



FARMER MANAGED SEED SYSTEMS IN TANZANIA

OPERATION | BENEFITS | SUCCESSES | CHALLENGES | SUPPORT



ACKNOWLEDGEMENTS

This study was made possible through support from many organisations and individuals. At the top we acknowledge the financial support from Rosa Luxemburg Stiftung with funds from German Federal Ministry for Economic Cooperation and Development (BMZ) for funding this study. The Tanzania Organic Agriculture Movement (TOAM) identified us (BACAS) to conduct this study. We greatly appreciate the TOAM management in particular Mr Michael Farrelly and his team for availing very useful information and commenting critically on the first draft of the report. We would like to thank chairpersons, agricultural extension officers, QDS producers and smallholder farmers in all study villages we visited for their support and willingness to share their experiences on issues related to FMSS.

The study was commissioned by Tanzania Organic Agriculture Movement and carried out by The Bureau for Agricultural Consultancy and Advisory Services (BACAS) of Sokoine University of Agriculture (SUA) led by Professor Joseph Hella.

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Published: 2015 by Tanzania Organic Agriculture Movement (TOAM)

TOAM: PO Box 70089 Dar es Salaam, Tanzania.

Supported by Rosa Luxemburg Stiftung with funds from German Federal Ministry for Economic Cooperation and Development (BMZ)

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EXECUTIVE SUMMARY

This report was commissioned by Tanzania Organic Agriculture Movement as part of the Seeds of Freedom project, supported by Rosa Luxemburg Stiftung with funds from German Federal Ministry for Economic Cooperation and Development (BMZ).

The Seeds of Freedom project aims to address the issues of farmer managed seed systems in Tanzania in two main ways:

- by supporting farmers to engage directly with policy makers to advocate more effectively for change;
- by developing a strategy and action plan for a programme of action aimed at supporting farmer managed seed systems, building on the strengths of the farming community

The Seeds of Freedom project seeks to gain a clear understanding of the status of the farmer managed seed system, the challenges it faces, and the opportunities for improvement. Policy barriers to farmers' rights will be identified along with opportunities for policy advocacy. Practical needs of farmers engaged in the farmer managed seed system be identified, along with recommendations for action to improve farmers' effectiveness, and to strengthen their ability to engage in advocacy at local and national level.

Tanzania Organic Agriculture Movement (TOAM) commissioned the Bureau for Agricultural Consultancy and Advisory Services (BACAS) of Sokoine University of Agriculture (SUA) to undertake a Study of Farmer Managed Seed Systems in Tanzania.

The Objective of the Farmer Managed Seed Systems (FMSS) Study was to shed light on the operation, benefits, success, and challenges of the farmer managed seed systems in Tanzania and the support needed. It also aimed at gaining a clear understanding of the status of the farmer managed seed system, the challenges it faces and the opportunities for improvement. Furthermore, the study aimed to identify barriers' to farmers' rights and opportunities for policy advocacy and shed light on the practical needs of farmers engaged in farmer managed seed system.

Specifically, the study aimed to:

- Unpack, understand and document the farmer managed seed system including the quality declared seed (QDS) system,
- Explore and document the justification for support for the farmer managed seed systems,
- Reveal how the farmer managed seed systems benefit farmer communities (in terms of food security, livelihoods, nutrition, health, democracy, food sovereignty etc),
- Analyse and document the extent to which the farmer managed seed systems are supported / not supported by national policy and legislation,
- Document the successes of the FMSS and the challenges they face,

- Identify how the FMSS can be supported, and by whom.

The main target audiences for the study findings are policy makers along with donors and the private sector, as well as farmers, farmers' organisations and civil society actors who will share the findings of the research and advocate for policy change.

METHODOLOGY

The study used a participatory and team approach requiring involvement of all stakeholders including but not limited to the smallholder farmers, Quality Declared Seed producers, district authorized seed inspectors and local government authorities.

In carrying out fieldwork, and in particular to achieve the expected results, the consultant team adopted a methodology that identified key data sources from which primary data were collected. The sources included farming households, QDS producers and Local Government Authorities (LGAs) in study districts. Tools for data collection included questionnaires and checklists for key informant interviews.

A total of 240 farmers were sampled from eight (8) agro-ecological zones. From each zone, one district was randomly picked and from each randomly selected district one village was selected. From each selected village, 30 farmers were randomly selected and interviewed. The districts involved include Chunya, Igunga, Iramba, Kasulu Kongwa, Mkuranga, Mvomero and Siha. The fieldwork started in late April and was completed in mid-May 2015.

KEY FINDINGS

Maize was observed to be the most relied-upon crop in all agro-ecological zones. For instance, it was reported by 100% of respondents in Chunya, Iramba, Kasulu, Kongwa, and Siha Districts; over 93% in Mkuranga and Mvomero; and 70% in Igunga. Beans were the second most important crop as reported by over 93% respondents in Chunya and Kasulu; and over 83% in Siha District. Paddy was also mentioned to be the most important crop (100% in Igunga and 50% in Mkuranga). Furthermore, cassava was an important crop for Mkuranga District. Generally maize, paddy and beans are treated as both food and income crops in almost all districts surveyed.

The Farmer Managed Seed System (FMSS) was the major source of seed in all agro-ecological zones in most of the crops grown. For instance almost 99% of paddy acres, over 93% of groundnut acres, about 93% of bean acres, over 62% sunflower acres and about 68% of all other crops cultivated were sown with seed from FMSS. However, the trend was different for maize and vegetables. The findings indicate that 45% of vegetable and about 46% of maize acres cultivated were planted with FMSS. This means 55% of vegetable acres and about 55% of maize acres were sown with seed from 'formal' (commercial) sources.

