private insurers such as Nyala and Oromia Insurance Companies. So far uptake remains very low[8].

The Ethiopia Commodity Exchange (ECX) is among the rather few examples of functional commodity exchanges in Africa. Though its trading platform has provided excellent opportunities for trading export commodities e.g. coffee and sesame, there has been little traction in terms of trading important food grains such as teff, wheat, maize and barley. Furthermore, ECX is yet to trade futures contracts which offer scope for managing price risks in the export crop value chains. There are ongoing efforts to open up these opportunities.

There have also been successful initiatives to promote forward contracting, for example, by the breweries and WFP in contracting forward with farmers' cooperatives, usually with a guaranteed fixed or floor price. Opportunities for scaling up such structured trade exist and can be exploited by other organised groups of farmers.

8 Confirmed by Daniel Negassa, Head Microinsurance Department, Oromia Insurance Company during Technical Meeting on 3rd October 2018.

Some microfinance institutions (MFIs) and other banks are providing production finance, which entails lower risk because it is secured against credible forward contracts as mentioned above. In addition, ongoing research has generated opportunities to increase farm productivity by means of improved planting materials and livestock breeds as well as investments in irrigation and postharvest handling technology. As noted in Box 1, the emphasis of these initiatives on yield increase often leads to marginalisation of important marketing and other risks, thereby discouraging uptake by smallholder farmers.

The proposed CD is expected to promote increased uptake of these and other viable ARMs by creating awareness about the tools. It is also expected to equip the target farmers with the capacity to take informed decisions about which options to take up as part of holistic ARM strategies. The CD also offers an opportunity for designers and funding agencies behind ARM-related interventions to take a more holistic approach, which can improve prospects for success and scalability of such actions.

2.4. Concluding remarks on justification of CD in ARM in Ethiopia

In this chapter evidence was summarised from the RAS by PARM (2016) to show that agricultural risks lead to substantial losses to farm households and at the national level when aggregated. It is quite apparent that though farmers are aware of the prevalent risks, their capacity requires strengthening in order to prioritise the risks and adopt effective ARM tools in a holistic manner. Meeting this need is one of the main justifications for the proposed CD in ARM programme. The CD will also help fill a gap in the delivery of extension services, enabling AgDAs to better incorporate holistic risk management in the provision of extension advice, thereby ensuring greater uptake of their services. By mainstreaming holistic ARM in the planning process the CD is also expected to improve the quality of planning and implementation of sector development interventions and policy actions. The synergy between the CD programme and other major sector-linked programmes and strategies has also been outlined, demonstrating its overall importance to farmers, GOE and other stakeholders. In the next chapter we outline the key elements of the CD programme.

3. ARM capacity development: the key design elements

3.1. Introduction

Justification of the CD programme was outlined in the preceding chapter. That is followed up with discussions in this chapter focusing on the key design principles, identification of target stakeholders and their training needs as well as the roles of different actors in the delivery of the programme.

3.2. Principles underpinning the CD in ARM programme

The key principles which define the proposed approach for the CD programme include the following:

a. The CD programme is not only intended to train farmers but more importantly to empower them by equipping them with basic tools to assess and prioritise agricultural risks, as well as make informed decisions on available ARM tools in the country, which they can use to manage risks in a holistic manner (taking into account associated costs and benefits).

b. Multi-faceted training methods, especially for the AgDAs, will include the following:

   - **Trainer-directed delivery of a planned curriculum.** The main material used in training at all levels will be based on the curriculum used in the pilot ARM training by the Hawassa University (Annex 2). The breadth and depth of issues covered will, however, depend on the group of trainees. It is expected that all trainers would have been trained before delivering any training. The only exceptions are the trainers at Hawassa University who have already had experience using the curriculum for training.

   - **Training-discovery-based approach to learning**. This involves encouraging trainees to form their views about options to adopt based on guidance from the trainers and other resource persons who share information about ARM tools. The trainees will be assisted in this process by means of video documentaries, field visits and experience sharing by other farmers on how specific risks were identified and evidence on how available ARMs were used to manage the risks. This approach also encourages more open discussion of information presented and feedback from trainees, especially with regards to ARM tools which are available.

c. Local ownership of CD, which aims to sustain local-level commitment to the programme and is to be achieved in part through the following:

   - Woreda-level involvement in planning and execution of training programmes for farmers by the AgDAs. The approach here mirrors the strategy adopted by the NDRMC, which provides information on agricultural risks and requires Woreda officials (sector offices) to plan local-level mitigation actions. It is expected that early warning information from DRMC as well as information from LINKS will be used for discussions on risk prioritization in particular woredas. The woreda/zonal level agriculture officers will be required to ensure that the training provided by DAs take account of relevant information on risks in the woreda.

   - Feedback from training sessions is also expected to be channelled through the zonal and woreda officers to Regional Agricultural Bureau and onto the Federal Department of Extension to inform future training and extension delivery activities.

d. Programme sustainability is intended to be achieved through the following:

   - Embedding ARM training programmes into existing programmes at various levels. For example, it is proposed that training for farmers will fit into regular extension sessions planned for the FTCs. This is further discussed in Section 3.2.

- Aligning the CD programme with other relevant programmes, such as discussed in Section 2.4. This is to ensure that programme funding is aligned to existing budgets in the main public institutions and can also leverage assistance from donors already supporting related programmes on an ongoing basis – this is discussed further below.
- Use of local resource persons, including industry resource persons for sharing information on ARM tools.

e. Cascade effect: to achieve this the following strategies would have to be pursued:

- Training selected staff of all 19 TVETs in the country in order to deliver training in ARM to their regular students and also to the AgDAs in selected woredas/regions.
- Ensuring that the knowledge and skills disseminated through training programmes can be transmitted to other farmers. The transfer of relevant ARM knowledge and skills will be led by AgDAs but will also involve the MFs at two levels. Trained MFs are expected to support AgDAs during training sessions for other farmers at the FTCs. Furthermore, to foster cascading of the CD, it is proposed in Section 3.3 that other MFs participate in the training at the FTCs in order that they will be able to transmit knowledge and skills acquired to other farmers in their communities as it currently happens in terms of technology transfer.

3.3. Target stakeholders for CD in ARM programme

The main target stakeholders are farmers, who are the most exposed to agricultural risks. Also targeted are the Agriculture Development Agents (AgDAs), who are the main resource persons in provision of extension advisory services to farmers in Ethiopia.

3.3.1. Farmers are the primary individual stakeholders targeted:

According to official data from MoA, the population of smallholder farmers in Ethiopia in 2017/18, including pastoralists, is estimated at over 16.9 million. Of these, more than 60% cultivate 1.0 hectares or less. Medium-sized farms range between 1.0 hectares to 3.5 hectares. It is estimated that smallholders account for 90% of total production and the medium-scale farmers contribute about 5% of total agricultural production. In contrast, large-scale farmers, who have average farm size of about 320 hectares, account for less than 5% of total agricultural production, but their share of cereal production[9].

Among smallholder farmers there is a sub-group described as Model Farmers (MFs). These are individual farmers who are usually more literate and have larger farms with size at the lower end of the medium-scale farms. They are usually more actively involved in dissemination events such as workshops and training programmes than the average smallholder farmers. They tend to be better-informed and are among *first adopters* of new technologies and improved farming practices. Hence, they are often more productive than other smallholder farmers, who usually learn from them through observations. They are, therefore, influential in their communities can play an important role in the transfer of knowledge on ARM to smallholder farmers in the kebeles (villages). It is reported that, on the average, there are about 100 MFs in each kebele, representing about 10% of the population of smallholder farmers in the kebeles[10].

Advantage will be taken of the influence of the MFs in the CD programme in two ways. First, MFs selected by the woreda Bureau of Agriculture will be trained to directly support AgDAs in training other farmers at the FTCs. Second, it is proposed that 50% of farmers selected for training at the FTCs will be MFs. This balance is intended to encourage community-level experience-sharing by the MFs whilst ensuring that smaller-scale farmers do not perceive the CD programme as exclusive. This approach is similar to how AgDAs currently deliver extension advice – they involve both MFs and other smaller-scale farmers.

9 Source: IFPRI (2012) "Crop Production in Ethiopia: Regional Patterns and Trends", ESSP II Working Paper 16, Research Note 11, IFPRI, Addis Ababa, 2012.

10 Source: pers. comm. with Berek Wereda Agriculture Officer on 7th July 2018.

3.3.2. Targeting Agricultural Development Agents (AgDAs)

AgDAs have primary contact with smallholder farmers and are the principal source of extension information as shown in Figure 2, which depicts the hierarchical structure of the Government Agricultural Extension Services System in Ethiopia. Their role in the transfer of ARM knowledge to smallholder farmers is not only key but is likely to grow in importance as ARM is mainstreamed in agricultural development plans and projects in the country. It is for this reason that we stress the need for them to be equipped with appropriate information and knowledge as well as methodology to promote uptake and application of ARM practices by the farmers. We deliberately use the term AgDAs to differentiate the target for this programme from other DAs who offer non-agricultural services including health. All DAs are based in kebeles and use FTCs as offices and for training.

There are a total of 65,845 AgDAs, located in all the regions of Ethiopia as shown in Table 2. As a result about 55% of the smallholder farmers in the country are reached by the AgDAs. On the average, about 25% of the AgDAs are women.

Table 2: Regional distribution of Agriculture DAs in Ethiopia

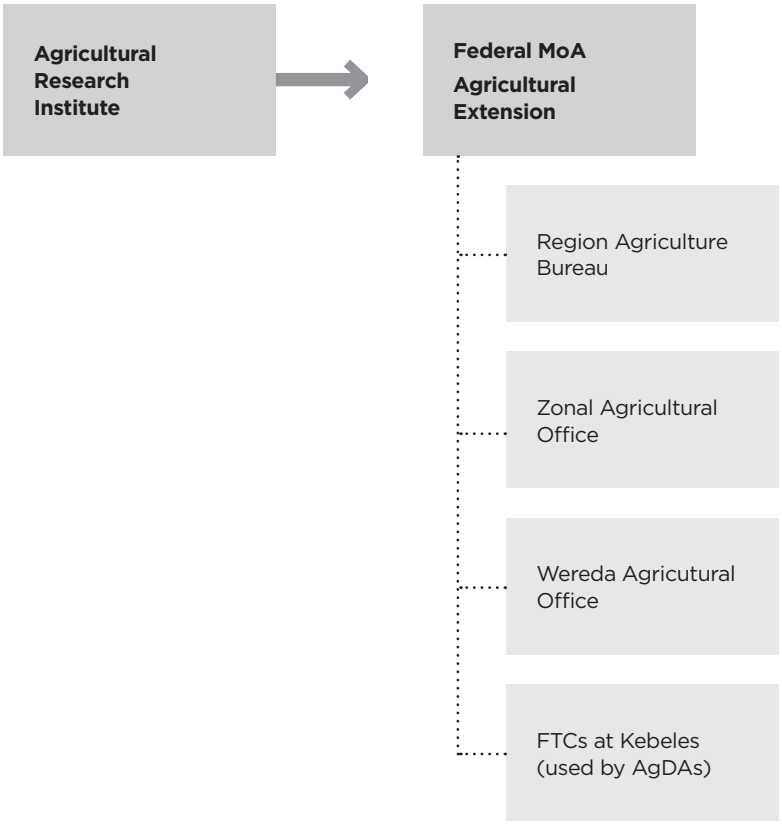
Region	Male	Female	Total	% of female
Tigray	2156	1456	3612	40.31
Amhara	12921	6091	19012	32.04
Oromia	14342	3586	17928	20.00
SNNP	13226	3523	16749	21.03
Benishangul Gumuz	1745	695	2440	28.48
Gambella	1293	554	1847	29.99
Somali	2631	658	3289	20.01
Afar	666	137	803	17.06
Harari	46	14	60	23.33
Dire Dawa	91	14	105	13.33
Total	49117	16728	65845	25.41

Source: MoA, 2018.

3.3.3. Stakeholders targeted from the extension delivery system:

The AgDAs are the primary target in terms of frontline personnel in the agricultural extension system in Ethiopia. The country has one of the highest agriculture extension staff to farmer ratios in Africa, estimated at about 1:600 compared, for instance, to 1:1,500 in Ghana (Duo and Bruening 2007). It is evident, especially from interactions with various officials, that the heads of the Bureaus of Agriculture at regional, zonal and especially the woreda levels play crucial roles in the dissemination of extension information to farmers. Extension advisory information is channelled through the structure depicted in Figure 2. The heads at the various levels also assist in the logistics of organising information dissemination by the AgDAs. Hence, these officers are targeted in the CD programme.

Figure 3: Hierarchical structure of agricultural extension system in Ethiopia



Source: MoA

On the average there are four/five AgDAs per kebele with different areas of specialisation as shown in Box 2 below. The AgDAs are recruited after completing their training at the ATVETs and obtaining a Diploma. They are usually based in the kebeles. Two years after their appointment, those who perform creditably are able to enrol in a course which runs for six summers (from September to December) in order to obtain a BSc degree in Agriculture Extension. These programmes are offered by most universities in Ethiopia and are reported to be especially popular in the following: Hawassa University, Ambo University, Mekele University and Jimma University. Though the graduates are expected to stay in the field as DAs, most of them move onto other jobs in the public as well as private sectors, usually for better wages and to move to more urban communities.

Box 2: Areas of specialisation of Agriculture Development Agents in Ethiopia

The areas of specialisations are the following:

Plant/Crop Science; Animal Science focusing on livestock production; Natural Resource Management with particular attention being paid to promotion of agro-forestry; Agricultural Mechanisation, Small Scale Irrigation Development, Farmer Cooperatives and Animal Health.

Though the CD in ARM will ultimately target all the AgDAs, priority will be given to those with Plant/Crop Science or Animal Science specialisation, which is directly relevant to most farmers. In addition, those with specialisation in promotion of farmers cooperatives will be targeted for training where collective marketing is being encouraged as part of postharvest ARM.

3.3.4. Staff of ATVETs

Staff of the Agricultural Technical, Vocational and Education Training Centres (ATVETs) are also targeted because the graduates from these colleges are usually absorbed into the extension system as AgDAs. The ATVETs are expected to be the main institutions to train existing AgDAs. It is also expected that they will mainstream ARM into their curriculums, making it possible for new graduates to acquire knowledge of ARM. This will not only improve the quality of new AgDAs it will also make it possible for those who aim to become self-employed entrepreneurs in agricultural value chains to do so with a clear understanding of the potential returns but also the risks which have to be managed in order to maximise anticipated earnings. Currently, there is no evidence that a significant number of the graduates go on to become self-employed.

