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Scaling Up and Scalability: Concepts, Frameworks and Assessment

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Project Team

Project Team Leader	David Rohrbach
Project Manager	Vimbai Chasi

Date: October 2016	Lead Author: Ponniah Anandajayasekeram	QA'd by: John Cantrill
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Acronyms

AIP Agricultural Innovation Platform

B-C Benefit-Cost Analysis

CGIAR Consultative Group in Agricultural Research

CIMMYT International Maize and Wheat Improvement Centre.

CSA Climate Smart Agriculture

CSO Civil Society Organisation

DACO District Agricultural Coordinator

DTMA Drought Tolerant Maize for Africa

FAO Food and Agricultural Organisation

FSIP Farm Input Support Programme

GCAFS-CGIAR Research Programme on Climate Change, Agriculture and Food Security

GLEE Global Learning Evidence Exchange

IAPRI Indaba Agricultural Policy Research Institute

ICT Information and Communication Technology

IFAD International Funds for Agricultural Development

IFPRI International Food Policy Research Institute

IMF International Monetary Fund

IITA International Institute of Tropical Agriculture

IS Innovation System

M&E Monitoring and Evaluation

MDGs Millennium Development Goal

MOA Ministry of Agriculture

NGO Non-Governmental Organisation

OPV Open Pollinated Variety

PACO Provincial Agricultural Co-ordinator

PCO Programme Co-ordinating Office

R&D Research and Development

ROR Rate of Return on Investment

SIMLESA Sustainable Intensification of Maize-legume Cropping System for Food Security in Eastern and Southern Africa

SSA Sub Saharan Africa

SWOT Strengths, Weakness, Opportunities and Threats

TOC Theory of Change

USAID United States Agency for International Development

VC Value Chain

WB World Bank

WHO World Health Organisation

ZNFU Zambia National Farmers Union

ZSS Zimbabwe Super Seeds

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During our conversations, a number of partners have expressed a willingness to implement the proposed methodology in assessing their projects. I sincerely hope that this document and the methodology will prove to be a useful reference to them and others. I am very grateful to the management of Vuna for giving me this opportunity.

Executive Summary

Effective scaling up is a key measure of success for an innovation or intervention. A new approach is typically tested in a pilot project that has limited reach. With monitoring and evaluation (M&E), the lessons learned from the pilot can be used to scale up the model to create larger socioeconomic and developmental impacts.

The decision to scale up, however, is often made with incomplete information. Given the high cost of scaling up, it is important for governments and development partners to carefully decide which innovations are ready for further investment. A good understanding of the scaling-up process and a framework for analysing scalability is critical for informed decision-making.



Scaling up is a complex, iterative process that is subject to feedback loops. Because the process is iterative, the decision to continue with the innovation needs to be revisited throughout the project cycle.

Many agricultural development projects that appear highly successful on a pilot scale prove impossible to expand or replicate on a larger scale. Vuna is promoting the broader adoption of climate smart agriculture technologies through a series of pilot projects. Projects that are successful are likely to be scaled up—expanded within the pilot country, replicated in neighbouring countries, or both. In view of these objectives, Vuna sought to review available literature on the determinants

of scalability, and to examine how the prospects for scalability of public-sector investments can best be evaluated during project design and evaluation. Can considerations of scalability be used to improve the design of agricultural development projects? How can scalability be evaluated when deciding whether to expand pilot-project investments? Vuna sought to use the lessons derived from this literature review to draft one or more models for assessing the scalability of its pilot projects. These models were expected to consider both whether the project could be expanded to target substantially larger numbers of farmers in a given country, and whether the project could be replicable by different implementation teams in neighbouring countries. This paper summarises Vuna's initial efforts to meet these objectives. This paper provides a general approach or framework for assessing scalability; modifications and further refinements will be needed to make it context-specific.

Development projects considered for scaling up invariably have several of the following elements: a technology or management practice; a process to enhance community participation, mobilisation and empowerment; training and skill-building; information-sharing and communication; organisational management; new partnerships and rules of engagement (among institutions); an incentive system and service delivery mode; and monitoring, evaluation and associated learning. It is therefore important to keep in mind that scaling up may incorporate different types of innovations—technical, managerial, policy-oriented, organisational, institutional and those dedicated to service delivery—and that some are more readily scaled up than others.

Scaling up is defined as the “deliberate efforts to increase the impact of innovation(s), that is successfully tested in pilot or experimental projects, in different places (expanding, replicating, adapting and sustaining) over time so as to benefit more people and to foster policy and programme development on a lasting basis” (Hartmann and Linn (2008); WHO/ExpandNet, 2012). According to Holcombe (2012), scalability is the potential of a particular innovation or change to be expanded, adapted or replicated. Although it is easy to define scalability in theory, the meaning in terms of practice is broader and more diverse.

In any scaling-up process, several key elements interact with one another to shape the outcome: the innovation itself, the beneficiaries, the enabling environment (spaces), the promoters (drivers), the service providers and the strategy used for scaling up. In addition, critical decisions have to be made about the type of scaling up, dissemination and advocacy, the organisation of the process, cost and resource mobilisation, and M&E (WHO/ExpandNet

2012). Careful attention must be paid to all these elements in the design and implementation of scaling-up projects. It has been demonstrated that adherence to manageable theories of change, implementation of well-understood drivers, and creation of necessary spaces can provide a road map that is adaptable to a project's scope, scale and location (IFPRI, 2012).

Scaling up is a complex, iterative process that is subject to feedback loops. Because the process is iterative, the decision to continue with the innovation needs to be revisited throughout the project cycle. For scaling up to be successful, it should be seen as a long-term process (generally taking 10-15 years) that requires a steady commitment by the strategic partners. A long-term vision and a carefully designed medium-term operational plan are critical to the process. Pilots often focus on implementation and producing results, and are not often designed with an eye towards creating the necessary foundation for scaling up. The widely used project mode (involving 3-5 year projects) often encourages this view. For successful scaling up to occur, a different approach is needed. At the commencement of the project, it is important to define the scale to which an innovation could be taken, given the needs of the population and the nature of the interventions. It is also important to consider realistically the time horizon over which the scaling process needs to extend. Along the pathway to scaling up, the program should deliver intermediate results. This is also necessary to allow for the testing and adaptation of the approach. The intermediate results are also helpful in getting the necessary buy-in from the community, government and other stakeholders. The intention to scale should be part of the design of the original project.

An examination of the available literature and the existing cases in the field reveals that there are two broad approaches to scaling up. The first approach operates through the market, with market demand and the profit motive driving the process; scaling up requires a large enough profit to justify continuing private investment. The second operates through the public sector and through social structures, and is motivated by the desire to achieve a public good; a long-term political commitment is needed to achieve socially valuable goals. In both cases the public sector has a role to play, and strategic partnerships are critical. Both call for long-term commitments by partners, and sustainability should be a key consideration. It is worth noting that the famous Asian Green Revolution was a state-driven, market-mediated and small-farmer-based strategy to increase national self-sufficiency in food grains (SIDA, 2006). It is important to keep in mind that the decision-making process and incentive systems vary between private sector and government efforts. Political and social considerations rather than market issues have more influence on public sector decisions, but the incentives for producing social goods are not always present and clear. Government and nonprofit organisations serve a public

function and deliver a public good. The market delivers a private good.

Scaling up is a continuum of the agricultural R&D processes, aimed at realising the full potential of an innovation. One should think about the specific phases in the continuum of scaling up: invention, innovation, expansion, replication and sustainable operation. The tools, processes, lead actors and partners of these phases may be different, but they need to connect and interact with each other.

The case studies indicate that once the innovation or intervention is successfully demonstrated, the scaling-up process itself can be broken down into two major phases. In the first, the preparation phase, much of the emphasis is on putting in place the organisational capacity, incentive systems, institutional arrangements, strategic partnerships and other conditions that are needed for scaling up. Once these conditions are in place, the second phase—takeoff—can begin, allowing for expansion and replication. Concerted donor support for supporting the right policies, organisational capacities and institutional mechanisms are critical for successful scaling up.

Sustainability and scalability are deeply intertwined, yet sustainability often receives little attention in the design process. This is especially true of financial sustainability. The nature of the financial model will vary depending on the degree to which the intervention represents a high national priority or has the potential for self-financing. In all cases, project designs should be clear at the outset about the financial support needed to test the innovation and move beyond testing to scaling up. Whatever the source, the funding should remain available long enough to establish the necessary organisational, market and enabling environments to realize the full potential and the desired impact.

Scaling up is a costly investment. An ex-ante cost-benefit analysis (B-C) will enable rational decision-making. M&E and rigorous impact evaluation are key ingredients of a successful scaling-up strategy. Monitoring will reveal any spillover effects or unintended outcomes. Private-sector partners require indicators in tune with their own interests. B-C will force the design team to carefully consider all aspects of the process, assist in securing the continuous financial support and design the M&E system for final evaluation. The type of analysis (social, economic, financial or a combination) and the selection criteria used largely depend on the nature of the investment (public, private or public-private).

Ideally, scaling-up processes should be clear from the onset about the organisational choices to be made and the capacity-building needed for the chosen pathways to be successful. When tested interventions involve a large degree of change in the people or institutions involved, scaling up will require extensive technical support and time.

Adapting innovations to changing sociocultural, economic and organisational context is vital for the success of scaling up. This is especially true in situations where the innovation/intervention is borrowed from elsewhere. Special attention to M&E is needed as scaling up proceeds to ensure that results inform strategic adjustments and adaptation.

A four-step process is proposed to assess the scalability of a given innovation/intervention: Assessing the innovation/intervention itself (the necessary condition); assessing the readiness (mission, capacity and capability) of strategic partners (mapping and analysing the system); computing the scalability index to assess the sufficient conditions needed for successful scaling up; and an action plan to address the weaknesses identified. This analysis requires a good understanding of the scaling-up process in the local setting and effective participation and engagement of the analysts in pilot testing. All four steps are essential if one is still in the process of developing an innovation or designing a pilot project. However, if the innovation already exists and has been pilot-tested in the local environment, then one could focus on the last three steps. Ideally, the assessment should be done jointly by the organisation implementing the pilot project, the agent most likely to lead the scaling up, and the other stakeholders, including the ultimate beneficiaries. The assessment team should be led by a facilitator with no vested interest in the outcome, and the team should include members with the technical experience needed to diagnose the most likely scalability and operational constraints. One of the advantages of the proposed approach is that it not only allows a decision-maker to assess scalability, but also serves as a diagnostic tool to provide information on what needs to be done in order to enhance the scalability. This could then form part of the scaling-up project.

The appropriate model for assessing scalability depends largely on the objective of the exercise—designing the pilot project or replicating a successful pilot. With some minor modifications, the same approach can be used to assess both types of projects. If the computed scalability index is greater than 75, then the scalability of the intervention is high. The scaling up will be successful with minimal efforts and additional investment. If the index is between 50 and 75, then the scalability is moderate. That means a number of issues need to be addressed to make it successful. If the score is less than 50, then the scalability is low, and a significant effort is needed to put in place the sufficient conditions before the scaling up is

planned. It is important to keep in mind that the results of all of these assessments—the innovation, the preparedness and capability of the strategic partners, the scalability index and the appropriate action plan—should be considered in totality before a decision is taken.

The proposed approach was used to assess the scalability of two projects: the electronic voucher systems in Zambia, and the Zimbabwe Super Seeds (ZSS). The computed scalability index for e-voucher and ZSS are 77 and 85, respectively, indicating high potential for scaling up. However, given the complex nature of the e-voucher package, a number of issues need to be addressed. The scalability of the ZSS business model is very high, indicating that it can be replicated elsewhere.

It was established that the proposed approach was logically consistent and technically sound, and that it can be used to assess any innovation or intervention for scaling up. Some partners involved in this exercise are ready to apply the methodology. Both groups that computed the scalability index agreed that it is easy to use, assuming that the analysing team has a full knowledge of the innovation and is engaged in the piloting process. The detailed analysis can be the basis for preparing a simple summary matrix, similar to a policy brief, for review by decision-makers.

Great care should be taken in using the scalability index for comparing projects. This methodology was designed to assess the scalability of a proven innovation for pilot testing or a successfully pilot for replication. To a large extent, this is a self-assessment process that relies heavily on the deep knowledge of the participants about the content and processes involved. Conclusions are drawn from the perception and consensus (a perception analysis). The methodology can be applied to the entire package in the intervention or to an individual component. Therefore, mechanical application of the approach, or superficial comparison of scalability indexes of different projects, is likely to result in misleading conclusions.

Areas needing further work include: paying greater attention to “how” and “why” aspects of the reporting process; documenting and widely sharing experiences and lessons learned; designing robust benefit-cost procedures to guide future scaling-up investments; paying greater attention to organisational and institutional development; effective coordination of scaling-up efforts by the development partners; and further testing and fine-tuning of the methodology proposed to assess scalability.

1 Introduction

Over the past five decades, international consensus on the importance of agriculture in economic development has varied from very high (up through the 1980s), to very low (the 1980s and 1990s) to the current situation, which could be described as a time of rediscovery. An emerging consensus suggests that in the 21st century agriculture will remain crucial to poverty reduction, economic growth and environmental sustainability in countries where agriculture contributes significantly to the gross domestic product (World Bank 2008, IFPRI 2012). While governments, donors and other key actors are increasing their commitment to agriculture, they are also turning their attention to how successful development interventions can be scaled up.

Effective scaling up is a key measure of success for innovation. Too often, however, the decision to scale up is made with incomplete information. Given the high costs involved, decision-makers (governments and development partners) must carefully decide which innovations are ready for investment. A good understanding of the scaling-up process and a framework for analysing scalability is critical for informed decision-making.

Many agricultural development projects that appear highly successful on a pilot scale prove impossible to expand or replicate on a larger scale. Vuna is promoting the broader adoption of climate smart agriculture technologies through a series of pilot projects. Projects that are successful are likely to be scaled up—expanded within the pilot country, replicated in neighbouring countries, or both. In view of these objectives, Vuna sought to review available literature on the determinants of scalability, and to examine how the prospects for scalability of public-sector investments can best be evaluated during project design and evaluation. Can considerations of scalability be used to improve the design of agricultural development projects? How can scalability be evaluated when deciding whether to expand pilot-project investments? Vuna sought to use the lessons derived from this literature review to draft one or more models for assessing the scalability of its pilot projects. These models were expected to consider both whether the project could be expanded to target substantially larger numbers of farmers in a given country, and whether the project could be replicable by different implementation teams in neighbouring countries. This paper summarises Vuna's initial efforts to meet these objectives. This paper provides a general approach or framework for assessing scalability; modifications and further refinements will be needed to make it context-specific.

1.1 Approach and layout of the report

This report is the result of literature review, desk reviews, field visits to two countries, and discussions with key stakeholders currently engaged in the scaling-up projects and key informants with knowledge of agricultural R&D processes in Zambia and Zimbabwe. Field visits were brief, and this fact, combined with logistical issues, did not permit wider testing of the robustness of the methodology proposed.

The desk review benefited a great deal from a meta-analysis of five major reports that looked at many agricultural and rural development and health projects to get a better understanding of the scaling-up process:

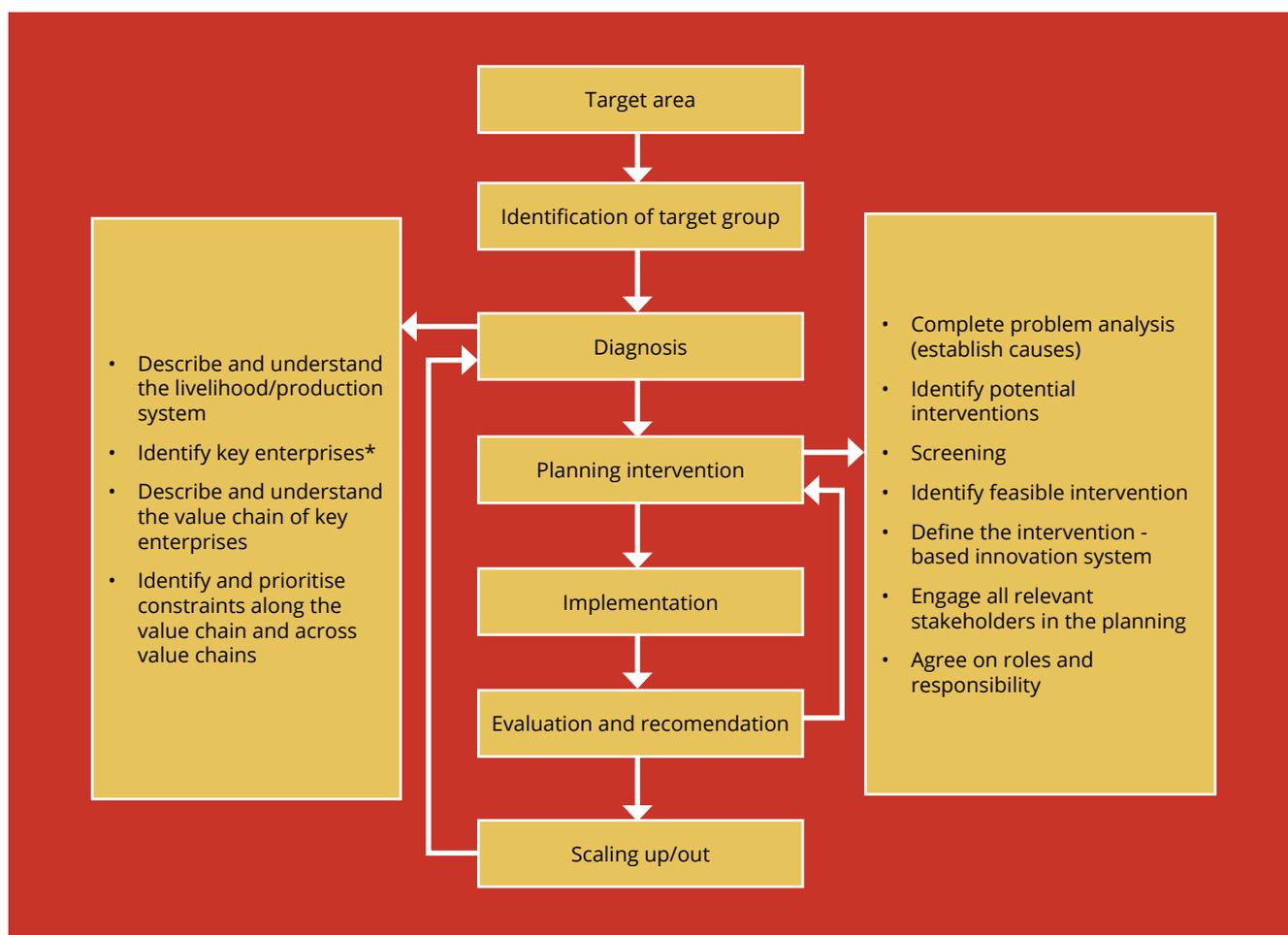
- An IFPRI publication on “Scaling up in Agriculture, Rural Development and Nutrition” (2012). This reviewed 20 policy briefs bringing together a variety of experiences from around the world to delineate pathways for scaling up, key drivers that push the process forward, and the key spaces that enable initiatives to be scaled up.
- A USAID (Feed the Future) publication called “Scaling-Up the Adoption and Use of Agricultural Technologies—Synthesis Report: Global Learning and Evidence Exchange (GLEE), Ethiopia and Thailand” (2014). This is a succinct summary of two workshops, held in Ethiopia in 2013 and in Thailand in 2014.
- A body of literature from the extensive experience of the World Health Organisation (WHO, ExpandNet), particularly “Practical Guidance for Scaling Up Health Service, Innovation” (2009), “Nine Steps For Developing Scaling-Up Strategies” (2012) and “Beginning with the End in Mind: Planning Pilot Projects and Other Programmatic Research for Successful Scaling Up” (2011).
- Climate Change, Agriculture and Food Security Working Paper No. 135, “Reaching More Farmers: Innovative Approaches to Scaling Up Climate-Smart Agriculture” (2015). This report analysed 11 case studies at different stages of completion.
- A World Bank report, “Lessons from Practice: Assessing Scalability” (Holcombe, 2012). This report analysed 22 Development Market Place pilot projects for scalability and subsequent funding support.

Based on the review, a model for ex-ante assessment of scalability was developed. The two country visits were used to test the approach and the underlying assumptions of the procedure proposed, as well as to solicit inputs for further refinement.

The report is divided into ten sections. Following the introduction, the second section deals with the approach and layout of this report. The third section deals with the conceptual models used in understanding and analysing scaling up. Based on the reviews, the proposed framework for analysing the scaling-up initiatives are discussed in section five. The sixth section deals with the special issues related to the scalability of innovations related to climate smart agriculture. The seventh section deals with the concept of scalability and approaches used to measure scalability. A model proposed for ex-ante assessment of scalability of pilot projects is presented in the eighth section. Some guidelines for using the proposed approach are presented in the ninth section. The last section summarises the key findings and the knowledge gap.

1.2 Concept of scaling up

The concept of scaling up is not new to the agricultural research and development (R&D) literature. It has been an integral part of the formal scientific methods of experimentation and discovery since their exposition in the 19th century and a topic of interest in the development communities for decades. It is part and parcel of the R&D project cycle, as shown in Figure 1. The participatory R&D process both starts and ends with the ultimate beneficiaries—the farmers. The process identifies at the onset a “tentative target group” for the technology or intervention. Because of its farmer orientation and site-specific nature, R&D initiatives must explicitly identify the farmers for whom the intervention is intended. This group of beneficiaries is often referred to as a “target group” or “recommendation domain” (Harrington et al., 1984).



Source: Anandajayasekeram et al., 2009

Figure 1: Key steps in the Research and Development process integrating innovation and value-chain concepts

A recommendation domain or target group is defined as a group of farmers who will adopt the same recommendation or a group of farmers whose circumstances are similar enough that the same recommendation is applicable to all. In

practice, a target group includes farmers with similar circumstances,¹ enterprise patterns, production practices and resource bases. They have similar opportunities for development, and the same research and development efforts are likely to be relevant. Included in the process are the pilot testing, multi-location testing and demonstration, and final dissemination to a wider application and use (scaling up).

R&D findings may potentially be applicable to a range of agricultural production conditions or environments cutting across geographical and national boundaries. The R&D process itself can induce changes in organisational and management systems, available resources, and more, which may further contribute to the efficiency of the organisations involved. The wide applicability of research results over a range of agricultural production conditions or environments often cutting across geographical and national boundaries are generally referred to as “spillover effects,” according to Evenson (1987). He identified four classes of spillovers: inter-locational, inter-foci, inter-commodity and inter-sectoral. The most critical one for scaling up is the inter-locational. This will be greater between two locations with similar geo-climatic characteristics. According to Davis (1991), spillover effects from regions where research is conducted to other regions with similar agro-ecological and rural infrastructure ranged from 64 to 82 percent of the total inter-location benefits, depending on the commodity. Most of the ongoing regional research networks are aiming to maximize these spillover effects.

The notion of wider adaptability of knowledge and technologies is also reinforced in the emerging concept of “open innovation.” Open innovation is a paradigm that assumes that organisations or groups can and should use external as well as internal ideas as they look to advance their technology in creating innovations (Chesbrough, 2003). The central idea behind the open innovation concept is that, in a world of widely distributed knowledge, organisations cannot rely entirely on their own R&D activities but should instead borrow, buy or license processes and inventions from others. The concept is founded on the idea that someone, somewhere has already solved the problem being faced. This concept has great potential for success through intelligent borrowing of knowledge and technologies. Even this process, however, requires local adaptations through pilot testing and may face problems related to issues of intellectual property rights.

There is clear evidence that where agriculture contributes significantly to the gross domestic product, rapid agricultural growth is an effective tool for generating broad-based growth and reducing poverty (World Bank, 2008, 2011). The most successful strategies involve creating aid-financed projects in support of the larger government programs or convincing governments and other donors to scale up successful projects (IFPRI, 2012). With the impact of the ongoing global economic crisis requiring that achievement of the Millennium Development Goals (MDGs) be realised in an environment of increasing budget constraints, the need to replicate effective intervention and build on proven success has taken on even greater importance. Donor demands, the engagement of private sector and social entrepreneurs, the expanded role of new and large private foundations and critiques of aid effectiveness propel the interest in scaling up.

1.2.1 How do we define ‘scaling up’?

The term “scaling up” has multiple definitions depending on the area of focus and discipline of interest. From the literature there are two definitions that are relevant for our purposes. According to Hartmann and Linn (2008), “Scaling up means expanding, adapting and sustaining successful policies, programs, and projects in different places over time to reach a greater number of people.” A WHO/ExpandNet report (2012) defines scaling up as “deliberate efforts to increase the impact of innovations, successfully tested in pilot or experimental projects so as to benefit more people and to foster policy and programme development on a lasting basis.” Both of these definitions have a number of elements in common: greater reach, successful interventions, adaptation and sustainability. However, the WHO definition states that the intent is to increase the impact of innovation and stresses the importance of fostering policy and program development.

Based on these definitions, the distinctive features of scaling up are:

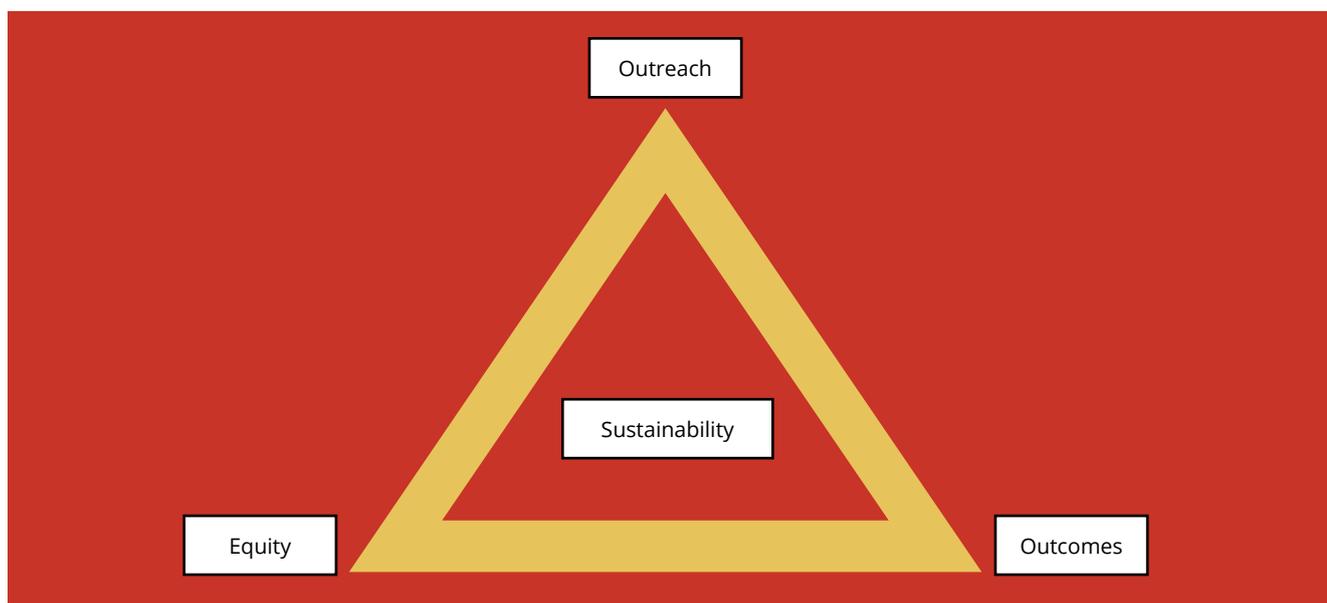
- A “successfully tested” intervention is supported by locally generated evidence of programmatic effectiveness and feasibility obtained through pilot testing or experimental projects. In this sense, scaling-up does not mean simply broadening the use of existing or new practices from small to large scale without local research, evaluation or adaptation. “Successful” means the innovation is realistic to carry out, relevant and worthwhile, and that the intervention has real benefits for potential users.

¹ The term farmer circumstances refer to all those factors that influence farmers’ decisions. The farmer circumstances may be grouped under five categories: natural (physical and biological), institutional, infrastructural, economic and sociocultural (Matata et al., 2001).