FMSS is perceived by farmers in all agro-ecological zones to be beneficial. The first benefit of FMSS reported by farmers was cheap source of seed (affordability). This was reported by about 60% respondents in Chunya, 68% in Kasulu, 80% in Kongwa, and over 93% in Mkuranga. The second benefit reported by the farmers was seed availability as reported by 90% respondents in Igunga and Mvomero, 80% in Iramba, about 87% in Kasulu, over 93% in Mkuranga, and over 83% in Siha and Chunya.

Generally, in all agro-ecological zones it is indicated that seed from FMSS are the most affordable (over 67%) and available (about 83%). Also, results indicated that seeds from FMSS are reliable though at different levels. For instance 80% respondents in Kasulu, 50% in Igunga, Siha and Chunya and about 57% in Iramba reported that seed from FMSS are reliable.

The findings in all agro-ecological zones indicate that FMSS receive little or no attention from agricultural extension officers. For instance almost all respondents (close to 97%) in Igunga and majority in Chunya (about 76%), Iramba (70%), Mkuranga (70%) and Siha (70%) have received advice from agricultural extension officers to use seed from the formal system when sowing. Furthermore, the findings indicate that in all agro-ecological zones over 71% of respondents are not encouraged by extension agents to use seed from FMSS. Similarly a review of the National Agricultural Policy of 2013, Seeds Act No. 18 of 2003 with its amendments made in 2014, and the Seeds Regulations of 2007 indicated that seed from FMSS is disregarded in the seed legislation.

In all agro-ecological zones FMSS is reported to be successful whereby about 62% of farmers interviewed indicated that FMSS is successful. However, across the district there are variations on how farmer managed seed system is successful. For instance over 83% farmers in Igunga, 80% in Kasulu and 70% in both Mkuranga and Siha reported FMSS to be successful. Despite the fact that FMSS is successful it faces some challenges including difficulties in getting seed when crop fail (43%) and pests and diseases that destroy seeds especially during storage (26.9%).

Training was found to be the major kind of support which farmers need in order to improve their FMSS. Over 80% of farmers indicated that training on seed production from their own saved seed would solve most of the challenges they face. Also, over 90% and about 31% of respondents indicated that the government and research institutions respectively can support farmers to improve FMSS.

CONCLUSIONS

Generally FMSS remains the main reliable, affordable and widely used source of seed to most of the farmers in all agro-ecological zones. This is because formal seeds for most of the crops cultivated in all agro-ecological zones, with the exceptions of maize and vegetables, are not readily available. Even though some crops have seed from formal sources their availability, reliability, and quality remain uncertain. Therefore, improving and sustaining FMSS presents a huge potential of having effective seed systems that meet the needs of smallholder farmers.

KEY RECOMMENDATIONS

Based on the findings above the following recommendations are put forward:

- a) Provide farm level training on seed selection, multiplication, storage, protection, use and wider distribution of FMSS systems; this can make a huge impact on production through informal seed systems.
- b) Government through Extension services should provide support to practitioners of FMSS so that they can continue to produce quality seed, which are depended upon by the majority of smallholder farmers in Tanzania. To realise the benefits of FMSS there is a need for farmers to be trained on the number of times they may recycle their own seeds.
- c) Policy makers ought to rethink and provide special allowance to recognize and support FMSS.
- d) Government should emphasise and revive production of quality declared seed (QDS) as an approach towards widespread use of improved seeds in Tanzania.

LIST OF ACRONYMS

BACAS -	Bureau for Agricultural Consultancy and Advisory Services
BMZ	- German Federal Ministry for Economic Cooperation and Development
ESAFF	- Eastern and Southern Africa Farmers Forum
FAO	- Food and Agriculture Organization
FMSS	- Farmer Managed Seed System
FSS	- Formal Seed System
GM	- Genetically Modified
ITPGRFA	- International Treaty of Plant Genetic Resources for Food and Agriculture
LGA	- Local Government Authority
NAP	- National Agriculture Policy
NGO	- Non-Government Organisation
PBR	- Plant Breeders Rights
QDS	- Quality Declared Seed
SUA	- Sokoine University of Agriculture
TANSEED	- Tanzania Seed Company
TOAM	- Tanzania Organic Agriculture Movement
TOSCI	- Tanzania Official Seed Company Institute
UPOV	- The International Union for the Protection of New Varieties of Plants
URT	- United Republic of Tanzania

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1. INTRODUCTION

Seeds are very instrumental inputs that determine development of agriculture among other factors. During the 1970s the national governments in Africa and donors recognized the importance of quality seeds and all their support went to the establishment of highly subsidized formal seed sector mainly seed parastatal organisations. Tanzania Seed Company (TANSEED) Ltd, established in 1971, is an example of these companies. However, their successes were limited due to several reasons including financial sustainability and lack of small-scale farmers' orientation in both variety development and seed supply chains.

In the 1980s there was a policy shift of disbanding the parastatals and encouraging the private sector development. Being a profit driven undertaking, the commercial seed companies were confined to seeds of hybrid maize and vegetables targeting high potential areas. Therefore seeds of grain legumes like beans or other minor crops such as sorghum and vegetatively propagated crops such as cassava and banana were and are rarely supplied by the formal seed sector, unless when they were/are purchased in bulk by development and/or relief operations.