3.3.5. Federal-level policymakers targeted

Other stakeholders targeted officials at the federal-level in the MoA; the Ministry of Education (MOE), especially the Federal Agency for TVETs; the National Disaster Risk Management Commission (NDRMC); and the Federal Cooperative Agency (FCA). The basis for targeting these are briefly summarised below.

- **MoA**: sets the policy framework for the sector and is directly responsible for provision of extension services through regional, zonal and woreda structures as well as the FTCs in the kebeles as depicted in Figure 3. Typically, the Agriculture Research Institutes tend to be the main source of information for field extension agents. The information is generated through the research they undertake, the main focus being on the development and uptake of yield-enhancing technology. Usually, marketing and risk management dimensions are often rather marginalised.
- **MOE**: is responsible for framing and implementing national education policies and relevant strategies, including the National Technical & Vocational Education & Training Strategy, which guides the activities of ATVETs and is discussed further below.
- **NDRMC**: is responsible for outlining national disaster management strategies and coordinating multi-agency responses to disasters, including those which occur in agricultural value chains. Its role includes the following, which are relevant to the proposed CD in ARM:
  - Assessing major risks, including agricultural risks, and coordinating an early warning information system;
  - The early warning system provides information planning actions to mitigate anticipated risks at various levels including at the community level;
  - Capacity development for effective community-level responses/actions; and
  - Mainstreaming of risk management in all government planning activities.

  The NDRMC used to be under the MoA but has since 2015 been placed directly under the Prime Minister's Office. The two share a common objective of empowering farmers and communities to take action to manage risks *a priori* through disseminating information which provides a basis for action. Currently, the activities by the NDRMC target woreda-level experts who are expected to facilitate trickling down of information to community levels, including to people/farmers in the kebeles. However, it is evident from the consultations with stakeholders that the expected dissemination of information to lower levels is not taking place but can be facilitated by means of the proposed CD programme.

- **Federal Cooperative Agency (FCA)**: promotes cooperatives and reports that there are approximately 40,000 cooperatives in Ethiopia, out of which about 10,000 are engaged in primary agricultural production. Nationwide, the membership of agricultural cooperatives is estimated 4.7 million. The agricultural cooperatives are involved in the distribution of farm inputs, linking members to microfinance institutions and, in some cases, to commercial banks. They also facilitate trade with formal buyers such as WFP and private companies including the breweries.

3.3.6. Other stakeholders targeted

Providers of ARMs in Ethiopia, which are briefly described below, are also targeted under the CD programme. These providers tend to focus on providing tools which address specific risks or challenges in agricultural value chains. Quite often, in so doing, they do not take a holistic perspective in terms of risk management, leading to suboptimal outcomes, which, as indicated above, tends to discourage uptake by smallholder farmers. The providers targeted include the following:

- **ECX** offers a platform for structured trading, which minimises uncertainty regarding access to formal markets. So far this is working mainly for export crops but not so much for food grains such as teff, maize and wheat. Furthermore, ECX is not yet trading futures and options contracts which make it possible for various parties to manage price risk – either upside or downside risks.
- **FCA** has facilitated forward marketing contracts with major buyers such as WFP and the breweries on behalf of some cooperatives. The contracts guarantee future prices for participating farmers and, by that, not only assure future household income but also ease access to production credit. There is potential to scale up this model as noted in the Ethiopia Risk Assessment Study Report (2016).
- **Insurance companies** both private and recently public companies, have piloted supply of agricultural insurance products, mainly weather-indexed products. The scale of adoption remains low and some design issues need to be addressed if significant scalability is to be achieved (noted in the Ethiopia Risk Assessment Study Report, 2016).
- **Agricultural Research Institutes** have had long involvement in researching, testing and distributing improved planting materials and livestock breeds to farmers. The key motivation has for long been to increase farm and livestock yields, often with little or no consideration for marketing related risks.

3.4. Identified CD needs of key stakeholders

3.4.1. Farmers

In Section 2.2.1 it was noted that though the perception of prevalent risks among smallholder farmers did not deviate from the prioritisation reported in the RAS by PARM (2016), there was significant difference in terms of the ARM tools which can be deployed by farmers. It was also noted that inadequate mainstreaming of ARM into new farming technologies and practices, which led to suboptimal outcomes, often discouraged farmers from taking up the innovations promoted by the extension services and other actors – as illustrated in Box 2.

From interactions with farmers it is apparent that the areas where capacity development is required include:

- Understanding the basics of assessing and prioritising agricultural risks and their impact on household wellbeing, including assessing impact on enterprise profitability and/or household income;
- Information on available ARM tools and how they can be effectively utilised;
- How to assess the utility of an available ARM tool relatively a traditional risk minimisation or coping strategy. This requires information provided the cost and related benefits from using any new tools as well as simple cost/benefit analysis; and
- Institutionalisation of feedback systems which allows farmers' experience to influence the development and dissemination of new farm technologies and practices, including ARM tools which may be promoted.

It is anticipated that the MFs can play a strategically important role in this process because, as noted above, they tend to be more knowledgeable and they are also influential in their communities, which is at the *kebele* (village) level.

3.4.2. Agricultural Development Agents (AgDAs)

From consultations with AgDAs in the field, it emerged that though they have perceptions about the risks facing farmers, they are not equipped with any tools to prioritise the risks on a robust quantitative basis. Their training up to Diploma level and even BSc programmes do not sufficiently cover agriculture risks. Not surprisingly, but also quite a concern, they are not trained to, and in practice, do not assess risks associated with the adoption of new agricultural technologies or practices (see Box 2). Those consulted found it difficult to appreciate that new or heightened risks association with new technologies or practices often stymied uptake – the usual response to low uptake being to provide more "training of the farmers" and "to push" the new technologies or practices. Hence for AgDAs the main CD gaps are in:

- Identification, assessment and prioritisation of risks. This will include estimating costs associated with the risks and comparative benefits from utilising available ARM tools.
- For purposes of the above they need information on how the identified risks can be managed including information on available ARM tools and how they can be accessed as well as associated costs and benefits.
- Effective communication of ARM tools to farmers, with an objective assessment of the tools, rather than promotional messages that have a tendency to stress optimistic outcomes only.

By addressing these needs, the AgDAs will not only be able to share relevant ARM information with farmers, but it will also help to improve the quality of their overall practice as extension personnel. This is because they will be able to specifically assess risks associated with new technologies and practices which they are required to transfer to farmers; and by so doing ensure that the transfer goes along with effective strategies to manage new or accentuated risks. It will also enable them to set more reliable targets for their communities based on projections which reflect not only an optimistic scenario but also one that takes account of alternative scenarios when identified risks occur.

3.4.3. ATVET trainers

Lecturers at the ATVETs are responsible for training prospective AgDAs. They can also provide a cost-effective resource for training AgDAs in the field in ARM. However, there is a major gap in the existing curriculum with regards to coverage of ARM and as its impact on farm households. From the two ATVETs consulted, it is apparent that the teaching staff are highly qualified in terms of the areas of specialisation, such as Plant Science, Animal Science, Natural Resource Management, Agricultural Mechanisation, Small Scale Irrigation Development and Animal Health. However there are identified gaps in ARM capacity in the following areas:

- Basic comprehension and application of risk identification, assessment and prioritisation;
- Knowledge on available ARM tools in the country and how they can be accessed and utilised by smallholder farmers; and
- Effective communication of ARM tools to farmers, with an objective assessment of the tools rather than promotional messages, which stress optimistic outcomes only.

The expectation is that the CD in ARM will not only equip the ATVET lecturers as trainers in ARM but also impact how they deliver generic programmes in agriculture, in particular, in highlighting the importance of undertaking farming as a business with weight being given to enterprise profitability. This appears to be a marginal issue in terms of approach to training by the ATVETs because their emphasis/focus is mainly on productivity increase.

3.4.4. Policymakers and technocrats in agriculture

As assessment of the CD needs of middle-level technocrats from the public sector, mainly from the MoA and NDRMC, was undertaken during the Hawassa Pilot ARM CD 2 Training. The responses to a brief questionnaire from the participants, with details in Annex 4, show that in general they are aware of agricultural risks that have been identified in the RAS. The order in which they reported the risks is also broadly consistent with the prioritisation of risks in the RAS. However, it is apparent that many of them have difficulty in making a distinction between risks and constraints in the sector, an issue which needs to be addressed during training programmes.

Among the technocrats who participated in the event, there is general awareness of many of the ARM tools in the country, especially the technology-based tools such as drought-resistant plant varieties and irrigation. However, there is a dearth of understanding of how tools such as insurance and innovative output marketing systems (e.g. Warehouse Receipt Systems and commodity exchanges) can be used by farmers to, for example, manage weather risks and price risks respectively.

Most of the participants indicated that training in ARM will enable them to better interact with and train extension personnel as well as farmers. It will also help them in bringing assessment of the impact of risks on the design of various projects and programmes as well as in setting performance targets for personnel at woreda and kebele levels. They suggested that it will be good to conduct training in ARM in local languages and to also use local examples and relevant practical activities.

3.4.5. ARM service providers and managers of development projects

Among the stakeholders consulted were some from the insurance industry, the cooperative structures at federal and the Ethiopia Commodity Exchange (ECX). Among these there is awareness of the specific risks which can be mitigated using the ARM tools they provide. There is also awareness of the need for further enhancements of the existing product and for the introduction of new products if the needs of farmers are to be covered more adequately. For instance, ECX is aware that its current trading platform is of limited use to grain producers and traders in contrast with players in export crop value chains, such as coffee and sesame. They generally acknowledge that they have limited interaction with farmers in terms of disseminating information on their services and products. They expressed a willingness to make more information available through ARM training programmes and, through that collaboration, they also expect to obtain feedback which can enable them to improve their products and services.

3.5. Institutional roles and collaboration in delivery of CD in ARM

3.5.1. ATVETs: central to training of trainers

The AgDAs, who are intended to be the main trainers of farmers under the CD programme, will be trained by the ATVETs. This will include short-term training for existing AgDAs as well as training of prospective ones – the graduates from the ATVETs who are recruited into the extension service. The ATVETs will also provide training for extension officials at regional, zonal and woreda levels.

Official reports indicate that there are 25 ATVETs, but currently 19 of them are functional as the remaining six are reported to have been absorbed by local universities in their respective areas. Table 3 shows the list of the 19 functional ATVETs in Ethiopia, including details of the regions and woreda in which they are located (the regional ATVETs are usually named after the woreda in which they are located). The Regional ATVETs which have been absorbed by local universities are listed below:

- Dilla ATVET to Dilla University
- Gambella ATVET to Gambella University
- Assela ATVET to Arsi University
- Chiro ATVET to Oda Bultum University
- Burrie ATVET to Debre Markos University
- Mersa ATVET to Woldiya University
- Bokoji ATVET to Arsi University

Staff of most of the ATVETs have BSc and Masters-level degrees from local universities. It is apparent from consultations that they will require specific training if they are to teach ARM to their students when the curriculum is appropriately revised. Similar training is required if they are to lead in short-term training for the existing AgDAs. It is anticipated that training of staff of the ATVETs will be undertaken by universities such as the Hawassa University. The materials used by Hawassa University during the pilot ARM training in May 2018 appears to be suitable for training staff of the ATVETs.

The universities are also expected to provide training in ARM for senior bureaucrats and management personnel of organisations offering ARM tools in Ethiopia. In addition, it is anticipated that they will incorporate ARM in courses at the BSc level, including the sandwich programmes offered to high-performing AgDAs with Diploma from the ATVETs who then graduate with BSc.

Table 3: List of Federal and Regional TVETs in Ethiopia

Name of College	Regional location
Federal TVET Colleges (5)	
Agarfa ATVET College	Oromia Region, Agarfa Woreda
Alage ATVET College	Between Oromia and SNNP region, Zuway Woreda
Ardaita ATVET College	Oromia Region, Asasa Woreda
Mizan ATVET College	SNNPR, MizanTeferi Woreda
Gewane ATVET College	Afar Region, Gewane Woreda
Regional TVET Colleges (14)	
Yabelo ATVET College	Oromia (5)
Holeta ATVET College	
Nejo ATVET College	
Komlocha ATVET College	
Bako ATVET College	
Wereta ATVET College	Amhara (3)
Mertomaiam ATVET College	
Kombolcha ATVET College	
Maychew ATVET College	Tigray (3)
Wukro ATVET College	
Shire ATVET College	
Welayta Sodo ATVET College	SNNP (1)
Gode ATVET College	Somali (1)
Asosa ATVET College	Benishangul (1)

Source: Authors from information provided by MoA, Ethiopia.

Direct training of farmers is proposed to occur at the FTCs. They usually have land which is used as demonstration plots, mainly for trials of improved planting materials as well as husbandry practices. They also have offices for the DAs and training rooms which can accommodate between 50 and 100 farmers. However, the training rooms have only basic tables and chairs but no other training equipment. This is partly because the training focuses on experimentation on the demonstration plots.

As noted in Section 2.2.2 the emphasis on technology-oriented extension with minimum or no attention to ARM appears to be dampening uptake of the training opportunities at the FTCs. It is anticipated that the CD programme, by bringing a new dimension which reflects the risk perceptions of the farmers, will encourage increased use by farmers. It is proposed also that FTCs targeted should be equipped with basic audio-visual facilities, illustrated posters and charts. The latter can be produced in collaboration with providers of ARM tools in the country. The more expensive audio-visual equipment should be allocated per woreda and therefore be used across FTCs in a woreda. This will save cost and ensure value-for-money in the acquisition of such facilities.