- “Innovation” by definition is the economically successful use of invention (Bean and Redford, 2002). Inventions are solutions to identified problems. Success can only be claimed when inventions are being disseminated, adapted and used (Chema, Gilbert and Roseboom, 2001). The term “innovation” in this context deals with a combination of innovations: technological, managerial, organisational, institutional and service delivery. This aspect will be further discussed later in this document.
- “Deliberate efforts” means that it is not spontaneous diffusion but rather a managed process.
- “Policy and programme development on a lasting basis” underlines the importance of organisational capacity-building in terms of developing, establishing and sustaining the political support, managerial structure, human and budgetary resources and service component necessary for successful large-scale programmes and policies.
- “Impact of innovation” underlines the importance of addressing and utilising the developmental objectives in terms of anticipated outcomes (immediate, intermediate and ultimate) of the intervention, not the reach alone.

These generic definitions leave open many questions involving what is scaled, who does the scaling, how to decide which people are reached. The implication is that these generic definitions must be tailored to specific conditions.

Dunn (2014) identified four components of scale: outreach, outcomes, sustainability and equity, as shown in Figure 2.



Source: Dunn, 2014

Figure 2: Components of scale

Outreach is a measure of the number of people or firms that receive benefits from an intervention. At times outreach is also measured in terms of early behavioural changes, such as the number of farmers using the innovations promoted or the number of hectares planted with improved technologies.

Outcomes refers to the beneficial changes that are the purpose of the intervention. These are closely linked to the priorities of the ultimate beneficiaries as well as the policymakers and development partners, often measured in terms of productivity gains, household incomes, food and nutrition security, and environmental impact. It is not enough to have a large outreach. The project should have demonstrable benefits that can be measured at different levels (individual farm, target group, national).

Sustainability refers to having beneficial outcomes, even beyond the life of the project. It is relevant to both outreach and outcomes. Sustainability by definition can be observed only after a project has ended. Therefore, in a practical sense, one must look for interventions that exhibit certain predictors of sustainability. The literature also reveals that sustainability was linked to the ability of an intervention to promote systemic changes such as imitation, buy-in and repeat behaviour.

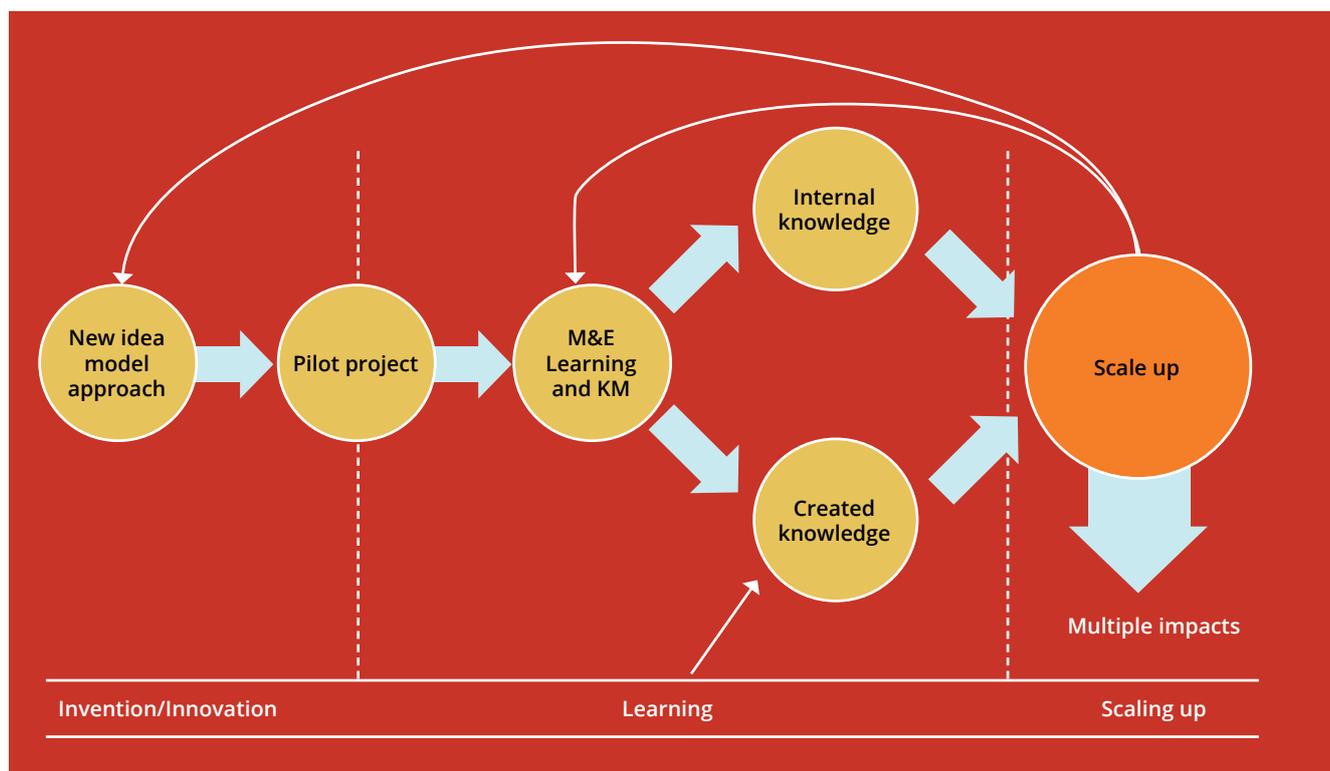
Equity relates to “inclusive growth,” or how the intervention helps to expand opportunities for the most vulnerable groups in society. The hardest-to-reach populations are generally the last to benefit from scaling-up exercises, unless deliberate efforts are made to include them. Sometimes scaling up may deliberately exclude equity from its short-term objectives, with the stated goal of helping as many people as possible, as quickly and as cheaply as possible.

2 Conceptual framework for analysing and understanding the scaling-up process and activities

There are four useful conceptual models in the literature that offer a greater insight into the scaling-up process. Although they focus on different aspect of the processes, in combination they provide useful guidelines for practical application (World Bank, 2011).

The first conceptual model, proposed by Cooley and Kohl (2006), is grounded in the public administration and development management literature. This three-step, ten-task framework deals with planning and implementing a scaling-up intervention. The authors make a strong case for an intermediary organisation to support the work of the organisation that is implementing the scaling up.

The second conceptual model was proposed by Linn et al. (2010), based on IFAD’s work emphasising the importance of learning in an “iterative and interactive cycle” of scaling. This model gives emphasis to organisational and institutional aspect of scaling. It focuses on the drivers of scaling up and the financial, political, organisational and other spaces that permit it. The model also stresses the importance of monitoring and evaluation for learning and adaptation, as shown in Figure 3. This model recognises that scaling up depends on supportive policies and programs, along with organisations with institutional and human capacity.

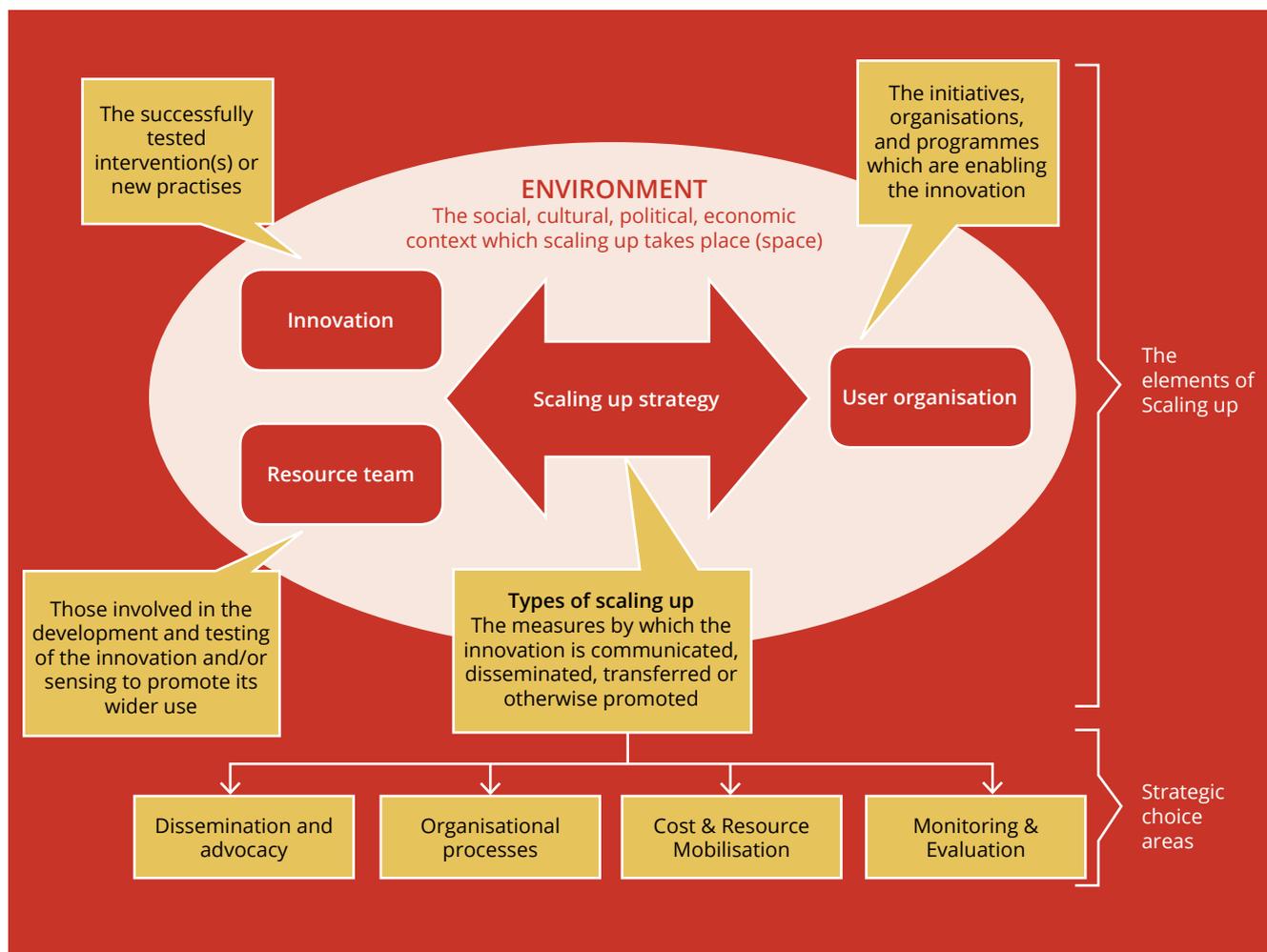


Source: Linn and Hartmann, 2010

Figure 3: Innovation, learning and scaling-up linkages

The third model, reported in WHO/ExpandNet (2012), was developed to address scaling up in the reproductive health sector. This has relevance to agriculture, particularly those projects that require significant changes in behaviour. This framework is presented in Figure 4. This model does not assume that the organisation doing the scaling up is the

same one that originally tested the innovation. It also identifies strategies for scaling up that involve the type of scaling, dissemination strategies, organisational choices, costs and resources, and monitoring and evaluation.



Source: *The Expand Net / WHO framework for scaling up, 2011*

Figure 4: The elements of scaling up

A fourth model, developed by BEAT (Rukuni, 2009), addresses the National System Change Framework at a higher level. The key activities and the four phases of this model are presented in Annex 1. This is a higher-level scaling up not directly relevant for this study.

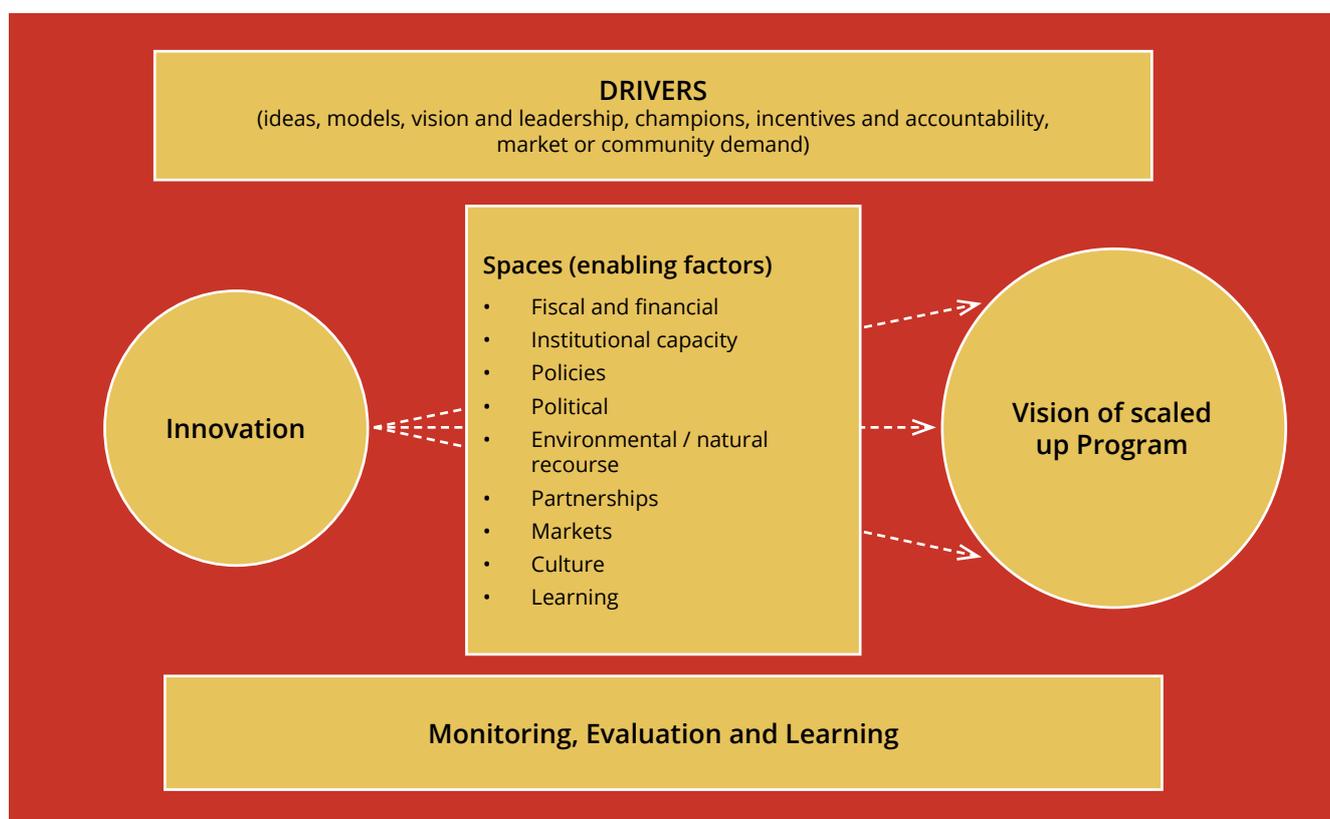
The first three models allow us to identify a number of common elements that need to be considered when developing criteria for assessing scalability.

- All cite innovation as the starting point.
- All seek clarity on the actors and stakeholders involved. Who tested the pilot? Who will scale it up? Who will support the scaling? Who might stand in the way of the scaling?
 - In relation to individual actors, all three models raise questions about drivers, champions, leaders, networks and partners.
 - In looking at the institutional actors, they note the importance of organisational and management capacity.
 - All emphasize the degree to which actors are embedded in the national and/or local context.
- All suggest that the external environment influences the scaling-up strategy and processes
- All indicate that the intermediary organisations, along with appropriate time and pacing, are necessary to support the adopting or user organisations and individuals.

Based on this knowledge and the collective experience of the practitioners, Linn et al. (2014) developed a framework for analysing the multidimensionality of scaling-up efforts in the agricultural sector. This conceptual framework and its key elements are discussed in the next section.

3 Proposed framework for analysis and its key components

The proposed framework is presented in Figure 5. In any scaling-up process, five mutually reinforcing key elements interact with one another to produce the desired outcomes: the innovation, the beneficiaries, the enabling environment (spaces), the promoters (drivers) and the service providers. Monitoring evaluation and the associated learning should be an integral part of this process. In addition, critical decisions have to be made about the type of scaling up, dissemination and advocacy, the organisation of the scaling-up process, cost and resource mobilisation and M&E (ExpandNet 2012). Careful attention should be paid to all these elements in the design and implementation of scaling-up project. It has been demonstrated that adherence to manageable theories of change, implementation of well-understood drivers, and creation of necessary spaces can provide a roadmap that is adaptable to conditions of a project’s scope, scale or location (IFPRI, 2012). The key elements of this framework are discussed in the following sections



Source: GLEE Synthesis Report, 2014

Figure 5: Proposed framework for analysis

3.1 Innovation

The key ingredient for the scaling-up process is the innovation, or set of interventions that is being scaled up. Once successfully tested through the pilot, it forms the model for wider adaptation. There are two aspects of innovation that are of interest. First, is the innovation new or perceived as new in a particular program context? Models or procedures that have not been used in a specific location qualify as innovations, even if they are well-known elsewhere. Second, innovation in this context implies a set of interventions, including the processes necessary to build sustainable implementation capacities. A technology may be a vital component in this package. Most development projects focusing on scaling-up have several of the following elements: a technology/management practice; a process to enhance community participation, mobilisation and empowerment; training and skill-building; information-sharing and communication; organisational management; new partnerships and rules of engagement; incentive system and service delivery mode; and monitoring, evaluation and the associated learning. Therefore, it is important to keep in mind that in the developmental context the intervention may incorporate different types of innovations: technical, managerial,

organisational, institutional and service delivery. Intervention consists of a package of innovations and some are more readily scaled up than the others.

In a 2003 study, the World Bank/ARD identified five categories of “best practices,” with “innovation” representing initial level and lacking significant evidence (see Annex 2). This categorisation is used by others (Cooley and Kohl, 2006) as a useful guide in specifying the nature of innovation to be scaled up. The significance of this categorisation is that we need to look for the levels of evidence that exist for the new practice and determine whether it has been tested across the different context for robustness of the practice and its wider adaptability. Cooley and Kohl offer a taxonomy of projects that may be considered for scaling: pilot, demonstration, capacity building, policy (advocacy) and service delivery. They focus on pilot projects that test an untried innovation or apply a demonstrated model to a new site or a different problem. They refer to the common donor practice of calling many small projects “pilots” despite the absence of innovation; they therefore suggest using the term “model.”

Based on the review of literature on diffusion and adoption of innovations, Simmons and colleagues (WHO/ExpandNet, 2012) identified a number of attributes that can enhance scalability, or potential for scaling up. Innovations should be

- **Credible** in that they are based on sound evidence or advocated by respected persons or organisations.
- **Observable** to ensure that the potential users can see the results in practice in the real world.
- **Relevant** for addressing a persistent or sharply felt problem for the end users.
- **Superior to existing practices** so that the ultimate users are convinced that the cost of implementations is counteracted by benefits.
- **Easy to understand and install**, rather than complex and complicated.
- **Compatible** with the end users’ established values, norms and facilities (including resource base) and with the priorities and practices of the national/provincial/regional programmes.
- **Testable** without committing the potential users to complete adoption when results have not yet been seen.

Piloting and testing innovations explores the feasibility of implementing an innovation on a large scale. Testing generates an understanding of how an innovation is actually implemented in everyday practice, allowing preventable problems and unintended consequences to be identified and corrected prior to scaling up (adaptation). It also provides information on what needs to be done to ensure the innovation realises its potential, and allows programs to try out alternative arrangements of service delivery in a relatively low-cost, small-scale way prior to investing in wide-scale implementation. In addition, pilot projects prevent the risk of wasting substantial time and resources on innovations that produce limited or even undesirable outcomes. While it may be possible to scale-up innovations that have not been tested, the chances of overall success are much lower.

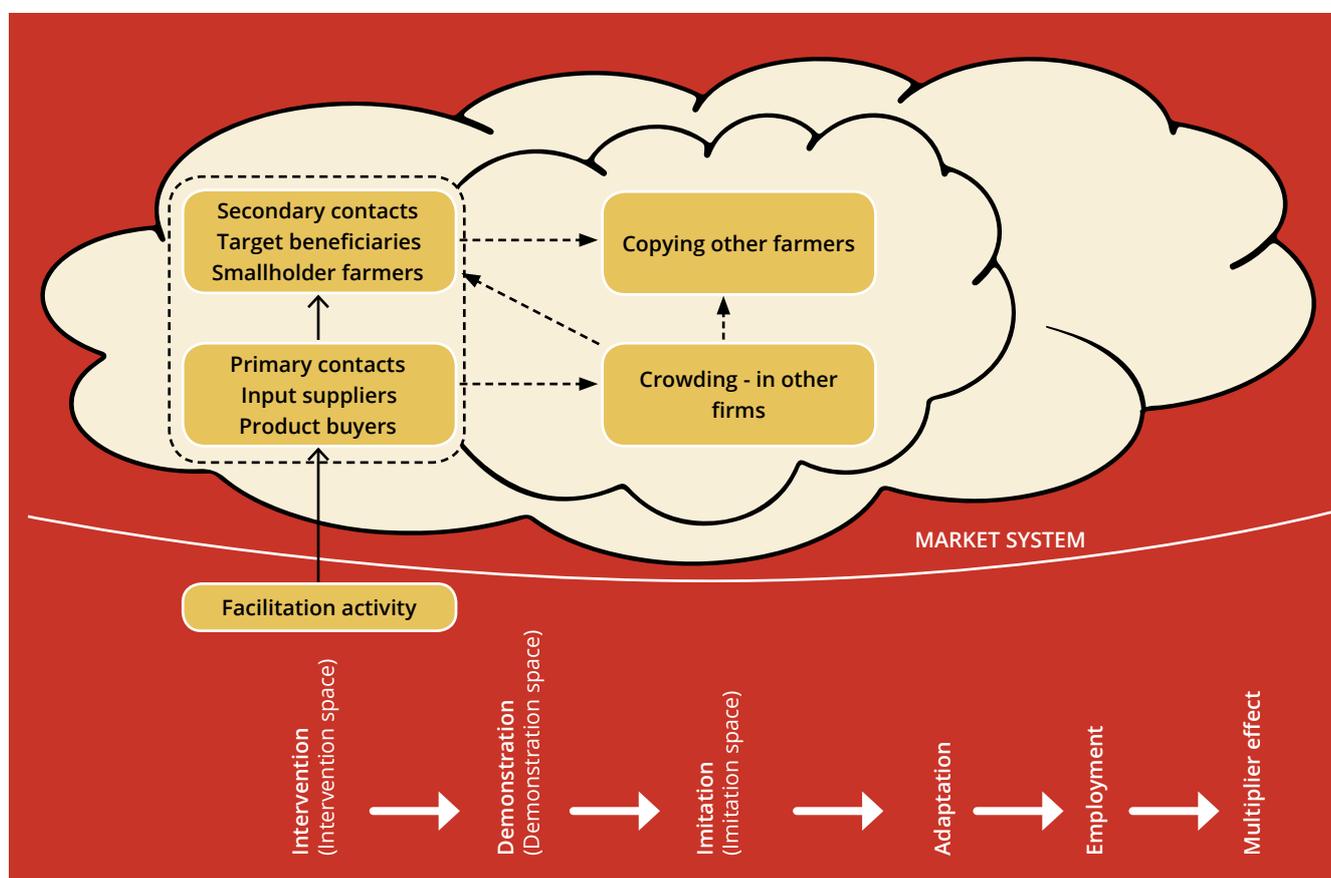
In the context of agricultural research, innovation in its broadest sense covers the activities and processes associated with the generation, dissemination, adaptation and utilisation of technology and knowledge. This also emphasises the notion that the responsibility of the research organisations does not end with the production of new knowledge or technology. Success can only be claimed when inventions are being disseminated, adapted and adopted (Chema, Gilbert and Roseboom, 2001; Hall, Myteika and Oyeyinga, 2005; Anandajayasekeram, 2011). It is only when knowledge is converted into products and processes and used by the society in an economically meaningful way that it becomes an innovation. Research is an integral part and sits at the front end of innovation. Adopting this notion in research planning will certainly enhance the scalability and adoption of technologies and practices. The emerging innovation systems perspective in agricultural R&D and its adoption will greatly enhance the generation of successful innovations. An innovation system is an analytical construct and has three elements: the organisations and individuals involved in generating, diffusing, adapting and using the new knowledge; the interactive learning that occurs when organisations and individuals engage in these processes; and (iii) the rules, norms and conventions (both formal and informal) that govern how these interactions and processes take place. This approach will enable the formation of the successful partnerships at an early stage.

3.2 Theory of change

A clearly defined theory of change (TOC) is crucial, in that it forces us to make explicit the actions and assumptions required to produce the change sought. It is important to make explicit all actions necessary to move from decision to implementation to achievement of change (Weiss, 1997).

The theory of change needs to be clear and credible. Clarity means that the project has identified the process and the chain of actions that will produce the desired outcome. This theory of change should be clear and measurable. It should be tested and validated during the pilot stage. In some cases, the theory may not be very clear, particularly with regard to overall developmental impacts such as economic growth, income distribution poverty reduction, or food and nutritional security. It is important to scale down these overall developmental goals as they relate to direct beneficiaries so that effects can be measured.²

Dunn (2014) uses the market intervention and the “cloud figure” (see Figure 6) to explain the anticipated process of change and the impact chain. The intervention operates in a small area of the market system known as the intervention space. The primary contacts are the market agents—the product buyers and input suppliers. The project deals with agricultural input suppliers in order to reach smallholders and encourage them to adopt new production technologies. Here the input suppliers are the primary contacts, and the smallholder farmers are the secondary contacts. The primary and secondary contacts are the direct beneficiaries of the intervention. Anyone else who may benefit from this intervention, are considered to be “indirect beneficiaries.”



Source: Adapted from Dunn, 2014 (LEO Brief, 2014)

Figure 6: Outreach from value chain facilitation: scale effect in an agricultural market system

Through the demonstration effect, this intervention may attract some other firms to adopt the same new practices. This is often called “the demonstration space.” The demonstration effects, if strong, can lead to two distinct types of imitators. One is other farmers copying the new production technologies, and the other is the input suppliers copying the business model.