As a result, during the 1990s, NGOs, and rural development/relief agencies became interested in the seed sector by supporting community owned/based seed production and supply. Their aim was to transform local community farmer (seed producers) into formal seed producers. Though the sustainability was limited, the approach was successful in accessing the seeds to remote and poor farmers.

In the 2000s there was a renewed effort to improve seeds accessibility with focus on supporting the private sector (small and medium enterprises) and also the establishment of business-friendly seed regulations such as harmonized seed regulations across sub-regional organizations e.g. East and Central Africa, Southern Africa and Western Africa regions. Despite the good efforts, the companies tended to focus more on profitable crops/varieties e.g. hybrid maize and other high value crops (vegetables and flowers) rather than a range of crop species which constitute the backbone of the poor resource farmers' food security/cash e.g. pulses, small grains and tubers and roots.

There are three major groups of seed supply systems identified in Africa. These are: Informal seed supply (local seed supply systems), Integrated seed supply (community based) systems and the Formal seed supply system (ESAFF, 2014; Lema, 2013). The informal system focuses on farmer management of local varieties which have been selected overtime and produced under local circumstances. The system covers methods of local seed selection, production and diffusion. The systems are sometimes described as traditional and informal, operating mainly at the local level through exchange mechanisms and involving limited quantities per transaction. In addition, the varieties will have special attributes e.g. taste and nutrition that give the varieties added value within the community. The system builds on the huge agro-biodiversity present within the boundaries of the African states. These systems provide about 80-100% of the seed used in the African states.

A great deal has been written on the formal and informal seed systems in Tanzania (ESAFF, 2014, Nchimbi *et al.*, 2015). However, the importance of local seed/grain markets has largely been unrecognized and unappreciated as a distinct and expanding presence. It is contended that seed selection and community plant breeding are foundations for local food security. For many generations past, in collaboration with nature, our parents have selected and improved those seeds to feed our growing population. From our understanding and use of these seeds constitute our cultural belief and traditional knowledge.

This report explores the farmer managed seed systems in Tanzania focusing on their operation, benefits, successes, challenges and support.

2. STUDY PURPOSE AND METHODOLOGY

2.1 PURPOSE OF THE STUDY

The purpose of the study was to shed light on the operation, benefits, success, and challenges of the farmer managed seed systems in Tanzania and the support needed. It also aimed at gaining a clear understanding of the status of the farmer managed seed system, the challenges it faces and the opportunities for improvement. Furthermore, the study aimed at to identifying barriers to farmers' rights and opportunities for policy advocacy and shed light on the practical needs of farmers engaged in farmer managed seed system.

2.2 AUDIENCE FOR AND USE OF THE STUDY

The main target audiences for the study findings are policy makers along with donors and the private sector, as well as farmers, farmers' organizations and civil society actors who will share the findings of the research and advocate for policy change.

2.3 OBJECTIVES OF THE STUDY

Specifically, the study aimed to:

- Unpack, understand and document the farmer managed seed system including the quality declared seed (QDS) system,
- Explore and document the justification for support for the farmer managed seed systems,
- Reveal how the farmer managed seed systems benefit farmer communities (in terms of food security, livelihoods, nutrition, health, democracy, food sovereignty etc.),
- Analyse and document the extent to which the farmer managed seed systems are supported / not supported by national policy and legislation,
- Document the successes of the FMSS and the challenges they face,
- Identify how the FMSS can be supported, and by whom

2.4 STUDY METHODOLOGY

The study used a participatory and team approach requiring involvement of all stakeholders at the smallholder, Quality Declared Seed producers and local government authority levels.

In carrying out fieldwork, and in particular to achieve the expected results, the consultant team adopted a methodology that identified key data sources from which primary data were collected. The sources included farming households, QDS producers and Local Government Authorities (LGAs) in study districts. Tools for data collection included questionnaires and checklists for key informant interviews. A list of individuals interviewed and stakeholders is shown in Annex 5.

The study was conducted in eight zones at the same time. A team approach was used where five team members from BACAS visited study zones at the same time to collect data from sampled districts. One Agricultural officer, the Authorized District Seed Inspector, accompanied the team during the fieldwork in the study village

Multistage sampling technique was employed. One district was chosen from each agro-ecological zone, then one village from each district was randomly selected and finally 30 respondents were randomly selected to make a total of 240 farmers. Districts selected include Chunya, Igunga, Iramba, Kasulu, Kongwa, Mkuranga, Mvomero and Siha. The fieldwork started in late April and was completed in Mid-May 2015 as shown in Annex 4.

Fieldwork involved travelling to the study areas (the eight agro-ecological zones) as indicated in Table 1. The team introduced itself to relevant authorities before the assignment in each of the study areas. Data collection was done using qualitative and quantitative methods identified and instruments (Annex 6) presented in the inception report. With respect to qualitative methods use was made of relevant checklists. The questionnaire for household interview was pretested before administering it to sample households. Competent enumerators were recruited to collect data from individual respondents. Data was collected from various sources as indicated in Table 1.