3.5.2. Institutional roles/collaboration in support of CD in ARM

The anticipated collaboration between various institutions in implementation of the CD programme reflects existing institutional responsibilities and linkages and will include the following:

- The NDRMC will, on the basis of information sources (see Box 3) from the NMA, LINKS and the APHRD, generate early warning information on risks specific to particular woredas. This information is expected to be disseminated not only through the regional/zonal and woreda offices of the NDRMC but also to the Extension Directorate of the MoA at the Federal level.
- The MoA is then supposed to share the early warning information along with relevant extension advice through the BOAs at regional, zonal and woreda levels in order to reach the AgDAs at the kebeles and, through them to the farmers. It is expected that at the community levels, the farmers and AgDAs will use the information provided to assess vulnerability to identified risks and ARM tools which can be used as part of risk management action plans. This is consistent with the current strategy of the NDRMC but, as noted above, planning at the community level has not been possible and is expected to be facilitated by the CD programme.
- Information on crop and livestock prices is generated by the CSA, EGTE, ECX and FCA. The MoA and the FCA need to undertake coordinated dissemination of market information to all AgDAs in the kebeles, and not only those responsible for the farmers' cooperative unions (FCUs). This information will form part of the training sessions at the FTCs targeting farmers.
- MoA and MOE work closely together in the training AgDAs. Specifically, the ATVET Directorate in the MoA generates information on changes in the curriculum used by the ATVETs. However, as the TVET Agency under MOE is the only body authorised to effect changes, the ATVET Directorate has to channel proposed changes to it.
- In terms of available ARM tools which can be deployed by farmers, the main source of information are the providers including ECX, FCA, insurance companies, MFIs and banks. The information these organisations provide can be disseminated during training sessions at the FTCs.
- Feedback from training sessions by the AgDAs is expected to be channelled through the BOAs at various levels to the MoA at the Federal level. It is expected that this information will be shared with the NDRMC as well as providers of ARM tools and contribute to sustained improvement in ARM actions.
- The MoA and MOE will continue working closely together in the training by the ATVETs in order to ensure that AgDAs who are recruited within four years from the launch of the CD programme are adequately equipped to train farmers in ARM. It usually takes four years to complete programmes at the ATVETs. This will be ensured through collaboration between the MoA and MOE revising the EOS for training by the ATVETs.

Box 3: Sources of ARM information in Ethiopia

These include the following:

The **National Meteorology Agency (NMA)**, which disseminates weather information, including forecasts. The **NMA** produces 3 days, 10 days, 15 days, monthly and seasonal weather forecasts and disseminates the information to public mainly through the mass media (e.g. radio and television) as well as via the internet. They also send the information to their regional offices by email. The regional NMA offices analyse the information relevant to their area and share this with the regional government and non-government offices.

The **Livestock Information Network and Knowledge System (LINKS)** also publishes information and data on the incidence and impact of livestock diseases and pests.

The **NDRMC** uses the information from these agencies to generate early warning information which is used for planning interventions at community levels but can also enable individual farmers to take anticipatory (*ex ante*) actions. The **NDRMC** produces weekly, 15 days and monthly national early warning information that is specific to woredas, and disseminates this to federal institutions as well as Regional Disaster Risk Management Offices by email. Using the same data collected from woreda level, the regional DRM offices also produce their respective regional weekly, 15 days and monthly early warning information and share it with their regional government and non-government offices. But information flow down to zone and woreda is very limited. Federal and regional early warning information only reaches woreda level if there is a sudden on-set hazard like a flood, which needs immediate action by woredas. Otherwise, NDRMC and regional offices do not directly send EW information to woreda or the community.

The MoA also disseminates similar information down its chain from the federal level through the regions, zones and woreda. For instance, weather data from NMA and information collected from kebele and woreda level and produces advisory reports for farmers and agricultural experts to mitigate agricultural risks.

The **Animal and Plant Health Regulatory Directorate (APHRD)** of the MoA is also responsible for generating and disseminating information on outbreak of crop and livestock diseases and pest.

The **Ethiopian Grain Trading Enterprise (EGTE)** and the **Central Statistical Agency (CSA)** publish grain price data which can be used to track food prices for food security policy interventions as well as private marketing decisions.

The **Ethiopia Commodity Exchange (ECX)** publishes price and other market data but the focus is mainly on export crops such as coffee and sesame.

The **FCA** disseminates price data through its field officers as a basis for encouraging farmers to take advantage of structured marketing systems.

Source: Authors.

4. Proposed action plan for ARM capacity development

4.1. Introduction

After making the case for the CD programme in Chapter 2 we have proceeded in the preceding chapter to assess available physical and institutional facilities which can be deployed in implementation of the programme. In this chapter we summarise our assessment of the technical feasibility of the CD programme and move forward to set out details of the specific activities which have to be undertaken. In the final chapter we review funding for the programme as well as propose a management structure for its implementation and outline of a monitoring and evaluation framework which can be adopted.

4.2 Summary of evidence on technical feasibility of a CD programme

The reviews in chapters 2 and 3 provide ample justification for concluding that the CD programme in Ethiopia is technically feasible. The basis for this conclusion is summarised below as follows:

a. The Ethiopia Risk Assessment Study (RAS) Report confirmed significant economic losses arising from a range of agricultural risks. The report also confirmed that smallholder farmers have little or no access to effective ARM tools. Hence, it is expected that building their capacity to utilise available ARM tools will improve household wellbeing by means of reducing risk-related losses and also boosting their productivity, through increased ability to access finance and so acquire yield-enhancing inputs.

b. A review of various government policy documents and programmes undertaken in the course of this feasibility study phase, shows that the proposed CD programme is well aligned with government policies in agriculture, especially extension; with disaster risk management and education. This is particularly evident in the context of GTP II.

c. We also note that there is available institutional infrastructure to deliver the required capacity. The structures within the national extension and education systems, in particular the ATVETs and the FTCs, provide a firm structure around which implementation of the CD programme can be centred. The capacity gaps observed at various levels can also be filled as part of the proposed CD programme since it does not focus entirely on farmer training but on strengthening the capacity of all potential resource persons.

d. Available ARM tools provided by both public and private organisations also provide tangible opportunities to enable the target smallholders not only to be equipped with the means to identify and prioritise risks, but also determine the types of effective ARM tools from which they can gain demonstrable benefits.

e. PARM has produced generic training material which served as a basis for the training materials prepared by Hawassa University and used during the pilot ARM training programme in May 2018. The material can be further customised to fit woreda-specific conditions and risks based on information which can be obtained from NDRMC and other sources listed in Box 3.

f. Finally, and indeed crucial to the sustainability of the CD programme, there was general support for its implementation across the relevant policy institutions, most especially the MoA and the Ministry of Education as well as the NDRMC. This was evident during the Technical Workshop held in Addis Ababa on 3rd October 2018 to discuss the emerging conclusions and recommendations of this feasibility study.

In terms of wider economic benefits from implementation of the CD programme it is evident that it will boost the market for ARM tools by two means. First it will help increase awareness of the tools among farmers and other actors in agricultural value chains, thereby driving up demand. On the other hand, the feedback process which is part of the CD programme will also enable suppliers of ARM tools to improve the design of the tools in order that they are more suited to the needs of the farmer.

Other anticipated benefits include improvement in the planning and implementation of projects and programmes at the level of government and also those supported technically and/or financially by donors and NGOs. This is because the CD programme will help to address what emerged as a clear gap in the planning process – marginalisation of the risk dimension.

The ATVETs, whilst acting as trainers of the AgDAs, will also benefit in terms of incorporating ARM in their curriculum because it will enable them to produce better-informed graduates who can be employed as AgDAs and also better equip entrepreneurial students to enter into self-employment. This latter benefit will enhance the ability of the ATVETs to achieve one of the key objectives and contribute to national efforts to boost employment creation in the agriculture sector.

We set out below the key activities to be undertaken in implementing the CD programme.

4.3. Training of trainers for the CD programme

Staff ATVETs are among the key trainers to be trained under the CD programme due to their role in training existing and prospective AgDAs. Other resources persons who will be trained include senior extension officials are regional, zonal and woreda levels. Selected model farmers (MFs) will also be trained to directly assist AgDAs in training farmers at the FTCs.

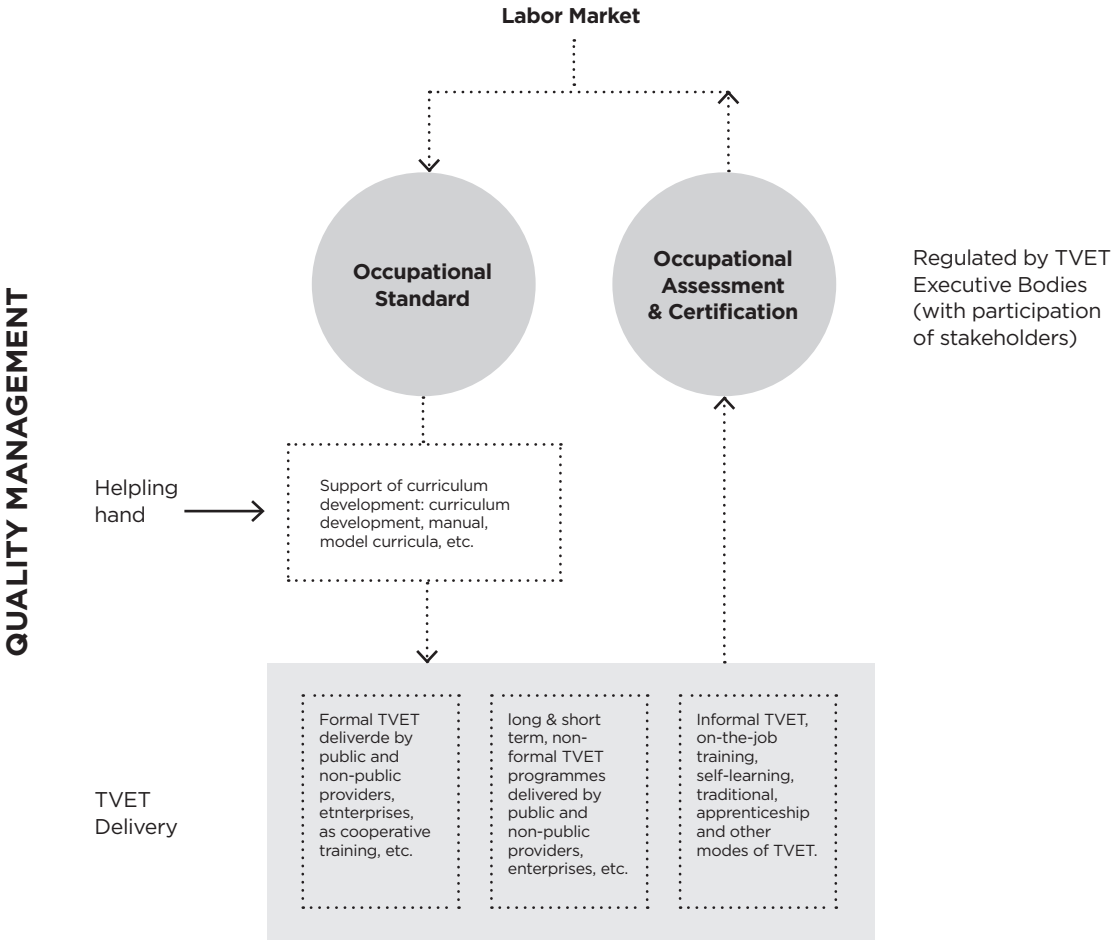
4.3.1. Training ATVET staff

Training staff of the ATVETs will serve two purposes. It will equip them to deliver training in ARM to their regular students as part of the agricultural specialisations such as Plant Science, Animal Science, Natural Resource Management, Agricultural Mechanisation, Small Scale Irrigation Development and Animal Health. Most of their graduates, who earn a Diploma upon successful completion of their programmes, are usually recruited as AgDAs. It is expected, however, that some of them will become self-employed in various agricultural value chains.

It has been noted that a gap exists in the standard curriculum of the ATVETs in terms of coverage of ARM. This was acknowledged during consultations with senior staff of two of the ATVETs as well as with relevant officials of MoA and the Ministry of Education. To address this, a process was initiated during this feasibility study, to include ARM in the revised Ethiopia Occupational Standard (EOS), which is also referred to as the National Occupational Standard (NOS) for the ATVETs. The revision of the EOS (NOS) is through a process outlined in the National Technical & Vocational Education & Training Strategy and depicted in Figure 4 below.

During the Technical Workshop on 3rd October 2018, officials of the Federal TVET Agency confirmed that the EOS has been revised but is yet to be circulated. Based on previous discussions with the team of consultants engaged in this feasibility study, they acknowledge the need for, and are willing to collaborate with the MoA to make further adjustments to ensure inclusion of ARM in the curriculum. It was generally agreed that this inclusion will not require lengthening of the study period for students as ARM will be mainstreamed in the teaching of all the specialisations offered by the ATVETs. The official of the ATVET Department of the MoA confirmed the interest of the Department in following up discussions with the Federal Agency in order to pursue this.

Figure 4: Outcome-based organisation of TVET System



Source: National Technical & Vocational Education & Training Strategy

For purposes of ensuring effective teaching of ARM by all the ATVETs, when the EOS is further revised, it is proposed that staff from all the 19 functional ATVETs is trained under the proposed CD programme. However, only six selected ATVETs will be directly involved in training existing AgDAs within the 5-year time frame of the programme. These are listed in Table 4.

Table 4: List of Federal/Regional TVETs targeted in CD programme

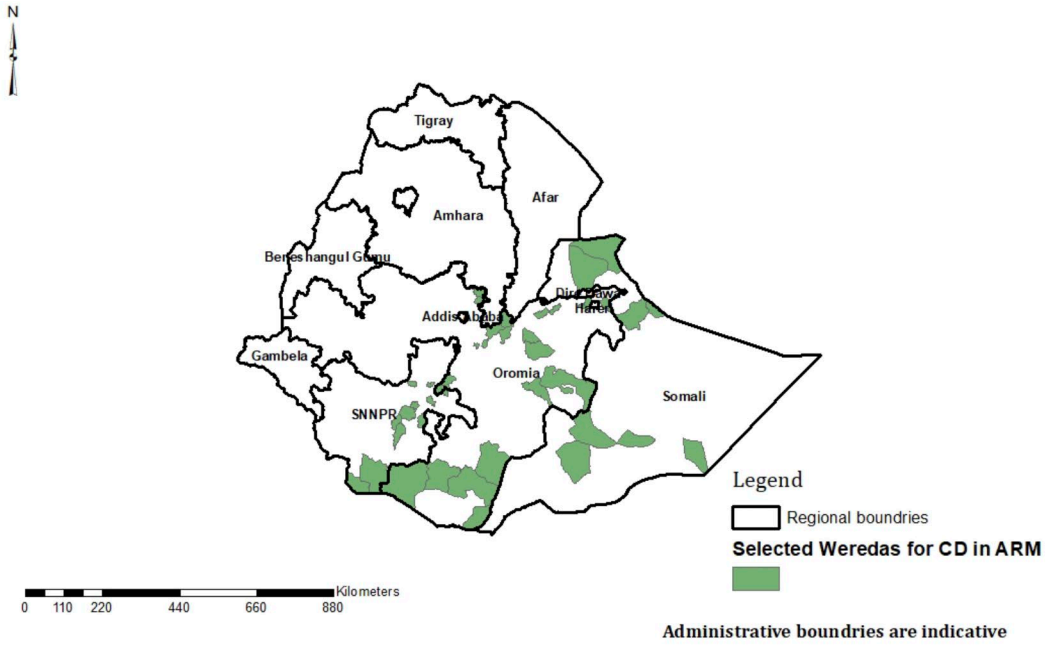
Name of College	Regional location
Agarfa ATVET College	Oromia Region
Alage ATVET College	Between Oromia and SNNP region, Zuway Woreda
Holeta ATVET College	Oromia
Mizan ATVET College	SNNPR, MizanTeferi Woreda
Welayta Sodo ATVET College	SNNP
Gode ATVET College	Somali

Source: Authors from information provided by MoA, Ethiopia.