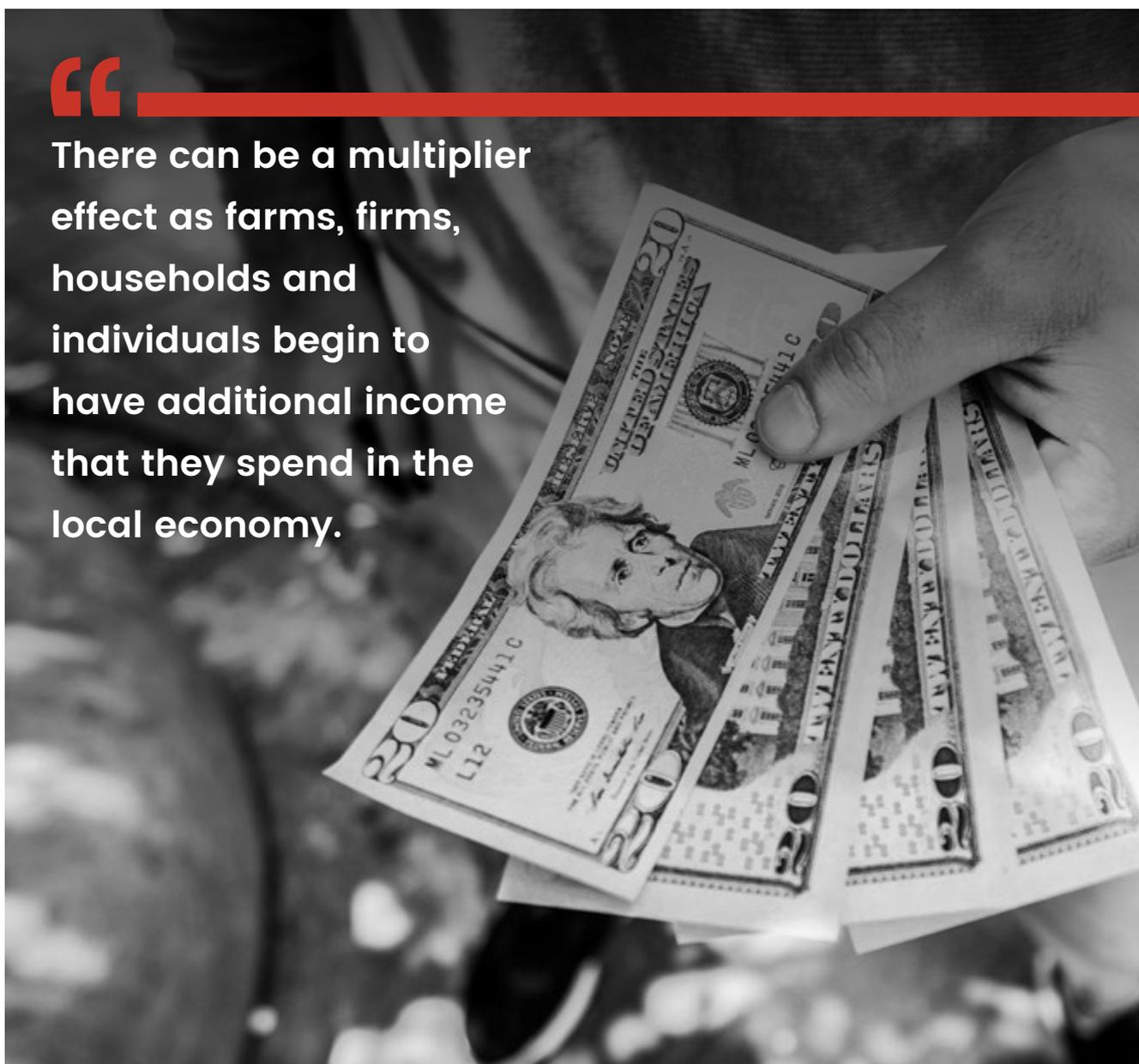
² Elmore (1982) starts with the change required and asks what action is necessary to produce it. Then the backward mapping process asks what is required to produce each step or action

There is also a need to consider the “adaptation phase.” This may include all four groups. It may be likely that the farmers and firms innovate and adapt the original practices. Another potential beneficiary group consists of individuals who are employed by these firms. Finally, there can be a multiplier effect as farms, firms, households and individuals begin to have additional income that they spend in the local economy. This model clearly demonstrates that it takes time for the full extent of the outreach to occur. This raises a question: at what stage in the process should scaling up be planned? Extensive outreach is generally required to target beneficiaries in the early years of a value-chain project.

This mapping (along with the logical framework matrix,³ results framework⁴ matrix, and impact chain) will assist in developing a complete theory of change. A typical impact chain starts from the set of inputs and activities of a project or program and proceeds to the most highly aggregated development results, such as poverty reduction, food security and environmental protection. (Anandajayasekaram et al., 2004). The chain also specifies all the main intermediate steps: the activities of a project, the output, the use that the others make of this output, the direct as well as indirect effects, and the implications of the use of these outputs on the ultimate beneficiaries and society as a whole (see Figure 7). The output, outcomes and impact are generally sequentially produced over a period of time. They become more difficult to articulate, measure and attribute as one moves from output to impact.



There can be a multiplier effect as farms, firms, households and individuals begin to have additional income that they spend in the local economy.



-
- 3 Logical framework is a tool for planning, monitoring and evaluation of a project. It is used as a tool to clarify cause-and-effect relationships and to clarify the logical link between project inputs and activities; project activities and outputs; and objectives and the ultimate goal a project could serve.
 - 4 The results framework uses the same logic but it starts from the results to be achieved, followed by the outputs, activities, inputs, etc.

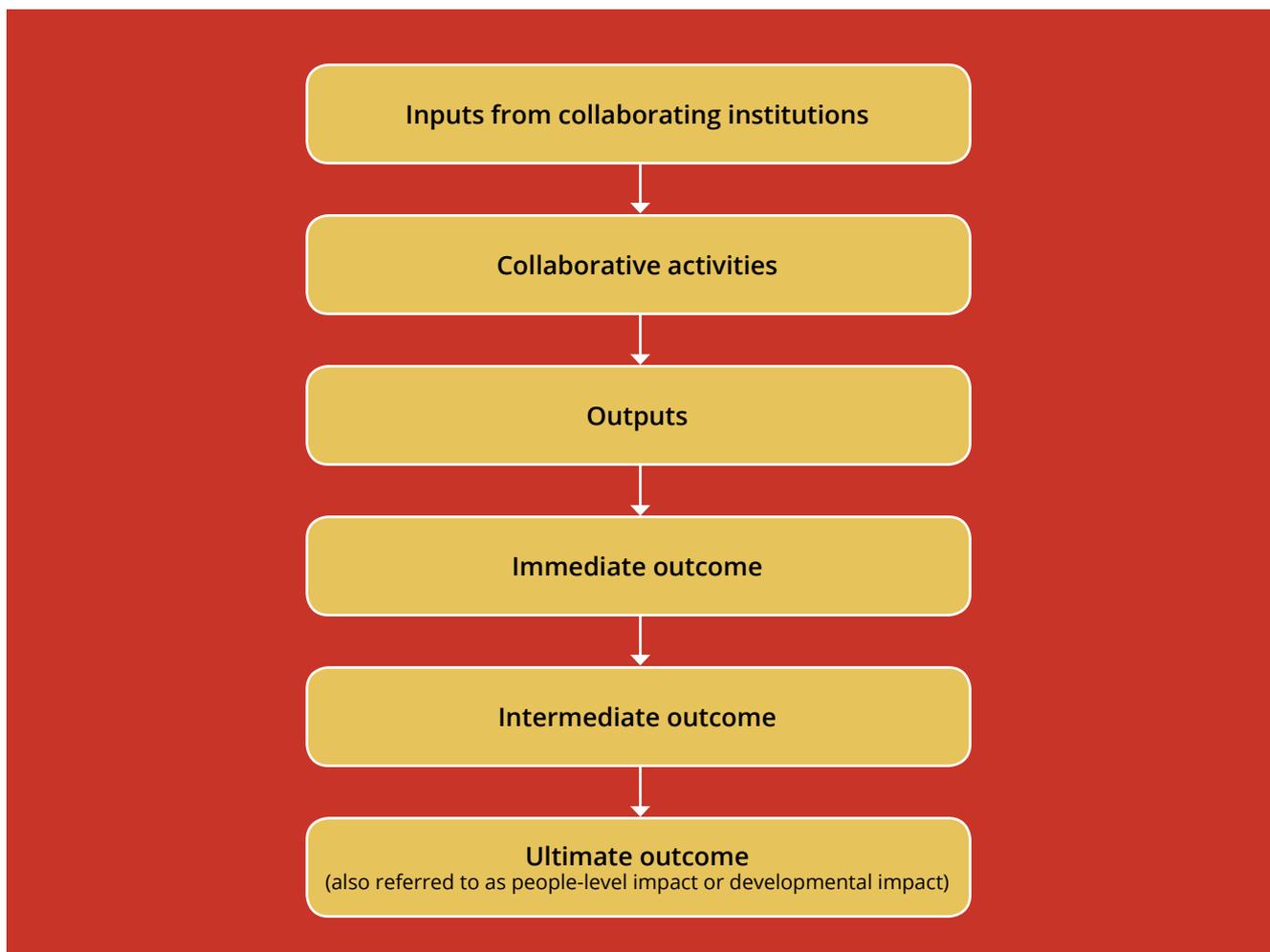


Figure 7: Typical impact chain

The key components of the impact chains are as follows:

- **Collaborative activities** are the joint actions taken by the collaborators.
- **Outputs** are the goods and services produced by the set of collaborative activities.
- **Immediate outcome** refers to the observed or documented behavioural changes in those directly affected by the program.
- **Intermediate outcomes** refers to the benefits and changes resulting from the application of the outputs. This may be the effect at the farm or firm level of the participants of the pilot project (productivity gains, improved income, reduction in cost).
- **Ultimate outcome** refers to the measurable effects of the outputs and outcomes on the well-being of the target population (the ultimate beneficiaries of the scaling-up initiatives). Very often the ultimate outcomes are closely linked to the sectoral/regional/national developmental goals. This is also known as developmental impact or people-level impact.

In order to bring about an outcome, the program has to change people's behaviour. By trying to identify and then document the changes in attitudes, knowledge, perceptions and decisions taken by the target groups, one could acquire a good understanding of the impact that the program has. Often immediate and intermediate outcomes can be measured and documented directly.

The scaling-up intervention often starts with a proven set of innovation. While testing/piloting, the immediate and intermediate outcomes should be measured and documented. The theory of change should show a logical link between intermediate outcome and the potential ultimate outcomes in terms of the developmental goals. A sound theory of change is critical to solicit support for the project from donors, policy makers and administrators.

3.3 Drivers of change

The drivers push the scaling-up process forward relentlessly. The common drivers are:

- **Proven ideas or models:** There has to be an idea or model that works on a small scale or has been promoted successfully elsewhere.
- **Vision and leadership:** A vision is needed to recognise that the scaling up is necessary, desirable and feasible. Visionary leaders often drive the process.
- **External catalysts:** Political and economic crises or pressure from outside actors (donors, NGOs) may drive the scaling-up process forward.
- **Incentives and accountability:** Incentives and accountability for results are needed to drive actors and organisations. This may include rewards, competitions, political pressure, community demand, peer reviews and independent evaluations. Markets and profit can be powerful drivers in delivering private goods and services.
- **Empowered rural communities:** Empowered rural communities can promote scaling up and hold public agencies accountable. They can be a very strong political voice.
- **Markets:** Profit can be a very powerful driver in delivering private goods and services

Some examples of drivers from selected studies are presented in Annex 3.

3.4 Spaces or enabling environment

Successful scaling up requires effective spaces, or enabling environments, in which the initiative can grow.

- **Fiscal/financial space:** Fiscal and financial resources must be mobilised to support the scaled-up interventions beyond the original donor, or the cost of the intervention needs to be pushed down to match the available resources. This may require increased commitment by national government. In the case of value chain actors, the innovation must be able to compete with other investment opportunities.
- **Policy space:** The appropriate policy and legal framework has to be adopted to support scaling up. Issues such as ownership rules and their enforcement, the general business environment and rules governing credits, deposits, standards and insurance schemes can limit or support the scaling up.
- **Economic and market space:** When scaling up agricultural production, potential market constraints need to be addressed in order to avoid negative prices and wage effects. Market systems can provide a built-in drive for scale through the profit motive, since the expectations of the future profits is what encourages investment. It is also important to note that profit is one of several objectives that smallholders have to balance. Therefore, it is important to make sure that the intervention in fact helps farmers to achieve their priority, which is meeting the food demand of the households (Dunn, 2014). Since market systems exist independently of the intervention, they represent an enduring mechanism that support sustainability after the intervention has ended.
- **Organisational space:** Partner organisational and staff capacity must be created to facilitate scaling up. One of the challenges in large-scale implementation is to ensure that the organisations involved have the capabilities and capacities to implement the intervention successfully. "Capacity" here means the organisation has the reach to deliver the innovation at the desired scale. "Capabilities" refers to the ability to implement the intervention according to the original design and to adapt it to local conditions (Kohl, 2012). There may be a need to invest in systems and organisational capacity strengthening. There may be instances where special organisational capacity may have to be found or created in order to promote scaling up.
- **Institutional space:** Institution in this context refers to the rules of engagement, both formal and informal. Institutional arrangements are crucial to fostering effective collaboration. Often many individuals and organisations are involved in scaling up. They need to cooperate in order to reap the full benefit of the partnership. To achieve this, the rules of engagement must be clear and well understood by all stakeholders.
- **Political space:** Important stakeholders, even if they were originally against the intervention, need to be motivated to ensure that there is political support for scaled-up intervention. In many instances the incoming political leaders tend to promote their own new initiatives rather than build on the success of their predecessors. Strong civil society organisations can facilitate the scaling-up process through their political voice.
- **Natural resource/environmental space:** The effects on natural resources and the environment must be considered, harmful effects mitigated and beneficial effects promoted.

- **Cultural space:** Possible cultural obstacles or support mechanisms need to be identified and intervention adapted to permit scaling.
- **Partnership space:** Partners should be mobilised to join in the efforts of scaling up. Successful partnership of the key stakeholders is an essential ingredient for successful innovations as well as scaling up. In all cases, seeking a local counterpart to sustain the scaling-up process is critical.
- **Learning space:** Knowledge about what works must be utilised through M&E, knowledge-sharing and training. Organisational learning from experience is crucial for successful scaling up.
- **Social space:** It has become increasingly apparent that projects must create social space for women, youth and other vulnerable groups in the community to contribute to the scaling-up process and benefit from the intervention. This could involve community-driven development, new agricultural practices or adoption of nutrition initiatives.

In many instances these various spaces are interrelated and complementary. Some selected examples from case studies are presented in Annex 4.

3.5 Pathways for scaling up

According to Linn (2012), a scaling-up pathway is a sequence of steps to ensure that a successful pilot or practice is taken from its experimental stage through subsequent stages of scale. This sequence has three components: identifying the type of scaling up desired; dissemination and advocacy of the innovation; and attention to organisational processes.

3.5.1 Types of scaling up

Scaling up can be either spontaneous or a deliberate effort to promote innovation at a faster rate. The deliberate efforts are based on the realisation that successful scaling up rarely happens spontaneously. There are three types of deliberately guided scaling up: expansion or replications; policy/political/legal/institutional scaling up; and functional/diversification scaling up (WHO/ExpandNet, 2012).

- Expansion or replication (also referred to as horizontal scaling up, or scaling out) is when innovations are replicated in different geographical sites or are extended to serve a larger or new set of beneficiaries. According to Cooley and Kohl (2006), expansion means “increasing the scope of operation of an organisation.” The way it expands affects the capacity of the organisation. Replication is increasing the use of the innovation, but it is done by the originating organisation. Although expansion and replication are used synonymously, successful scaling up rarely involves mechanical duplication; rather, it requires adaptation to the environmental context of the target beneficiaries.
- Policy/political/legal/institutional scaling up (also called vertical scaling up, or simply scaling up) takes place when formal government decisions are made to adopt the innovation on a national or subnational level, and it is institutionalised through national development plans. In this case, the systems and structures are adapted and resources redistributed to build the institutional mechanisms that can ensure sustainability. Vertical scaling up calls for strong advocacy to build legitimacy and enabling environments.
- Diversification (also called functional scaling up) involves testing and adding interventions to existing packages. This strategy may be used when an innovation has attained a sufficient degree of coverage and support to indicate that it is likely to continue expanding and the program could benefit from new or additional interventions.

Cooley and Kohl (2006) use the terms expansion, replication and collaboration to describe the pathways; collaboration falls between expansion and replication and requires coordination and other forms of partnerships with one or more organisation or network.

There are also other ways of thinking about forms and dimensions of scaling up, including geographic, functional, political and organisational. In the recent past, because of increased interest in market-oriented agriculture, value chains are also used as pathways for scaling. A large number of agricultural development initiatives now support a value-chain approach. According to Hartman (2012), there are two concepts of scaling up in a chain: first, the development of an integrated chain is in itself a functional scaling up, as primary products are ‘scaled up’ to create higher value-added goods and taken to market; second, value chains are taken to a larger scale by increasing the amount of goods produced, processed and sold. Both scaling-up processes rely on drivers and need to overcome numerous constraints. Common impediments include infrastructure problems, lack of access to financing or markets, inadequate knowledge of technology, and the inability to deliver products at sufficient quantity and quality.

In the value-chain approach, scaling up enables backward and forward linkages. For example, an innovation in a value chain linking farmers to technology or process innovation may also link them to markets and consumers.

In value chains the scale is driven by the profit maximisation objective of different actors, as affected by access to market and elasticity of demand for the commodity. As the value chains operate in a dynamic environment (new technologies can be introduced, new markets can be accessed and demand can fluctuate) the scale objectives may change over time.

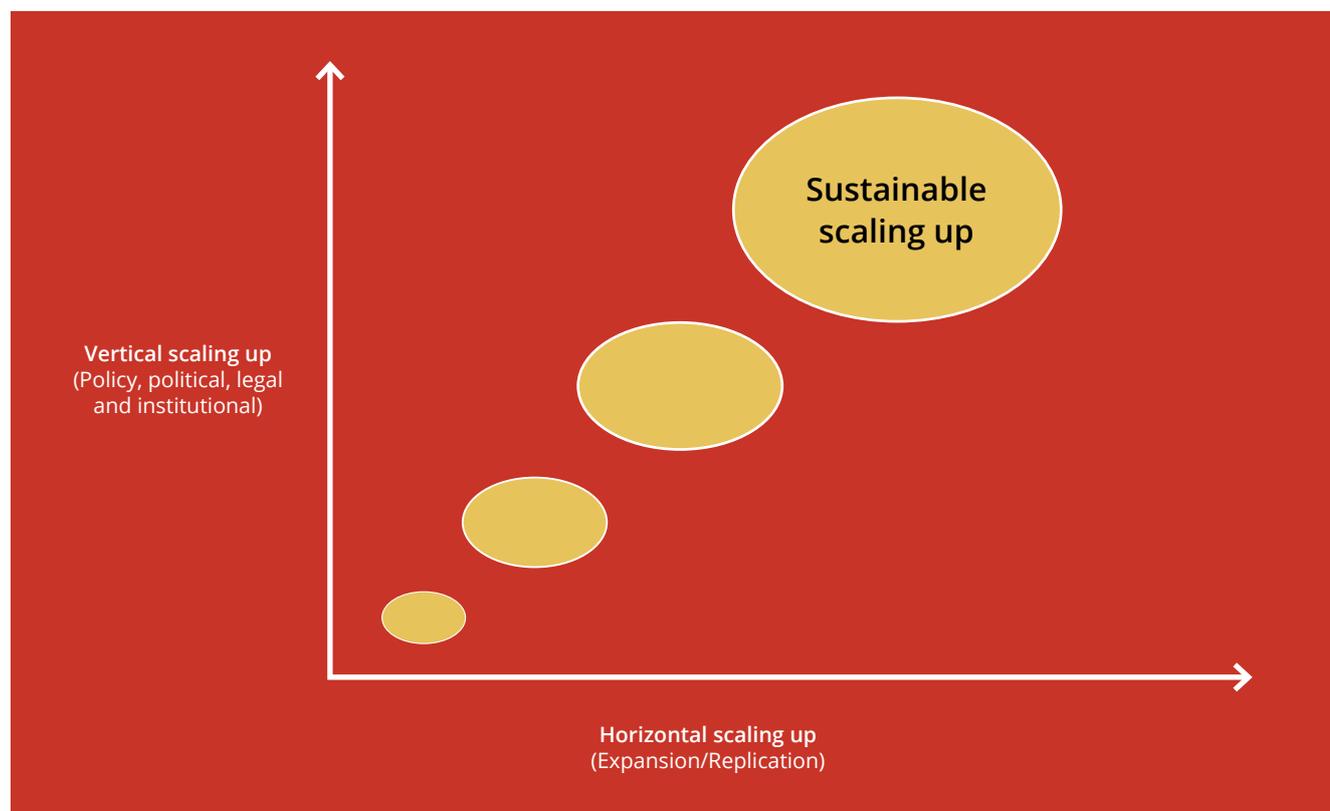


Figure 8: Horizontal and vertical scaling up for sustainability

It is evident that in the real world, scaling up rarely occurs in one dimension only. As programmes scale up quantitatively (large number) and functionally (more complexity and additional dimensions), they typically need to scale up politically and organisationally (Hartmann and Linn, 2008: 8-9). Scaling up is thus largely a management issue, and it is important to ask how to manage projects to ensure that positive impacts are maximised (Pachico and Fujisaka, 2004), while acknowledging that multiple actors and scales need to be considered (Buizer et al., 2011). It is worth noting that despite these categorisations, most scaling up initiatives address both horizontal expansion as well as vertical scaling up to ensure sustainability (see Figure 8). Hence in this document the term “scaling up” incorporates both horizontal and vertical dimensions, as well as innovations occurring along the value chains.

3.5.2 Approach to dissemination and advocacy

For scaling up to occur, information needs to be communicated to the ultimate beneficiaries and other stakeholders. Approaches can include training, technical assistance, policy dialogue, and peer exchanges (including exchange visits), and can rely on interpersonal, mass media and other channels.

Key approaches for dissemination and advocacy (WHO/ExpandNet, 2012) include:

- Identifying key audiences and learning their different information needs.
- Tailoring messages and format to each audience.
- Presenting data clearly, concisely and in a timely manner.
- Integrating repeated messages into the established internal communication networks of the user organisations.
- Making use of the skills of communication specialist who can mediate the information flow.

A review of existing literature reveals that there are five different approaches to scaling up: prescriptive approaches, participatory approaches involving multiple actors (pluralism in service provision), approaches based on value chains and the private sector, approaches utilising ICTs and agro-advisory services, and approaches revolving around policy

engagement. In the original technology transfer models, the practitioners used the prescriptive approach. The researchers made the recommendations, and the dissemination was largely through the national extension services. In this approach, increasing impact is assumed to be through producing dissemination materials and making sure that such materials reach as many people as possible (Pachico and Fujisaka, 2004).

The theory of change is that the diffusion of new technologies and practices to a few farmers will lead to uptake by many. This offered a “blueprint” solution, rather than a context-specific one. However, the national systems have often had limited success, resulting in low rates of adoption.

To overcome such problems, R&D, client-driven approaches were introduced in the 1970s. The R&D practitioners recognised the importance of understanding the farmers’ decision-making processes in the adoption and utilisation of new practices. This evolution also recognised the need for the engagement of multiple actors in the dissemination process (Anandajayasekeram et al., 2008). One of the major problems with the participatory approaches is the high transaction cost.

The approaches based on the value chain have two characteristics that make them suitable for reaching a large number of farmers:

- They provide a mechanism for linking multiple actors around a common objective by creating space for knowledge-exchange and capacity-building. Value chains can act as a delivery mechanism for government and private extension services, credit and subsidy programmes.
- They provide market-driven demand (currently often toward green and organic products) that may provide strategies for adaptation of CSA technologies and practices.

However, approaches based on value chains may not be appropriate for the informal sector or for agricultural production for household consumption. The value-chain approaches may not be well suited to addressing equity and gender concerns in developing countries.

In order to reach more farmers and overcome the high transaction costs incurred by face-to-face interactions associated with conventional extension services, the use of ICT and associated agro-advisory services is becoming increasingly important. The term ICT encompasses technologies ranging from widely used devices such as radios, telephone and television to more sophisticated tools like computers, mobile phones, the internet and social media (FAO 2013).

ICTs can provide a wealth of different types of information: market prices, transportation options, weather data, commodity and stock-market prices, extension services to farmers, early warning systems for disaster prevention, traceability of agricultural products and gathering of agricultural statistical data. Experience from researchers and practitioners suggests that ICT, used in combination with agro-advisory services, is playing an increasing role as an enabler of change. ICTs are being recognised as one aspect of strategies to adapt to, mitigate and monitor climate change within the agricultural innovation system. Context-specific partnerships through local working groups, with public and private sector participants, offer potential for scaling up and long-term sustainability of information provision embedded in local processes, especially in terms of financial viability.

Scaling up innovation, especially CSA practices, require appropriate institutional and governance mechanisms to generate information, ensure broader participation and harmonise policies. Context-specific priorities need to be determined, and benefits and trade-offs evaluated (FAO, 2013). This may involve enactment of new policies, since how policy is implemented will determine its potential impact. Creating a political space through advocacy and outreach means having contact with major political actors and key constituencies who may facilitate or hinder large-scale development processes. A policy space, on the other hand, is an opportunity to influence policy-making through technical input. These two spaces are interlinked. Some of the existing projects focus on the process of engagement, others on generic climate change policies (e.g., scaling up climate smart villages; scaling up alternative wetting and drying of rice).

A group of practitioners analysed 11 case studies dealing with CSA. Their tentative conclusions are as follows (Westermann et al., 2015):

- The approaches based on value chains using ICTs and agro-advisory services, including policy engagement, do appear promising in terms of their ability to scale up CSA technologies and practices.
- The trade-off between reach and context specificity constitutes one of the fundamental challenges of scaling up. There is a need for strong grounding in existing local or national multi-stakeholder platforms to help address the issue of context specificity and to facilitate strong partner and stakeholder engagement. The emerging Agricultural Innovation Platforms (AIP) may well become a useful space for this engagement (Anandajayasekeram, 2011)

- The expanded ranges of partnerships, and the associated broad set of interactions, bring some challenges, particularly in the area of integrating the different types of knowledge that the different partners may have. This issue was not addressed in the case studies reviewed.
- Multi-stakeholder platforms and policy-making networks are key to effective scaling up, especially if paired with capacity enhancement, learning and innovative approaches to support decision-making of farmers.
- Projects that aim to intervene upstream at higher leverage points can be highly efficient and probably offer cost-effective dissemination strategies that reach across scales and include new and more diverse partnerships and alliances.
- Estimating the costs of the different approaches poses considerable challenges, but cost comparisons would be of considerable interest with regard to the economic efficiency of scaling up. This warrants further work.
- These novel approaches still face challenges of promoting uptake and adaptation, which requires local engagement, while continuously paying attention to farmers' needs.

The key challenges facing these approaches are summarised in Table 1.

Table 1: Key challenges in the recent approaches to dissemination and advocacy

Approaches based on value chains and private sector	Approaches using ICTs and agro-advisory services	Approaches revolving around policy engagement
Climate-change information is too general from a private sector perspective	Gap in long time series of climate data for all sub-national administrative zones	Linking the analytical phase with the political process of policy formulation
Benefits, timing and incentives for multiple actors need to be aligned	Insufficient coverage of countrywide, local, multidisciplinary working groups that can translate climate information into agro-advisories and disseminate it.	Need for leaders or champions who can help to foster policy changes
Information and financial support need to be coordinated	Lack of financial resources to operationalize training plans, capacity-building, and communication among others.	Gap and delays between plan implementation and reaching individual farmers

Source: Westermann et al., 2015

3.5.3 Organising the scaling-up process

A number of approaches can be used to implement a proposed intervention. An additive approach may allow greater control over the scaling-up process, thereby increasing the likelihood that the innovation will be implemented as intended. By contrast, a multiplicative approach distributes the tasks across several organisations, thereby enlarging the network of people and institutions available to sustain current and future initiatives. But there are often drawbacks to involving multiple partners. Creating the necessary shared vision among partners can be time-consuming. Building technical capabilities in partner organisations may require additional resources. Potential partners in multiplicative approaches should be identified and involved as early as possible in the scaling-up process.

In most cases, it is difficult or impossible to find a single institution with the capacity or capability to implement intervention at scale. In many instances the key actors are the ministry of agriculture, NGOs and civil society organisations (CSO), with the support of donors. Under these circumstances, a viable option is to scale up through several organisations, mirroring the small-scale implementation structure. However, this presents additional obstacles (Kohl 2012), such as finding and coordinating the necessary number of implementers with the right capability and culture in the desired location. Within a decentralised administration with several implementers, scaling up would require a new coordinating mechanism in every province or region and the willingness of the local administrators to use political capital to enforce cooperation.

Achieving horizontal alignment through coordination mechanisms is essential, yet vertical alignment of institutional incentives and culture from national to local actors is also necessary. Vertical alignment across relevant government agencies, especially in a decentralised governance system, presents numerous challenges. Donor projects or even national domestic projects may be aligned with national strategy and policy, but the regional, provincial; district and local governments often may have a substantially different priorities and incentives. This institutional alignment is

particularly important when scaling up is expected to use domestic funds and when multiple level governments are involved in funding, approval, monitoring and supplying in-kind resources.

Whether scaling up is implemented through a single or multiple organisations, another challenge is that the human resources may be weak or missing. Training must be combined with other organisational and even system-strengthening activities such as introducing rules, norms and procedures for service providers; creating procedures for hiring, training and promotion of extension workers; and improving supervision, accountability and incentives.

Ideally, both approaches should be combined. Involve the central level to ensure that an innovation is integrated into the system structure, budget and practices, while using the decentralised approach to implement the intervention. The decentralised approach has the advantage of encouraging local initiatives, spontaneity, mutual learning and problem-solving (WHO/ExpandNet, 2012). Adaptive strategies and flexibility are important elements of success in scaling up. The local administrative structure to a large extent dictates the approach being used.