TABLE 1: STUDY AREAS ACCORDING TO AGRO-ECOLOGICAL ZONES

S/No	Zone	Sub-zone and areas	Growing season	Study district
1	Coastal	North: Tanga (except Lushoto), Coast and Dares Salaam South: Eastern Lindi and Mtwara (except Makonde Plateau	North: October- December and March- June	Mkuranga
2	Arid	North: Serengeti, Ngorogoro Parks, Part of Masailand Masai Steppe, Tarangire Park, Mkomazi Reserve, Pangani and Eastern Dodoma	March-May	Kongwa
3	Semi-arid Lands	Central Dodoma, Singida, Northern Iringa, some of Arusha, Shinyanga Southern: Morogoro (except Kilombero and Wami Basins and Uluguru Mountains). Also Lindi and Southwest Mtwara	December-March	Iramba
4	Plateau	Western: Tabora, Rukwa (North and Centre), Mbeya North: Kigoma, Part of Mara Southern: Ruvuma and Southern Morogoro	November-April	Igunga
5	Southern	Southern: A broad ridge of from	Northern: December–	Chunya and

	and Western Highlands	N. Morogoro to N. Lake Nyasa, covering part of Iringa, Mbeya South western: Ufipa plateau in Sumbawanga Western: Along the shore of Lake Tanganyika in Kigoma and Kagera	April South-western: November- April Western: October- December and February- May	Kasulu
6	Northern Highlands	Northern: foot of Mountains Kilimanjaro and Meru. Eastern Rift Valley to. Eyasi Granite Mountains Uluguru in Morogoro, Pare Mountains in Kilimanjaro and Usambara Mountains in Tanga, Tarime highlands in Mara	Northern: November- January and March-June Granitic Mts. October- December and March- June	Siha
7	Alluvial Plains	Kilombero (Morogoro) Rufiji (Coast) Usangu (Mbeya) Wami (Morogoro)	November-April December-April December-March December-March	Mvomero

2.5 DATA ANALYSIS AND REPORT PREPARATION

Upon completion of field data collection, the consultant used a variety of methods of data analysis, depending on the nature of data as stipulated in Table 2. The methodology is summarized in Table 2. The study report was presented using the format agreed as shown in Annex 2.

TABLE 2: RESEARCH DESIGN

S/N	Activity/objective	Data to be collected	Questions	Sources of data	Methods	Method for data analysis
1	Unpack, understand and document the farmer managed seed system including the quality declared seed (QDS) system,	Existing Seed systems	1. Crops grown 1.2. Seed sources per crop 1.2. Ways used by farmers to produce their own seeds 1.3. Differences between harvests to be used as seed	Sample households key informants (e.g. MAFC, TOSCI), various reports, groups of stakeholders	Household interviews, key informant interviews, document review, Focus group discussions	Descriptive statistics, cross tabulation and content analysis

			and as food. 1.4. Existing seed producers, seed stockists			
2	Explore and document the justification for support for the farmer managed seed systems,	Contribution of farmer managed seed systems	2.1. Grain price in the market 2.2. Seed price 2.3. Seed availability per crop 2.4. Taste of local vs improved 2.5. Marketability of harvests from local vs improved seed	Sample households, key informants (QDS producers, various documents (e.g. seed demand vs supply)	Household interviews, key informant interviews, document review	Descriptive statistics, cross tabulation and content analysis
3	Reveal how the farmer managed seed systems benefit farmer communities (in terms of food security, livelihoods, nutrition, health, democracy, food sovereignty etc.),	Benefits of farmer managed seed systems	Benefits <ul style="list-style-type: none"> • Food security • Livelihoods • Nutrition • Health • Democracy • Food sovereignty 	Sampled households, key informants, groups and Various documents	Questionnaire, key informant interviews	Descriptive statistics, content analysis
4	Analyse and document the extent to which the farmer managed seed systems are supported / not supported by national policy and legislation,	Policy and legal based factors influencing farmer managed seed systems	4.1. Focus of extension advice 4.2. Source of seed used to produce QDS 4.3. Seed class used to produce QDS 4.4. Procedures for certification as QDS 4.5. Farm size for QDS production 4.6. Geographical area for sale of	Sample households, QDS producer groups, Documents (e.g. Agricultural Policy 2013, Seeds Act No. 18. 2003, Seed Regulations 2007)	Household interviews, Document review	Descriptive statistics, cross tabulation, content analysis,

QDS

5	Document the successes of the FMSS and the challenges they face,	Successes and Challenges involved in farmer managed seed systems	5.1.Success stories from FMSS 5.2. Challenges facing FMSS	Sample households, Key informants, groups/ organizations	Household interviews, key informant interviews, document review	Descriptive statistics, cross tabulation and content analysis
6	Identify how the FMSS can be supported, and by whom.	Ways to support FMSS Existing and potential supporters of FMSS	6.1. Support you get from others to access seed 6.2. What kind of support do you need 3. Who do you think can support you	Key informants, groups/ organizations	Key informant interviews, document review	Descriptive statistics, cross tabulation and content analysis

2.6 COMPOSITION OF RESEARCH TEAM INCLUDING SPECIFIC ROLES

The assignment was carried by a team of BACAS consultants whose tasks and responsibilities are outlined in Table 3.