The six ATVETs in Table 4 are selected from three focal regions (shown in Figure 5) which we propose for initial (5-year) implementation of the CD programme. The three focal regions were selected during the consultations with the MoA and taking into account the following considerations:

- Together they account for about 70% of the farming population in Ethiopia and almost 58% of the AgDAs employed by the government. As shown below, the main agricultural subsectors and agro-climatic conditions in the country exist in these regions and will, therefore, ease the scale up of the programme to the other regions.
- Though the share of women AgDAs in Oromia and Somali (about 20%) is lower than the national average, the deviation is not substantial. In the SNNP the share is 28.5%.
- Oromia is the lead region in agricultural production and therefore has the largest number of crop and livestock farmers who are exposed to most of the agricultural risks prioritised in Ethiopia;
- Southern Regions where in addition to the crops and livestock subsectors there will be an opportunity to address risks in the fisheries subsector and also build on the experience gained by the Hawassa University in piloting the ARM training; and
- Somali Region there is a concentration of pastoralists and also vulnerability to drought is very high, implying the potential to test ARMs which are specifically suited to those agro-climatic conditions and which may be also be priced higher than in other regions unless ARM providers take a national perspective in terms of risk pooling.

Figure 5: Map of Regions and Woredas Selected for CD in ARM in Ethiopia



It is proposed that training for the ATVET staff is offered by Hawassa University, which was involved in the development of the curriculum for the pilot CD training. Their staff also gained experience from delivering ARM training during the pilot. This proposition shortens the pre-delivery period required for preparation of materials.

We have further proposed that the training covers all ATVETs in the country as it makes it possible for all of them to implement the inclusion of ARM in the curriculum. It also builds capacity to scale up the programme on a national scale when required but with no significant additional cost in training ATVET staff. The proposal is for two staff from each of the ATVET colleges to be trained at a single event each year. Its means 38 staff of the ATVETs will be trained at the start of the CD programme and subsequently similar numbers each year. The

proposal is the first to be trained should be those involved in the following specialisations: Plant/Crop Science and Animal Science. Subsequent trainings can ensure that staff from all the other specialisations identified in Box 1 are covered.

It means that over the 5-year period of implementation of the CD programme, a total of 10 staff will be trained per college and 190 for all the ATVETs. The objective of training these trainers is to equip them to train existing AgDAs as well as mainstream ARM in their regular curriculum so that prospective AgDAs (graduates from the AVTETs) will acquire the skills and knowledge to train farmers when they have been recruited. The main learning outcomes for the training of ATVET staff include the following:

a. Raised awareness of agricultural risks and their impact on the livelihoods of smallholder farmers and other actors in agricultural value chains;

b. Acquired knowledge and skills in assessing and prioritising agricultural risks in various agricultural value chains;

c. Acquired knowledge of and capacity to assess the viability of utilising available ARM tools in Ethiopia by smallholder farmers and other players; and

d. Acquired communication skills to effectively train existing and prospective AgDAs relevant officials at the BOAs in ARM, equipping them with requisite knowledge and skills in ARM.

It is proposed that the training for ATVET staff covers a two-week session which will include trainer-led presentations on ARM prioritisation techniques and on available ARM tools. There will also be presentations by industry representatives on the available ARM tools. Video sessions and field visits are also proposed to allow trainees to gain understanding of available ARM tools and how they can effectively be used by farmers and other stakeholders.

Hawassa University is already in the process of mainstreaming ARM in its agriculture extension and related programmes. They are particularly targeting high-performing DAs who take sandwich courses (i.e. training course with alternate periods of formal instruction and practical experience) leading to the award of BSc degrees. Their experience can be shared with other universities which can subsequently be engaged in providing refresher training for ATVETs which have had their staff trained during the pilot period but are not among the six selected for that phase of the CD programme.

4.3.2. Training of Zonal/Woreda Agricultural Officers

From the field consultations it emerged that these officials receive early warning information and data related to agricultural risks. They are required to be part of local action plans to mitigate identified/prioritised risks and have an active role in organising and funding training for farmers by AgDAs. We propose training these officers for the following reasons:

a. To guide AgDAs in the preparation of training programmes and materials for training at the FTCs and quality control the delivery;

b. Based on the acquired knowledge of and skills in ARM, to ensure risks associated with the transfer of any technology or farming practice is properly assessed and that required ARM measures are incorporated in the extension package which is shared with farmers;

c. To synthesise feedback from farmers who participate in CD events at the kebele level as a means of feeding into improvement of ARM tools by providers;

a. Related to the above, use such feedback information to improve the quality of extension information provided to farmers and also to enrich the information basis for government planning and actions related to ARM in specific regions and zones.

The learning outcome for training this category of stakeholders will include those outlined for the ATVET staff. In addition, the training should include being equipped with skills to generate feedback and evaluation of training programmes as well as synthesise key issues which emerge from the data/information generated.

It is proposed that during the first year of implementation of the CD programme, a total of 60 officials – 18 from the zones and 42 from the woredas – are targeted to be trained. The trainees will be selected from the 18 zones and 42 woreda initially targeted for the pilot, as listed in Table 5. In the course of the 5-year CD programme, one staff each from the 34 zones and 215 woredas in the three focal regions will be trained. We propose two training sessions with 30 participating in each of the programmes, making it possible to train 300 officers in the course of the programme. This also means that about 50 officers from zones/woredas outside the three focal regions can be trained.

Since the training proposed does not need to be with the depth of what is offered to the ATVET staff, we propose a one-week session. We further propose that the first two sessions under the pilot are offered by Hawassa University. Subsequently, other universities can be involved in training these officers.

Table 5: Piloting CD for ARM: proposed focal regions, zones and woreda

No.	REGION	ZONE	WOREDA
1	OROMIA	East Hararghe	Kersa
2			Kurfachele
3			Gursum
4			Haramaya
5		West Hararghe	Darelebu
6			Hawi-Gudina
7			Chiro
8			Tullo
9		Arsi	Dodota
10			Merti
11		Bale	Ginir
12			Dalo Mena
13		North Shewa	Abichu Gnea
14			Kimbibit
15		West Arsi	Shala
16			Siraro
17		East Shewa	Boosat
18			Fantalle
19		Borena	Taltelle
20			Yabello
21			Arero
22			Moyale
23		Guji	Liben
			(...)

(...) No.	REGION	ZONE	WOREDA
24	SNNP	Gamo Gofa	Kemba
25			Kucha
26			Mirab abaya
27			Zala
28		South Omo	Daesenech
29			Hamer
30		Kembata Tembaro	Kedida gamila
31			Tembaro
32		Sidama	Awasa zuria
33		Welayita	Damot Gale
34			Offa
35	SOMALI	Siti	Ayisha
36			Shenille
37		Fafan	K/beyah
38			Harshin
39		Shebele	Adadeley
40			Mustahil
41		Afder	Elkere
42			Haregelle
43	**TOTAL**	**18**	**42**

Source: Information from NDRMC.

4.3.3. Training of AgDAs

The AgDAs are the key resource persons in the transfer of ARM knowledge to farmers and their training is expected to achieve the following outcome:

a. To guide AgDAs in the preparation of training programmes and materials for training at the FTCs and quality control the delivery;

a. Based on the acquired knowledge of and skills in ARM, to ensure risks associated with the transfer of any technology or farming practice is properly assessed and that required ARM measures are incorporated in the extension package which is shared with farmers; and

a. To synthesise feedback from farmers who participate in CD events at the kebele level as a means of feeding into improvement of ARM tools by providers and in improving the overall quality and relevance of extension delivery through them.

The target is to train AgDAs in at least 5% of the FTCs in the three focal regions. This target will be reached by staggering the training over the five-year period as shown in Table 6 below. The aim is to focus training for AgDAs with specialisation in Plant/Crop Science, Animal Science and in Farmers' Cooperatives. These cover most of the agricultural value chains in which smallholder farmers are involved. The 582 FTCs targeted represents close to 6% of the total number of FTCs in the three focal regions.

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Table 6: FTCs and AgDAs to be trained during 5-year CD in ARM

Implementation year	FTCs covered/year	Cumulative FTCs covered	Total AgDAs trained
Year 1	42	42	126
Year 2	90	132	396
Year 3	120	252	756
Year 4	165	417	1,251
Year 5	165	582	1,746

The training will be undertaken by the six selected ATVETs (see Table 4). It is proposed that participants are hosted by the ATVETs and, for that reason, as well as to avoid over-stretching their human resources, it is proposed that it is organised during break sessions of the colleges.

It is further proposed that the training programme is spread over two weeks and includes classroom sessions as well as group discussions for presentations by the participants as well as field visits and presentations by industry representatives (on ARM tools). The trainers are expected to use the basic curriculum used by Hawassa University but ensure emphasis is placed on priority risks in the relevant zones/woreda where the colleges are located.

The selection of FTCs and the three AgDAs from the kebele for the CD programme is expected to be made by the Woreda Agriculture Officer. It is expected that there will be consultations between the woreda and zonal officials regarding this – a process which can be facilitated by their participation in training targeting such officials.

4.3.4. Training other trainers/resource persons

4.3.4.1. Model farmers as trainers:

The argument has already been made about the role of MFs in training farmers in ARM. It is expected that at least one selected MF from selected kebeles (with FTCs) will play a strategic role in supporting AgDAs in training farmers at the FTCs. It is proposed that they are trained by the selected ATVETs with the following learning outcomes:

a. Acquired and applied knowledge as well as skills to assess and prioritise agricultural risks, including those associated with new production technology and/or farming practices;

b. Acquired and applied knowledge of available ARM practices as well as capacity to assess suitability and net financial benefits from adopting ARM practices;

c. Gained/strengthened skills to communicate and share the acquired knowledge and skills in ARM with other farmers; and

d. Gained understanding of how to generate and articulate feedback on agricultural risks and ARM. Such feedback can, in general, help to improve available ARM tools and delivery of extension services as well as the design and implementation of various agricultural development interventions and programmes.

During the first year of implementation, the target is to train 42 MFs to assist AgDAs in training smallholder farmers in 42 FTCs in the selected woredas. From Year 2 onwards, the target is to increase the number of MFs trained as training assistants to 90; rising to 120 per year in Years 3 and 4; and subsequently to 180 in Year 5. Hence, in aggregate terms, 552 MFs will be trained to assist AgDAs – 2 each in the 215 woredas in the three focal regions and just over 60 to assist in other woredas.

4.3.4.2. Staff of ARM providers:

ARM providers have a crucial role in the supply of tools which can be used to manage specific agricultural risks but also contribute to a more holistic management of risks. However, available anecdotal evidence suggests that most of the providers focus on the specific purpose for which their tools are provided. To ensure awareness of the inter-relationship between agricultural risks and the need for a holistic approach in ARM, it is proposed that sensitisation workshops highlighting these issues are organised on a regular basis. Two such events with participants numbering about 50-60 each is proposed to be organised per year.

4.4. CD programme for smallholder farmers

The FTCs will be the main centres for training farmers in ARM. These are located in the kebeles and are usually used for training of farmers, especially in yield-enhancing production technology and practices by the DAs. It is proposed that ARM training during the pilot phase is conducted in 42 FTCs, one in each of the targeted woredas. It is further proposed that 40 farmers are trained per session at each FTC: twenty (20) from the kebele in which the FTC is located and the remaining twenty (20) from other neighbouring kebeles. It is further proposed that 50% of the farmers selected from the kebeles for training at the FTCs should be model farmers. These suggestions are aimed at ensuring that the knowledge and skills shared cascades beyond the main community in which the FTC is located and are also transmitted to other smallholder farmers in both types of communities. If this approach is adopted, it is possible that about five kebeles will benefit from each training session, thereby laying foundations for the cascading effect.

Though the main resource persons for training farmers at the FTCs will be the DAs, it is expected that the model farmers (MFs) as well as agriculture officers from the woreda and zonal levels will be able to contribute. Equipping the MFs to assist in training other farmers is discussed below. To ensure cost-effectiveness, it is proposed that CD programmes fits into regular training schedules for extension training at the FTC as shown in Table 7, meaning there will be three training sessions per year, which are aligned to the main topical issues for current extension training sessions (Table 7).

Table 7: Fitting ARM into general agriculture extension training at FTCs in Ethiopia

Period	May/June	August/September	October-December
Focal issue	Inputs use, including e.g. new crop varieties	Disease/pest management	Harvesting
ARM issues to emphasise	Pre-harvest risks e.g. weather risks, inputs quality variability, access to finance and related risks. Planning output marketing and assessing available ARMs.	Cost/benefit analysis of available ARMs to manage crop and livestock diseases and pests.	Minimising harvesting and postharvest losses – assessing the options; reviewing/implementing marketing strategies.

Embedding the ARM training in the general extension training has benefits in terms of cost-effectiveness and will also require less time investment by the farmers. Video documentaries, illustrative posters and flyers will be among the main means for knowledge transfer to the farmers. The main learning outcomes for participating farmers include the following:

a. Acquired and applied knowledge and skills to assess and prioritise agricultural risks, including those associated with new production technology and/or farming practices;

b. Acquired and applied knowledge of available ARMs as well as capacity to assess suitability and net financial benefits from adopting ARMs;

c. Empowered to share experience from utilising ARM with other farmers as well as offer relevant feedback on agricultural risks as well as available ARM tools.