The other option may be reducing the targeted scale, and/or using a phased expansion. Start working in areas where local government units and NGO capacity exist. Simultaneously invest in capacity and capability-building. Resist the pressure for “explosive” scaling up. Gradual, phased expansion is the most successful. This will provide time to establish lasting institutional capacity at all levels and ensure that the innovation is sustainable. Kohl (2012) recommends specifying in the design phase what the potential scale is, and then, during the pilot implementation, adjusting so that the ultimate design is aligned with existing capabilities and capacities. This will avoid investment in an un-scalable model or project. However, if the effective large-scale implementation of new intervention implies greater capabilities than exist, there is no way around investing in systems and organisations.

Expansion and replication becomes more complex when the scaling up is managed by multiple organisations in multiple locations, as is the case in many Sub-Saharan African countries (SSA).



“ Training must be combined with other organisational and even system-strengthening activities.

4 Climate smart agriculture and scaling up

Agricultural technologies may have environmental consequences, both negative and positive. Environmental impacts include on-site market impacts, on-site non-market impacts, off-site market impacts and off-site non-market impacts (Lubulwa and Davis, 1994). Agriculture is also considered to be one of the greatest contributors to greenhouse gas emissions, and thus to climate change. The most commonly used definition for CSA is provided by the FAO: “agriculture that sustainably increases productivity, enhance resilience (adaptation); reduces/removes CHGs (mitigation) where possible, and enhance achievement of national food security and development goals” (FAO, 2013). Thus the three pillars of CSA are: productivity, adaptation and mitigation. CSA is based on sustainably improving agricultural production and increasing income; improving agricultural resilience to climate change; and mitigating greenhouse gas emissions, all of which are necessary considerations when scaling up (Westerman, 2015). Inherent in the notion of CSA is the need for hundreds of millions of smallholder farmers to adopt climate smart practices and technologies, which will inevitably involve new and innovative ways of moving to scale. In this context a gap between researchers, policy makers and practitioners continues to exist. Despite huge efforts to disseminate, apply and scale up the result of research, these efforts are often insufficient or inadequate (Hartmann and Linn, 2008). Incremental change is no longer considered enough to bring about the societal changes needed to mitigate and adapt to climate change and enhance food security.

Scaling up of CSA technologies and practices brings its own challenges, given the considerable uncertainty, incomplete or contradictory knowledge, and high stakes for billions of people. Addressing the complexities of climate change in general, but particularly in terms of its cross-level dynamics, requires a multi-dimensional approach (Westermann, 2015).

Even more than other types of projects, CSA demands context-specific solutions because climate change affects different areas in different ways. This fact may limit its potential for scaling up (Binswanger and Aiyar, 2003). Successful scale-up may create sophisticated new experiences and highly dynamic circumstances. In such cases, there may be no blueprints for CSA practices (Westermann, 2015).

Some CSA technologies and practices—improving organic matter and water-holding capacity in soils, planting trees and managing landscapes—may take a long time to produce benefits. Many farmers are reluctant or unable to invest substantial time and resources in new crop varieties, input, technologies or practices that, to them, seem to provide uncertain results in the long term (Hartmann and Linn, 2008; Franzel et al., 2001). Many smallholders are interested in avoiding risks, and reaping maximum returns from minimal inputs (Rohrbach and Okwach, 1999). Some CSA technologies may require extra incentives to promote adoption.

Westermann and colleagues (2015) argue that in order to overcome the challenges inherent in the conventional approaches to scaling up, it is necessary to introduce CSA into existing structures. “It may not be necessary to invest in scale, but rather to partner with actors who already have achieved scale, and in this way add value to what others are doing” (Westermann, 2015: 15). This can imply intervention upstream at higher leverage points in the system.

Another viable option may be to incorporate environmental assessment in evaluating technologies and practices and in making recommendations.

4.1 Scalability

4.1.1 What is Scalability?

According to Holcombe (2012), scalability “is the potential of a particular innovation or change to be scaled up or expanded, adapted or replicated.” It gives a level of confidence about a proven innovation realising its potential impact. Scalability deals with the expansion of successful projects, and addresses when and whether a decision should be made to adjust or abandon testing an innovation. There is no established theory or model for measuring scalability. There are no blueprints. But there are an emerging number of analyses that propose guidelines for analysing and planning scaling up. It is worth noting that it is easy to define scalability in theory, but the meaning of this term in practice is broad and diverse.

As pointed out repeatedly in the literature, planning for scaling up starts at the design of a pilot project (Cooley, 2006; Linn, 2012; Simmons, 2007; Holcombe, 2012; IFAD, 2013). Often a decision to move toward scaling up must be made based on inadequate information, before all conditions are met, and even before the theory of change is validated fully. Although it may not be comprehensive, use of simple tools to assess scalability can allow implementing organisations and funders to focus on a small number of actions that will pull along the other implementation steps required for a comprehensive scaling-up process.

4.1.2 Measuring Scalability

Based on the literature, there are three approaches that had been used in the past to measure scalability. The first was proposed by Cooley and Kohl (2006), using what is known as the simplicity-complexity index to guide decision-making particularly in the early stages of pilot testing. Complexity may be inherent in development problems, but the level of complexity is especially high when an innovation depends on close coordination of multiple inputs or encouraging behavioural changes in participants. The literature suggests that complexity constraints implementation, while simplicity makes it easier. The greater the complexity involved in the innovation model and its implementation, the more difficult it will be for the model to succeed and to scale up.

The elements that contribute to complexity include the number of decision-makers; the degree of departure from existing practices and behaviours; required changes to values and practices; level of technical sophistication; and the requirements for technology, infrastructure and facilities. Using a set of questions related to these variables, a simplicity-complexity index of scalability is computed. It was intended to be a simple tool for practitioners. Using the original set of questions as a guide, a revised tool was prepared and used in a subsequent World Bank study. This modified tool, presented in Annex 5, lays out a set of questions about the factors that will simplify or complicate the implementation of an innovative project and of any scaling efforts. The issues addressed include clarity and credibility; legitimacy; evidence and observability of effectiveness and efficiency; finances; alignment and linkages; and complexity, co-ordination and behavioural changes.

The simplicity factors are those that will support or drive implementation of scaling up. Complexity factors will make implementation more difficult. The tool offers a crude assessment of the simplicity or complexity of an innovation. It is not a substitute for the more detailed analysis required once the decision has been made to invest in scaling up.

A second study, commissioned by the World Bank and guided by Holcombe and colleagues (2012), looked at 22 successful pilot projects as part of a larger effort to examine scaling up of innovations in agriculture and rural development lending. It used a number of instruments in addition to the simplicity complexity assessment.

The World Bank study also assessed the drivers of scaling up, as well as the spaces and opportunities that may influence the process. The final decision regarding scalability is made using the outputs of all of these analyses. This approach uses the framework proposed in the previous section and was used in evaluating the pilot projects for further investments. The various aspects considered in this analysis include innovation, alignments, drivers, spaces and the type of scaling. The various factors analysed, questions and the proposed tools for analysis are summarised in Annex 6.

Holcombe (2012) also raised two important paradoxes that further explain the challenges associated with scalability assessment:

- Paradox one is that we want proof of innovation impact and scalability before deciding to scale up, but decisions on scaling up need to be made before there is adequate information (related to eventual outcome or developmental impact). In fact, planning for scaling up starts in the design of a pilot project. Pilot tests of innovations may produce incomplete information on whether the innovations were cost-effective or how the delivery system worked, and on opportunities for and constraints to scaling up. Stakeholders need a systematic way to make decisions to go to the next step, even in the absence of full information.
- The second paradox is that if planning for scaling up must begin during the testing phase, then the search for the best agency to implement scaling up must also be taken seriously. That is, it may be appropriate to assume that scaling up is a possibility even before the innovation is fully tested. In the R&D arena, innovations are often tested by pioneering organisations, and these may or may not be the appropriate agencies to implement the scaling up.

The WHO/ExpandNet study proposed a checklist for assessing the potential scalability of pilot projects, with 19 questions (see Annex 7). This checklist was based on a set of recommendations on how to design pilot projects with scaling up in mind. Based on a comprehensive review of multiple literature and field experiences, ExpandNet/WHO identified a set of

conditions that should be considered when pilot projects are designed and throughout the process of implementation that could facilitate a future scale up. The proposed practices and their underlying rationales are summarised in Annex 8.

In completing this check list, a plus (+) refers to a positive factor for scaling up, a minus (-) a negative one. The fewer the checks in the plus column, the more effort will likely be required to scale up. This checklist should not be used mechanically, because a large number of pluses in the columns does not necessarily mean a proposed intervention will be scalable. For example, if the proposed intervention is not aligned with the priorities of the end users, the value of further pursuing the project is questionable, and abandoning may be the appropriate action, regardless of the number of pluses.

Using this knowledge from the literature, the conceptual framework outlined in section five, as well as the personal experiences of the author, a simple model was developed to facilitate decision-making with respect to scalability. The details of this proposed model is discussed in the next section.

4.2 Proposed model/approach for assessing scalability

Moving from an innovative idea in a small pilot project to a large-scale intervention is an iterative process. There is no specific time in the project cycle to make a decision about scaling up. The agency testing an innovation must constantly be thinking about scaling, with particular attention to the following issues:

- The innovation itself and the theory of change that explains how innovation works to produce the intended outcome
- The credibility and clarity of the innovation among key stakeholders and agencies that may be involved in scaling up
- Legitimacy of the innovation, and whether it is locally owned and embedded
- Perceptions and evidence of the innovation's benefits and efficiency
- Simplicity of the innovation and ease of implementation
- Financial model that promises sustainability
- Capability of the implementing organisation in terms of leadership and management
- Enabling policy and legal framework
- Alignment with the priorities of the end users, government policy and priorities of key stakeholders, including the donor.
- The type of scaling up and the pathway
- Planning for scaling up, including careful evaluation of the implementation process and the impacts of the innovation

Providing proof of feasibility and laying the groundwork for further large-scale implementation is the first major step towards successful scaling up. Some elements identified in the list above are necessary conditions for scaling up, while others act as complementary or sufficient conditions. For example, the relevancy and superiority of the innovation is vital; without those elements, the value of further pursuing the project is questionable.

Given these parameters, the process of assessing the scalability of an innovation can be broken down into two components. First, the necessary conditions for scaling up must be present. Once the necessary conditions are met, the sufficient conditions should be assessed. This report proposes a six-step process to measure and assess the scalability of an innovation.

- Step 1: Identify all conditions required for successful scaling up, both necessary and sufficient.
- Step 2: Ensure that all necessary conditions are met. If they are not, one should not proceed with scaling up. Assessment of the innovation and its attributes is a key component of this step.
- Step 3: Conduct a modified SWOT analysis of the organisations engaged in the scaling-up intervention. This analysis will enable us to assess whether the sufficient conditions have been met. It will also help identify activities that need to be included in the scaling-up process to enhance adoption.
- Step 4: Using the scoring approach, assess the sufficient conditions required for scaling up. This step involves the estimation of a scalability index.
- Step 5: Using the information from steps 3 and 4, identify actions needed to address the weaker conditions.
- Step 6: Using the information gathered in steps 2, 3, 4 and 5, make a decision about the follow-up actions needed to move forward.

It is important to keep in mind that this is a participatory assessment based on perception analysis. Decisions are based largely on consensus. To minimize biases, the assessment team should be led by a facilitator who is familiar with the processes of collective decision-making but has no vested interest in the outcome. In addition to the key stakeholders, the team should include members with the technical experience needed to diagnose the most likely scalability and operational constraints. In a good assessment process, some members are drawn from outside the implementation team and have a broad range of technical and social skills.

The four major steps involved in the analysis are described in the following sections.

4.2.1 Assessing the innovation or the necessary conditions

This step starts by defining what constitutes the innovation package. List all the components and activities that were necessary to implement the innovation. If necessary, each component of the innovation package should be evaluated separately. This will allow the critical components to be identified. Table 2 can be a useful tool to assist in this process.

Table 2: Assessing the innovation or the necessary conditions

	Attributes	Yes	No	Comments/what needs to be done
1.	Proven and tested, evidence exists			
2.	Results/evidence are clearly associated with the innovation			
3.	Addresses the persistent problem of the end users			
4.	Innovation has been tested in local setting and assessed by beneficiaries			
5.	Provides relative advantage over existing practice			
6.	The increased benefits is observable and significant (net benefit is greater than the additional cost, and rate of return is acceptable)			
7.	Easy to understand and install			
8.	Compatible with the culture and norms of the end users			
9.	Compatible with the existing production system and resource-use pattern of the end users			
10.	Innovation is locally owned or embedded			
11.	Potential risk relatively low			
12.	Innovation has been tested in a variety of sociocultural and geographic settings			
13.	Innovation is climate smart			
14.	The innovation is likely to be sustainable in the setting where it will be scaled up			

All innovations must meet conditions 1-6 to justify moving to the next step. If the response to any of items in items 6-13 is no, these issues should be addressed in the scaling-up project.

4.2.2 Analysing the preparedness of key partners

Tools such as the stakeholder analysis and SWOT analysis are useful for this exercise. First, identify the key stakeholders. For each one of them, establish which action pathway in the scaling-up process they will contribute to, what competencies are required to deliver on the expectations, what capacities and capabilities exist and what needs to be done to bridge the gaps. Based on informal discussions, complete Table 3 below.

Table 3: Mapping and analysing the system/assessing the preparedness of the stake holders

Organisations/actors involved in scaling up	Action pathway each actor will contribute to	Competency/capacity requirement	What capacity exists	What needs to be done

4.2.3 Evaluation of sufficient conditions and calculation of scalability index

This is a seven-step process.

Step 1: Select the key sufficient conditions that will promote scalability. Based on the review of past case studies and the analytical framework proposed, ten sufficient conditions are listed below (also see Table 12):

- A clear vision, strategy and pathway for scaling up exists
- Target group is actively engaged in piloting and prepared for scaling up
- Drivers of change exist and are effective
- Enabling environment is conducive to scaling up
- There is legitimacy and the innovation is well-aligned and embedded
- The necessary partnership exists, and the partners are fully engaged
- Coordination issues are addressed and the decision-making process is relatively simple
- A plan for M&E and learning space exists and functional
- Lead agency and partner organisations are identified and ready for implementation
- An ex-ante cost benefit analysis is complete and favourable

The first step in assessing the sufficient conditions is to examine this list in relation to the scaling up proposed. It can be modified to address special conditions depending on the circumstances.

Ideally, an ex-ante assessment should be done at the planning stage of the initiative. At this stage costs and benefits are uncertain, and the values assigned to them are only estimates. B-C seeks to assess private and public investments in terms of both the economic and social benefits generated, as well as the economic and social costs incurred by society to execute the project. Such an assessment will also assist in convincing the funders and policymakers to support the scaling-up initiative. Through ex-ante evaluation, one can define the baseline against which progress will be measured—the targets as well as the assumptions used in making projections. This will assist in defining the data to be collected for the ex-post analysis.

Step 2: Review and adjust the question sets for each of the sufficient conditions identified. Each sufficient condition has attributes that could either positively or negatively contribute to the scaling-up process. A number of analytical questions were used to assess these attributes. To assist the decision-makers, a basic set of attributes are provided for each of the sufficient conditions in Tables 4-11. This list should be examined and adjusted so that they are appropriate for the proposed scaling-up initiative. Since partnerships, coordination and complexity are closely linked, these aspects are combined for the scoring process in Table 12.

Step 3: Score the Individual attributes. All attributes discussed and agreed upon in the previous step need to be scored. The scale to be used to measure the degree to which these attributes are met or addressed in the pilot project and/or the proposed scaling up should be determined in a participatory process. The scale can be defined based on the attribute considered. It is important to keep in mind that these are subjective scores based on the existing knowledge perception analysis. Ideally, this should be done by the pilot project implementing team and other key stakeholders—including those with the best relevant technical expertise—**under the guidance of an external facilitator.**

The scores for individual attributes are established by discussion and consensus. These are summed to yield a total score for the condition being assessed. A low score indicates that these conditions are not strong and action should be taken to address the weakness in the scaling-up project.

Table 4: Scoring **vision and strategy**

This is an overall description of the innovation to be scaled up, the intended beneficiaries and how scaling will be organised, financed and implemented. How will challenges be overcome and opportunities exploited? How fast will it be implemented? How will results be monitored and lessons shared? The scaling up strategy is an opportunity to ensure that work is planned thoroughly.				
Attribute	Dimension	Scoring guide	Actual score	Comments
A common vision for scaling up exists	Vision exists	Yes = 2 No = 1		
	Vision is shared by all stakeholders	Yes = 2 No = 1		
The strategy has adequately addressed the threats and opportunities	Threats and opportunities are clearly identified	Yes = 2 No = 1		
	Threats and opportunities are addressed	Fully/adequately addressed = 3 Partially addressed = 2 Not addressed at all = 1		
Time-dependent indicators are clearly identified		Indicators clearly defined = 3 Expectations somewhat clear = 2 Expectations not clear = 1		
Scaling-up project is designed in light of agreed stakeholder expectations		Yes = 2 No = 1		

Table 5: Scoring involvement and capacity of end users

The target beneficiaries/end users are not passive recipients of innovations. They are active partners in the design and implementation of the scaling-up process. Full participation of end users is critical.				
Attribute	Dimension	Scoring guide	Actual score	Comments
Engagement	Target group for scaling up is well defined	Yes = 2, No = 1		
	Innovation is a priority for the target group	High = 3, Medium = 2 Low = 1		
	Target group is involved in designing the pilot project	Actively = 3 Passively = 2 Not involved = 1		
	End users were involved in the monitoring and evaluation of pilot project	Actively = 3 Passively = 2 Not involved = 1		
	Concerns and suggestions of end users were addressed in adapting the innovation	Completely = 3 Partially = 2 Not used = 1		
Capacity	End users have the necessary skills to successfully implement the innovation	Necessary skills exist = 3 Need skills but addressed = 2 Need skills but not addressed = 1		
	End users have necessary financial resources to successfully implement the innovation	No external resource needed = 3 External resources needed, mechanisms in place = 2 External resources needed but not in place = 1		
	Risk associated with the innovations are addressed and mitigated	Fully = 3 Partially = 2 Not addressed = 1		

Table 6: Scoring drivers

Drivers play a catalytic role in promoting the adoption of innovation. This may be an individual/group/organisation committed to the scaling up, either formal or informal. Drivers are the champions and leaders of initiating and promoting the implementation of scaling up. It is important to keep in mind that driving and delivery are very different functions. Drivers need a variety of skills: ability to win over local support and build an effective coalition; competency in technical areas; skills in management and training; and a talent for resource mobilisation.				
Attribute	Dimension	Scoring guide	Actual score	Comments
	Clearly identified champions and leaders in place	Yes = 2 No = 1		
	Champions are well respected individuals in the society/community	Yes = 2 No = 1		
	There is an articulated demand for innovation	Strong = 3 Weak = 2 None = 1		
	A credible and demonstrated model exists and is widely known	Yes, well known = 3 Yes, partially known = 2 Not known = 1		
	Champions have the necessary skills	Yes = 2 Skill-building required = 1		
	Resources for champions to operate are provided	Fully = 3 Partially = 2 Not at all = 1		

Table 7: Scoring the enabling environment

These are the external conditions that affect the processes and prospects of scaling up. An understanding of the environment within which the scaling up occurs permits realistic expectations of the extent to which change is possible. External factors that are influencing or likely to influence the scaling-up process should be identified and addressed to exploit opportunities and to minimize or eliminate threats.

Attribute	Dimension	Scoring guide	Actual score	Comments
Policy environment	Innovation and scaling up in line with existing national policies	Yes = 2 No = 1		
	Additional policy support is needed to enhance scalability	Needed policies identified and addressed = 3 Needed policies identified but still being enacted = 2 Needed policies identified but not addressed = 1		
	There are advocates to engage with policy makers	Yes, active = 3 Yes, passive = 2 No = 1		
Cultural environment	Innovation in line with norms, attitudes and beliefs of the community	Yes = 3 No, but easily addressed = 2 No, and difficult to address = 1		
	Innovation in line with norms, values and operational culture of the organisations involved	Yes = 3 No, but easily addressed = 2 No, and difficult to address = 1		
Political space	There is political support for the project	Strong = 3 Moderate = 2 Weak = 1		
	Political considerations are incorporated in the design of the project	Fully = 3 Partially = 2 No = 1		
	Support from farmer groups and civil society organisation exists	Strong = 3 Weak = 2 No = 1		
	There is political stability for uninterrupted scaling up	Yes = 2 No = 1		
	There is strong public endorsement for the innovation	Strong = 3 Moderate = 2 No = 1		

Enabling environment (continued)

Attribute	Dimension	Scoring guide	Actual score	Comments
Financial space	A financial sustainability plan exists	Yes = 2 No = 1		
Adequate funding assured	Yes = 3 Additional funding needed, a resource mobilisation plan exists = 2 Additional funding needed, no resource mobilisation plan = 1			
Continuous engagement with donors and others to build a broad base of financial support	Yes = 2 No = 1			
Innovation generates resources	Yes = 2 No = 1			
Capacity space	Competencies among the different agencies and actors exist	Adequate = 3 Inadequate, plan to address exists = 2 Inadequate, no plan to address = 1		
Communication and knowledge management space	A communication strategy exists	Yes = 2 No = 1		
Mechanisms for sharing findings and insights in place	Yes = 2 No = 1			
Adequate resources provided for effective communication	Adequate = 3 Moderate = 2 No = 1			
Natural resources and environmental space	Effect of the innovation on the environment is known and well understood	Yes = 2 No = 1		
Environmental consequences are addressed in the design and evaluation	Fully = 3 Partially = 2 Not addressed = 1			
Economic space	Economic situation is viable for end users and private sector	Yes = 2 No = 1		

Table 8: Scoring legitimacy and alignment

For an innovation to succeed there should be alignment between the innovation being tested and the policies and practices of the governments, donors and other major stakeholders, particularly those agencies most likely to contribute to implementation. Although outside agencies can contribute and facilitate, scaling up needs to be integrated into the national policies and priorities in order to gain legitimacy. The projects must also be seen as locally embedded.				
Attribute	Dimension	Scoring guide	Actual score	Comments
Legitimacy and alignment	The innovation is aligned with government goals, priorities and policies	Yes = 2 No = 1		
	The innovation is aligned with the mandate and practices of the lead implementing agency	Strongly = 3 Moderately = 2 Weakly = 1		
	The innovation is aligned with the policies and priorities of the donors	Strongly = 3 Moderately = 2 Weakly = 1		
	The innovation is aligned with the mandate and practices of the facilitating organisations	Strongly = 3 Moderately = 2 Weakly = 1		
	The innovation is aligned with the practices of the target group	Yes = 2 No = 1		
	The innovation is relevant to the perceived needs of the stakeholders	Yes = 2 No = 1		
Embedded	Innovation is locally owned and embedded	Yes = 3 No, but plan in place = 2 No, and no plan = 1		
	There was an active engagement of government agencies during pilot testing	Strong = 4 Moderate = 3 Low = 2 Not at all = 1		
	There was active engagement of the donors during pilot testing	Strong = 4 Moderate = 3 Low = 2 Not at all = 1		
	Government is willing and ready to incorporate the innovation into ongoing development activities	Yes = 3 Maybe = 2 Not sure = 1		
	Donors are ready and willing to incorporate the innovation into ongoing development activities (long-term commitment)	Yes = 3 Maybe = 2 Not sure = 1		

Table 9: Scoring partnership, coordination and behavioural change

Partnerships and institutions are the core of innovation. Scaling-up processes involve a multiplicity of actors and decision-making. Meaningful partnership among the key actors is critical for success. The number of actors, decision-makers and decision points can influence the process. The more actors and agencies are involved, the greater the challenge of coordination. The more power to decide is diffused, the greater the challenge of coordination. Behavioural change is also crucial for scaling up.

Attribute	Dimension	Scoring guide	Actual score	Comments
Partnerships	The key stakeholders are identified and included	Yes = 2 No = 1		
	Inputs from the stakeholders are sought and incorporated	All inputs incorporated = 3 Some inputs incorporated = 2 Inputs not included = 1		
	Scaling-up project is designed in light of agreed-upon stakeholder expectations	Yes, fully = 3 Yes, partially = 2 No = 1		
	A partnership strategy exists	Yes = 2 No = 1		
	Roles, responsibilities and commitments of partners are clearly articulated and understood	Yes, fully = 3 Yes, partially = 2 No = 1		
	Rules of engagements are clear and understood by all partners	Fully = 3 Partially = 2 No = 1		
Coordination and Complexity	Number of key actor groups kept to the critical minimum	3-5 actor groups = 3 5-7 actor groups = 2 More than 7 actor groups = 1		
	Threats and opportunities are addressed	Fully/adequately addressed = 2 Partially addressed = 1 Not addressed at all = 0		
	The number of decision points involved kept to the minimum	Less than 3 = 3 3-5 points = 2 Greater than 5 = 1		
Behavioural change	Successful scaling up requires changes in behaviour of the target group	Significant changes = 1 Moderate changes = 2 Minimum changes = 3		
	Scaling up requires changes in behaviour of the implementing and facilitating agencies	Significant changes = 1 Moderate changes = 2 Minimal changes = 3		

Table 10: Scoring monitoring and evaluation

Monitoring the implementation and periodical evaluation is crucial for assessing progress, identifying aspects that are not working and identifying lessons learned. Good monitoring documents that the innovation can be implemented and produce the intended results, thus providing evidence of scalability.

Attribute	Dimension	Scoring guide	Actual score	Comments
M&E	An M&E system exists	Yes = 2 No = 1		
	A results framework exists	Exists, fully operational = 3 Exists, partially operational = 2 Does not exist = 1		
	The implementation process is monitored and documented	Yes = 2 No = 1		
	Active engagement of the beneficiaries in M&E	Strong = 3 Weak = 2 None = 1		
	Systematic evaluations are included in the design, and resources are allocated	Yes = 2 No = 1		
	Intermediate outcomes are measured, documented and shared	Monitored, documented and shared = 3 Monitored and documented = 2 Not monitored = 1		
	Opportunities exist to share results and to incorporate new learning into the implementation process	Yes, formal = 3 Yes, informal = 2 No = 1		
Ex-ante benefit-cost analysis	B-C analysis completed	Yes = 2 No = 1		
	B-C ratio and IRR are competitive and attractive	Yes = 2 No = 1		



Table 11: Scoring facilitating organisations and intermediaries

“Delivery organisations” are those that are actually involved in the scaling-up operation, facilitating the wider use of the innovation. These may include government agencies, extension services, NGOs, community organisations, service providers and donors. An assessment of the organisational capacity of an agency relies on questions about leadership, systems and learning capacity.

Attribute	Dimension	Scoring guide	Actual score	Comments
Lead Agency	A lead organisation has been identified	Yes = 2 No = 1		
	Members of the lead organisation were involved in the design and implementation of the pilot project	Actively = 3 Passively = 2 Not involved = 1		
	The leadership capacity of the lead agency is adequate for successful implementation	Adequate = 3 Inadequate, but plan in place = 2 Inadequate, and not planned = 1		
	The staff of the lead agency has the capacity to implement the project	Yes = 3 No, but plan to build capacity exists = 2 No, and no plans = 1		
	The lead agency has the culture of a learning institute	Yes = 2 No = 1		
Facilitating Organisations	The leadership of the facilitating organisation is adequate for effective implementation	Adequate = 3 Inadequate, but addressed in the plan = 2 Inadequate, and not addressed = 1		
	Staff of the facilitating organisations has the capacity to implement the projects	Yes = 3 No, but addressed in the plan = 2 No, and not addressed = 1		
	Staff of the facilitating organisations was involved in the design and implementation of the pilot project	Actively involved = 3 Passively involved = 2 Not involved = 1		
	The other facilitating organisations have the culture of a learning institute	Yes = 2 No = 1		

Step 4: Using the scoring procedure to estimate the effectiveness ratio

Effectiveness ratio = actual score / maximum potential score

The maximum potential score for the set of questions is given in Table 12. The actual scores are the estimates from the participatory scoring exercise. The effectiveness ratio is calculated by dividing the actual score by the maximum score possible.