TABLE 3: TASKS AND RESPONSIBILITIES AMONG BACAS CONSULTANTS

Name of Staff	Firm / Organization	Area of Expertise	Position	Task
Joseph Hella	Sokoine University of Agriculture (BACAS)	Agricultural economist	Lead Consultant	<ul style="list-style-type: none"> Overall in charge of the assignment Ensure delivery of quality of output Review of relevant documents related to the assignment Write and present inception, draft and final consultancy reports
Joshua S. Kidudu	Sokoine University of Agriculture (BACAS)	Education	Team member	<ul style="list-style-type: none"> Design of data collection tools Supervision of field work Review relevant document related to the assignment. Participate in writing and

				<p>presentation of the inception report</p> <ul style="list-style-type: none"> • Participate in writing draft consultancy report • Participate in the presentation of the draft consultancy report to the stakeholders • Participate in production of final consultancy report
Respius Martin	Sokoine University of Agriculture (BACAS)	Agricultural extension and rural sociology	Team Member	<ul style="list-style-type: none"> • Design of data collection tools • Supervision of field work • Data management • Analysis and presentation • Review of literature relevant to the assignment • Participate in writing and presentation of the inception report • Participate in writing draft consultancy report • Participate in the presentation of the draft consultancy report to the stakeholders • Incorporate the participant's comments into the draft consultancy report • Participate in production of final consultancy report

2.7 SECONDARY DATA

Secondary data was collected from district offices and by reviewing recent studies on FMSS as shown in Annex 3.

3. STUDY FINDINGS

3.1 UNPACK, UNDERSTAND AND DOCUMENT THE FARMER MANAGED SEED SYSTEM INCLUDING THE QUALITY DECLARED SEED (QDS) SYSTEM

3.1.1 MOST RELIED-UPON FOOD CROPS

Respondents in each agro-ecological zone were asked to identify their most three relied-upon food crops. Generally, maize followed by beans and paddy are the most relied-upon food crops in all agro-ecological zones as indicated by about 95%, 44% and 25% respectively of all respondents. However there are variations across the zones. With regard to Igunga District as shown in Table 4, 100% of the respondents reported to depend on paddy as their main food crop, 70% on maize and 36.6% reported to depend on sweet potato as their main food. Other crops mentioned by 43.3% of the respondents were groundnuts, amaranths, cabbages and okra.

In Iramba District, the most three relied-upon food crops as indicated in Table 4 were found to be maize as mentioned by 100% of all respondents, followed by beans as mentioned by 40% of the respondents and sweet potato as reported by 23.3% of the respondents. Other crops (notably, groundnuts, sweet potato and beans) contribute about 37%.

Results also show that in Kasulu District, 100% of the respondents depend on maize as their main food crop, 93.3% on beans whereas 63.3% of the respondents reported to depend on cassava. On the other hand 20% of the respondents reported to depend on other crops like pigeon peas, round potato, sweet potato and paddy.

With regard to Kongwa District as far as most relied-upon food crops is concerned, results show that 100%, 23.3%, 16.7% of all respondents reported to depend on maize, millet and sorghum respectively. Results further reveals that 6.7% of the respondents mentioned to depend on other crops such as sunflower.

It was further of interest to determine the most relied-upon food crops in Mkuranga District as well. As indicated in Table 4, 93.3% of the respondents mentioned maize, 90% mentioned cassava and 50% mentioned paddy as their most relied-upon food crops. Other crops identified by 30% of the respondents were sweet potato, sorghum, pineapple, cowpeas and banana.

In Siha District as it is indicated in Table 4, 100% of respondents said that their most relied-upon food crop was maize, 83.3% said beans and 36.7% said that they depended most on banana. On the other hand, 46.7% of all respondents in the district reported to depend on other crops, namely sweet potato and cassava. On one hand sweet potato and cassava are used as raw or cooked, on the other hand sunflower is crushed to obtain cooking oil used by households to prepare food.

In Chunya District the three most relied-upon food crops were identified to be maize (100%), beans (93.3%) and sunflower (20%). Also farmers depend on other crops (20%) including sweet potato, cassava, finger millet and millet.

With regard to most relied-upon food crops in Mvomero District, results show that 93.3% of all respondents in the district depend on maize, 46.7% depends on paddy whereas 40% said that their most relied-upon food crop was beans. Results further show that 40% of respondents depend on other crops.

TABLE 4: MOST RELIED-UPON FOOD CROPS

Crop	District								Total
	Igunga	Iramba	Kasulu	Kongwa	Mkuranga	Siha	Chunya	Mvomero	
Maize	21(70)	30(100)	30(100)	30(100)	28(93.3)	30(100)	30(100)	28(93.3)	227 (94.6%)
Beans	0(0)	12(40)	28(93.3)	0(.0)	0(.0)	25(83.3)	28(93.3)	12(40)	105 (43.8%)
Paddy	30(100)	0(.0)	0(.0)	0(.0)	15(50)	0(.0)	0(.0)	14(46.7)	59 (24.6%)
Sweet potato	11(36.6)	7(23.3)	0(.0)	0(.0)	0(.0)	0(.0)	0(.0)	0(.0)	18 (7.5%)
Millet	0(.0)	0(.0)	0(.0)	7(23.3)	0(.0)	0(.0)	0(.0)	0(.0)	7 (2.9%)
Sorghum	0(.0)	0(.0)	0(.0)	5(16.7)	0(.0)	0(.0)	0(.0)	0(.0)	5 (2.1%)
Banana	0(.0)	0(.0)	0(.0)	0(.0)	0(.0)	11(36.7)	0(.0)	0(.0)	11 (4.6%)
Cassava	0(.0)	0(.0)	19(63.3)	0(.0)	27(90)	0(.0)	0(.0)	0(.0)	46 (19.2%)
Others	13(43.3)	11(36.7)	6(20)	2(6.7)	9(30)	14(46.7)	12(40)	13(40)	80 (33.3%)

3.1.2 MOST RELIED-UPON INCOME CROPS

Respondents in each agro-ecological zone were asked to identify their three most relied-upon income crops. The findings indicate that maize (42.5%), sunflower (36.3%) and beans (25.0%) are the leading most relied-upon income crops across the zones. Nevertheless it is important to note that there are variations within zones. For instance in Igunga District as shown in Table 5 100% of the respondents reported to depend on paddy as their main income crop, 20% on tomato and 13.3% reported to depend on maize as their main income crop. Other crops as reported by 40% of the respondents were onion, okra, amaranths, green gram, groundnuts, African eggplant and cotton.