The CD programme is targeting training over 100,000 smallholder farmers staggered as follows:

- Year 1: 42 FTCs training 40 farmers each in single sessions: totalling 1,680 farmers
- Year 2: 132 FTCs training 40 farmers each in single sessions: totalling 5,280 farmers
- Year 3: 252 FTCs training 40 farmers each in two sessions: totalling 20,160 farmers
- Year 4: 417 FTCs training 40 farmers each in two sessions: totalling 33,360 farmers
- Year 5: 582 FTCs training 40 farmers each in two sessions: totalling 46,560 farmers
- Total number of smallholder farmers trained by a total of 582 FTCs = 107,040.

4.5. Pathways to cascade CD programme for farmers

To achieve the goal of cascading CD in ARM for smallholder farmers beyond the target set for the 5-year programme, we anticipate the following pathways:

a. **Substantial increase in the pool of trained new recruits**: under the CD programme, it is estimated that close to 1,750 existing AgDAs will be directly trained in ARM. However, with the incorporation of ARM in the curriculum of ATVETs, it is expected that from Year 4 onwards the over 2,000 new graduates from the colleges will be equipped with knowledge and skills to build capacity of farmers in ARM. When these are recruited into the government extension system or by NGOs/donor projects engaged in the sector, they will constitute an available of resource persons for training farmers.

b. **Role of model farmers in informal dissemination:** in addition to MFs, who are trained to assist AgDAs, it is expected that over 50,000 MFs who participate in training at the FTCs (i.e. 50% of the farmers trained) will be able to share their experience with other farmers in the communities. To assist them in this, it is proposed that they are provided with extra copies of training aids (e.g. brochures and flyers)[11] which will enable them to communicate with at least 5 other farmers. It was affirmed at the Technical Workshop that each model farmer is expected to lead a club of 5 farmers at the kebele and share relevant extension information with them. It is a format which can be used in the CD programme. However, as this form of dissemination will be informal, we do not anticipate any direct costs for the CD programme.

c. **Role of officers in BOAs**: building the capacity of these officers at the zonal and woreda levels through direct training, and from their experience in running programmes at various FTCs, will make it possible for them to scale out training beyond target FTCs but they will need to be resourced.

11 See link for example of illustrated poster for training farmers: https://drive.google.com/file/d/1CqKHwpGqEVEtzau0fx0m51INVQoT8YJd/view

5. Implementation of ARM capacity development

5.1. Introduction

A phased approach is proposed in implementation of the CD programme, which is seen as part of the process of mainstreaming ARM in government sector policies as well as in private sector investment and decision-making in Ethiopia. The proposed implementation phases, which will run for five years, as well as funding and management of the programme are discussed in this chapter.

5.2. Phasing of implementation

The main phases proposed are pre-implementation phase; pilot phase; and consolidation/scaling up phase. These are discussed below.

5.2.1. Pre-implementation phase: September-December 2018

This phase run from September to December 2018 and involved the following activities:

a. Validation of report and recommendations on the feasibility of the CD programme during a workshop held in Addis during October 2018.

b. Confirmation of funding commitments for the CD programme by government agencies and donors – this will form part of discussions during the proposed workshop and is expected to continue afterwards.

c. Setting up coordination structure for implementation of the CD programme.

5.2.2. Pilot phase: January 2019 – December 2020

This phase will involve the following activities:

a. January-April 2019: Training of trainers, including staff of ATVETs, selected officials at the zonal and woreda levels, and DAs.

   - Also, preparation and translation of training materials and teaching aids (including videos, flyers and posters).
   - Selection of FTCs for farmer-training.

b. April-May 2019: Training of MFs.

c. Training of farmers at selected FTCs in May/June, August-September and October-December.

d. CD programme evaluation and refinement of plan for scaling up. The evaluation will be based on the logframe for the programme (Annex 5).

5.2.3. Consolidation and scaling up phase: January 2021 – December 2023

This phase will involve the following activities:

a. Implementation of consolidation/scaling up plan.

b. CD programme evaluation.

5.3. Funding the CD in ARM programme

The total budget for implementation of the proposed CD programme over a 5-year period, details of which are in Annex 3, is estimated at Birr 113.474 million (approximately US$4.089 million). The breakdown of this budget on an annual basis is as detailed in Table 8 – the exchange rate applied was US$ 1.00 = Birr 27.75 (September 2018).

Table 8: Breakdown of annual cost of CD programme in Ethiopia

Year/cost	Annual cost (Birr)	Annual cost (US $)
Year 1	11,637,000	419,351
Year 2	11,978,450	431,656
Year 3	19,787,195	713,052
Year 4	31,612,435	1,139,187
Year 5	38,459,018	1,385,911
Total	**113,474,097**	**4,089,157**

A future implementation of such CD programme could potentially include a budgetary contribution of GOE that currently allocates funds for regular extension trainings to the woredas and zonal level, the latter through the National Disaster Risk Management Commission (NDRMC). In particular, it was discussed with relevant stakeholders that such contribution could correspond to about 8.5% of the total budget and could be shared by the following GOE sources:

a. Budget for FTC per extension training session, which is Birr 20,000 or (US$720) per woreda. This is justified on the assumption that the ARM training will fit into regular extension training as proposed in this report. The projected contribution for the target FTCs during the 5-year period is estimated at Birr 4.4 million (US$159,000).

b. Training zonal and woreda officers is aligned to the programme by the NDRMC, which can therefore contribute to the budget for this line which is estimated at Birr 5.2 million (US$186,500).

The funding gap for which contributions are required is estimated at Birr 103.9 million (approximately US$3.74 million). This is required over a 5-year period. The funding requirement rises from a relatively low base, rising up to year 5.

Donors who are ideally targeted for supporting the CD programme include those who are already supporting the activities of the NDRMC as well as the PARM process. These include WFP, the World Bank (through its GFDRR programme), Spanish Aid, the European Union and USAID (through the Feed the Future Programme). It is also anticipated that providers of ARM tools will contribute in the production of teaching aids such as video documentaries, posters and flyers as it is in line with the promotional activities.

5.4. Management of the CD programme

The CD programme is being led by the PARM Secretariat but it is expected that with the adoption of the proposals contained in this report, management will become localised. For this reason, we propose that a Coordinator is appointed, who will be stationed at the Extension Department of the MoA and be responsible for implementation of the CD programme.

Considering that the CD programme is multi-sectoral, it is proposed that a senior/experience person is appointed to the position. It is further suggested that the Coordinator reports regularly to a Coordinating Committee with representation from the MoA, Ministry of Education, the NDRMC, the ATA and representatives of selected providers of ARM tools (e.g. insurance companies, ECX, the FCA). Reports produced from the Coordinator should be submitted to the State Minister for Agriculture and the PARM Secretariat.

For at least the first two years of implementation of the CD programme, it is proposed that the position of the Coordinator and the administrative cost of running activities, which is estimated at Birr 832,500 (US$30,000) per annum should be covered by the PARM Secretariat. After this the position should be mainstreamed into the regular structure in the MoA.

5.4.1. Monitoring and evaluation of CD programme

The project logframe details activities and outcomes which are targeted for the CD programme. One of the first tasks of the Project Coordinator should be to benchmark these per quarter. The quarterly reports submitted to the Coordinating Committee and thereafter to the State Minister and the PARM Secretariat. This will make it possible to monitor progress in terms actions implemented and results achieved.

It is further proposed that there is an evaluation at the end of Year 2, to assess progress and provide a basis for scaling up actions. A final evaluation is also recommended at the end of Year 5 – the results of which will inform decisions and plans by GOE to scale up the CD programme at national level – covering all regions and woredas in the country.

5.4.2. Incorporating ongoing participant evaluation and feedback

Participant evaluation is often part of a regular training programme. However, under the CD programme, it is not only intended to assess the transfer of requisite knowledge and skills to the target stakeholders. That certainly is one objective as it will help improve the quality of delivery at different levels.

Even more crucially, it is anticipated that feedback from participants will provide rich data and information which can be analysed to generate evidence to guide improvements in and supply of more fit-for-purpose ARM tools to smallholder farmers and other actors in agricultural value chains. Indeed, it is an engagement process that mainstream agricultural extension services in the country can benefit from.

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List of stakeholders consulted

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NOTES


PARM
PLATFORM FOR
AGRICULTURAL RISK
MANAGEMENT

Tools Assessment

Ethiopia

Annexes

A.1. Terms of reference for Feasibility Study to Develop Sustainable Investment Plan for ARM Capacity Development for Smallholder Farmers in Ethiopia

Background

The Platform for Agricultural Risk Management (PARM), a G8-G20 initiative hosted by the International Fund for Agricultural Development (IFAD), is a multi-donor partnership co-financed by the European Commission (EC), Agence française de Développement (AfD), Italian Government and IFAD, to support Governments and stakeholders on Agricultural Risk Management (ARM). The Platform works in strategic partnership with NEPAD / CAADP in African countries to mainstream agricultural risk management into the national agricultural policy and investment plans (www.p4arm.org). Current work supports ARM assessment and policy process in Cabo Verde, Cameroon, Ethiopia, Liberia, Niger, Senegal, Uganda and Zambia.

The PARM process follows five phases in each country: setting up of activities, risk assessment, policy dialogue, follow-up and implementation. The core of the process begins with the risk assessment to define the problem before the potential solutions that will subsequently emerge in terms of risk management tools. As a result of the risk assessment study and discussion with stakeholders, main ARM priorities are identified, including capacity building support to improve local stakeholders' awareness and knowledge on ARM, as well as capacity to manage and conduct appropriate institutional reforms and mainstream ARM in countries.

Despite accelerated economic growth in the past decade, smallholder agriculture in Ethiopia is exposed to different sources of agricultural risk factors including variability in rainfall and extreme climate events such as droughts and floods, livestock and crop disease outbreak, pests, output price volatilities and uncertainties in input supply. Due to agricultural risk as key constraint in the achievement of agricultural sector objectives – both in terms of limiting smallholder farmers' ability to increase crop production and productivity and encouraging inefficient use of natural resources, the Government of Ethiopia recognized the need for initiatives that help Ethiopia's smallholder farmers to manage agricultural risks. ARM is therefore considered to be an integral element of the agricultural transformation processes. A recent assessment carried out by the Ministry of Agriculture and Natural Resources (MOARN) has identified *weak human resources capacity in managing agricultural risks in the agricultural extension system at different level, as well as limited awareness of farmers* (MoA, 2018).

In 2017, MoA, the Agricultural Transformation Agency (ATA) and PARM signed a Memorandum of Understanding (MoU) to formalize their collaboration. All are engaged in a common effort to promote the mainstreaming of ARM into Ethiopian agricultural sector programs and to support initiatives to help smallholder farmers better manage agricultural risks. The present feasibility study on capacity development on ARM for extension service is part of this agreement and timely responds to the new National Strategy for Ethiopia's Extension Services that includes agricultural risk management as an important component. It contains the following elements:

- makes ARM an integral component of the national agricultural policy to transit from a culture of coping with disasters towards a smart management of agricultural risks;
- responds to the demand from institutions and smallholders for qualified ARM support in order to ensure the sustainability and efficiency of further investments in the agricultural sector;
- enhances the national stakeholders' awareness and capacities to manage agricultural risks progressively improving the ownership of the initiatives related to agricultural risk management;
- improves the generation, access and sharing of knowledge and learning on holistic agricultural risk management; and Creating an inter- and intra-coordination between MoA and other institutions to mainstream and strength agricultural risk management in the country.

These elements should translate into concrete actions to identify, develop and implement selected strategic capacity building activities to promote ARM in Ethiopia within MoA, and in particular within the public extension service, to incorporate agriculture risk management into advisory services to smallholder farmers.

To reach this goal, PARM has launched a call of proposals opened to a selected group of academic institutions in Ethiopia to organize, develop and deliver the pilot ARM training course. This type of course is meant to enhance the training capacity of the extension service, and create a curriculum on ARM in Ethiopia, offered on a regular basis. The ARM training is designed to be a Training of Trainers (ToT) to allow trainees to, in turn, become trainers at farm level. The academic institution chosen from the call is expected to create a partnership with Farmer Training Centres (FTCs), ATVET centres (Agricultural Technical and Vocational Education and Training), or other training institutions involved with national extension service and Government of Ethiopia for a sustainable and durable training and knowledge strategy. The pilot ARM training is also envisioned to eventually be integrated in standard undergraduate and graduate courses offered by Ethiopian university(ies). This action is part of a broader objective to integrate capacity development activities on ARM into the national agricultural policy and investment plan, and includes agricultural risk management into the new National Strategy for Ethiopia's Extension Services.

Objective of the study: A sustainable investment plan for ARM training in Ethiopia

As previously mentioned, the objective of this study is to develop a sustainable investment plan to incorporate and mainstream ARM capacity development activities and trainings into the national agricultural policy and investment plan targeting the Ethiopian extension service, and also includes agricultural risk management into the new National Strategy for Ethiopia's Extension Services.

The study should be focused on four main areas of investigation:

- Development of a plan and methodology on how to include the curriculum of the pilot ARM training course into the training programme of Farmer Training Centres (FTCs), ATVET centres (Agricultural Technical and Vocational Education and Training), etc. and/or other vocational schools to reach both current and prospective national extension workers. The content of the curriculum could be subject to variation based on the emerging needs of MoA and vocational schools;
- Creating a cascade effect from such training activities towards reaching smallholders on the national territory through trained extension service on ARM. The cascade effect has to be formalized in a way to include a strategy, plan of activities, budget, resources to train a certain number of extension service (to be discussed with MOARN)[1] and consequently a certain number of farmers;
- Strengthening capacity of national extension service, agricultural service providers, MoA and Ministry of Livestock and Fisheries (MOLF) at large to train farmers' and farmers' organization and to analyse, mitigate and deal with agricultural risks in order to better assist rural farmers;
- Help in the identification of needs to support extension services within extension service directorate.

A positive spillover effect of the study is also the identification of institutions to develop a platform for managing different ARM tools.

1 It is advisable that each trained extension worker train at least 10 or more farmers and/or 2 or 3 other extension workers.

Scope of the study

PART A: Analysis

To reach the study objective, the consultant(s) will first carry out an investigation that includes the following:

a. an analysis of the legal and institutional frameworks of the Farmer Training Centres (FTCs), ATVET centres (Agricultural Technical and Vocational Education and Training) and directorate, and other vocational schools in order to identify the modality through which they could permanently host an ARM training course for current and prospective national extension workers;

b. the creation of linkages between the aforementioned institutions and the academic institution that will deliver the pilot ARM training course under the PARM contract to transfer ARM knowledge and practices;

c. the adjustment of the ARM curriculum delivered during the pilot training, including different topics, length of the course and target groups within the extension service (i.e. federal, regional or woreda level) based on emerging needs of vocational institutions, MoA or other institutions;

d. the carrying out of an action plan of a defined number of trainings for a defined number of extension workers and related timeline (all to be discussed with the authority/MoA);

e. The development of a cost-benefit and sustainability analysis of such an ARM training activity within the training activities of the (current and prospective) national extension service department of MoA; and

f. an analysis of the potential for further promoting this training within MoA, MOLF and Agricultural Transformation Agency (ATA).