This ratio measures the degree to which this condition is met in terms of its contribution to scalability

Table 12: Estimation of scalability Index

	Key elements/sufficient condition	Maximum potential score (1)	Actual score from step (2)	Effectiveness ratio (3)=2/1	Relative importance and score (4)	Contribution to scalability index (5)
1	A clear vision, strategy and pathway for scaling up exists	14				
2	Target group actively engaged in piloting, prepared for scaling up	23				
3	Drivers of change exist and are effective	15				
4	Enabling environment is conducive for successful scaling up	58				
5	There is legitimacy and the innovation is well aligned and embedded	32				
6	The necessary partnership exists, partners are fully engaged, coordination issues are addressed, the process is relatively simple	31				
7	A plan for M&E and learning space exists and is functional	18				
8	Lead agency and partner organisations are identified and ready or implementation	24				
9	An ex-ante benefit-cost analysis (economic and social) is completed and favourable	4				

Scalability index = sum of the scores in column 5

Step 5: Allocation of points across the sufficient conditions. Using a total score of 100, distribute these points across the 10 sufficient conditions identified. This allocation should reflect the relative importance of each of these conditions for successful scaling up. During the pilot testing of the model it was identified that the project staff had difficulties in assigning weights and distributing the total score allocated. To address this issue, the participants were asked to identify conditions from the list that will have a high, moderate and low impact on scaling-up outcomes. The conditions which were rated as high (H) were given a weight of 3; the conditions with moderate (M) impact were given a weight of 2, and the conditions with low (L) impact were given a weight of 1. Using these weights, the total score of 100 was distributed in order to get the individual scores in column 5 in estimating the scalability index in step 6.

Step 6: Calculate the scalability index. Using the ratio estimated in step 4 and the scores assigned in step 5, the contribution of each sufficient condition to scalability is estimated by multiplying the scores in column 4 by the effectiveness ratio in column 3. The scalability index can be calculated by adding the contribution of individual conditions given in the last column in 5.

Step 7: Prepare a summary report of the comments recorded in the last columns of Tables 4-11 and table 2. This will enable one to identify corrective actions that should be included in the scaling-up project proposal to address the weaknesses identified.

Step 8: Assess the scalability of the initiative and follow up. In scoring, each of the attributes in step 3, if the total actual score is much lower than the total maximum potential score assigned, then the reason for this should be discussed. The group can also discuss how this could be addressed during scaling up. The necessary action needed to improve this score should be included in the design of the scaling-up project in case a decision is taken to move forward. The scalability index in combination with the other two analyses could be used to make a decision about scaling up the successful, proven innovation tested in the pilot project.

If the scalability index is greater than 75, then the scalability is high. This indicates that a majority of the necessary conditions are in place. Scaling up will be successful with minimal effort or additional investment. Note that these innovations have met the sufficient conditions: they are relevant, appropriate and superior.

If the score for the index is 50-75, then the scalability is moderate. A number of issues may need to be addressed for the scaling up to be successful. Necessary actions should be taken prior to or during the implementation of the pilot project.

If the score is less than 50, then the scalability is low. A significant effort is needed to put in place the sufficient conditions before the scaling up is planned and implemented.

It is important to keep in mind that the results of all three assessments—the innovation (the necessary condition), modified SWOT analysis (the capacity and capability of the key partners) and the scalability index (the sufficient conditions)—should be considered simultaneously in making a decision whether to scale up. The summary report from step 7 will assist in the identification of areas that will enhance the scalability of the project.

Ideally, the assessment should be done jointly with the organisation implementing the pilot project, the agency most likely to lead the scaling up, and the other key stakeholders, including the ultimate beneficiaries. It should be facilitated by external technical experts.

While testing, in addition to collecting evidence on innovation, it is important to identify the organisations best suited for expanding or replicating the innovation, find local champions and build broad support among relevant stakeholders. It is also important to build the capacity needed for scaling up and to weed out the components that are not working or that show little promise of scalability.

Once the initial decision has been made on the scalability of a pilot project, it is necessary to collect additional information on the effectiveness and reach of the implementation, as well as on the financial as well as the social and political viability of the innovation.

There is no single time to make a decision about scaling up. Rather, the agency implementing the pilot project, along with the funder supporting the project and other relevant partners, must constantly think about scaling-up. They should identify which agency will drive scaling up and the potential champions who will support the process. They should actively seek funding for scaling up, thus eliminating any gap in the momentum of innovation implementation. Based on this assessment, a decision has to be made on the appropriateness of the innovation package for scaling up. If the innovation involves several components, partners should reach consensus on whether all or only a subset of the innovations should be scaled up.

4.3 Advantages of the proposed methodology

The proposed methodology has a number of advantages:

- It is simple and easy to implement.
- It does not require much quantitative data, but the additional quantitative analysis can add value to the decision-making process.
- Given its simplicity, the entire range of stakeholders in the innovation system can participate in the analysis and subsequent decision-making.
- It does not involve rigorous analytical techniques. Participatory tools and soft skills are adequate for the analysis involved, because it largely depends on perception analysis.
- In addition to serving as a measure of scalability, it could be also used as a diagnostic tool, to identify potential constraints to scaling up.
- Potential biases can be minimised by employing an external facilitator with no vested interest in the outcome, as well as members with the best possible technical expertise.

The major requirement is a good understanding of the scaling-up process in the local setting and effective participation and engagement in the pilot testing.

4.4 Validation and field testing of the proposed methodology

It was proposed to field-test the model by visiting selected projects in two of the five Vuna member countries. The original idea was to select one project where Vuna is involved and two other projects with a track record of successful scaling up. The Vuna country representatives were requested to identify suitable projects in Tanzania, Zambia and Zimbabwe. Soon it was realised that it was difficult to identify both successfully scaled-up innovations and the participants who would voluntarily participate in field-testing the model. This study is a priority for Vuna, but not for those projects. The current operational modality of Vuna is also not ideally suited to approach senior government officials to seek collaborations. Recognising these difficulties, in consultation with Vuna country representatives and professional staff, it was decided to visit Zambia and Zimbabwe to hold wider consultation with the ongoing scaling-up project implementers and development partners to seek feedback on the proposed approach.

In addition to holding discussions with project staff, the consultant also met with some key informants (who had considerable knowledge of R&D processes and scaling up of development initiatives) to discuss the technical soundness, suitability, relevance and operational difficulties in using this approach. The projects visited and the individuals contacted in each country are given in Annex 9. The key questions addressed during the discussions were: can the model predict the scalability of a pilot-tested intervention? And is the model practical to use?

The projects visited include:

- The electronic voucher system (e-voucher, a component of FSIP), Zambia
- CHC commodities, Zambia
- NWK Agri-Services mechanisation scheme, Zambia
- Drought Tolerant Maize for Africa (DTMA)
- Sustainable intensification of maize-legume cropping system for food security in Eastern and Southern Africa (SIMLESA)
- Zimbabwe Super Seeds
- Sesame and Pulses Project (SIDEELLA, SNV and Feed the Future)

The consultant also prepared a guideline to facilitate the discussion (see Annex 10). In two of the projects (e-voucher in Zambia and Super Seed in Zimbabwe), where Vuna is planning to collaborate in the near future, participants also scored the set of questions and estimated the scalability index. In these two cases the entire approach was discussed in detail. The key findings and the lessons learned in using the proposed approach are summarised below. Annex 11 provides brief descriptions of the CHC commodities, NWK Agri-services, DTMA, SIMLESA and Sidella Sesame and Pulses projects.

4.5 Logic and technical soundness of the approach

There was unanimous endorsement that the proposed approach was logically consistent and technically sound. The approach can be used to assess any innovation for scaling up and is flexible enough to be context-specific. The scalability index can be used to measure the degree of success that can be expected, as well as a diagnostic tool to identify additional investments that have to be made for successful scaling up. Some organisations (IAPRI, Feed the Future) are ready to apply this approach to assess projects they are currently working on. One expert observed that “the index may have a greater public use.”

4.6 Relative importance of the sufficient conditions

The participants were asked to assess the relative importance of the 10 sufficient conditions identified as necessary for successful scaling up. Participants had some difficulties in allocating scores. To simplify the process, the respondents were asked to identify the conditions that will have high (3), medium (2) or low (1) impact on successful scaling up. The scores given by the participants are summarised in Table 13.

Table 13: Assessment of relative importance of the necessary conditions by respondents

Sufficient condition	IAPRI	MUSIKA	SIMLESA	Feed the Future	CIMMYT	Beat	Super seeds	SIDELLA	SNV
Clear vision, strategy and pathway for scaling up exist	3 (H)	2 (M)	3 (H)	3 (H)	3 (H)	3 (H)	3 (H)	2 (M)	3 (H)
Target group actively engaged in piloting and prepared for scaling up	3 (H)	3 (H)	3 (H)	3 (H)	3 (H)	3 (H)	2 (M)	3 (H)	3 (H)
Drivers of change exist and effective	3 (H)	3 (H)	2 (M)	3 (H)	2 (M)	3 (H)	3 (H)	3 (H)	3 (H)
Enabling environment is conducive for successful scaling up	3 (H)	3 (H)	3 (H)	3 (H)	2 (M)	3 (H)	2 (M)	3 (H)	2 (M)
There is legitimacy and the innovation is well aligned and embedded	2 (M)	2 (M)	3 (H)	2 (M)	1 (L)	2 (M)	3 (H)	2 (M)	3 (H)
The necessary partnership exists and the partners are fully engaged	3 (H)	3 (H)	2 (M)	2 (M)	2 (M)	3 (H)	3 (H)	3 (H)	2 (M)
The coordination issues are addressed and the process kept relatively simple	2 (M)	3 (H)	2 (M)	2 (M)	1 (L)	2 (M)	3 (H)	3 (H)	1 (L)
A plan for M&E and learning space exists and is operational	3 (H)	2 (M)	3 (H)	3 (H)	3 (H)	3 (H)	3 (H)	3 (H)	1 (L)
The lead agency and partner organisations are identified and ready for implementation	3 (H)	2 (M)	3 (H)	2 (M)	2 (M)	3 (H)	3 (H)	3 (H)	2 (M)
An ex-ante benefit-cost analysis is completed and favourable (private / social / both)	2 (M)	1 (L)	2 (M)	1 (L)	2 (M)	2 (M)	2 (M)	3 (H)	3 (H)

Key: 3= High impact (H); 2= Moderate impact (M); 1 = Low impact (L)

Based on the participant's assessment, the following conditions will have a high impact on scalability:

- A clear vision, strategy and pathways for scaling up (including the theory of change and a long-term perspective)
- Engagement and preparedness of the target group
- Effective drivers of change
- Conducive enabling environment
- A fully engaged, committed and capable strategic partnership (lead agency and partner organisations)
- A functional M&E system and learning space

It is worth noting that market-driven projects gave high scores for ex-ante benefit-cost analysis. The ZSS project and the SIMLESA project have many of these conditions in place.

The survey participants gave a very low ranking for ex-ante B-C analysis. This is mainly because many of them are working on or associated with projects that are funded by the public sector and/or donor agencies. These agencies do not insist on a full B-C analysis to be included in the project proposal. In scaling-up projects, B-C analysis or the cost-effectiveness analysis should be an integral part of the project proposal. The type of analysis and the selection criteria used depend on the nature of the goods and services produced and delivered. In the case of publicly funded projects dealing with public goods, the appropriate analysis is the social B-C analysis, and the calculated IRR should be greater than the long-term bond rate. In some cases, cost-effectiveness analysis is more suitable. In investments that are producing private goods and services, the commercial sustainability of the project or investment is critical. Here, the appropriate analysis is the financial B-C analysis, and the IRR should be higher than the minimum acceptable rate of return, or than the returns from competing alternative investments. For those projects involving public-private partnerships, both financial and social/economic analyses are relevant. Thus, although it is rated low by the participants, ex-ante B-C analysis is necessary to guide investments in scaling-up projects.

4.7 Ease of application, scoring questions and computations of index

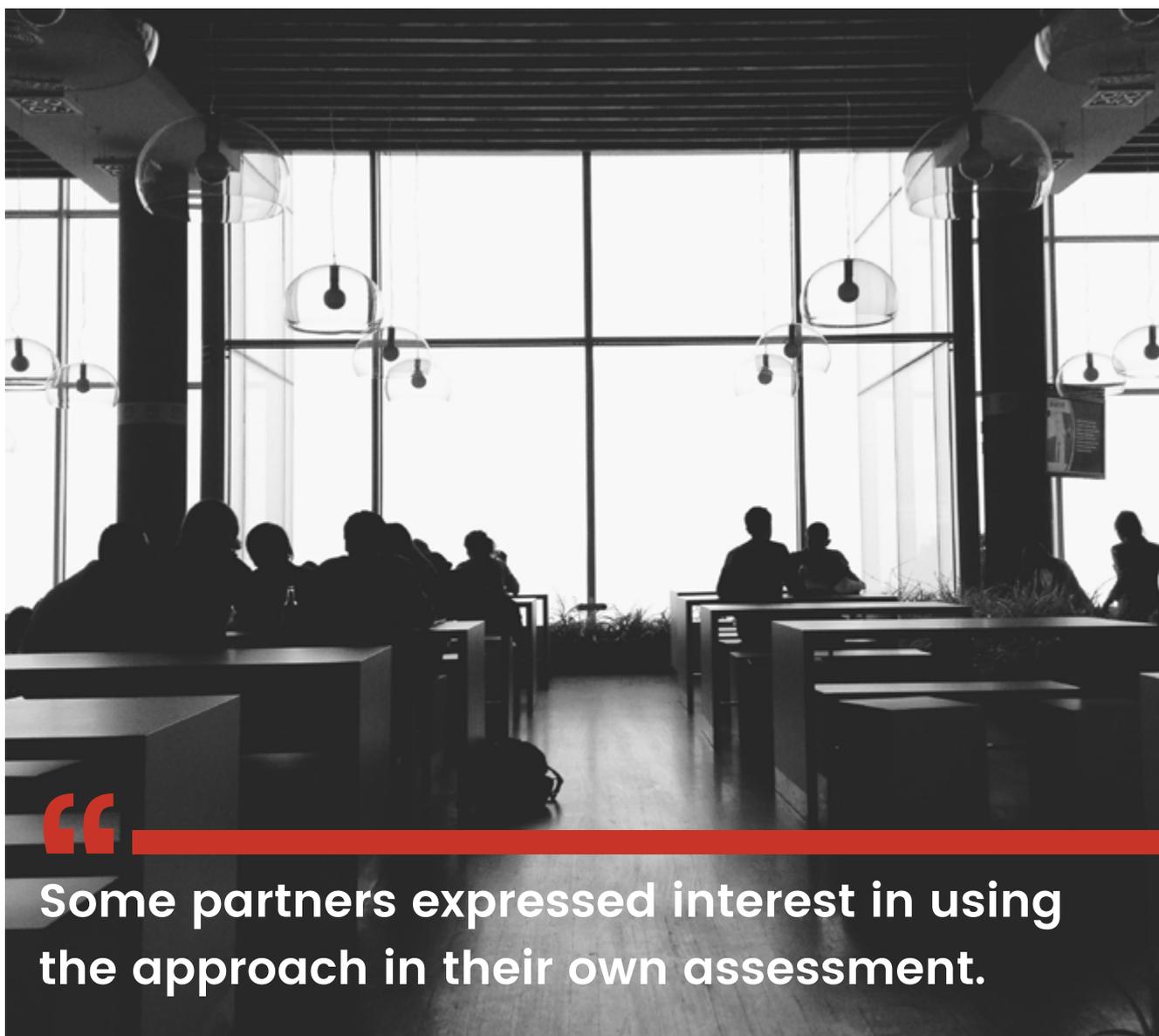
Only two groups worked through the entire process. Both groups agreed that the methodology is easy to use, provided they have full knowledge of the innovation and are fully engaged with the processes. As it was difficult to find voluntary and willing groups for wider testing, it may be good to further test the methodology when Vuna is planning to support new initiatives. Some partners expressed interest in using the approach in their own assessment. These partners may be able to provide feedback that could be used to refine and update the procedure. They also commented that the detailed question sets provide an opportunity to systematically think through the process. They were not in favour of further simplification of the approach proposed.

4.8 Assessment of proposed project for Vuna support

The two projects—the e-voucher system in Zambia and the Zimbabwe Super Seeds project—where Vuna has formed partnerships to support the scaling-up process were assessed using the approach.

4.8.1 Electronic voucher system, Zambia

The details of this project is presented in Box 1. This project has a strong political support and likely to continue. IAPRI staff used the methodology to assess the scalability and computed the scalability index. Although this is a complex project involving several components, the participants assessed the scalability of the e-voucher component only.



Some partners expressed interest in using the approach in their own assessment.

Box 1. The Electronic Voucher System (e-voucher) – Zambia.

The e-voucher programme is an integral part of the Zambian Government Farmer Input Support Programme (FISP). The key objectives of the input subsidy programme are to increase access to and use of modern inputs; raise crop yield and production; improve food security and reduce hunger; and raise incomes and reduce poverty (the theory of change). During the period 2002-03 – 2008-09, the support was implemented through the Fertilizer Support Programme (FSP). Under this initiative a uniform package of 400 kilograms of fertilizer and 20 kilograms of hybrid maize seed was provided. The farmers paid 20-50 percent of the market price for the inputs.

Beginning in 2009-10 the programme was modified and is now known as the Farmer Input Support Programme (FISP). In this program the package size was halved, and was also extended to include other crops such as rice (10 kilograms), sorghum (15 kilograms), ground nut (20 kilograms), orange maize (10 kilograms), soya bean (50 kilograms), cotton (10 kilograms), beans (30 kilograms), and sunflower (4 kilograms). The objectives of FSIP are to improve household and national food security, raise income and reduce poverty, increase small-scale farmers' access to inputs, and build private-sector capacity. The eligibility criteria for participating in the programme are: capacity to cultivate 0.5 hectares of maize; small-scale farmers (cultivate less than 5 hectares); ability to pay farmer share of inputs costs; cooperative member and not receiving the Food Security Package. The input suppliers are selected through a national tender process. The representatives from farmer cooperatives pick up the inputs from government FISP depots and distribute them to the beneficiary farmers. In total, 30 percent of smallholder households in Zambia are eligible for FISP.

Under the FISP the government distributed the physical inputs to the selected recipients. A number of issues were identified during implementation.

- The private sector has remained constrained in providing input and output marketing services (ACF, 2009; World Bank, 2010).
- The program failed to recognise the spatial variability of soil fertility and climatic conditions in the country. The blanket uniform package disregarded the comparative advantage of different areas. Focus was on compound D and urea fertilizer, which is not suitable for the large parts of the country where soils are acidic.
- Subsidised fertilizers have been characterised by leakages through diversion and resale before reaching the intended beneficiaries (Mason and Tembo, 2015)

In order to address these problems, the ministry of agriculture (MOA) launched the e-voucher program as a pilot in thirteen selected districts during the 2015-16 agricultural season with an initial target of 241,000 smallholder farmers. E-voucher is a mobile delivery and tracking system to distribute subsidised inputs to farmers through agro dealers and input suppliers. The program is expected to expand to 39 districts during the 2016-17 farming season. The e-voucher was intended to:

- Encourage more private sector participation in agro-input distribution, thereby reducing the public expenditure on the delivery of private goods such as fertilizer and seed
- Ensure timely delivery and access to inputs by smallholder farmers
- Allow farmers to choose crops of their choice, thereby promoting agricultural diversification
- Reduce leakage (better targeting) and increase the number of beneficiaries

The key partners in the program are the MOA (including the agricultural coordinators at provincial and district levels (PACOs and DACOs) and camp agricultural committees); Zambia National Farmers Union (ZNFU); Farmer organisations and cooperatives, agro-dealers and input suppliers; MUSIKA; IAPRI; and banks. The FSIP e-voucher system is implemented by MOA through the programme coordinating office (PCO). This office is also responsible for creating awareness of the e-voucher system. The DACOs office, through the agricultural extension officers, was responsible for awareness among farmers. As the lead agency, MOA is responsible for identifying beneficiaries, targeting, budget management and front-line interaction with farmers.

The MUSIKA development initiative was responsible for creating awareness and training. It was in charge of CSA module development and training of input providers, retail companies, and ministry staff and farmers (including training on CSA practices, technologies and index-based insurance). In addition, MUSIKA is also coordinating the

development of the new crop insurance programme, and integrating weather index insurance into FISP. Once a working relationship is established with Vuna, MUSIKA is expected to train agro dealers in CSA, ensure inputs related to CSA are available in the market and promote weather index insurance in Zambia.

MOA produced an e-voucher implementation manual that contained detailed information about the program and defined specific roles for each implementing agent. Using its existing e-visa card platform, ZNFU facilitated the printing, distribution and activation process of e-cards through the banks. The agro-dealers and input suppliers supplied agricultural, livestock, veterinary and fisheries inputs to farmers. These agro-dealers and input suppliers were required to acquire point-of-sale machines through their own arrangement with the banks (MAL, 2015).

The Indaba Agricultural Policy Research Institute (IAPRI), in collaboration with MOA, monitored the implementation of the e-voucher pilot program. IAPRI assisted in developing the monitoring strategy and a framework for assessment, monitoring and reporting. As a result of the monitoring and evaluation processes, a number of design and operational issues were identified:

- About 50 percent of the beneficiary farmers reported receiving inputs late due to delayed issuance of e-cards by the government. There were also delays in submitting the list of beneficiaries to the programme coordinating office. This led to the late printing, distribution and activation of the e-cards.
- The ministry district officers who are responsible for implementation also encountered some operational difficulties, including a lack of proper scanning equipment given the large number of documents to scan.
- In some cases, farmers’ choices were restricted to maize and fertilizer because the cooperative chair persons in collaboration with extension officers only arranged of only those items to their members.
- E-voucher programs were still biased towards maize because the start and closing period for redemption of the e-card coincided with the maize production season.
- The management information system (MIS) used to capture information focused mainly on the value of the inputs redeemed and did not collect the type of input and quantities redeemed. Therefore, it was not possible to use the data to measure the extent of enterprise diversification.
- Some households had multiple recipients of the e-cards because they could afford the down payment. This means well-off households had more access to government input subsidies than poorer households.
- Other operational problems included farmer sensitisation, agro-dealers sensitisation, e-card activation, limited personnel capacity to implement the program (especially at ZNFU) and rising input prices (especially fertilizer). Ninety-two percent of farmers interviewed indicated that the major problem was card activation and wrong information about the beneficiaries.

The IAPRI and MOA monitoring and evaluation team also made a number of recommendations to address these operational problems. It will be important to address these issues before expanding the program during the 2016-17 season.

Sources: Mason et al., 2013; Kuteya et al., 2016.

During the assessment, based on the set of questions, a number of concerns were raised in addition to the design and operational weaknesses identified by the M&E team. See Table 14 for details.

Table 14: E-voucher concerns that need to be addressed

Conditions	Concerns
Engagement of end users	Passively engaged in designing the project Concerns and suggestions of end users only partially addressed
Capacity of end users	Lack of awareness or full understanding of the programme and its implementation Even ministry staffs not fully aware of details and implications
Enabling environment	Moderate political commitment and policy measures to ensure sustainability (financial); moderate resources for communications and feedback

Conditions	Concerns
Legitimacy and alignment	Moderate engagement of donors in piloting.
Partnership	Lack of partnership strategy
M&E	Results framework and integrated M&E system do not exist; adequate resources not allocated; inadequate space for ongoing learning and adaptation; disconnect between the M&E and project implementation.

Source: IAPRI assessment

The scalability index for the e-voucher component is 77, as shown in Table 15. This is an indication that this component can be scaled up successfully, with minimal additional efforts (investments) for institutional development.

Table 15: Estimation of scalability index for the e-voucher system

Key elements/sufficient condition		Maximum potential score (1)	Actual score from step (2)	Effectiveness ratio (3) = 2/1	Relative importance and score (4)	Contribution to scalability index (5)
1	A clear vision, strategy and pathway for scaling up exists	14	10	0.71	12	8.52
2	Target group is actively engaged in piloting and prepared for scaling up	23	20	0.87	12	10.44
3	Drivers of change exist and are effective	15	15	1.00	12	12.00
4	Enabling environment is conducive for successful scaling up	56	47	0.84	12	10.08
5	There is legitimacy and the innovation is well aligned and embedded	32	30	0.94	8	7.52
6	The necessary partnership exists and the partners are fully engaged Co-ordination issues are addressed and the process kept relatively simple	31	26	0.84	12	10.08
7	A plan for M&E and learning space exists and is functional	18	9	0.5	12	6.00
8	Lead agency and partner organisations are identified and ready for implementation	24	20	0.83	12	9.96
9	An ex-ante cost benefit analysis is completed and favourable	4	1	0.25	8	2.00

Scalability index (sum of the scores in column 5) = 76.58

However, in moving forward and also incorporating weather index insurance as a component of this package, one has to consider the following issues:

- Complexity. Although the focus was on e-voucher, the overall package is a complex one based on the principle of smart subsidy. The components of the package include: improved seeds and fertilizer (core technology); innovative partnerships (development partners, governments, independent NGOs, private sector, banks and the farmers); institutional innovation in service delivery (e-voucher); coverage for a large number enterprises and demand for opening up the voucher system to lime, other inputs and equipment for other crops, livestock and fish; capacity

building; small grants; and a plan for integrating weather index insurance. The inherent complexity in the package and the decision-making process may have implications for its effectiveness and potential impact.

- **Financial sustainability.** This is a serious concern. Currently this project consumes about 50 percent of the agricultural budget, and it has been estimated that it may cost about \$100 million for its implementation in the coming season (October 2016–September 2017). This is the value for the subsidy, excluding the farmer contribution. IMF has a significant influence in setting the economic policy in Zambia, and it is not in favour of massive subsidies. Given these factors, as well as the unsettled election results, the ministry may not have adequate time to fully address all of the design and operational weaknesses identified.
- **Embedding the insurance within the e-voucher system.** This is a good approach, provided that the e-voucher system has been scaled up successfully. Currently there is limited experience on the use of weather index insurance in Zambia. At present two insurance companies are running the programme. It has been estimated that during the last cropping season 60,000 farmers paid premiums; of these 50,000 were cotton farmers who made voluntary payments. There is no information on the claims made against these premiums. There is a plan to involve the farmers union and cooperatives in this process. It is anticipated that the number of banks involved may increase to five. It is important to systematically and critically appraise the effectiveness, efficiency, potential impact and lessons learned to guide this process forward.
- **Monitoring, evaluation and associated learning.** Currently the M&E function is separated from the implementation. The M&E function need to become an integral part of project implementation, and adequate space should be provided for learning that could guide the further expansion of the program.
- **Public investment.** Under normal circumstances one would expect this intervention to run for a limited number of years as a means of introducing new technologies and practices. But in this case the e-voucher is linked to the input subsidy programme, which does not meet the criteria set for a SMART subsidy. A SMART subsidy must be part of a wider strategy; support market development and private sector investment; promote competition; pay attention to farmer demand; promote economic efficiency; put farmers in the driver’s seat; have an exit strategy; ensure sustainability; and be pro-poor (Morris et al., 2007). This input subsidy programme does not have an exit strategy. As the programme is politically driven, the duration is largely a political decision.

Given the circumstances and political support, the program will continue. However, there is a need to look for cost-effective ways to achieve the objectives and to increase participation of the private sector in service delivery. Efforts should be made to promote competition, private sector investment and economic efficiency while paying attention to farmers’ demand for services.

4.8.2 Zimbabwe Super Seed

The Zimbabwe Super Seeds Co-operative Company is a profit-oriented small enterprise involved in the business of seed production, processing, packaging and marketing of open-pollinated varieties of maize, sugar beans and cowpeas. The organisational structure and modalities of operation are presented in the Box 2. This cooperative has been in operation since 2012. The majority of the owners are the farmers. The model is operational and effective. There is a plan to expand the operation to other crops and other provinces in Zimbabwe.