In Iramba District, the most three relied-upon income crops as indicated in Table 5 were found to be maize as mentioned by 96.7% of all respondents, followed by sunflower as mentioned by 63.3% of the respondents and sorghum as reported by 23.3% of the respondents. Other crops as mentioned by 16.6% of respondents together were groundnuts beans and sweet potatoes.

Results also show that in Kasulu District, 36.7% of the respondents depend on beans as their main income crop, 26.7% on tomatoes whereas 20% of the respondents reported to depend on groundnuts. On the other hand 123.2% of the respondents reported to depend on a diverse varieties of other crops identified as cassava, maize, onion, sunflower, round potato, palm, paddy and soya beans. Others are sweet potato, cabbage, Chinese cabbage, green paprika, eggplant and water melon.

With regard to Kongwa District as far as most relied-upon income crops is concerned, results show that 90%, 66.7%, 46.7% of all respondents in the district reported to depend on sunflower, groundnuts and maize respectively. Results further reveals that 23.4% of the respondents reported to depend on other crops identified as pigeon peas and bambaranuts.

It was further of interest to determine the most relied-upon income crops in Mkuranga District as well. As indicated in Table 5, 73.3% of the respondents mentioned cassava, 40% mentioned maize and 36.7% mentioned paddy as their most relied-upon income crops. Other crops identified by 66.7% of the respondents were cashew nut, pineapple, sweet potato, sesame, orange, mango and sorghum.

In Siha District as it is indicated in Table 5, 83.3% of respondents in each case said that their most relied-upon income crops were beans and maize while 10% of respondents in the district reported to depend on sunflower. On the other hand 23.4% of all respondents in the district reported to depend on other crops that were identified to be sunflower, pigeon peas, sweet potato, banana as well as coffee.

Results further indicate that of all respondents in Chunya District, 80% reported that their most relied-upon income crop was beans, 76.7% reported sunflower, 60% reported maize whereas 16.7% of the respondents reported to depend on other crops identified as millet, tomatoes and groundnuts.

With regard to most relied-upon income crops in Mvomero District, results show that 60% of all respondents in the district depend on tomatoes, 50% on sunflower whereas 43.3% said that their most relied-upon income crop was sesame. Results further show that 60% of respondents depend on other crops identified as beans, cassava, paddy, maize and cowpeas.

TABLE 5: MOST RELIED-UPON INCOME CROPS

Crop	District								Total
	Igunga	Iramba	Kasulu	Kongwa	Mkuranga	Siha	Chunya	Mvomero	
Maize	4(13.3)	29(96.7)	0 (.0)	14(46.7)	12(40)	25(83.3)	18(60)	0 (.0)	102 (42.5%)
Sunflower	0 (.0)	19(63.3)	0 (.0)	27(90)	0 (.0)	3(10)	23(76.7)	15(50)	87 (36.3%)
Beans	0 (.0)	0 (.0)	11(36.7)	0 (.0)	0 (.0)	25(83.3)	24(80)	0 (.0)	60 (25.0%)
Paddy	30(100)	0 (.0)	0 (.0)	0 (.0)	11(36.7)	0 (.0)	0 (.0)	0 (.0)	41 (17.1%)
Tomato	6(20)	0 (.0)	8(26.7)	0 (.0)	0 (.0)	0 (.0)	0 (.0)	18(60)	32 (13.3%)
Sorghum	0 (.0)	7(23.3)	0 (.0)	0 (.0)	0 (.0)	0 (.0)	0 (.0)	0 (.0)	7 (2.9%)
Groundnuts	0 (.0)	0 (.0)	6(20)	20(66.7)	0 (.0)	0 (.0)	0 (.0)	0 (.0)	26 (10.8%)
Cassava	0 (.0)	0 (.0)	0 (.0)	0 (.0)	22(73.3)	0 (.0)	0 (.0)	0 (.0)	22 (9.2%)
Sesame	0 (.0)	0 (.0)	0 (.0)	0 (.0)	0 (.0)	0 (.0)	0 (.0)	13(43.3)	13 (5.4%)
Other	12(40)	5(16.6)	37(123.2) ¹	7(23.4)	20(66.7)	7(23.4)	5(16.7)	18(60)	111 (46.3%)

3.2 EXPLORE AND DOCUMENT THE JUSTIFICATION FOR SUPPORT FOR THE FARMER MANAGED SEED SYSTEMS

Seed is a very important input in crop production. Both formal and informal seed systems provide source of seed. But common figures suggest that somewhere between 80% and 90% of the seed farmers' access comes from the local seed system (Danagro, 1988; Cooper, 1993; Rabobank, 1994; FAO, 1998, Gameda *et al.*, 2001; NAP, 2013). Despite its largest share the local

¹ Percentage exceeds 100 due to multiple responses

source of seeds is not given its due attention. Most seed interventions focus on the formal seed system though it provides the minimal source of seed.

3.2.1 SEED SYSTEM USED FOR FOOD CROPS AND AREA PLANTED

In order to establish and document the actual seed usage, respondents in each district were asked to mention the main crops they depend upon for food. For each of the crops, they were also asked to mention the sources of seeds they used and the actual size of the farm in acres on which such seeds were used. Although there are variations on seed sources used (Table 6), FMSS forms emerges as the main source of seed as indicated in Table 7.