This analytical part is required to provide a sound basis for the feasibility assessment in Part B of this study.

In detail, the main elements are:

a. An analysis of the legal and institutional framework

The consultant(s) will examine the characteristics of the Farmer Training Centres (FTCs), ATVET centres (Agricultural Technical and Vocational Education and Training) and directorate, and other vocational schools to understand which are the most suitable institution(s) to permanently host an ARM training course for current and prospective national extension workers.

The consultant(s) will, among other tasks analyse:

- key characteristics of suitable institutions, including the linkages with other training activities established by MoA, MOLF, and/or ATA and linked to ARM;
- relationships and bottlenecks between extension service directorate and training institutions to mainstream ARM trainings and practices;
- the bureaucratic and legal steps to include the ARM curriculum (draft elaborated by PARM and the local university) in the programme of such training and vocational institutions;
- how to mainstream ARM training into MoA policy and investment plan for extension service;
- geographical scope/coverage of such ARM training in order for the trainees to reach smallholders over the national territory;
- the cascade effects of the ARM training that will flow from extension service to smallholders, including a strategy, plan of activities, budget, resources, etc., to train a predetermined number of extension service (to be discussed with the authority/MoA) and, consequently, a certain number of farmers.

This part of the analysis could benefit from past experiences of including a new curriculum into training programmes of vocational institutions led by MOARN or ATA and other government supported measures to reinforce technical skills of the national extension service. The experience with farmer field schools (FFS) by FAO, including the current outreach of such programmes and the resources required to increase outreach, could also help this part of the analysis.

b. Creating links between the aforementioned institutions and the academic institution

The consultant(s) will elaborate the plan to transfer ARM knowledge and practices from the academic institution in charge of the pilot ARM training course to the suitable institution(s) considering:

- specific elements of the training and their transferability;
- identification of reference persons (or champions) for each counterpart to ensure institutional dialogue.

The consultant(s) will also facilitate the possible adjustments of the ARM curriculum elaborated by the academic institutions and timeline delivery based on emerging needs of vocational institutions and MoA.

c. Adjusting the ARM curriculum delivered during the pilot training

The consultant(s) will ensure the transfer of the ARM curriculum from the local university in charge to deliver the pilot ARM activity to the vocational institutions that will institutionalize the ARM training. The curriculum could be modified for example due to, but not limited to, the following occurrences:

- Need for alignment to PARM methodology;
- Different target groups within the extension service (to be discussed with the authority/MoA);
- Emerging needs of vocational institutions, MoA, MOLF and/or ATA.

d. Carrying out an action plan for training and related cascade effects

The consultant(s), in close collaboration with the authority/MoA and considering the training schedule of the suitable vocational institutions in charge of institutionalizing the ARM training, will design an action plan to create a cascade effect (i.e. from extension workers to farmers) that include:

- number of trainings foreseen per year/per semester;
- number of extension workers trained per courses, per year/per semester, etc.;
- number of farmers or other extension workers to be reached by first-trained extension workers;
- timeframe of the initiative.

e. Cost-benefit and sustainability analysis of the ARM training activity

The consultant(s) will focus on the following topics:

- investigation of costs, benefits and financial sustainability, including the use of public and private funds – even proposing suitable initiatives - for the mainstreaming of ARM training activities in the training programme of current and perspective extension service;
- investigation of costs, benefits and financial sustainability for the trainees to reach smallholders over the national territory;
- The ongoing and planned initiatives by IFAD and others using the FFS approach.
- Private sector-led initiative to support farmers' education and related models.

f. Further promotion of the ARM training within MoA and ATA

The consultant(s) are expected to discuss with relevant stakeholders, above all with MoA and ATA, to review the related documents and to add any other inputs to include the ARM training within different MOARN and ATA activities.

PART B: Feasibility Study

Based on their analysis the consultant(s) will develop an investment strategy that will focus on the following elements:

- **The inclusion of ARM training course into the programme of vocational schools(s) for current and prospective extension workers**. Based on the cost-benefit and financial sustainability analysis of the various models currently operating in Ethiopia (farmer field schools, etc.) the consultant(s) will develop a strategy on how to include an ARM training course into the training programme for current and prospective extension service under the supervision of MoA and to reach the national coverage of the extension service at different level;
- **Improved capacity to transfer ARM knowledge to smallholders**. Based on the analysis of the current institutional capacity of MoA and other relevant stakeholders, the consultant(s) will develop a capacity development plan with a focus on the skills required to implement the ARM training at smallholder level;
- **Developed inter- and intra-coordination between MoA and other institutions** on how to share skills and knowledge related to different ARM tools.

Output of the overall study

Overall, the expected output is a strategy on how to include of ARM training course into the training programme of vocational institutions for current and prospective extension service. The strategy will be composed by;

- A **narrative** that describes how to include the ARM training into the programme of vocational institutions for current and prospective extension service (linking Part B to point a, b of Part A);
- An **action plan** of how to reach the national coverage of the extension service at different level and related cascade effect that reach farmers, including procedures, partners, resources, etc. (linking Part B to point b, c, d of Part A);
- A **log frame** of the initiative (linking Part B to point c, d of Part A);
- A **comprehensive investment pla**n (minimum 5 years) of such initiative with a detailed budget (linking Part B to point d, e of Part A);
- **Monitoring and evaluation proposal** for such initiative (linking Part B to point d of Part A);
- **Recommendation and way forward** (linking Part B to point a, b c, d, e of Part A).

Methodology

The consultant(s) will review existing experiences on including training activities in vocational schools for the extension service in Ethiopia and in the African context, and conduct interviews with stakeholders involved in such tasks. A national consultant will be hired to help with field work[2]. Close cooperation with the ARM focal point of MoA, and PARM country officer is required. The consultant(s) will propose a list of interview partners from institutions of the public and private sector, research, development partners and present it to PARM as part of their proposal.

2 The costs to hire a national consultant are covered by the contract associated to this ToRs.

The consultant(s) will also analyse relevant legal and regulatory texts and documents in connection with the topic of the study. They will review projects and experiences related to similar projects, in particular on-going projects from International Organizations (IFAD, FAO, WFP, WB) or NGOs such as Oxfam America and Bioeconomy Africa in Ethiopia. Consultants will travel to Ethiopia for the purpose of the study if they are not based locally. The research will include field visits to training centres, projects and/or initiatives to incorporate farmers and local stakeholders in the analysis.

The consultants will use cost-benefit methodologies to analyse the different options and develop the investment strategy. The proposed strategy will be documented with the appropriate accounting and estimation of the flow of costs and benefits.

After finalization of the first draft the consultant(s) will organize a feedback workshop/calls with relevant Ethiopian stakeholders were results are presented and feedback from relevant stakeholders will be collected. The feedback will be incorporated in the final report.

The overall responsibility for the study lies with PARM Technical Specialist, Massimo Giovanola (m.giovanola@ifad.org), and PARM Capacity Development Specialist, Ilaria Tedesco (i.tedesco@ifad.org). During the study phase the consultants' work will be monitored by Ilaria Tedesco. The consultant(s) will discuss with PARM for a kick-off meeting (in person or via Skype/phone call) and twice thereafter: (i) at the time of submission of the interim report and (ii) later at the time of submission of the final report.

The consultant(s) will be responsible to come up with creative ways to analyse the issue.

Timeframe

The consultant(s) will carry out this assignment starting from April 9, 2018. The contract period is until July 30, 2018.

The total working days for the international consultant are 40 days, based on the following indicative timetable:

Reading and analysis of documentation, reports etc. in preparation of the field mission and related plan	5 days
Data collection / information, meetings with stakeholders.	15 days
Preparation of the technical report and investment plan (formats to be validated by PARM)	12 days
Technical meeting with stakeholders (MoA, ATA, PARM) for finalization-validation of the report	3 days
Integration of inputs and finalization of the study report	5 days

The activities to be carried out are the following:

- Identification and collection of reports, policies, studies, etc. related to training activities in vocation schools for national extension service;
- Identification of interview partners for country mission of international expert and arranging the meeting schedule;
- Contributing to the analytical part of the study;
- Contributing to developing the investment plan and drafting of report;
- Contributing to the final draft of the report.

Deliverables

The consultant(s) will carry out this assignment under the following deliverables:

No.	Deliverable	Date of delivery	Payment
1	Signature and elaboration of the work plan	13th April 2018	30%
2	Hiring of the national consultant and first mission to Ethiopia to held meetings with stakeholders and resource persons	By 14th May 2018	
3	First draft of the feasibility study	23th May	
4	Second mission to attend the capacity development activity organized by the local university in collaboration with PARM and MoA	28th May- 1st June 2018 (to be confirmed)	
5	Second draft of the feasibility study	30th June 2018	40%
6	Presentation of the results to MoA and other relevant authorities and stakeholders	July (to be confirmed)	
7	Final report that includes all the comments received.	30th July	30%

Qualifications

The assignment will be carried out by an international expert with skills in training implementation and knowledge of Ethiopian institutional context.

The following requirements are desirable:

- at least 15 years of experience
- expertise in conducting cost-benefit, sustainability, and feasibility assessments
- expertise in designing training that involves public institutions. The experience involving also private actors will be a bonus.
- expertise in ARM in developing countries
- expertise in assessing knowledge gaps and capacity building needs of extension service.

List of indicative references (to be provided by PARM)

- MoA (2018). Capacity Building Need Assessment for Agricultural Risk Management in Agricultural Extension Service in Ethiopia, Draft Report.
- MoA (2014). National Strategy for Ethiopia's Agricultural Extension System
- PARM (2017). Risk Assessment Study Ethiopia
- PARM (2018). Managing risk at farm level. Manual. Platform for Agricultural Risk Management, Rome
- PARM (2018). Managing risk at farm level. Handbook. Platform for Agricultural Risk Management, Rome
- PARM (2018). Managing risk at farm level. Guidelines. Platform for Agricultural Risk Management, Rome
- PARM (2018). Agricultural Risk Assessment and Management for Food Security in Development Countries. Platform for Agricultural Risk Management, Rome

A.2. Agricultural Risk Management Training Course in Ethiopia

Hawassa University, Awassa College of Agriculture School of Environment, Gender and Development Studies (SEGDS)

Hawassa, Ethiopia | Tuesday, 29 May 2018 to Saturday, 2 June 2018

Agenda

TUESDAY 29 MAY 2018		
Time	**Description**	**Trainer/facilitator**
08h00-08h30	Registration	• Dr. Kinfe A. • Mrs. Zinashwork S. • Mr. Workalemahu T. • Mr. Yitna T.
08h30-08h40	Welcoming Speech	• Dr. Tarekegn S, HU college of agriculture Dean
08h40-08h50	Opening Speech	• Dr. Tesfaye A, HU vice-president for research and technology transfer
08h50-09h00	Introducing the collaboration between PARM (IFAD) and MoA	• Mr. Isaias, MoA, Representative
09h00-09h10	Introducing the pilot ARM Training Course	• Dr. Ilaria Tedesco, Capacity Development specialist, PARM, IFAD
09h10-09h20	Ice breaking Exercises (Participants know each other, express expectations)	• Mr. Werkalemahu T. • Dr. Messeret L.
09h20-09h30	Inaugural session	• Dr. Kinfe
MODULE 1: Agriculture risk management		
09h30-10h30	**Module1, Session 1**: Understanding risk	• Dr. Messeret L.
10h30-11h00	Coffee Break	
11h00-12h30	**Module1, Session 2**: Agricultural sector development and its risks	• Dr. Messeret L.
12h30-13h30	Lunch	
13h30-14h30	Potential and challenges of fish production in Ethiopia	• Dr. Elias, invited guest researcher

WEDNESDAY 30 MAY 2018		
Time	**Description**	**Trainer/facilitator**
MODULE 2: Assessing and prioritizing risk		
08h30-10h30	**Module 2, Session 1**: Assessment of Agricultural Risks	• Dr. Deribe K.
10h30-11h00	Coffee break	
11h00-12h30	**Module 2, Session 2**: PARM methodology on risk assessment and prioritization	• Dr. Ilaria Tedesco, Capacity development specialist, PARM
12h30-13h30	Lunch	
13h30-14h30	Ethiopian Risk Assessment Study (RAS)	• Dr. Gideon Onumah, PARM Consultant
14h30-15h30	Agricultural Risk Assessment continued	• Dr. Deribe K.
15h30-16h00	Health break	
16h00- 17h30	Group discussions and exercise	• Dr. Deribe K.