Box 2. Zimbabwe Super Seeds

The Zimbabwe Super Seeds Co-operative company (ZSS) was established in 2012. ZSS is involved in the business of seed production, processing, packaging and marketing of maize open pollinated variety (OPV), sugar beans and cowpeas. The majority of owners are farmers in the operational districts of Zaka, Gutu and Masvingo. The company produced 26 metric tons of seeds in 2012, and this has increased to 238 metric tons in 2015 (maize 188, beans 42, cowpeas 8). The annual turnover of ZSS has risen from \$30,000 to \$398,000 during this period and is expected to reach \$1 million by 2020. ZSS focuses on OPV maize targeting the resource poor, smallholder farmers in drought-prone marginal areas of Zimbabwe. The main focus is on drought-tolerant crops for the smallholder farmers in Masvingo Province.

Currently ZSS is contracting 744 smallholder farmers in Gutu, Bikita, Masvingo and Zaka to produce maize, sugar bean and cowpea seeds. ZSS will provide breeders with seeds as well as technical backup for seed growers. The seed produced in each district is procured from farmers and processed within the district, except for Bikita, where no processing plant has been established. The seed is processed by locally recruited and trained personnel. The seed from the local plant is distributed to the local agro-dealers first, and the rest is distributed to the other districts. On average the company is producing around 300 metric tons of seeds per season (mainly maize and sugar beans). The seed is packed in 2, 5 and 10 kilogram packs for easy purchase by various income groups of farmers.

The company has two type of clients, intermediate clients and end users. The majority of intermediate clients are rural trader shops that stock ZSS seed products on consignment. The company contracts the rural traders to act as the selling points for seed. The rural traders have limited access to credit, and the consignment arrangement increases business volumes and contact with more farmers. The second group of intermediate clients consists of retail chain hardware stores (such as Musa Hardware and Chiredzi Farmware). These are well-established business enterprises with good infrastructure and marketing capacity. Generally, they have access to finance and have resources to do extensive campaigns for products to be sold.

The end users are mainly the communal smallholder farmers and some small-scale commercial farmers (especially growers of sugar beans). The smallholder farmers in all operational areas buy the maize, sugar beans and cowpea seeds from ZSS. Zimbabwe Super Seed is currently promoting multiple varieties of OPV maize (ZM 309, ZM 401, ZM 521), sugar beans (NUA 45, Gloria, Sweet Violet, Cherry) and cowpeas (CBC2, CBC 3).

The national demand for maize seed is estimated between 35,000 metric tons (by private sector players) and 50,000 metric tons (estimated by the government). Major seed suppliers such as Seed Co, Pioneer Hybrid and Pannar are mainly focusing on hybrid seeds targeting high-potential areas and commercial farmers. It has been estimated that there is potential for ZSS to produce 10,000 metric tons of OPV maize seed and to market it in Zimbabwe. The estimated demand for sugar beans is 6,000 metric tons annually. The current supply is around 2,500 metric tons, indicating a shortfall in seed production. Sugar beans and cowpeas seeds are not produced by the major companies. The seed production target for the next three years are presented in Table X.

Table 16: ZSS seed production targets (metric tons)

	2015-16	2016-17	2017-18	2018-19	2019-20
Maize	265	526.5	810	1200	1500
Sugar beans	60	120	150	200	200
Cowpea	8	8	10	10	10
Groundnuts	-	-	30	40	50
Total	333	654.5	1000	1450	1760

ZSS is currently operating in 5 districts: Makoni, Mutasa, Gutu, Masvingo and Zaka. During the next two years it will expand its operation to Bikita, Chiredzi, Chivi, Mwenezi, Mutoko, Chirumhanzi, Shurugwi and Zvishavane. As part of this expansion, ZSS is planning to introduce quality protein maize (in 2018) and yellow maize (pro-vitamin maize, in 2019) to enhance the nutritional status of vulnerable homes that normally have maize meal but lack protein and

vitamin A. ZSS will also include varieties of sugar beans that are bio-fortified, such as variety NUA45, which is high in zinc and iron. Based on market research, ZSS is working on the quality of packaging and planning to introduce package sizes as small as 500 grams. Based on the same survey conducted in Zaka district, ZSS is planning to venture into crops such as ground nuts, round nuts, rapoko and finer millet, which are considered important by smallholder farmers.

Three local companies (National Tested Seeds, Prime Seeds and ARDA seeds, all based out of Masvingo region) also produce OPV maize seeds. ZSS has to compete with these companies. Sugar beans are produced by two other companies (Pannar and Prime Seeds) that compete with ZSS. The local production and distribution of sugar beans gives ZSS competitive advantage for sales in Masvingo province. ZSS also has a strong presence in Manicaland, which will be used as a base to launch activities in Mashonaland east and central. Eventually the company will have to be integrated into the national market for seed production and distribution. The aim is for ZSS to have a 30 percent market share for maize in Masvingo province and a 50 percent share for sugar bean seed.

Organisational structure and the business model

A key feature of ZSS is its strong community involvement in terms of ownership, seed production and utilisation. The current membership of ZSS is 1445, and 179 farmers are shareholders in the company. The day-to-day operation is run by an appointed managing director (who is supported by managers, operation officers and supervisors). The shareholders are represented by the board of directors.

The seven-member ward committees are elected every year by the farmers. These committees are responsible for distributing foundation seeds; monitoring on-farm seed production; supporting marketing activities; and promoting the welfare of the community. Each ward will also elect one member to the district committee. The district committees are elected every year. They coordinate the company's activities at the district level and serve as the link to headquarters. The membership ranges from 7-10, depending on the number of wards in the district. One member of each of the district committees will serve on the board of directors. The board of directors provides strategic vision and direction to the company and also oversee the managing director. The shareholders are the majority owners of the company. They attend the annual general meeting (AGM), where they review the company's performance and participate in making decisions on business direction. Currently the board is chaired by the provincial director of AGRITEX. The others involved in the various activities of ZSS are:

Nutritional council of Zimbabwe and Agritex – provide training on the nutritional aspects of the crops to farmers and the community.

Farmers – growing crops as contractors as well as end users

AGRITEX – technical support to farmers

Agro-dealers – selling seeds, purchasing commodities

Input suppliers – supply of packing materials, agro-chemicals and seeds

Transporters – delivery of seed to market and processing sites

Building owners – supply buildings for renting as offices and warehouses.

Banks – banking services, provided by Agribank, Barclays Bank LTD, Steward Bank

Seed services – seed inspection and certification

CIMMYT/ICRISAT – research (new germplasm)

Local authorities – managing relationships politically and promoting the brand

The current promotional activities of the company include field days, agricultural shows, demonstrations, promotional packs of seeds, pamphlets, hats and T-shirts.

In terms of scalability this project has the following attributes:

- A clear vision, strategy, expansion pathway and business model exist. The scope for expansion is clear.
- The lead agency and partner organisations are prepared and ready for the expansion.
- The necessary partnerships are clearly identified and working harmoniously. However, a partnership strategy does not exist.
- In terms of end users and target groups, the existing competitions are known and trying to maximize the competitive advantage, size of the operation and area coverage.
- The target group requires continuous extension support.
- The drivers of change exist, and the provincial and district administration act as champions. However, there was a feeling that the advocates are passive in terms of engagement with policymakers.
- There is no systematic assessment of progress and performance planned to document lessons and experiences. The learning space is weak. Although there is a business model and targets for expansion, a proper benefit-cost analysis is lacking.
- The scalability index for this project is about 85 (see Table 17), indicating that the project can be scaled up successfully.

Table 17: Estimated scalability index of Zimbabwe Super Seed Project

Key elements / sufficient condition		Maximum potential score (1)	Actual score from step (2)	Effectiveness ratio (3)=2/1	Relative importance and score (4)	Contribution to scalability index (5)
1	A clear vision, strategy and pathway for scaling up exists	14	14	1	12.48	12.48
2	Target group is actively engaged in piloting and prepared for scaling up	23	15	0.65	8.33	5.41
3	Drivers of change exist and are effective	15	13	0.86	12.48	10.73
4	Enabling environment is conducive for successful scaling up	56	48	0.96	8.33	7.99
5	There is legitimacy, and the innovation is well aligned and embedded	32	29	0.87	12.48	10.86
6	The necessary partnership exists and the partners are fully engaged; coordination issues are addressed and the process kept relatively simple	31	29	0.94	12.48	11.73
7	A plan for M&E and learning space exists and is functional	18	17	0.94	12.48	10.86
8	Lead agency and partner organisations are identified and ready for implementation	24	24	1	12.48	12.48
9	An ex-ante cost benefit analysis is completed and favourable	4	1	0.25	8.33	2.08

Scalability index (sum of the scores in column 5) = 84.62

This study also included an assessment of the scalability of the business model used by ZSS (see Figure 9). The scalability of this business model is very high. This is largely due to the commitment of the CEO and the stakeholders. They are prepared to forgo short-term benefits in favour of the longer-term growth of the company. To address the issue of collateral for bank loans, shareholders decided not to take the dividend. The profit is used to accumulate the capital base. A house and warehouse space were purchased. This fixed asset is used as collateral to obtain credit from the bank. In addition to the capital required, the high interest rate is also an additional constraint for expansion and scaling up. An effective interest rate policy can speed up the rate of scaling up. It is worth noting that this is a public-private investment in which scalability depends on the commercial sustainability of the private investment.

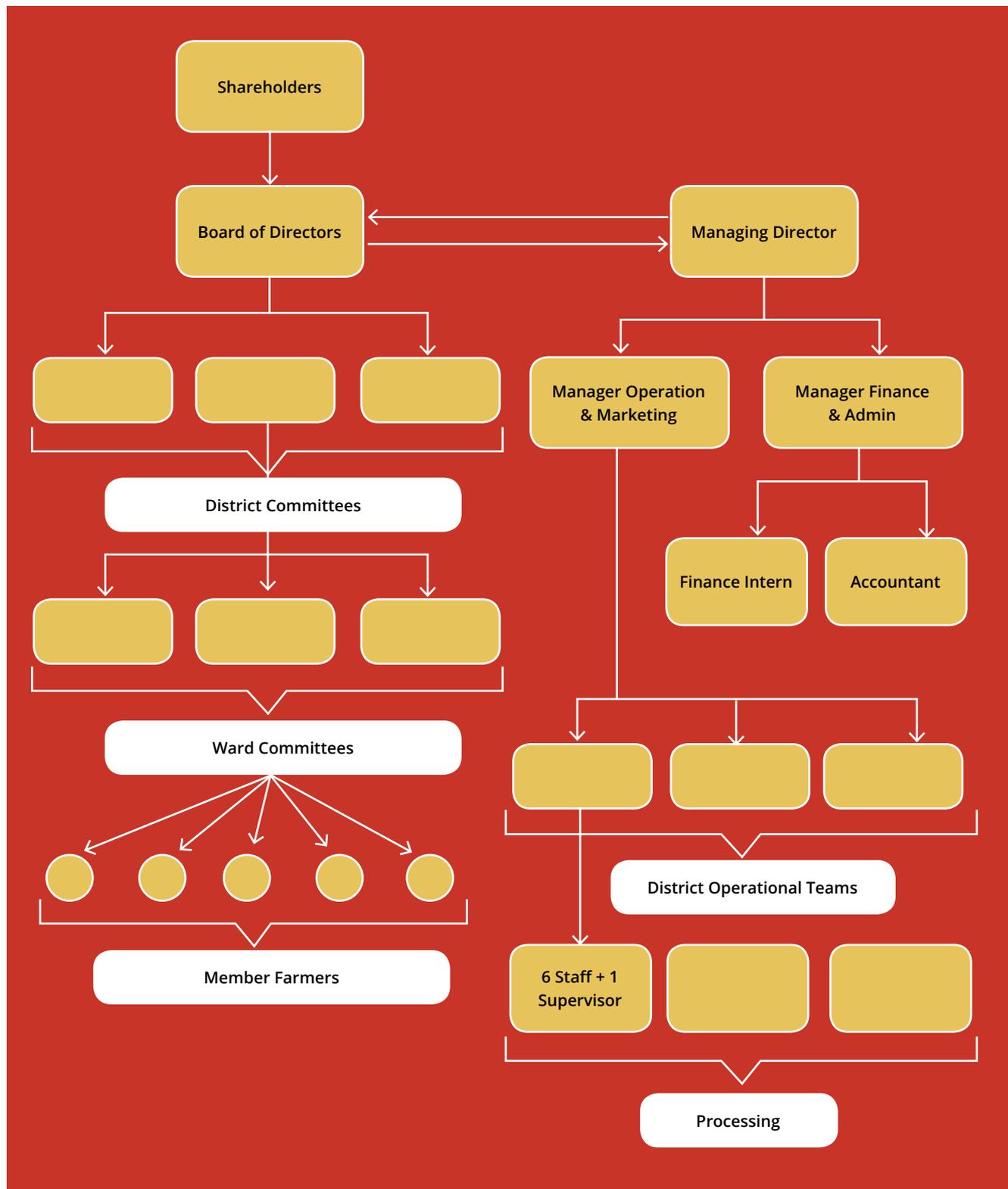


Figure 9: Organisational structure of ZSS

5 Some guidelines for using the proposed approach

The pathway for scaling up depends on the nature of the technology (embodied technology, disembodied technology, production technology, R&D technology) and the type of innovation (technological, managerial, organisational, institutional, policy, service delivery). Invariably scaling up implies a set of interventions, including the processes necessary to build sustainable implementation capacities. A technology may be a vital component of this package. As pointed out earlier, most development projects focusing on scaling up have several of the following elements: a technology or management practice; a process to enhance community participation, mobilisation and empowerment; training and skill building; organisational development, management, information sharing and communication; new partnerships and rules of engagement; new partnerships and service delivery modes; and monitoring, evaluation and associated learning. The first step in the analytical process is to define the package for scaling up. If there are multiple components, it may be important to assess each component separately. It is worth noting that some elements are more readily scaled up than others.

In the real world, one may encounter three different scenarios with respect to scaling up.

Scenario 1: Scaling up as an integral part of the R&D or innovation development process (development, adaptation, dissemination, adoption and utilisation).

Scenario 2: The successful innovation was developed and pilot tested in selected sites within a country, and the scaling up deals with replication across the wider target group.

Scenario 3: An innovation that was successful elsewhere is considered suitable for the situation at hand (intelligent borrowing or open innovation). Projects using models that have been demonstrated elsewhere may actually face greater challenges to scaling up if the delivery system is complex or a large behavioural change is required. Here, there is a need for local validation of the intervention or innovation as part of the scaling-up process.

In Scenarios 1 and 3, there is a need to validate the performance of the innovation to ensure it is relevant, superior in terms of performance (including profit) and compatible. In these cases, it is necessary to assess all three components—the innovation, partnerships and institutional arrangements, and scalability index—to judge the sufficient conditions.

In Scenario 2, since much is known about the innovation, it is adequate to assess the partnerships and institutional arrangement and the necessary conditions in terms of the scalability index. Please note that the proposed methodology not only provides a level of confidence but also functions as a diagnostic tool to identify the weak elements of the scaling up processes. Once diagnosed, these weaknesses can be effectively addressed in the scaling-up project.

The basic questions of interest of many development partners, including Vuna, are as follows:

- How can one evaluate a pilot project proposal to decide whether it is worthwhile to invest (a sort of an ex-ante assessment / appraisal)?
- At the completion of a successful pilot project, how can one assess whether it should be replicated (a sort of ex-post assessment), either within the country or in other countries?

In both cases the various aspects considered are relevant for decision-making. However, in the case of replicating a successful pilot project, more reliable field data will be available. Therefore, the analysis will be more subjective in the design stage of a pilot project but will be more objective in assessing the replication of a successful pilot project. Thus the same model or approach can be used to address both questions, but the emphasis and rigour will vary depending on the situation. In assessing the pilot project, heavy emphasis will be placed on the first step. It is important to make sure that the intervention is relevant, technically feasible, economically viable, socially acceptable and compatible. However, for successful scaling up, the appropriate policies, partnerships, institutional arrangements and other enabling environment are crucial. Therefore, in this case, heavy emphasis will be placed on steps 2, 3 and 4. In both cases B-C analysis is a must to guide decision-making. It is important to keep in mind that the planning for scaling up in fact starts at the pilot project design stage itself.

The issue of simplicity is relevant, depending on the purpose and on who performs the analysis (an analyst or the decision-maker). The exercise is similar to policy analysis and policy briefs intended to assist decision-making. The implementers of the pilot project should aim for detailed analysis, which can be used to create a simplified matrix to assist the decision-makers. A sample matrix is presented in Table 18. The higher the number of “no” responses, the lower the scalability. The comments should identify issues related to the criteria under consideration. It is worth noting that the three groups who scored the detailed question sets did not report any difficulties in understanding the questions or scoring. They did have difficulties assigning weights for the assessment of sufficient conditions, and requested assistance. As a result, the procedure was simplified in consultation with these individuals. Since scaling up is a costly exercise, time and energy spent in doing this analysis may have a significant social and economic benefits in the long run. This matrix can assist the decision-makers based on informed analysis.

Table 18: Checklist for making decisions on scaling up

Criteria	Assessment			
	Yes	Yes Partially	No	Comments
Innovation/intervention relevant, superior, and compatible				
The target group/end users are fully prepared to participate				
All four components of scaling up-reach, outcome, equity and sustainability- are addressed				
Drivers of change exist and are effective				
Relevant enabling environment is conducive for scaling up				
Partnership: Roles and responsibilities are defined and clearly understood				
Roles and responsibilities are in line with mission and mandate of partner organisation				
Lead and facilitating organisations have the capacity and capability to deliver				
A plan for M&E and learning space exists and is operational				
An indicative ex-ante cost/benefit analysis is completed and favourable*				

**It is important to note that this is an investment decision. Depending on the nature of goods and services, one has to decide on the appropriate type of analysis: social, private or both.*

Finally, greater care should be taken in using the scalability index for comparing projects. The main purpose of developing this methodology is to assess the scalability of a successful pilot-tested innovation or intervention. To a large extent, this is a self-assessment process that relies heavily on the deep knowledge of the participants about the content and processes involved. Conclusions are drawn from perception and consensus. The methodology can be applied to the entire package in the intervention or to an individual component. There may be specific reasons to explain the scalability index number that is computed. Therefore, mechanical application of the approach, and superficial comparison of scalability indexes between projects, is likely to result in misleading conclusions. It is important to keep in mind that the scalability index is computed to support learning and facilitate improvement in the scalability of a given intervention or innovation.

The model application depends on the nature of the project (public, private, public-private), the context and the investment decision that has to be made. This highlights the need to apply the model differently for different types of pilot projects. Further modifications and refinements may be needed to make it context-specific.

6 Key lessons and areas for further work

Scaling up is an age-old phenomenon. It has received greater attention in the recent past as a development strategy to accelerate attainment of MDG's goals. The underlying rationale of scaling up is that a new idea, model or approach is typically embodied in a pilot project with limited impact; but with proper M&E, the knowledge acquired through the pilot can be used to improve the scaling-up process.

Based on the vast experience of the development practitioners, there is a greater understanding of the scaling-up process. Very often, decision on scaling-up needs to be made while the pilot testing is still ongoing and the evidence of the superiority of the innovation is still incomplete. It takes time to realize the full developmental impacts of innovation initiatives. The pilot testing should provide guidance to development partners on whether or not to go to scale, and how it can be achieved. Scalability of an innovation is a measure that can be used as a guide in selecting the innovations for scaling up and to ensure its success. However, the major challenge facing the development partners is to decide when and how to measure the scalability of an innovation to guide further investment and to realize its full potential.

6.1 Key lessons

The key lessons from the desk review and field testing are summarised here;

- The process of scaling up can be understood through pathways (process, actors and their roles), spaces (the enabling environment) and drivers (champions and demand). A good understanding of the factors that will affect the scaling-up process is essential in order to design and implement successful scaling-up projects. The critical factors include a well-defined theory of change, clearly defined competencies among the implementing partners, champions at the project, community; and a suitable policy and regulatory framework. Based on the literature, innovation initiatives with the best possibility for scaling up have: clear and testable design for theory of change; local legitimacy; alignment (with policies, priorities and practices); effective partnerships; capacity to benefit; and simple designs. Complexity (of both the innovation and the scaling-up process in terms of number of actors and decision points) constrain implementation, while simplicity makes implementation easier. Clear lessons from the literature suggest that context matters; evaluation and learning are critical; and successful scaling up requires both time and the right kind of sustained support to assure the emergence of local capacity to manage and sustain an innovation. Innovations that are backed by locally generated evidence of programmatic effectiveness and feasibility increase the likelihood of being successfully scaled up. Scaling up must be concerned with sustainable policy and programme development, including organisational capacity and availability of financial resources. In many projects, there is not a clearly articulated business model, or the time required to establish a financially sustainable position is unclear. The initiatives should move towards financial viability by being cost covering or sharing, through private sector adoption or by proving themselves as a public good.
- Scaling up is a complex process. Pilots often focus on implementation and are not often designed with an eye towards creating the necessary foundation for scaling up. The widely used project mode (3-5 year projects) often encourages this behaviour. For successful scaling up, this behaviour has to change. As the scaling-up process is iterative, the decision to continue needs to be revisited throughout the entire project cycle. The process of adoption is not linear and follows a sequence of steps including awareness, interest, evaluation, trial, learning and adaptation. The process of scaling up must be carefully monitored and nurtured.
- Cases in the field and the available literature suggest that there are two broad approaches to scaling up: through the market, where demand and profit motivation drive the process; and through the public sector and social structures. In the case of public goods, a long-term political commitment is needed to achieve socially valuable goals, whereas a large enough profit is needed to justify continuing private investment in scaling up. In both cases, the public sector has a role to play, and strategic partnerships are critical. In a market-driven scaling up, the public sector plays a facilitating role, and in the other case the public sector takes the lead role. Both call for long term commitment by partners, and sustainability should be a key consideration. It is worth noting that the famous Asian Green Revolution was a state-driven, market-mediated and small-farmer based strategy to increase national food self-sufficiency in food grains (SIDA, 2006). It is important to keep in mind that the decision-making process and incentive systems vary between private-sector and government efforts to scale up. Political and social considerations rather than

market issues have more influence on public sector decisions, but the incentives for producing social goods are not always present and clear. Government and non-profit organisations serve a public function and deliver a public good. The market prices, profit and business environment deliver the private goods to the desired scale. In both cases, an appropriate B-C analysis should guide the investment.

- Effective scaling up is a key measure of successful innovation/intervention/change process. Scaling up is a continuum of the agricultural R&D processes, aimed at realising the full potential of an invention. If we consider scaling up as a continuum, then one should think about the specific phases in the continuum of scaling up from invention or innovation to expansion, replication and finally sustainable operation. The tools and processes of these phases may be different, but they need to articulate or connect with each other. Based on the case studies, once the innovation/intervention is successfully demonstrated, the scaling-up process can be broken down into two phases. The first phase is the preparation phase, where much of the emphasis is focused on putting in place the organisational capacity, incentive systems, institutional arrangements, strategic partnerships and other conditions that are needed for successful scaling up. Once these conditions are in place, then the second phase, or take-off phase, will begin, with true expansion and replication. Concerted donor support for the right policies, organisational capacities and institutional mechanisms are critical for successful scaling up.
- Sustainability and scalability are deeply intertwined. Where a project is not sustainable (due to organisational or institutional weakness, policy constraints, excessive cost in relation to available financial resources) it is not likely to be scalable unless special attention is given to factors that impede sustainability. Of the four components of scaling up (reach, outcomes, equity and sustainability) sustainability most often receives little attention in the design process. One of the key constraints for scalability is the issue of financial sustainability. There should be a long-term strategy for achieving sustainable financing, including an exit strategy where necessary. The nature of the financial model will vary depending on the degree to which the intervention represents a public good or high national priority or whether the intervention has the potential to become self-financing on a sustainable basis. In either case, project design needs clarity at the outset about the source and sustainability of financial support to test the innovation and move beyond testing to different levels of scaling up. Irrespective of the source, the funding support should remain open long enough to establish the necessary organisational, market and enabling environments to realize the full potential and the desired impact. There may be long-term risks in heavily subsidised models.
- Selecting candidates for scaling up is similar in some ways to the decision processes of venture capitalists. First there is a need to assemble evidence to justify selection. Then there is a need to make judgment on those criteria or outcomes that are not easily measured. Finally, there is risk, sometimes linked to variables that could not be identified at the time of selection. Or an innovation may not be selected, again because of incomplete information. There may be other risks, most likely related to the loss of key drivers and the inability to create sufficient space for the initiative to grow (Holcombe et al., 2012). Pilot projects should be seen as incubators for larger aid or government programs. Design and implementation should give greater emphasis to elements that would create the evidence to justify scaling up. Innovation is inherently a risky process, and for this reason should always start with the testing of small projects. The risk of innovation is managed by iteratively reviewing whether to proceed.
- Scaling up should be seen as long-term process (generally taking 10-15 years) that requires a long-term commitment. Governments, the private sector, NGOs and community organisations play a crucial role in the scaling process. A long-term vision and a carefully designed medium-term operational plan are critical guides, as is a sustainability plan. Successful scaling up largely depends on long-term investment by government or businesses. For the business investment to happen, a conducive environment, including competitive interest rates, is critical.
- At the start of a project, it is important to define how large or widespread an intervention could become, given the needs of the target population and the nature of the interventions. It is also important to consider realistically the time horizon over which the scaling process needs to extend. Along the scaling-up pathway, the program should deliver intermediate results. This is also necessary to allow for the testing and, where needed, adaptation of the approach. The intermediate results are also helpful in getting the necessary buy-in from the community, government and other stakeholders. A scaling-up strategy and carefully thought-out medium term plan is useful. The intention to scale should be part of the design of the original pilot project. This decision is an iterative one based on evolving evidence. The decision to move toward scaling-up needs to be based on evidence of whether the innovation delivers intended results and has the potential for replication and expansion. The decision to scale needs to be revisited again and again during implementation. Currently, pilot tests focus on implementation and are not often designed with an eye towards creating a foundation for scaling up.
- In scaling up, progress can often be made only by working at multiple levels (horizontal and vertical) and dealing with cross-level relationships along the value chain. Technologies have to accompany other changes in the system to reach their potential. Scaling up requires more than one type of innovation and should match market opportunities to household capabilities and needs.

- Scaling up is a costly investment. An ex-ante benefit-cost analysis will enable rational decision-making, and M&E and rigorous impact evaluation are key ingredients of a successful scaling-up strategy. Spillover effects and unintended outcomes need to be captured by the monitoring process. Private-sector partners require indicators in tune with their own interests; they may not be interested in farm-level data associated with adoption. An ex-ante benefit-cost analysis will force the design team to carefully consider all aspects of the process, assist in securing the continuous financial support, and assist in designing the M&E system for final evaluation. An ex-ante B-C analysis should form an integral part of the project proposal for scaling up.
- Geographical databases are wonderful tools for designing scaling-up projects. Multilayered diagrams of agro-ecologies, farming systems, socioeconomics and infrastructure can be used to assess the potential for scaling up.
- Projects with a long gestation period will produce results that are not easily perceived by the intended beneficiaries and the implementing staff. Thus, it is difficult to scale up quickly.
- Preparedness of the target group, the lead organisation and the facilitating institutes is critical. Often much emphasis is placed on the attributes of innovations without giving due considerations to individual organisational and institutional development; enabling environment, and national policies and strategies. Ideally, scaling-up processes should be clear from the onset about the organisational choices to be made and the capacity-building needed for the chosen pathways to be successful. When tested interventions involve a large degree of change in the institutes that are responsible for scaling up and or the end users, scaling up will require extensive technical support and time.
- Adapting innovations to changing sociocultural, economic and organisational context in the case of expansion is vital for the success of scaling up. This is especially true in cases where the innovation is borrowed from elsewhere. Special attention to M&E is needed as scaling up proceeds to ensure that results inform strategic adjustments and adaptation.
- Based on the literature, understanding of the process and personal experience, a four-step process is proposed to assess the scalability of a given innovation package or intervention: assessing the innovation/intervention (the necessary condition); assessing the readiness (mission, capacity and capability) of strategic partners; mapping and analysing the system; and computing the scalability index to assess the sufficient conditions needed for successful scaling up (including an action plan to address the weaknesses identified). A major requirement to perform this analysis is a good understanding of the scaling-up process in the local setting and effective participation and engagement of the analysts in pilot testing. All four steps are essential if one is still in the process of developing an innovation or designing a pilot project. However, if the innovation already exists and has been pilot tested in the local environment, then one could focus on the last three steps. Ideally, the assessment should be done jointly by the organisation implementing the pilot project, the agent most likely to lead the scaling-up, and the other stakeholders, including the ultimate beneficiaries. This should be led by an external facilitator with no vested interest in the outcome, and assisted by members with the best possible technical expertise. One of the advantages of the proposed approach is that it not only allows a decision-maker to assess scalability, but also serves as a diagnostic tool to provide information on what needs to be done in order to enhance the scalability. This could form part of the scaling-up project.
- If the computed scalability index is greater than 75, then the scalability of the intervention is high. In this case the scaling up will be successful with minimum efforts or additional investment. If the index is between 50 and 75, then the scalability is moderate. That means a number of issues need to be addressed prior to or during implementation of the scaling-up initiative. If the score is less than 50, then the scalability is low, and a significant effort is needed to put in place the sufficient conditions before the scaling up is planned. It is important to keep in mind that the results of all three assessments should be considered in totality before a decision is taken.
- The proposed approach was used to assess the scalability of two projects: the electronic voucher systems in Zambia and the Zimbabwe Super Seeds Project. The computed scalability index for e-voucher and ZSS were 77 and 85, respectively, indicating high potential for scaling up. However, given the complex nature of the e-voucher package, a number of issues need to be addressed in moving forward, as it is linked to the input support programme. The scalability of the business model employed by ZSS is very high and the model is replicable elsewhere.
- From the various discussions, it was established that the proposed approach was logically consistent, technically sound and can be used to assess any innovation for scaling up. Some partners involved in this exercise are ready to apply the methodology. Both groups that computed the scalability index agreed that it is easy to use, provided the participants and analysing team have full knowledge of the innovation and engaged in the piloting process. Based on the detailed analysis, a simple one-page matrix can be prepared to facilitate decision-making.