Table 6 shows that in Chunya District, the main food crops were maize and beans. A total of 107.25 acres and 50.25 grew maize and beans respectively. For maize, FMSS was used in 35.4% of the total cultivated area while 64.6% used formal seeds. For beans, 98.0% of the seeds were from FMSS while only 2.0% were from formal sources. Other crops which included sunflower and cassava planted in 90.0% of the area were from FMSS.

In Igunga, the main food crops were paddy and maize. Paddy was grown in 138.5 acres while maize was grown in 22.5 acres. The findings in Table 6 indicate that 91.3% of the paddy grown area had seeds from FMSS while for maize, 17.8% of the area had maize seeds from FMSS. This was due to the fact that maize seeds used in Igunga were mainly from formal sources while paddy seeds were mainly from FMSS. Other food crops which included sweet potato and groundnuts also had 84.0%.

In Iramba maize and sorghum were the main food crops. Of the 149 acres where maize was grown, 17.4% of the area was planted with seeds from FMSS. For sorghum, 90.7% of the 21.5 acres was planted with seeds from FMSS. Other crops such as beans, sweet potato and ground nuts depended entirely on FMSS for their seeds as indicated in Table 6.

In Kasulu, maize and beans were the main food crops. Table 6 below indicates that for maize, 70.9% of the 56.75 acres had their seeds sourced from FMSS. For beans, 100.0% of the seeds were also from FMSS. For other food crops which included round potato, sweet potato and cassava, all seeds came from the FMSS.

For Kongwa, maize and sunflower were the main food crops. Findings indicated that 69.0% of the 284 acres where maize was grown had FMSS seeds. For sunflower, 77.5% of the 84.5 acres had seeds from FMSS. Other food crops in Kongwa included millet, groundnuts and sorghum. FMSS seeds for these crops were planted in 87.1% of the area as indicated in Table 6.

Mkuranga district had maize and cassava as the main food crops. For maize, 64.6% of the 49.5 acres had seeds from FMSS while 96.8% of the 47 acres of cassava was planted with seeds from FMSS. Other food crops in Mkuranga included paddy millet, and sorghum whose proportion of seeds from FMSS was 91.2% as shown in Table 6.

Table 6 indicates that Mvomero District had maize and paddy as the main food crops. For maize 92.6% of the 54 acres had seeds from FMSS. For paddy, FMSS seeds were planted in 99.0% of the 24 acres. Other food crops in Mvomero included beans and cassava. The entire area for these crops depended on FMSS.

In Siha, maize and beans were the main food crops. Seeds from FMSS were as follows: maize had 33.2% while beans had 74.4% of the 61.75 and 42 acres respectively. Other crops such as banana, cassava, sweet potato and sunflower also relied on FMSS. In their totality, acres with such seeds formed 85.7% of their respective cultivated area. Table 6 presents a breakdown of the sources of seed for each of the crops presented.

TABLE 6: SOURCES OF SEED FOR KEY FOOD CROPS ACROSS ZONES

District	Food crops	Total acres	Acres planted with own seeds	Acres planted with seed from neighbours	Acres planted with seed from market	Acres planted with formal seed	Total acres planted with seed from FMSS	% of total acres planted with seed from FMSS	% of total acres planted with 'formal' seeds
Chunya	Maize	107.3	38	0	0	69.3	38	35.4	64.6
	Beans	50.3	47.5	0.5	1.3	1	49.3	98.0	2.0
	Other crops	10	8	1	0	1	9	90.0	10.0
Igunga	Paddy	138.5	116.5	10	0	12	126.5	91.3	8.7
	Maize	22.5	4	0	0	18.5	4	17.8	82.2
	Other crops	25	9	6.5	5.5	4	21	84.0	16.0
Iramba	Maize	149	26	0	0	123	26	17.4	82.6
	Sorghum	21.5	15.5	4	0	2	19.5	90.7	9.3
	Other crops	19	10	3	6	0	19	100.0	0.0
Kasulu	Maize	56.8	35.3	0	5	16.5	40.3	70.9	29.1
	Beans	58	53	0	5	0	58	100.0	0.0
	Other crops	32.3	30	1.5	0.8	0	32.25	100.0	0.0
Kongwa	Maize	284	179	13	4	88	196	69.0	31.0

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Sunflower	84.5	37.5	23	5	19	65.5	77.5	22.5
Other crops	15.5	9.5	4	0	2	13.5	87.1	12.9
Mkuranga Maize	49.5	26.5	1	4.5	17.5	32	64.6	35.4
Cassava	47	29	16.5	0	1.5	45.5	96.8	3.2
Other crops	45.5	24	16.5	1	4	41.5	91.2	8.8
Mvomero Maize	54	41	9	0	4	50	92.6	7.4
Paddy	24	18	5.8	0	0.3	23.8	99.0	1.0
Other crops	14	13.5	0.5	0	0	14	100.0	0.0
Siha Maize	61.75	19	1.5	0	41.3	20.5	33.2	66.8
Beans	42	13.3	0.5	17.5	10.8	31.3	74.4	25.6
Other crops	12.3	10.5	0	0	1.8	10.5	85.7	14.3

3.2.2 INCOME CROP ACREAGES AND SEED SOURCES USED

For income crops, a similar attempt was made to establish the percentage area where seeds from different sources were planted. Like for food crops, various sources of seeds were identified and farmers were asked to mention the size of the farm on which they planted seed from each source. Findings on this aspect are presented in Table 7.