THURSDAY 31 MAY 2018		
Time	**Description**	**Trainer/Facilitator**
MODULE 3: ARM Tools		
08h30-10h30	**Module 3, Session 1**: ARM tools at farm & community levels: • Climate Smart Agriculture • Agricultural Diversification, • Asset and Income Based Strategies, • Agricultural Insurance, Weather Index Based, • Agricultural Finance, • Contract Farming, • ECXs and Markets	• Dr. Kinfe A.
10h30-11h00	Coffee Break	
11h00-12h30	**Module 3, Session 1**, Continued	• Dr. Kinfe A.
12h30-13h30	Lunch	
13h30-15h30	Agricultural Risk Management experience sharing • Index Based Crop and livestock Insurance	• Guest speakers from Medhin Ethiopian insurance Corporation
15h30-16h00	Health Break	
16h00-17h00	Agricultural Risk Management experience sharing • Ethiopian Commodity Exchange and Future Markets	• Guest speakers from Ethiopian Commodity Exchange (ECX)

FRIDAY 1 JUNE 2018		
Time	**Description**	**Trainer/Facilitator**
MODULE 4: Additional considerations and M&E		
08h30-10h30	**Module 4, Session 1**: Disaster Risk Management	• Dr. Abraham M.
10h30-11h00	Coffee Break	
11h00-12h30	**Module 4, Session 1**: Monitoring and Evaluation of Risk management	• Dr. Abraham M.
12h30-13h30	Lunch	
13h30-15h30	Group Exercise on monitoring and evaluation tools	• Dr. Abraham M.
15h30-16h00	Health Break	
16h00-16h45	Gender and ARM	• Nikita Blanes, PARM

SATURDAY 2 JUNE 2018		
Time	**Description**	**Trainer/Facilitator**
MODULE 5: Roles and Responsibilities		
08h30-10h30	**Module 5, Session 1**: Role of actors in risk management	• Dr. Dessalegn C.
10h30-11h00	Coffee Break	
11h00-12h30	**Module 5, Session 1** Continued	• Dr. Dessalegn C.
12h30-13h30	Lunch	
13h30-14h30	Individual plans of action based on the lessons learned	• Mr. Teshome K. • Individual participants
MODULE 6: Training of Trainers (TOT)		
14h30-15h30	**Module 6**: Training of trainers (TOT) • Training needs assessment • The trainer and his/her role • Lesson planning and preparation • Training methods • Teaching and learning resources	• Dr. Deribe K.
15h30-16h00	Health Break	
16h00-17h00	Summary and Wrap Up	• Mr. Tewodros D., • Mr. Isaias, MoA, Representative Dr. Karima Cherif
17h00-17h30	Evaluation Questionnaire	• Dr. Kinfe
17h30-18h00	Certification	• Karima Cherif
18h00-18h10	Closing Remarks	• Prof. Alemayehu R., HU director for research programs

A.3. Budget for CD Programme in Ethiopia

COST OF TRAINING PER TARGET STAKEHOLDERS	COST PER YEAR 1	COST PER YEAR 2	COST PER YEAR 3	COST PER YEAR 4	COST PER YEAR 5	TOTAL COST PER CATEGORY (BIRR)
Smallholder farmers at FTC	814,800	1,978,800	7,449,600	18,158,400	25,026,000	53,427,600
Agricultural DAs	1,528,500	1,905,000	2,857,500	3,810,000	3,769,500	13,870,500
Model farmers	60,000	270,000	375,500	479,000	481,000	1,665,500
ATVET staff	908,600	908,600	908,600	908,600	908,600	4,543,000
Zonal/Woreda experts	4,330,000	4,330,000	4,330,000	4,330,000	4,330,000	21,650,000
Policymakers, ARM providers & others	400,000	400,000	400,000	400,000	400,000	2,000,000
Subtotal	8,041,900	9,792,400	16,321,200	28,086,000	34,915,100	97,156,600
Equipment costs	1,029,000	1,470,000	2,695,000	2,695,000	2,646,000	10,535,000
Other recurrent costs	2,000,000	100,000	100,000	100,000	100,000	2,400,000
Project Coordination cost	566,100	616,050	670,995	731,435	797,918	3,382,497
Total annual cost (Birr)	**11,637,000**	**11,978,450**	**19,787,195**	**31,612,435**	**38,459,018**	**113,474,097**
Total annual cost (US $)	**419,351**	**431,656**	**713,052**	**1,139,187**	**1,385,911**	**4,089,157**

BUDGET FOR TRAINING DEVELOPMENT AGENTS - FOR YEAR 1				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	12	150	1,800.00
Per diem	Days	13	150	1,950.00
Catering cost during training	Days	12	200	2,400.00
Transport	Return trip	1	600	600.00
SUB-TOTAL				6,750.00
Expenditure on DAs	1	21	21	141,750.00
Duplication of materials		1	8000	8,000.00
Training fees for resource persons		40	2000	80,000.00
Field visit		2	5000	10,000.00
Coordination cost for ATVET		1	15000	15,000.00
				113,000.00
Total cost per training session by AVTET (Birr)				254,750.00
Total cost per training session by AVTET (US$)			27.75	9,180.18
TOTAL COST PER YEAR (Birr)				1,528,500.00
TOTAL COST PER YEAR (US$)			27.75	55,081.08
Number of AgDAs trained per year				126

BUDGET FOR TRAINING DEVELOPMENT AGENTS - FOR YEAR 2				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	12	150	1800
Per diem	Days	13	150	1950
Catering cost during training	Days	12	200	2400
Transport	Return trip	1	600	600
SUB-TOTAL				6750
Expenditure on DAs	1	30	30	202,500.00
Duplication of materials		1	10000	10000
Training fees for resource persons		40	2000	80000
Field visit		2	5000	10000
Coordination cost for ATVET		1	15000	15000
				115,000.00
Total cost per training session by AVTET (Birr)				317,500.00
Total cost per training session by AVTET (US$)			27.75	11,441.44
TOTAL COST PER YEAR (Birr)				1,905,000.00
TOTAL COST PER YEAR (US$)			27.75	68,648.65
Number of new AgDAs trained per year				180

BUDGET FOR TRAINING DEVELOPMENT AGENTS - FOR YEAR 3				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	12	150	1800
Per diem	Days	13	150	1950
Catering cost during training	Days	12	200	2400
Transport	Return trip	1	600	600
SUB-TOTAL				6750
Expenditure on DAs	1	30	30	202,500.00
Duplication of materials		1	10000	10000
Training fees for resource persons		40	2000	80000
Field visit		2	5000	10000
Coordination cost for ATVET		1	15000	15000
				115,000.00
Total cost per training session by AVTET (Birr)				317,500.00
Total cost per training session by AVTET (US$)			27.75	11,441.44
TOTAL COST PER YEAR (Birr)				2,857,500.00
TOTAL COST PER YEAR (US$)			27.75	102,972.97
Number of new AgDAs trained per year				

BUDGET FOR TRAINING DEVELOPMENT AGENTS - FOR YEAR 4				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	12	150	1800
Per diem	Days	13	150	1950
Catering cost during training	Days	12	200	2400
Transport	Return trip	1	600	600
SUB-TOTAL				6750
Expenditure on DAs	1	30	30	202,500.00
Duplication of materials		1	10000	10000
Training fees for resource persons		40	2000	80000
Field visit		2	5000	10000
Coordination cost for ATVET		1	15000	15000
				115,000.00
Total cost per training session by AVTET (Birr)				317,500.00
Total cost per training session by AVTET (US$)			27.75	11,441.44
TOTAL COST PER YEAR (Birr)				3,810,000.00
TOTAL COST PER YEAR (US$)			27.75	137,297.30
Number of new AgDAs trained per year				360

BUDGET FOR TRAINING DEVELOPMENT AGENTS - FOR YEAR 5				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	12	150	1800
Per diem	Days	13	150	1950
Catering cost during training	Days	12	200	2400
Transport	Return trip	1	600	600
SUB-TOTAL				6750
Expenditure on DAs	1	30	30	202,500.00
Duplication of materials		1	10000	10000
Training fees for resource persons		40	2000	80000
Field visit		2	5000	10000
Coordination cost for ATVET		1	15000	15000
				115,000.00
Total cost per training session by AVTET (Birr)				317,500.00
Total cost per training session by AVTET (US$)			27.75	11,441.44
TOTAL COST PER YEAR (Birr)				3,769,500.00
TOTAL COST PER YEAR (US$)			27.75	135,837.84
Number of new AgDAs trained per year				354

BUDGET FOR TRAINING FARMERS AT FTCs - YEAR 1				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	0	500	0
Per diem	Days	3	50	150
Transport	Return trip	0	200	0
SUB-TOTAL				150
Expenditure on farmers trained at FTC	1	40	40	6,000.00
Duplication of materials		1	5000	5000
Coordination cost for DAs		12	200	2400
Field visits		3	1000	3000
Coordination cost for Woreda		3	1000	3000
Subtotal				13,400.00
Annual cost for training sessions at FTC (Birr)				19,400.00
Annual cost of training sessions at FTC (US $)			27.75	699.10
Number of sessions per FTC				1
Number of FTCs covered				42
Total cost of training farmers at FTCs (Birr)				814,800.00
Total cost of training farmers at FTCs (US $)				29,362.16
Number of farmers trained per year				1,680

BUDGET FOR TRAINING FARMERS AT FTCs - YEAR 2				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	0	500	0
Per diem	Days	3	50	150
Transport	Return trip	0	200	0
SUB-TOTAL				150
Expenditure on ATVET staff/Woreda experts	1	40	40	6,000.00
Duplication of materials		1	5000	5000
Training fees for resource persons		12	200	2400
Field visit		3	1000	3000
Coordination cost for Woreda		3	1000	3000
				13,400.00
Annual cost for training sessions at FTC (Birr)				19,400.00
Annual cost of training sessions at FTC (US $)			27.75	699.10
Number of sessions per FTC				1
Number of FTCs covered				102
Total cost of training farmers at FTCs (Birr)				1,978,800.00
Total cost of training farmers at FTCs (US $)				71,308.11
Number of farmers trained per year				4,080.0

BUDGET FOR TRAINING FARMERS AT FTCs - YEAR 3				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	0	500	0
Per diem	Days	3	50	150
Transport	Return trip	0	200	0
SUB-TOTAL				150
Expenditure on ATVET staff/Woreda experts	1	40	40	6,000.00
Duplication of materials		1	5000	5000
Training fees for resource persons		12	200	2400
Field visit		3	1000	3000
Coordination cost for Woreda		3	1000	3000
				13,400.00
Annual cost for training sessions at FTC (Birr)				19,400.00
Annual cost of training sessions at FTC (US $)			27.75	699.10
Number of sessions per FTC				2
Number of FTCs covered				192
Total cost of training farmers at FTCs (Birr)				7,449,600.00
Total cost of training farmers at FTCs (US $)				268,454.05
Number of farmers trained per year				15,360

BUDGET FOR TRAINING FARMERS AT FTCs - YEAR 4				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	0	500	0
Per diem	Days	3	50	150
Transport	Return trip	0	200	0
SUB-TOTAL				150
Expenditure on ATVET staff/Woreda experts	1	40	40	6,000.00
Duplication of materials		1	5000	5000
Training fees for resource persons		12	200	2400
Field visit		3	1000	3000
Coordination cost for Woreda		3	1000	3000
				13,400.00
Annual cost for training sessions at FTC (Birr)				19,400.00
Annual cost of training sessions at FTC (US $)			27.75	699.10
Number of sessions per FTC				3
Number of FTCs covered				312
Total cost of training farmers at FTCs (Birr)				18,158,400.00
Total cost of training farmers at FTCs (US $)				654,356.76
Number of farmers trained per year				37,440

BUDGET FOR TRAINING FARMERS AT FTCs - YEAR 5				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	0	500	0
Per diem	Days	3	50	150
Transport	Return trip	0	200	0
SUB-TOTAL				150
Expenditure on ATVET staff/Woreda experts	1	40	40	6,000.00
Duplication of materials		1	5000	5000
Training fees for resource persons		12	200	2400
Field visit		3	1000	3000
Coordination cost for Woreda		3	1000	3000
				13,400.00
Annual cost for training sessions at FTC (Birr)				19,400.00
Annual cost of training sessions at FTC (US $)			27.75	699.10
Number of sessions per FTC				3
Number of FTCs covered				430
Total cost of training farmers at FTCs (Birr)				25,026,000.00
Total cost of training farmers at FTCs (US $)				901,837.84
Number of farmers trained per year				51,600

BUDGET FOR TRAINING SELECTED MODEL FARMERS - FOR YEAR 1				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	5	150	750
Per diem	Days	6	150	900
Catering during training	Days	6	200	1200
Transport	Return trip	1	600	600
SUB-TOTAL				3450
Expenditure on Model Farmers	21	2	42	144,900.00
Duplication of materials		1	5000	5000
Training fees for resource persons		30	1500	45000
Coordination cost for ATVET		1	10000	10000
				60,000.00
Total annual cost of training MFs (Birr)				204,900.00
Total annual cost of training MFs (US$)			27.75	7,383.78
Number of MFs trained per year				42

BUDGET FOR TRAINING SELECTED MODEL FARMERS - FOR YEAR 2				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
ITEM	UNITS	No. OF UNITS	UNIT COST	COST/BUDGET LINE
Accommodation	Nights	5	150	750
Per diem	Days	6	150	900
Catering during training	Days	6	200	1200
Transport	Return trip	1	600	600
SUB-TOTAL				3450
Expenditure on Model Farmers	30	2	60	207,000.00
Duplication of materials		1	8000	8000
Training fees for resource persons		30	1500	45000
Coordination cost for ATVET		1	10000	10000
				63,000.00
Total annual cost of training MFs (Birr)				270,000.00
Total annual cost of training MFs (US$)			27.75	9,729.73
Number of MFs trained per year				60

BUDGET FOR TRAINING SELECTED MODEL FARMERS - FOR YEAR 3				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	5	150	750
Per diem	Days	6	150	900
Catering during training	Days	6	200	1200
Transport	Return trip	1	600	600
SUB-TOTAL				3450
Expenditure on Model Farmers	30	3	90	310,500.00
Duplication of materials		1	10000	10000
Training fees for resource persons		30	1500	45000
Coordination cost for ATVET		1	10000	10000
				65,000.00
Total annual cost of training MFs (Birr)				375,500.00
Total annual cost of training MFs (US$)			27.75	13,531.53
Number of MFs trained per year				90

BUDGET FOR TRAINING SELECTED MODEL FARMERS - FOR YEAR 4				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	5	150	750
Per diem	Days	6	150	900
Catering during training	Days	6	200	1200
Transport	Return trip	1	600	600
SUB-TOTAL				3450
Expenditure on Model Farmers	30	4	120	414,000.00
Duplication of materials		1	10000	10000
Training fees for resource persons		30	1500	45000
Coordination cost for ATVET		1	10000	10000
				65,000.00
Total annual cost of training MFs (Birr)				479,000.00
Total annual cost of training MFs (US$)			27.75	17,261.26
Number of MFs trained per year				120

BUDGET FOR TRAINING SELECTED MODEL FARMERS - FOR YEAR 5				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	5	150	750
Per diem	Days	6	150	900
Catering during training	Days	6	200	1200
Transport	Return trip	1	600	600
SUB-TOTAL				3450
Expenditure on Model Farmers	30	4	120	414,000.00
Duplication of materials		1	12000	12000
Training fees for resource persons		30	1500	45000
Coordination cost for ATVET		1	10000	10000
				67,000.00
Total annual cost of training MFs (Birr)				481,000.00
Total annual cost of training MFs (US$)			27.75	17,333.33
Number of MFs trained per year				120