Based on vast experience, WHO/ExpandNet (2012) identified a number of best practices, as shown in Table 19, that could be followed to ensure the generation and successful scaling up of an innovation. This list deals with the entire R&D process. This could serve as a guide or checklist in designing projects and programmes, depending on where you are in the process, with a view to successful scaling up.

Table 19: Key ingredients and best practices for successful scaling up

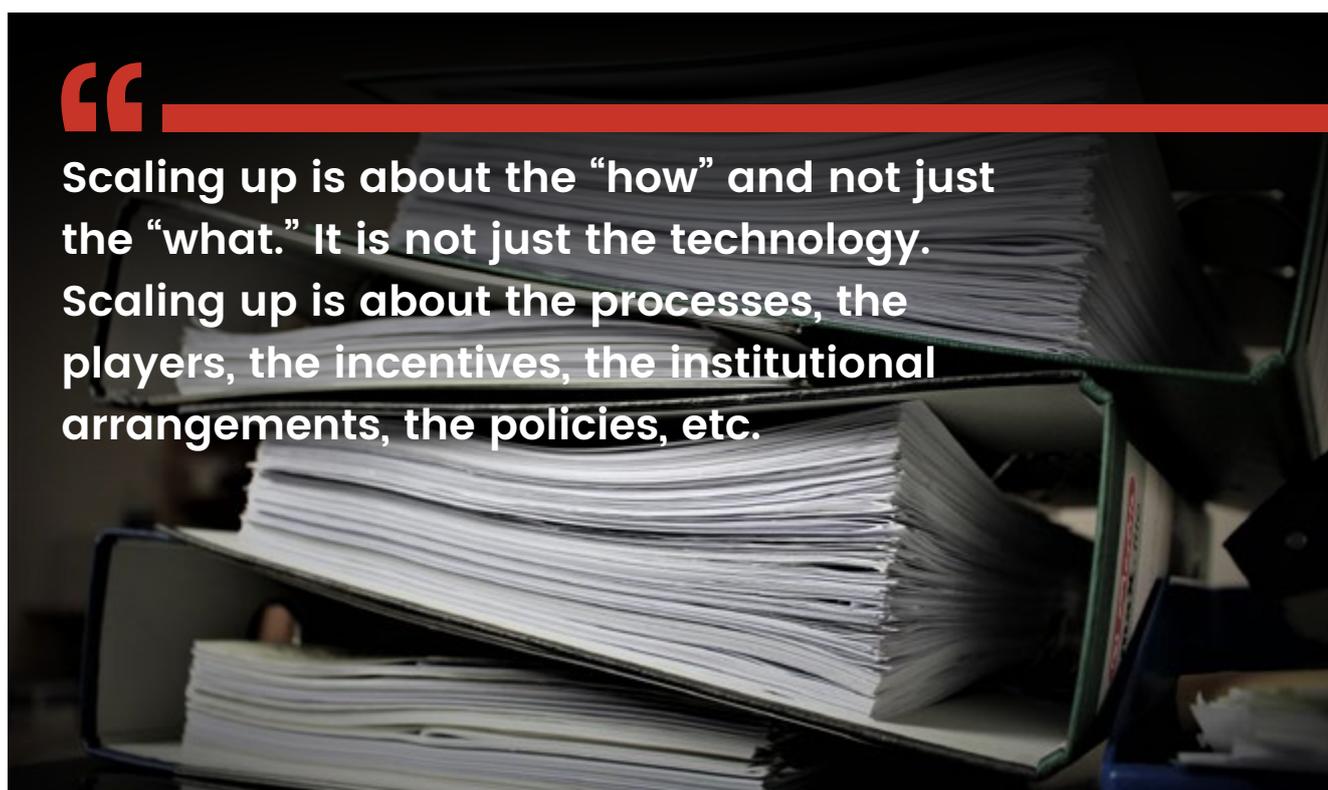
Key ingredients	Best practices
Innovation (often a package)	<ul style="list-style-type: none"> • Involve the user organisations in the participatory process. • Tailor the innovation to the context, including: <ul style="list-style-type: none"> • Policy and program priorities • Existing resources • Local and sociocultural patterns • Intermediaries and facilitating organisations • Users' needs and perspectives • Design research to test the innovation in light of the objectives of the project and decision-makers' expectations. • Test the innovation under real-life operating conditions. • Identify key features central to the success, so the innovation can be streamlined and more readily replicated during scaling up. • Reflect on the degree and nature of change that the innovation implies to the intermediary organisations and users. • Initiate scaling up after the effectiveness and feasibility of the innovation has been established.
Intermediaries, facilitating organisations, potential users	<ul style="list-style-type: none"> • Recognise the value of policy entrepreneurs and bring them into the process as early as possible, ideally during design and testing. • Assess the strengths and weakness and develop creative strategies to build the necessary capacity (resources, staffing, technical competency, management and administration, organisational culture, policy and legal framework) for service delivery and leadership. • Make use of the existing processes and structures. Parallel systems created are often not capable of being replicated on a large scale. • Acknowledge that scaling up may be an institutional change task. This may require sizeable advocacy efforts, extending the time required for scaling up. • Include individuals/organisation that has been part of the design and testing of the innovation in the facilitating team for scaling up. • Locate the facilitating team as closely as possible to the end users to promote effective communication. • Ensure the facilitating team has the necessary skills and capacities. • Anticipate the need to augment and adapt to the facilitating teams as scaling up proceeds. • Support intermediaries and facilitating organisations' ownership of the innovation and process.
Enabling environment	<ul style="list-style-type: none"> • Identify the environmental factors (spaces) influencing scaling up and understand how they affect the process • Make use of opportunities to improve the supports for scaling up • Continue to assess changes in the environment as the process of scaling up evolves.
Types of scaling up	<ul style="list-style-type: none"> • Address both horizontal and vertical scaling up to ensure sustainability • Ensure scaling up is proceeding smoothly before adding new innovations.
Dissemination and advocacy	<ul style="list-style-type: none"> • Use multiple channels to tell a compelling story • Build the necessary coalition and network • Organise training strategies to address both content and process in scaling up • Make the most of the demonstration sites • Create opportunities for ongoing learning.
Organising the scaling up process	<ul style="list-style-type: none"> • Involve potential partners early in the process. • Involve mandated central agency to ensure that the innovation/scaling up is integrated into systems, structure, budget and practices, while using the decentralised approach for implementations. • Adapt the innovation while working to ensure that essential features are maintained. • Expand the innovation gradually. • Start with points of strength, where it is most likely to succeed. • Use an organisation development approach to foster genuine participation in scaling up
Costs of scaling up and resource mobilisation	<ul style="list-style-type: none"> • Assess the costs of scaling up and identify potential economies of scale. • Mobilize resources from within agricultural and outside (other sectors) to promote sustainability.
Monitoring and evaluation	<ul style="list-style-type: none"> • Develop appropriate indicators for process, outputs, and outcomes (immediate, intermediate and ultimate). • Use appropriate methodologies for M&E, but keep it simple. • Integrate the lessons learned as the scaling-up process evolves. • Constantly review the scaling-up strategy to keep it dynamic and relevant. • M&E should be an integral part of project planning and implementation.

Extracted and modified from ExpandNet/WHO, 2009

6.2 Areas for further work

Despite the helpful cross-cutting insights into the institutional, policy and process requirements that could make scaling up possible, there are a number of areas where further work could be done to promote the accelerated scaling up of innovations and interventions.

- Scaling up is about the “how” and not just the “what.” It is not just the technology. Scaling up is about the processes, the players, the incentives, the institutional arrangements, the policies, etc. The current reporting requirements are based on summarising what works (i.e., output- and outcome-related indicators) and rarely discuss the question of “how” and “why.” This results in missed learning opportunities. Documenting the “whys” of the process is critical so that we can build on successes and not repeat the same mistakes. These experiences should be documented and widely shared among the development partners. Investment in continuing, independent and dynamic assessment and evaluation and learning about innovation initiatives being scaled up are critical. While there is a growing body of literature on scaling up, much of it is directed at the content of the innovation, not the process.
- Scaling up is a costly investment. Benefit-cost analysis is a key tool for determining the economic feasibility, and can range in complexity from a simple calculation to a detailed, months-long effort. Currently there is very little use of B-C in making decisions on scaling-up investment. There is a need to develop robust ex-ante B-C evaluation procedures to guide future investments. It is worth noting that B-C does not cover all aspects of scaling. The effects on gender, nutrition and environment likely need to be considered in additional assessments calling for a multi-criteria analysis.
- Development practitioners need skills and tools for rapid assessment of scalability to enable promising innovation initiatives to go to the next step. In this report, a simple model is proposed for an ex-ante assessment of scalability to guide the planning and implementation of scaling-up projects. Because of the limited time, it was not possible to test the robustness of this approach and its wider applicability. So there is a need to further test, adapt, modify and refine the approach proposed. This in no way is a substitute for other rigorous assessments of scaling-up options such as B-C. An initial assessment of scalability may justify the human resource and financial expense of investing in subsequent rigorous evaluation.
- Most scaling-up decisions are made based on incomplete information. Through case studies, attempts should be made to generate evidence on whether or not the innovations are having the intended impact on development goals. This calls for a systematic and rigorous ex-post impact assessment of major scaling-up investments. The lessons learned could guide future investments.
- It may also be useful to bring development actors and practitioners together periodically to share whatever knowledge has been gained and to apply the lessons learned.



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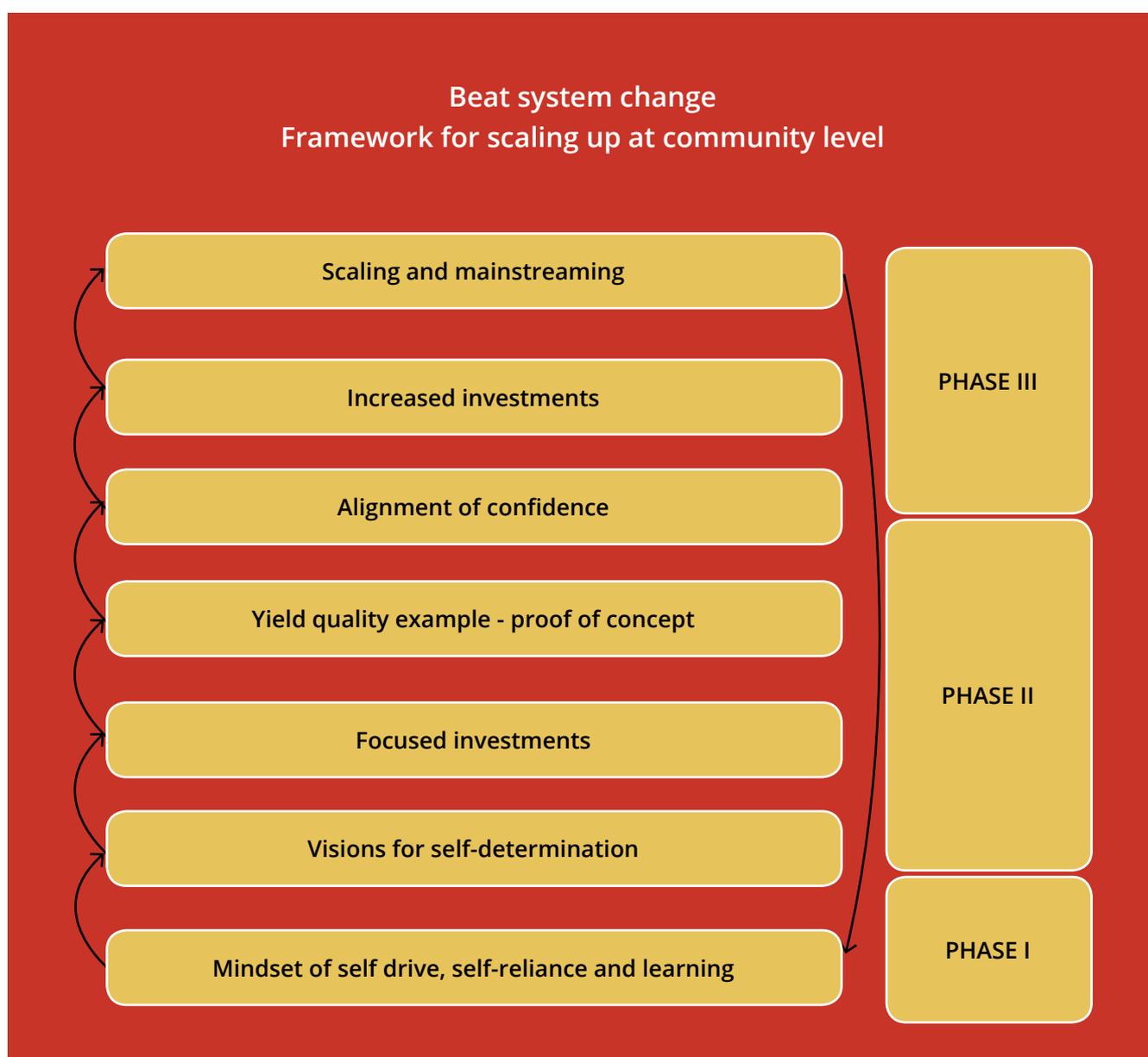
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Annex 1: System change framework for scaling up

A national-systems change framework for agriculture involves the following activities.

- Develop country strategy and trajectory options for agricultural-led economic/structural transformation
- Capacity and quality of the investment analysis, plans and programmes
- Capacity for financial engineering, investment deal flow generation, mobilising domestic private and public funding
- Capacity to solve problems, engage opportunities and get things done
- Institutional capacity to develop policies; craft strategies, systems and programs; implement them; solve problems; learn from experience; and reinvest lessons back into systems
- Capacity of agribusiness industry and farmers to engage government and other stakeholders
- Craft and implement agri-business
- Commodity and sub-sector productivity and competitiveness initiatives
- Enterprise diversification programs—aligning smallholders with growing demand in the domestic industrialising sectors and regional and global markets.
- The BEAT system change framework has four phases, as shown below. This is part of a change management process targeted at the higher level by NEPAD, CAADP and FARA in SSA.



Source: Rukuni

Annex 2: Proposed state of practice classification system

State of practice (science-based practice)	Level of evidence	General applicability
Policy principles	Proven in multiple settings, replication studies; evidence quantitative, scientific	Consistently replicable, widely applicable; “truism” essential for success
Best practice, protocols, codes of practice	Evidence of impact from multiple settings; meta-analysis, expert review	Demonstrated replicability, limited risk
Good practice, better practice, exemplary	Clear evidence from some settings; several evaluations	Promise of replicability, medium risk
Models, lessons learned	Positive evidence in a few cases; program evaluations, conference workshops	Limited number of settings and experience
Promising practices, state of the art	Unproven in multiple settings; anecdotal evidence, testimonials, articles, reports	High risk
Innovation	Minimal objective evidence; inference from parallel experiences and contexts	New ideas, no previous experience, highest risk

Source: World Bank (2003)

Annex 3: Some examples of drivers of change

Project	Drivers of change
Rehabilitating China’s Loess Plateau (replacing traditional goat herding with walnut tree farming)	<ul style="list-style-type: none"> • The model of changed agricultural practices implemented in the nearby village served as the catalyst for the initial implementation processes. The idea that man-made degradation of large-scale ecosystems could be reversed through agricultural practices, and that that could lead to a successful and sustainable alternative livelihood, was one of the drivers. • Incentives and accountability helped to solidify the crucial components of legitimacy and buy-in from local farmers. (Alternative income from tree farming, low-cost, long-term land-leasing options). • A series of champions—World Bank and a series of government ministries.
Building on success with re-greening in the West African Sahara	<ul style="list-style-type: none"> • Successful models in the region, combined with organised field visits by regional and local policy makers to successful projects; farmer-to-farm visits. • Hard data about the socioeconomic and bio-physical impacts of re-greening. Such data can help influence decision-makers and inform policy reforms. • External champions.
Scaling up agricultural value chains for pro-poor development	<ul style="list-style-type: none"> • Buyer-driven organisations—processors, traders and exporters—drive value chains. Attention should be given to support systems that these drivers find alternative and to the introduction of incentives to which they respond. • Financial return is ultimately the most important incentive for private actors in scaling value chains.

Source: Extracted from IFPRI, 2012

Annex 4: Examples of enabling environment promoting scaling up

<p>Rehabilitating China's Loess Plateau</p>	<ul style="list-style-type: none"> • Fiscal/financial <ul style="list-style-type: none"> • To help livestock owners adjust to newly introduced grazing bans, informal credit was made available and project loans were created that allowed farmers to construct animal sheds and pens, procure fodder processing equipment, and purchase animals better suited for pen feeding. • Increased income and productivity. Farmers also benefited from high wool yields and improved quality of wool. • Policy space <ul style="list-style-type: none"> • Two key policy options—implementation of grazing bans and creation of land-leasing options for farmers—provided space for success in the short, medium and long terms. Grazing ban was essential in allowing grasses, trees and shrubs to grow with the goal of combating soil erosion. The land-leasing program allowed farmers to reap the benefits from the output of their fields and orchards. • Natural resources/environmental spaces <ul style="list-style-type: none"> • This project design had triple-win potential: improving large-scale ecosystem, creating an agricultural environment that was more sustainable for rural livelihoods, and contributing to climate change adaptation and mitigation (terracing and improved goat management). • Cultural spaces <ul style="list-style-type: none"> • This project involved the difficult task of changing embedded farming practices that had been deeply ingrained in the culture for generations. The project implementers were able to use the policy space (loans and credits) to create short-term incentives to support fundamental cultural change. Deliberate changes were introduced gently without eradicating the traditional farming techniques altogether.
<p>Building on successes with re-greening in West African Sahara</p>	<ul style="list-style-type: none"> • Fiscal /financial space <ul style="list-style-type: none"> • Developing value chains for agro-forestry products • Policy space <ul style="list-style-type: none"> • Adapting national policies and legislations to private ownership: a shift in perception of ownership of trees • Mainstreaming re-greening into existing agricultural, forestry and rural-development projects. • Institutional capacity space <ul style="list-style-type: none"> • Building village and inter-village institutions responsible for tree management • Developing technical training for land users in pruning, tree management and exploitation • Knowledge management and communication <ul style="list-style-type: none"> • Systematic use of rural and regional radio to spread messages about re-greening • Produce documentaries for national and international TV about re-greening and its successes
<p>Scaling up agricultural value chains for pro-poor development (much of public support needs to focus on farmer groups to ensure that poor farmers are not marginalised and squeezed out as the chain matures and reaches scale)</p>	<ul style="list-style-type: none"> • Political and policy space <ul style="list-style-type: none"> • Identification and analysis of significant policy constraints, and how (and when) these constraints can be assessed, is essential when defining scale objectives and assessing the feasibility of scaling-up process • Institutional space <ul style="list-style-type: none"> • Public-sector support effort should typically focus on strengthening collaborative institutions such as producer and trade associations, information networks, marketing facilities, training facilities and systems for regulation, standard-setting and certification. • Pro-poor value-chain programs often need to support community-based processes to strengthen the small-scale producers. • Financial space <ul style="list-style-type: none"> • Grants are often important instruments in donor-supported programs, but these are unsustainable once donor support for the fund facilities ends. Innovative funding arrangements are crucial. • Knowledge space <ul style="list-style-type: none"> • Focus M&E on the primary objective of the program. Price development also should be monitored as value chain programs can lead to concentration of market power and reduction in producer price.

Annex 5: Simplicity/complexity framework

Simplicity and Complexity Index of Scalability -Adapted from Cooley and Kohl, 2006

This checklist is intended as a tool for practitioners (implementers, funders, partners) to assess periodically the scalability of an innovation. This is an informal, management tool intended to trigger management decisions to develop additional information or to take actions.

Innovation Model	Simplifying factors ← Check left	Neutral	Complicating factors Check right →
Is the model credible?	<ul style="list-style-type: none"> • Has a clear, logical and complete theory of change • Supported by respected organizations • Testable • Steps are being taken to evaluate • Outcomes; -Feasibility; -Cost effectiveness? 		<ul style="list-style-type: none"> • Theory of change incomplete, unclear • Not supported by respected organizations • Not testable • Steps not being taken to evaluate: • Outcomes; -Feasibility; -Cost effectiveness
Is the innovation relevant?	<ul style="list-style-type: none"> • Does it address perceived needs of target population? • Does it deliver observable benefits? 		<ul style="list-style-type: none"> • Need addressed is not perceived by target population? • Are benefits not readily observed?
Alignment	<ul style="list-style-type: none"> • Consistent with government, WB strategies? • WB country office involved with project implementation? 		<ul style="list-style-type: none"> • Differs from government, WB strategies? • WB country office not involved?
Does the innovation have legitimacy?	<ul style="list-style-type: none"> • Initiated and implemented by credible local organizations • Consistent with existing cultural practices? • Socially, politically desirable? 		<ul style="list-style-type: none"> • Initiated and implemented by outside orgs? • Requires large change from cultural practices? • Social, political opposition?
Potential for impact (est.)	<ul style="list-style-type: none"> • Large impact on large number of the target population? 		<ul style="list-style-type: none"> • Small impact on small number of the target population?
Mediating agency	<ul style="list-style-type: none"> • DM or other agency engaged in supporting transition from demonstration to scaling up. 		<ul style="list-style-type: none"> • No mediating agency managing gap between testing and scaling up.
Driver	<ul style="list-style-type: none"> • Agency identified as appropriate to lead scaling up? 		<ul style="list-style-type: none"> • Appropriate agency not identified for leading scaling up?
Champion	<ul style="list-style-type: none"> • Powerful advocates supporting innovation adoption? 		<ul style="list-style-type: none"> • No support among powerful influencers?
Constituencies	<ul style="list-style-type: none"> • Growing demand for innovation? 		<ul style="list-style-type: none"> • Weak demand for innovation?
Management capacities	<ul style="list-style-type: none"> • Few decision points and small number of actors involved in implementing project? • Few actions and partners who need to be coordinated. • Requisite skills to implement innovation exist? 		<ul style="list-style-type: none"> • Multiple decision points and multiple actors involved in implementing innovation? • Many actions and partners required who need to be coordinated? • Requisite skills to implement innovation missing?
Financial viability	<ul style="list-style-type: none"> • Cost of adopting innovation is low? • Relies on existing infrastructure? • Innovation self-financing or commercially viable? • If public good, commitment to public financing exists? 		<ul style="list-style-type: none"> • Cost of adopting innovation is high? • Requires new infrastructure? • Innovation requires large, ongoing financing? • If public good, no commitment to public financing
Total Number of checks ✓			

Annex 6: Criteria for scaling used in the World Bank study

Criteria for Scaling: Development Marketplace Projects with Scalability Potential			
	Factors	Questions	Tools/Sources*
Innovation	<ul style="list-style-type: none"> Type Clarity Theory of change Evidence of effectiveness, efficiency Legitimacy 	<ul style="list-style-type: none"> What is to be scaled? What is/are the innovation(s)? technology, process, institutional/structure/systems, behaviours? Is there a clear theory of change? Complex includes many steps, multiple actors and organizations, multiple levels. Is there evidence that it works? Is there credibility with key stakeholders? Who benefits from the innovation? Is there evidence of local ownership? 	<ul style="list-style-type: none"> Innovation type Objectives analysis Theory of change analysis (Weiss, Aspen Institute, Backward mapping tools) Transaction analysis Monitoring, evaluation studies Telephone interviews Stakeholder analysis Scalability checklist
Alignment with Government, ARD, and World Bank goals and strategies	<ul style="list-style-type: none"> Linkages to target strategies and population groups Attention to gender, poverty, inequality, regional and other priorities 	<ul style="list-style-type: none"> Will the innovation, if scaled, contribute to achieving relevant government and World Bank goals? Does the innovation, if scaled, contribute to government and World Bank strategies? Does the innovation reach priority population? 	<ul style="list-style-type: none"> Relevant Government and World Bank documents: PRSPs, CAS, other.
Drivers	<ul style="list-style-type: none"> Credibility of innovation Leadership and management capacities and commitment Champions Constituencies Incentives 	<ul style="list-style-type: none"> Is there a demand for the innovation? Among which stakeholders? Which individual is likely to lead/drive the scaling up process? To maintain focus on scaling up objectives? Does the organization have the capacity to manage the scaling up? To adapt systems and structures to changing requirements? Does evaluation capacity need strengthening? To whom is the organization accountable? 	<ul style="list-style-type: none"> Strengths and weaknesses analysis
Spaces or environmental factors	<ul style="list-style-type: none"> External factors that enable or discourage scaling up 	<ul style="list-style-type: none"> Is there an enabling policy framework? Are there important political supporters or opponents? Are there political or security constraints? Are there prospects of financial sustainability? What is needed? Who are the partners? Do they have the required capacities? If private sector partners or implementers, do their interest align with the intentions of the innovation? Do government partners or implementers have the requisite capacity? Is the innovation culturally and socially acceptable? 	<ul style="list-style-type: none"> Opportunities and threats analysis
Type of scaling	<ul style="list-style-type: none"> Type of scaling Scaling organization Supporting organization Partnerships 	<ul style="list-style-type: none"> Expansion, replication or collaboration? Which organization(s) will take responsibility for the scaling? Is it a government, NGO or private sector organization? Is it local or foreign? Is there an intermediary organization? Can this capacity to provide support to the scaling up organization be created locally? Who are the partner organizations? What competencies do they bring? 	<ul style="list-style-type: none"> Cooley and Kohl definitions and decision model

Annex 7: Checklist used by ExpandNet/WHO

	Questions related to potential scalability	Yes (+)	No (-)	More information/actions needed
1	Is input about the project being sought from a range of stakeholders (e.g. policy-makers programme managers, providers, NGOs, beneficiaries) ?			
	Are individuals from the future implementing agency involved in the design and implementation of the pilot?			
	Does the project have mechanisms for building ownership in the future implement in organization?			
2	Does the innovation address a persistent health or service-delivery problem?			
	Is the innovation based on sound evidence and preferable to alternative approaches?			
	Given the financial and human- resource requirements, is the innovation feasible in the local settings where it is to be implemented?			
	Is the innovation consistent with existing national health policies, plans and priorities?			
3	Is the project being designed in light of agreed- upon stakeholder expectations for where and to what extent interventions are to be scaled- up?			
4	Has the project identified and taken into consideration community, cultural and gender factors that might constrain or support implement action of the innovation?			
	Have the norms, values and operational culture of the implementing agency been taken into account in the design of the project?			
	Have the opportunities and constraints of the political, policy, health-sector and other institutional factors been considered in designing the project?			
5	Has the package of interventions been kept as simple as possible without jeopardizing outcomes?			
6	Is the innovation being tested in the variety of social and cultural and geographic settings where it will be scaled - up ?			
	Is the innovation being tested in the type of service-delivery points and institutional settings in which it will be scaled-up?			
7	Does the innovation being rested require human and financial resources that can reasonably be expected to be available during scale-up?			
	Will the financing of the innovation be sustainable?			