ANNUAL BUDGETS FOR TRAINING ATVET STAFF				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	13	500	6500
Per diem	Days	14	300	4200
Catering costs during training		12	500	6000
Transport	Return trip	1	3000	3000
SUB-TOTAL				19700
Expenditure on ATVET staff	19	2	38	748,600.00
Duplication of materials		1	15000	15000
Training fees for resource persons		44	2500	110000
Field visit		2	5000	10000
Coordination cost for University		1	25000	25000
				160,000.00
Total annual cost of training ATVET staff (Birr)				908,600.00
Total annual cost of training ATVET staff (US $)			27.75	32,742.34
ATVET staff trained				38
Total cost of training ATVET staff for 5 years (Birr)				4,543,000.00
Total cost of training ATVET staff for 5 years (US $)				163,711.71
Total number of ATVET staff trained				190

ANNUAL BUDGET FOR TRAINING SELECTED ZONAL/WOREDA EXPERTS				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Accommodation	Nights	6	500	3000
Per diem	Days	7	300	2100
Catering costs during training		6	500	3000
Transport	Return trip	1	3000	3000
SUB-TOTAL				11100
Expenditure on Zonal/Woreda experts	1	30	30	333,000.00
Duplication of materials		1	15000	15000
Training fees for resource persons		20	2500	50000
Field visit		2	5000	10000
Coordination cost for ATVET		1	25000	25000
				100,000.00
Total cost per training session for zonal/woreda experts (Birr)				433,000.00
Total annual cost of zonal/woreda experts (Birr)				866,000.00
Total annual cost of zonal/woreda experts (US $)			27.75	31,207.21
ATVET staff trained				60
Total cost for 5 Years training for zonal/woreda experts (Birr)				4,330,000.00
Total cost for 5 Years training for zonal/woreda experts (US $)				156,036.04
Zonal/woreda experts trained over period				300

ANNUAL BUDGET FOR SENSITISATION OF POLICYMAKERS, PROVIDERS OF ARM TOOLS AND OTHERS				
ITEM	**UNITS**	**No. OF UNITS**	**UNIT COST**	**COST/BUDGET LINE**
Venue/lunch/refreshments	Participants	60	500	30000
Per diem residents	Participants	50	500	25000
Accommodation for non-residents (for 2 night)	Participants	10	2500	25000
Per diem for non-residents	Participants	10	3000	30000
Transport for non-residents	Participants	10	3000	30000
Honorarium for resource persons	Presenters	10	5000	50000
Sub-total				190000
Contingency	Lumpsum	1	10000	10000
Total cost per event (Birr)				200,000.00
Total cost per event (US $)				7,207.21
Total cost per events per year (Birr)		2		400,000.00
Total cost per event (US $)				14,414.41

ANNUAL BUDGET FOR PROJECT COORDINATION COSTS					
COORDINATION COST	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Remuneration for coordinator (annual)	499500	549450	604395	664,834.50	731,317.95
Admin support	66600	66600	66600	66600	66600
	566,100	616,050	670,995	731,435	797,918

A.4. Indicative Assessment of Relevance of Agricultural Risk Management Training in Ethiopia

Introduction

The assessment was undertaken during the pilot training in agricultural risk management (ARM) organised at the School of Environment, Gender and Development Studies of the Hawassa University. The programme run from 29th May to 2nd June 2018. The target respondents were the participants at the training event, who were required to complete a simple questionnaire related to some of the issues covered during the event. It was made clear, however, that the questionnaire was different from the evaluation of the training, which was undertaken by the team of organisers from the Hawassa University.

Background of respondents

In total, 24 participants completed the questionnaire. All the participants are highly qualified. They all have at least a Bachelors' degree in various areas of specialisation in agriculture; and 14 of them have Masters degrees, including in Business Studies (MBA). All of them occupy senior-level positions in various departments of the Ministry of Agriculture (MoA) as well as from the National Disaster Risk Management Commission (NDRMC). Most of those from the MoA are responsible for managing training programmes for extension personnel. There were also two participants from other universities; one from a donor organisation (IFAD) and another from a government-owned insurance company, who came in to make a presentation on weather-indexed insurance but stayed on for most of the presentations. The responses to the questionnaire are summarised and discussed below.

Awareness of agricultural risks

The participants showed an awareness of the identified agricultural risks in the country. The list in Table 1 and the order in which the risks are listed (based on the frequency with which they are cited by the respondents) coincided with the prioritised risks as reported in the Ethiopia Agricultural Risk Assessment Study (RAS)[1]. However, over 50% of the respondents cited such challenges as lack of capital, postharvest losses and land access problems as agricultural risks. This was an indication that they could not clearly distinguish between risks and challenges. Since the questionnaire was completed close to the end of the training, this type of response suggests that in future training sessions, it is important to stress the distinction between risks and challenges and its implications for strategies adopted at various levels to address them.

Table 1: Identification of agricultural risks

MAIN QUESTION	RESPONSES
What are the main agricultural risks in Ethiopia?	• Drought and flood (waterlogging) • Plant and livestock diseases and pests, including exotic diseases • Erratic rains • Price risks • Delays in supply of inputs; and rising inputs prices • Uncertainty about the quality and quantity of traded agricultural produce: Due partly to the dominance of informal trade in most agricultural produce with the result that formal quality standards are not enforced and standard weights are not applied. The consequence is that parties who are transacting run the risk of having produce of variable quality being delivered and can only ascertain the actual quality when they are physically present to do so. This tends to increase the cost of transacting between the parties. In contrast, when trade is more structured, as occurs for export commodities traded through the Ethiopia Commodity Exchange (ECX), there exists a system by which quality/quantity is assured. Transacting parties therefore have to focus mainly on agreeing a price acceptable to them.

1 PARM (2016) "Ethiopia Agricultural Risk Assessment Study", Report of study commissioned by PARM, December 2016.

Awareness of available agricultural risk management tools

Among the participants at the training event, there is broad awareness of many of the ARM tools which are available in the country. Most of them cited technology-oriented types of tools as the ones with which they are familiar. Examples of these include climate smart agriculture and farming practices such as soil/water conservation systems, diversification and uptake of new crop varieties which are resistant to natural risks such drought and diseases. All the respondents are aware of irrigation as a means to mitigate the risk of drought.

Table 2: Agricultural risk management (ARM) tools available in Ethiopia

MAIN QUESTION	RESPONSES
What are the main agricultural risk management (ARM) tools which are available in Ethiopia?	Technology-based ARM tools/practices: • Climate smart agriculture • Soil/water conservation systems • Inter-cropping • Diversification • Drought/disease-resistant varieties/livestock breeds • Irrigation.
	Market-based ARM tools/practices: • Risk sharing tools: agricultural insurance • Structured marketing systems e.g. warehouse receipt system (WRS) and commodity exchanges • Agricultural finance
	Other ARM tools/practices: • Early warning systems • Social protection programmes (e.g. cash transfers and relief food supplies)

Evidence from the responses provided show that though most of the respondents are aware of early warning systems as a means to plan actions to mitigate agricultural risks, most appeared to lack sufficient knowledge about the market-based ARM tools listed in Table 2. They therefore requested additional information on how these systems work; and how farmers and other players in agricultural value chains in the country can access and benefit from the tools. For instance, they indicated interest in such tools as agricultural insurance, WRS, commodity exchanges (and how they enable farmers to manage price risk), contract farming, forward contracting and collective marketing. They also expressed need for more information on how access to financial services, including savings and loans services, can be improved by reducing risks whilst at the same time enabling farmers to acquire ARMs and technologies which can increase farm output and productivity.

Relevance of ARM training to respondents

As shown by the responses in Table 3, the respondents generally saw the training in ARM as important in enabling them perform their tasks of planning sector interventions and in providing advice to smallholder farmers. They specifically indicated that it brought into sharper focus the need to take account of agricultural risks and appropriate ARM tools in the design of projects and in the transfer of knowledge on better agricultural practices and improved technology.

Table 3: Relevance of ARM training to respondents

MAIN QUESTION	RESPONSES
How relevant is the training in ARM to your job responsibilities and career development	The training will beneficial in the following areas: • Improve project design/implementation as it brings into focus the need for assessment of risks and risk management options which can be adopted to optimise success and benefits to target farmers; • Enhance interaction with smallholder farmers as the respondents are more aware of the objective basis for aversion to risks by the farmers, especially as it relates to adoption of new technologies; • Help to integrate holistic ARM approach into work (rather than focusing on individual tools); and • Improve their understanding of actions required to ensure better preparedness to mitigate various shocks.

Suggestions to improve delivery of ARM training

Asked for suggestions on how the delivery of training in ARM can be improved, the participants in the pilot ARM training in Hawassa University suggested the following:

a. Presentations during the pilot training at Hawassa were mainly made in English and many of the participants noted that it acted as a barrier, especially to free interactions between presenters and the audience. This is despite the fact that all the participants had at least a Bachelor's degree. With most AgDAs having only a Diploma, language can be an even more critical barrier. For this reason, they suggested that ARM training, especially for the AgDAs, model farmers and other smallholder farmers, should be delivered in Amharic and/or other local languages.

b. Furthermore, where possible, local examples of priority agricultural risks and ARM tools should be used during training sessions.

c. In addition, they also suggested that the training should include online training, especially for the staff of universities and the ATVETs, who will be involved in training at the lower levels.

d. There should also be experience-sharing through visits and workshops as part of the CD programme.

Questionnaire for participants in Pilot Training Course in Agricultural Risk Management in Ethiopia

Your background

Name: .....

Organisation: .....

.....

Position: .....

.....

Qualification: .....

.....

Email address: .....

Phone number: .....

Work Schedule/description

a. What is your work schedule mainly about or what are the main tasks you undertake?

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.....

b. Who are the stakeholders with whom you generally interact in the course of your work?

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.....

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c. Why is agricultural risk management (ARM) important in your work and to what extent are you required to apply risk and ARM concepts in your work:

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Knowledge of agricultural risks/ARM

a. What are the main risks faced by the stakeholders you interact with in your work?

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b. What ARM tools available in Ethiopia or in your region are most relevant to your work?:

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c. Which of the ARM tools do you need better understanding of in order to carry out your work more effectively (e.g. how it works, who are the service providers and what it takes to access):

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d. What challenges do you face/anticipate in communicating your experience/knowledge of in ARM to your target stakeholders:

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e. Where can you get the further training you need in ARM from?:

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f. How will better knowledge of agricultural risks and ARMs help in your career?:

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Mainstreaming capacity building in agricultural risks/ARM

a. What suggestions do you have on training in agricultural risks and ARM for Development Agents:

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b. Any other suggestions on mainstreaming training in agricultural risks and ARMs in Ethiopia:

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A.5. Logframe for CD Programme

Item	Indicator of achievement	Means of verification	Assumptions/ risks
Overall goal			
Smallholder farmers' productivity, household income and resilience boosted in Ethiopia through enhancing their capacity to manage agricultural risks in a holistic manner.	Within five years, over 10% of smallholder farmers in three focal regions empowered to effectively manage agricultural risks in a holistic manner; gaining 10-15% rise in productivity and at least 10% rise in annual farm household income.	• Agricultural statistics (from Federal, regional, zonal and woreda sources). • Federal household surveys • Reports from ARM providers • Programme baseline, monitoring and evaluation reports	• Government of Ethiopia endorses CD Feasibility Report and Action Plan • Co-financing by Govt and donors secured • ARM tools accessible to farmers.
Objectives/purpose of CD Programme			
Smallholder farmers empowered to identify, prioritise and holistically manage agricultural risks using best available agricultural risk management (ARM) tools.	At least 100,000 smallholder farmers have their capacity developed within 5 years and can effectively utilise best available ARM tools.	• Agricultural statistics (from Federal, regional, zonal and woreda sources). Reports from ARM providers	• Active participation by training institutions • Sustained commitment from MOALR and other government agencies • Active participation by trainees at all levels.
Expected results (within five years)			
Sustainable capacity development plan, reflecting national context and priorities, adopted and implemented.	• Stakeholders consulted; CD plan adopted and funding secured. • Management structure for CD plan implementation instituted. • Plan implemented/monitored.	• Project reports • Reports by: ATVETs, Bureau of Agriculture, Consolidated reports by Directorate of Agriculture Extension.	• Government of Ethiopia remains committed to implementation of CD Action Plan • Co-financing by Govt and donors sustained • ARM tools accessible to farmers and improved as necessary. • Active participation by trainees at all levels.
Smallholder farmers equipped with skills and knowledge to identify and prioritise agricultural risks as well as take-up best ARM tools available.	Over 580 FTCs equipped with trainers, materials and facilities to train over 100,000 smallholder farmers.	• Same as above.	
Materials/training aids made available for training farmers and other stakeholders.	Materials/training aids available to train trainers at different levels.	• Same as above.	
Pool of trained ARM trainers available to provide training at various levels.	Pool of trainers consist of: staff of 19 ATVETs, over 1,100 AgDAs, over 600 model farmers and 360 zonal/woreda experts	• Same as above.	
Effective feedback system instituted to improve ARM tools and delivery of agricultural extension information.	Views of over 2,000 trained trainers and over 100,000 smallholder farmers fed back to policymakers and ARM providers.	• Same as above.	

Activity headings	Detailed activities
1. Sustainable CD plan adopted/implemented	• Feasibility of CD programme assessed, including consulting key stakeholders and making relevant recommendations
	• Feasibility Report endorsed by government and funding committed by donors for 5-year period.
	• Programme Coordinator installed; and Coordination Committee (as recommended in Feasibility Report) instituted and tasked with implementation and reporting.
2. Materials/training aids made available	• Reviewing and customising generic CD material on risk assessment and prioritisation produced by PARM to reflect national context in Ethiopia.
	• Synthesising information on available ARM tools in Ethiopia
	• Translating above materials into Amharic
	• Producing training aids including flyers, posters, videos etc.
3. Training of trainers	• Training staff of ATVETs by University of Hawassa
	• Training of other trainers by ATVETs, including: AgDAs, Model Farmers and zonal/woreda agriculture experts
4. Developing capacity of smallholder farmers	• Delivery of FTC-based training programmes for smallholder farmers involving AgDAs and trained Model Farmers
	• Community-based Experience Sharing by Model Farmers
5. Institutionalising feedback/evaluation system	• Training evaluation forms developed for training at all levels
	• Sharing feedback on ARMs and agricultural risks from farmers and trainers with relevant policymakers and ARM providers.
	• Undertaking baseline surveys in communities with target FTCs
	• Carrying out programme evaluation at end of Year 2 – provide evidence basis for scaling up within three focal regions
	• Carrying out programme evaluation at end of Year 5 – provide evidence basis for scaling up at national level.

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