Questions related to potential scalability	Yes (+)	No (-)	More information/actions needed
Does the health system currently have the capacity to implement the innovation? If not, are there plans to test ways to increase health-systems capacity?			
8	Are appropriate steps being taken to assess and document health outcomes as well as the process of implementation?		
9	Is there provision for early and continuous engagement with donors and technical partners to build a broad base of financial support for scale- up?		
10	Are there plans to advocate for changes in policies, regulations and other health-systems components needed to institutionalize the innovation?		
11	Does the project design include mechanisms to review progress and incorporate new learning into the implementation process?		
	Is there a plan to share findings and insights from the pilot project during implementation?		
12	Is there a shared understanding among key stakeholders about the importance of having adequate evidence related to the feasibility and out comes of the innovation prior to scaling up?		



Annex 8: Good practices in piloting and the underlying rationale

Suggested good practice	Underlying rationale
Engage in a participatory process involving key stakeholders	Engaging the ultimate beneficiaries and other key stakeholders is likely to produce interventions that are relevant, appropriate, feasible and sustainable
Ensure the relevance of the proposed innovation	Addressing priority problems of the end user—based on sound evidence, considered preferable to alternative approaches, and feasible in the local settings where it is to be implemented—will result in high degree of success
Reach consensus on expectations for scaling up	Participants may have different expectations about where and to what extent the innovation to be scaled up proves successful. A common vision will lead to concerted action, leading to successful results.
Tailor the innovation to the sociocultural and institutional setting	Innovation that builds on existing patterns of social organisation, values and local traditions are more likely to be adapted and to last.
Keep the innovation as simple as possible	The simpler the interventions, the more easily they can be implemented in the future. Past experience reveals the step-wise adoption behaviour of the smallholder farmers. All proposed components should be reviewed, to examine whether they are essential and how the overall package can be kept simple while still having a reasonable expectation of success.
Test the innovation in the sociocultural and institutional settings where it will be scaled up	Sociocultural setting can influence the innovation proposed. This may require adaptations. If nationwide implementation is the goal and the country is culturally diverse, piloting should involve as many regions and geographical areas as feasible. It is also important to conduct the project in the institutions that are expected to scale up the project.
Test the innovation under the routine operating conditions and existing resource constraints of the system	Pilot projects often succeed because the innovation is implemented with special human, financial and technical resources that are not always available for large-scale implementation. If implementation requires additional inputs, then these should be considered as part of the package of interventions that need to be expanded and institutionalised during scaling up.
Develop plans to assess and document the process of implementation	Scaling up is an iterative process. In addition to progress- and performance-monitoring, the processes also should be monitored and documented and lessons integrated in the implementation.
Advocate with donors and other sources of funding for financial support beyond the pilot project	Successful innovations often fail to be scaled up because the necessary financial resources to support scaling up has not been obtained or put in place. Advocacy with donors and other sources of funding should include requests for support for scaling-up activities beyond the pilot phase.
Prepare to advocate for necessary changes in policies, regulations and institutional arrangements	Successful scaling-up of innovation often requires changes in policies, budgets and service protocols.
Develop plans for how to promote learning and dissemination of information	The innovation may require local adaptations. The process of implementing a pilot project provides multiple opportunities for learning. Systematic learning, documentation and sharing of lessons learned will enhance the effectiveness and efficiency of the scaling-up process
Plan on being cautious about initiating scaling up before the required evidence is available	Processing without sufficient evidence can lead to scaling-up interventions that do not work or require further refinement.

Annex 9: Guidelines for Discussion

Set A

- i. Explain the purpose of the discussion/visit
- ii. Please describe the “innovation” that your project is trying to scale up.
- iii. Do you have a vision and strategy for the scaling-up process? Who drive this process?
- iv. How long will it take for the scaling-up process to be completed successfully?
- v. Who are the key partners? What is your interest in this process? Is it in line with your mission and mandate?
- vi. What is your expected role/contribution?
- vii. What are the competencies/capacity requirements in order to make an effective contribution?
- viii. What capacities exist?
- ix. Are there any capacity gaps?
- x. Will you/your organisation continue this role beyond the project? If no, why?
- xi. How effective is the scaling-up process?
- xii. What factors contribute to its success/failure?

Set B

- i. Explain the framework for analysis and the three-step process for assessing scalability.
- ii. Explain the necessary and sufficient conditions for scaling up.
- iii. 10 sufficient conditions for scaling up:
 - A clear vision, strategy and pathway for scaling up exists
 - Target group actively engaged in piloting and prepared for scaling up
 - Drivers of change exists and are effective
 - Enabling environment is conducive for successful scaling up
 - There is legitimacy and the innovation is well-aligned and embedded
 - The necessary partnership exists, and the partners are fully engaged
 - Co-ordination issues are addressed and the process is kept relatively simple
 - A plan for M&E and learning space exists and is functional/operational
 - Lead agency and partner organisations are identified and ready for implementation
 - An ex-ante cost benefit analysis is completed and favorable
- iv. **Questions for discussions:**
 - Is anything missing from this list?
 - What are the relative importance of these conditions? Do we have to apply any weights?
 - If you have a total score of 100 to distribute across these conditions, how would you distribute these 100 points? Explain reasons. (This question was modified based on the expected impact on scaling up.)
 - With the Vuna project, go through the question set in detail for clarity and relevance

Annex 10: Case studies

CHC Commodities, Zambia

CHC Commodities is a brokerage firm that has been in existence for more than sixteen years, serving as a maize buyer for Zambia National Breweries. The model is simple. Breweries specify the quantity needed, and CHC buys the maize from the farmers, paying cash on delivery. The maize is taken to the laboratory for cleaning and to make sure that it meets the standard specified by the brewery. CHC then sell the goods and collects the commission. The operation is independent of the government but coordinates with farmers' unions.

In the recent past CHC has become involved in groundnut out-growers schemes in Northern and Eastern Zambia. Cannon Garth and CHC have formed a joint company with the objective of developing a commercial groundnut production and processing operation that will produce a high-quality product suitable for customers of all types, including global manufacturers in snacks and confectioneries. The operation will include contract farming, buying, processing and marketing. The company deals with both large scale and smallholder farmers, buying both maize and groundnuts. It was not very successful during the first year. The target for the second year is 700 metric tons.

The breeder seed/foundation seed is imported from the United States. Seed multiplication/bulking is done locally using commercial farms. Lead farmers identify farmer groups for contract farming. Given the success with maize, they are planning to start with the same farmers and extend contracts to others subsequently. The contract farmers are provided with the seed and fertilizer. FSIP is also selling seeds to the farmers. CHC employs its own marketing and extension officers. The ratio of depot to extension staff is 4:1. The contract is a guaranteed off-take contract, and CHC buys everything that the farmers produce. The market price is announced during the harvest time. The marketing and extension officers assist in the buying of groundnut. Outside the marketing season the extension agents are involved in demonstration plots, developing production manuals and farmer training on issues such as pH management. They also collect information about the farmers.

The collected materials will come to the depot for sampling and analysis. CHC buy the materials on behalf of a contractor, and cash is paid on delivery. CHC is planning to expand its operation to other commodities such as soya bean and sunflower. CHC offers a competitive market price and a reliable service to the producers. CHC does not see much problem in expanding the operation. The target for the next five years is 8000 metric tons of maize and 700 metric tons of groundnut per year. One of the objectives of CHC is to convert the smallholder farmers from surplus marketing to market-oriented cultivation.

Key challenges facing CHC include finance, provision of good-quality seeds, transport, farmer training and establishing a formal market for smallholder production. Since CHC is a commercial brokerage firm, the driver behind this contract-farming operation is profit. It is also looking for partners for employing the local extension officers. Given the nature of this operation, it was decided not to discuss the details of the proposed approach to measuring scalability.

NWK Agri-Services Mechanisation Scheme

NWK AS is a leading agriculture company in Zambia with a well-established cotton out-grower programme that benefits approximately 100,000 small-scale farmers annually. NWK provides seeds and chemical inputs and purchases the cotton from the farmers. Recently NWK diversified into input supply as well as purchase, storage and marketing of maize and soya beans.

The majority shareholder, NWK Limited in South Africa, which holds 60 percent of the company's shares, is an established and reputable agriculture business that boasts more than 100 years of experience in the South African agriculture market.

Louis Dreyfus Commodities (LDC), with 40 percent shareholding, is a world-renowned merchant, trading in a wide range of agriculture commodities and mining products. This combined expertise allows NWK AS to facilitate market access to emergent farmers in the mechanisation scheme.

NWK AS is one of the three companies selected from a closed bid to integrate CSA into the cotton value chain in Zambia.

Background to the NWK AS mechanisation scheme

Small-scale farmers in Zambia struggle with low crop yields and poor productivity. This can partly be attributed to the inability of farmers to prepare their farm lands before the rain season in order to take advantage of the optimal planting window. The consequence is that land preparation is mostly done only after the first planting rains, which means crops are planted late with a resultant negative impact on yields.

One way to alleviate these problems is to mechanise farming activities. However, the inability to source finance from commercial banks lead to a lack of access to suitable mechanisation equipment.

In a bid to address this problem, NWK AS, in conjunction with various collaborating partners, is implementing initiatives that are aimed at addressing the constraints to increase farmer yields sustainably. In this regard the company has been implementing a “yield improvement project” since 2005, which is now incorporated under the Competitive African Cotton Initiative Program (COMPACI). This project includes a “tractor scheme” that has benefited more than 40 farmers.

The intention is to expand the tractor scheme to a mechanisation scheme with the following benefits to farmers:

- Access to all equipment needed to facilitate timely land preparation
- Access to seed, chemicals and fertilizer
- Entry into crop rotation, with all the related benefits
- Improved market access for crops produced
- Enabling of entrepreneurship by allowing farmer to render additional services such as contract tillage and transport



Operational Modalities

The scheme is based on the farmer being able to service a total of 45–60 hectares of maize, soya and cotton in a crop rotation system. In addition, the farmer can provide tillage services to other farmers and do transport as a source of additional income.

NWK AS's proposed intervention is aimed at improving productivity through the provision of a full package to facilitate effective tillage, planting, spraying and transport operations.

The package for one farmer will typically include the following:

- One 60-horsepower tractor (2WD)
- One 5 metric ton trailer
- One 2-tyne Ndume ripper
- One 2-row Baldan planter
- One lime and fertilizer spreader
- One 600-liter boom sprayer
- One grain sheller (if possible)

NWK AS also recognises the need for farmers to have access to other production inputs and support services. These include certified seed, herbicides, pesticides, fertilizers, training and technical support.

Key partners, roles and responsibilities

The key stakeholders in this scheme are: NWK AS, commercial banks, Musika and farmers.

NWK AS

- Assume the role of facilitator to promote and market the mechanisation scheme.
- Do screening of interested farmers based on their history with NWK AS, before assisting them with application for finance.
- Supply equipment, financed by a commercial bank, based on a support guarantee supplied by Musika, at market-related prices.
- Supply seed, chemicals and fertilizer, financed by a commercial bank, based on a support guarantee supplied by AgDevCo, at market-related prices.
- Supply the required training and support in all aspects required to run a mechanised farming unit.
- Buy the cotton, soya, sunflower and maize produced within the scheme at market-related prices (give market access).
- Supply the farmers with haulage opportunities to supplement income.

Commercial bank

- Finance the equipment at market-related lending rates over a period of four years based on a first-loss guarantee from Musika with the equipment as collateral security for the loan.
- Finance input supplies based on a first-loss guarantee from AgDevCo.

MUSIKA and AGDEVCO

- Supply the commercial bank with a "first-loss guarantee" in case the farmer defaults on payment for the financed equipment and inputs.

Farmer / contractor / farming group

- Pays 20 percent deposit on equipment and inputs to be financed.

- Buys all equipment and inputs from NWK AS.
- Adopt only electronic payment for inputs and delivered crop.
- Sell all commodities produced to NWK AS.
- Pay the financed inputs in full on annual crop delivery.
- Pay the annual instalment on financed equipment and inputs, by means of signed sessions that allow NWK AS to make payments directly to the banks after crops have been delivered.

Expected Results

The successful implementation of the program should result in the following benefits:

- Increasing productive use of farm land.
- Early land preparation and planting.
- Increased yields and overall production per farming unit.
- Improved farmer household food and nutritional security as farmers can afford to increase crop land and diversify their farming activities. A more diversified crop production enterprise will spread the production risk of the farmer.
- NWK AS can expect larger crop volumes and improved loan recoveries from more loyal farmers. This has the potential to improve operating efficiencies.
- The tractors should help in crop haulage, thus earning additional income for beneficiaries and reducing crop losses for NWK AS.
- The scheme is seen as improving farmer access to productive inputs and is part of corporate social responsibility for the company.
- The financing institution can also use the scheme as marketing tool in the agriculture sector, as well as use the scheme as part of a corporate social responsibility plan.

Experience and lessons learned

The programme works well in a normal year. In addition to cotton, the project offers market access to other commodities. Farmers are also trained on minimum tillage, scouting for pests and farmer business school. The major problem is the weather. NWK AS also assisted farmers to obtain insurance against weather events; with farmers paying the premium. However, the whole mechanisation program was suspended due to high interest rates, which impose a huge economic burden.

Currently the company is planning to continue with the current 60 farmers. In addition to weather, the constraints to scaling up are: the higher interest rate; farmers not honouring the contracts (walking away from loan and selling outputs to outsiders); insurance companies not respecting their contracts; soft loan arrangement may provide some incentives. MWK will continue its cotton out-growers scheme. Here the loan recovery has been good, ranging between 75–96 percent.

Drought Tolerant Maize in Africa

The Drought Tolerant Maize in Africa (DTMA) project was launched in 2007 and has been implemented in 13 countries across Sub-Saharan Africa (SSA). The project was funded by the Bill & Melinda Gates Foundation and jointly implemented among NARs by CIMMYT (Eastern and Southern Africa) and IITA (West Africa). It concluded at the end of 2015. The purpose was to increase food and income security of smallholder farmers through development and dissemination of drought-tolerant, well-adopted maize varieties. A key element addressed during implementation of the project was the public-private partnership, especially with the seed companies.

During the entire period, a total of 233 varieties, including about 200 drought-tolerant maize varieties, were released across the target countries. These varieties are adapted to various agro-ecologies, and have been commercialised or are in the process of being commercialised. Based on an adoption and monitoring survey conducted by the project (2013–2014), the key constraints to adoption is the unavailability of improved seed (Benin, Ethiopia, Nigeria, Zambia, Tanzania and Uganda). The other constraints are lack of information (Zimbabwe, Zambia and Uganda); high seed price and consumer preference (Malawi); and lack of resources (Mali). For more detailed information, see www.dtma.cimmyt.org.

The overall productivity of maize in DTMA target countries showed a much higher growth rate than in countries outside DTMA. Outside DTMA, Rwanda (and, to some extent Burkina Faso) had good maize performance. It is important to note that these two countries had one common denominator: national governments with positive policy environments and good investments in agriculture. DTMA programme was very closely linked to SIMLESA project, and scaling up of technologies is planned through this project.

Sustainable Intensification of Maize-Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA)

This project was launched in 2010, managed by CIMMYT (supported by ACIAR) and implemented by national agricultural research systems in five partner countries: Ethiopia, Kenya, Malawi, Mozambique and Tanzania. With lessons learned from these countries, the project is also implemented in three other countries.

Botswana, Rwanda and Uganda: The other implementing partners are the Queensland University; Queensland Alliance for agriculture and Food Innovation (QAAFI, Australia); the International Livestock Research Institute (ILRI), the International Center for Tropical Agriculture (CIAT); the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA); and the Agricultural Research Council (ARC South Africa), which will contribute to science and capacity-building. The project is very closely linked to DTMA. The main thrust of the project is increasing farm-level food security, productivity and incomes through promotion of maize-legume intercropping systems in the context of reduced climate risk and change. Through participatory research and development with farmers, extension agencies, NGOs, universities and agribusiness along the value chains, the program aims to improve maize and legume productivity by 30 percent and reduce expected yield risk by 30 percent on approximately 650,000 farm households by 2023, a 13-year commitment. The project will focus on:

- Developing CA-based sustainable intensification options, including improved maize and legume varieties identified for their capability with CA practices.
- Promoting technology adaption by both female and male farmers.
- Capacity-building for national agricultural research systems (NARS) of partner countries.
- Creating enhanced partnerships (public-private, public-public) and collaboration with established innovation platforms for coordinated scaling-out of SIMLESA-generated options and practices. This project is planned with due consideration for the scaling up of options and practices. The project is implemented through three phases. The second phase (2014-2018) has an increased focus on up-scaling sustainable intensification technologies that were initiated and tested in the first phase. Institution building is a key component of the project. The project is aiming for sustainable intensification through integration, innovation platforms and impact orientation.
- Interdisciplinary research teams are planning and working together. The approach is flexible and adaptive, with decisions made jointly.
- The responsibility and ownership of the program lies with the country teams and the staff of the national agricultural research and extension system.
- Capacity building is provided through short- and long-term training (M.Sc. and Ph.D. training)
- Project also provides vehicles and is building research facilities and necessary equipment for NARS.
- A participatory R&D approach is taken, with extension agencies, NGOs and agribusiness brought together around farmer's trials to discuss the new technology and how it should be supported for scaling out.
- Farmers are working with each other, experimenting with more productive practices, and sharing their experiences with other farmers. This was underway at an early stage.
- With the support of the sub-regional (SROs), research organisations and existing networks, the program is fostering spillover benefits to the countries in the region.

Key Challenges

The key challenges confronting the program are:

- Helping farmers manage valuable crop residues in mixed crop-livestock systems and improve weed control.
- Given the recurrence of El Nino, promoting use of climate information and seasonal climate forecasting tools to inform farmers' decisions.

- Increasing the availability of affordable fertilizer and herbicides and linking farmers to market by working with policy and agribusinesses.
- Institutionalizing the framework/model in the national system and leveraging it with larger donor supported, bilateral agricultural research and development projects.
- The programme is also planning to pilot the best scaling-up strategy. Who should lead the scaling up? Who should build the capacity?

Key features of this programme that will effectively contribute to successful scaling up are:

- The long-term perspective and commitment by key stakeholders.
- Existence of a number of champions who are committed and in line with the national priorities.
- Working on two key commodities and production systems that are critical for the livelihood of the majority of smallholder farmers.
- Explicit focus on scaling up as the end goal.
- The programme is embedded within the lead and facilitating agencies, CGIAR and NARS.
- Strategic focus on sustainability and institutionalisation of the framework within NARS; capacity and organisational development; and development of partnerships and platforms.
- Splitting of the programme into three phases provides the flexibility to change the focus as the programme evolves. This also provides mechanisms for systematic learning and adaptation.
- Competitive grant schemes to provide initial funding support to promote scaling up to reinforce and catalyse ongoing activities (for example, using national council of churches for demonstration; Egerton University for capacity strengthening; FRESH CO seed company for seed multiplication; a media agency MIDIAE to widely promote technology and practices using vibrant TV programmes, drama, video clips, etc.)
- The design and implementation of this project explicitly addresses some of the key sufficient conditions needed for scaling up. This could serve as a model in designing programmes and projects for scaling up.

Sidella Trading, sesame and pulses project

The Sidella Trading Private Limited, a private profit-making enterprise registered and incorporated in Zimbabwe, was started in 2010 with an initial focus on agri-commodity trading of sesame and cowpea on the import side. Currently it is functioning as an agricultural contractor and commodity broker for sesame and pulses (cowpeas and mungbeans). The company has about six years of experience in providing a market for sesame and pulses for smallholder farmers in arid and drought-prone areas of Zimbabwe. Sidella has been engaged with various donor-funded projects and over the years has signed MOUs with a number of development partners (SNV, Technoserve, Hilswerk Australia International, Zimbabwe Agricultural Trust, etc.). The company is developing a fully integrated supply chain model and aims to facilitate production and processing of agri-commodities in Zimbabwe.

The smallholder contract farming model for sesame has been in operation since 2011. The Sidella smallholder sesame model includes input supply, extension support, business training and market guarantee. The company has managed to link its successful farmers to micro-finance institutes while providing a ready market for the produce. Sidella has over the years established buying points and an agri-depot where both contracted and non-contracted farmers sell their sesame and cowpeas. Sidella focuses on small margins and large volume rather than high margin and small volumes, as other traders do.

The sesame project is part of the Rural Agricultural Revitalisation Programmed funded by DANIDA through SNV. This programme is working on three value chains: dairy, oil seeds and horticulture. Emphasis was given to sesame because of its drought-tolerant characteristics, mostly suited for El Nino-affected areas where farmers are also moving away from cash crops such as tobacco and cotton due to the drastic decline in prices. The traditional varieties of sesame were an integral part of the smallholder production systems. The local varieties are poor yielders and are often used as a relish in food preparation. Based on the experience from Mozambique, SNV introduced a sesame project into Zimbabwe. At that time there was no local market for sesame, and SIDELLA was interested in looking for markets. SNV supported the activities of SIDELLA by giving a loan of \$100,000 at a very low interest rate with the understanding that SIDELLA will work with the small holder farmers in an organised manner. This paved the way for sesame contract farming and SIDELLA buying the produce from the farmers for cleaning and subsequent marketing.

SNV also facilitated the importation of five improved varieties from Tanzania and two varieties from Bangladesh for local adaptation trials and subsequent release. A research partnership was formed with University of Zimbabwe and DR&SS. They were able to release two improved varieties through participatory selection and multiplication. Others involved in promoting the crop are OLAM, Export Trading Group (an Indian company) and Feed the Future. Initially the seeds of the improved varieties were distributed free of charge. Since it was a new value chain, there was a need to work at different levels in the value chain—production, processing, value addition and marketing simultaneously. Pilot testing was done in natural regions IV and V. Currently the crop is grown by a large number of farmers. SIDDELLA also employed extension officers with mobility, to train the farmers on good management practices for both seed and commercial production. Initially SNV paid the salaries of the extension officers in full, but then it gradually withdrew from this arrangement. Currently, government extension services are the main agents.

The DANIDA-funded program is ending in 2018, and SNV has handed over the sesame component to DFID for continuous support through the Livelihood and Food Security Programme (LFSP). Both DFID and Feed and Future are working in confined areas, but there is potential for scaling up in other parts of natural regions IV and V. There are also local market opportunities in oil production and confectionaries (small localised value chains in addition to the export market in South Africa, Germany and China). However, there is no processing equipment for the hulling and grading that could add value to the crop. In this process of introducing the value chain SNV acted as a facilitator and it is assumed that SIDDELLA will continue the scaling up as well as the value addition process.

SIDDELLA started with four farmers, and currently 8500 registered farmers and 4000 unregistered farmers are growing sesame. SIDDELLA works with farmer groups, and each group has a lead farmer acting as the agent for SIDDELLA. Collection is done at the farm gate. SIDDELLA makes bulk payments to the bank, and payments to the individual farmers are made through “one wallet,” the Eco Cash system. In areas where there is no network, the extension agent distributes cash. This is a very risky arrangement. SIDDELLA has formed arrangements with FSG SUPERFERT, and they assist in buying the crop. They also collect and analyse soil samples and are working on site specific fertilizer recommendations.

SIDDELLA runs a virtual private server (VPS) database that will capture all contracted growers, the contracted crop, areas under production, and the exact field global positioning system (GPS) coordinates. Field officers can send real-time information from their bases. This data base is also linked with mobile money for ease of payments to farmers. SIDDELLA is currently a merchant for eco cash and one wallet, enabling it to be able to pay farmers instantly after every sale.

Key constraints to scaling up

The identified constraints for scaling up are:

- Seed being the critical input, arrangements for seed certification are needed.
- Lack of cleaning and processing equipment.
- Absence of government policies to promote sesame as a viable alternative crop.
- Limited knowledge of the extension staff on crop management practices and value-chain analysis. Extension agents with leadership and training skills are needed.
- Absence of formal forum for sharing information and ideas.
- Further research on site-specific management practices. Fertilizer and moisture management (when stressed it can produce 1.3 ton per hectare without fertilizer).
- Lack of mechanisms to enforce contracts.
- Need for organic certification for niche market—a certification system for Fair Trace (ECOCERT).

In order to address these constraints and promote value addition, currently SIDDELLA is working on two collaborative projects.

- Enhancing Access to a Farmer Guaranteed Market for Seed and Alternative Crops for Farmers in Masvingo Province, Sesame and Pulses Project (SPP). This project will focus on increased production and marketing of alternative cash crops (sesame, cowpeas and mung bean); and improved seed availability through community seed production. It will also provide a market for the commercial produce. Aggregation and distribution of both seed and produce would be done through a network of like-minded “entrepreneurial” small-scale agents. The project will support:
 - the creation of commodity-specific associations as a tool for supply-chain development to promote the interests of smallholder farmers and product promotion, quality development, training and information promotion.

- The implementation of proven, beneficial, sustainable and transparent contract farming models for both seeds (production management contract for 500 farmers) and commercial crops (market specification contract for 4500 farmers).
- the creation of inclusive district commodity multi-stakeholder fora for groundnut and sesame (for developing shared vision and strategy, providing value-chain knowledge, identifying and influencing specific government policies affecting the two commodities).
- Processing and value addition: sesame oil/dog biscuits.
 - Sesame is an alternative crop for the drier parts of natural region IV and V with low inputs and high relative return. When sesame is processed into oil within Zimbabwe and then exported, the process of value addition and the extra revenue is retained within the country. The indirect market for sesame oil in Zimbabwe will encourage and support other industries such as cosmetics, health, edible oil, pharmaceutical and retail packaging. The byproduct will be wholesaled as livestock feed or turned into highly nutritious dog biscuit. This process requires a cleaning machine and an oil press. SIDDELLA is trying to obtain this processing equipment to promote local value addition. There are no current competitors for this within Zimbabwe, and neighbouring South Africa is a sizable market where no sesame is grown, making it to be an attractive investment proposition. The value chain actors and the proposed intervention strategy is summarised below.

Value-chain actors and intervention strategy

The value chain actors and the proposed intervention strategy are summarised below:

1. SIDDELLA Trading: (through the field officers)

- Advancing pluralistic advisory service delivery.
- Facilitating training in creation of commodity-specific producer associations.
- Maintaining sustainable trading relationships through value chain multi-stakeholder platforms.
- Dissemination of market information, especially on price and logistical arrangements.
- Establish contract-farming systems in return for guaranteed delivery of a high-quality product.
- Commit to paying quality premiums based on clear standards and jointly promote product grading systems.
- Strengthening long-term relationships with producers.
- Encourage investment in organic/fair trade certification and exploration of new destination markets.
- Contribute to local value addition.

2. Government departments (Agritex, DR&SS, AMA)

- Development of policy to govern orderly production and marketing of produce and seed.
- Regulate contracting and side marketing.
- Registration of commodity associations.

3. Input supplies (private sector suppliers)

- Facilitate access to fertilizer and chemicals.
- Promote suitable package sizes.
- Increase the geographical coverage of the input supply network.

4. Producers (agents, lead farmers)

- Organise farmer associations to jointly procure inputs at discounted bulk rates and collectively market outputs, including via contract farming.
- Provide agronomy training on subjects such as planting time and techniques.
- Promote use of improved seeds.
- Avoid mixing seeds of different varieties.
- Use appropriate pest-control technology.

- Improve post-harvest handling with a focus on product cleanliness.
- Facilitate access to and use of new productive technologies through demonstration plots and by calculating rates of returns (ROR) on investment.

5. Financial institutions (banks, MFIs)

- Provision of finance for inputs.

The current CEO is passionate champion of the crop with long experience in contract farming and working with smallholder farmers. With the already established network of partners and the successful model, SIDEELLA will be able to make a significant contribution to the scaling-up process.







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Contact Us:

T: +27 12 342 3819

E: contact@vuna-africa.com

W: www.vuna-africa.com



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