In Chunya, sunflower and beans were the main crops on which farmers depend for their income. In general, seeds from FMSS were more dominant compared to those from formal sources. For example, 73.0% of the 31.5 acres of sunflower and 100.0% of the 24.5% acres of beans had seeds from FMSS. For other income crops, seeds from FMSS were planted in 49.2% of their total cultivated area.

Igunga District had Paddy and vegetables as main income crops. The vegetables included okra, onion and tomato. For Paddy, 97.1% of the 153.5 acres had seeds from FMSS. The high usage of paddy seeds from FMSS can be attributed to three factors including the practice of farmers to have a section of his/her farm set aside for seed production, supply of paddy seeds from lead farmers and limited supply of seeds from FSS. On the other hand, FMSS provided seeds for 45.0% of the area planted with vegetables. For other income crops FMSS contributed 36.4% of the seeds.

In Iramba, sunflower and maize were the main income crops. For sunflower, 52.6% of the 47.5 acres of had seeds from FMSS. For maize, 80.9% of the 94 acres were planted with seeds from FMSS. All other income crops had a 100.0% dependence of seeds on FMSS. Kasulu District had beans and maize as the main income crops. Beans had 100.0% dependence of seeds on FMSS while maize area with FMSS seeds was 85.2%. For Kasulu, 63.6% of the area where income crops were planted had also seeds sourced from FMSS.

Kongwa had sunflower and groundnuts as the main income crops. Of the 75 acres of sunflower acres, 80.0% of the seeds were sourced from FMSS. For groundnuts 93.3% of the 44.75 acres relied on FMSS as a source of seeds. For Mkuranga, cassava area on which FMSS was used as a source of seed supply was 90.7%. FMSS also accounted for 100.0% of seeds for the area where paddy was grown.

Mvomero had 42.6% of the 28.75 acres of sunflower where seeds were sourced from FMSS and 72.7% of the area where sesame was grown from the same source. Maize in Mkuranga also had seeds from FMSS. This source accounted for 32.4% of the 44.75 acres. In the same district, 78.1% of the area where beans were cultivated FMSS seeds were planted. Table 7 indicates the distribution of seeds and the area where seeds were planted.

TABLE 7: SOURCES OF SEED MAJOR CASH INCOME CROPS IN THE STUDY AREAS

District	Income crops	Total acre planted with income crop	Acres planted with seed from own saved	Acres planted with seed from Neighbours	Acres planted with seed from Market	Acres planted with seed from formal sources	Total acreage planted with seed from FMSS	% of total acreages planted with seed from FMSS	% of total acreages planted with seed from formal sources
Chunya	Sunflower	31.5	23	0	0	8.5	23	73.0	27.0
	Beans	24.5	23.3	0	1.3	0	24.5	100.0	0.0
	Other crops	47.8	21.5	2	0	24.3	23.5	49.2	50.8
Igunga	Paddy	153.5	139	10	0	4.5	149	97.1	2.9
	Vegetables	15	0.5	5.8	0.5	8.3	6.8	45.0	55.0
	Other crops	22	2	5	1	14	8	36.4	63.6
Iramba	Sunflower	47.5	23	2	0	22.5	25	52.6	47.4
	Maize	94	18	0	0	76	18	19.1	80.9
	Other crops	5.3	5.25	0	0	0	5.25	100.0	0.0
Kasulu	Beans	25	21	0	4	0	25	100.0	0.0
	Maize	13.5	7	0	4.5	2	11.5	85.2	14.8
	Other crops	35.8	17	3.25	2.5	13	22.8	63.6	36.4
Kongwa	Sunflower	75	34	21	5	15	60	80.0	20.0

District	Income crops	Total acre planted with income crop	Acres planted with seed from own saved	Acres planted with seed from Neighbours	Acres planted with seed from Market	Acres planted with seed from formal sources	Total acreage planted with seed from FMSS	% of total acres planted with seed from FMSS	% of total acres planted with seed from formal sources
	Groundnuts	44.8	34.25	4.5	3	3	41.8	93.3	6.7
	Other crops	61	20	19	3	19	42	68.9	31.1
Mkuranga	Cassava	37.5	17.5	16.5	0	3.5	34	90.7	9.3
	Paddy	26	10	15.5	0.5	0	26	100.0	0.0
	Other crops	59.8	28.5	11	0	20.3	39.5	66.1	33.9
Mvomero	Sunflower	28.8	12.3	0	0	16.5	12.25	42.6	57.4
	Sesame	16.5	4.8	1	6.25	4.5	12	72.7	27.3
	Other crops	42	22	8	3	9	33	78.6	21.4
Siha	Maize	44.8	14.5	0	0	30.3	14.5	32.4	67.6
	Beans	36.5	12.5	0	16	8	28.5	78.1	21.9
	Other crops	12	8.5	0	1	2.5	9.5	79.2	20.8

TABLE 8: SEED SOURCES IN ALL AGRO-ECOLOGICAL ZONES

Crop	Seed Source		
	Total acres per crop	% of acres planted with seeds from FMSS	% of acres planted with seeds from Formal SS
Paddy	162.5	98.6	1.5
Groundnuts	44.8	93.3	6.7
Bean	150.3	92.7	7.3
Sesame	16.5	72.7	27.3
Other crops ²	173.8	67.5	32.5
Sunflower	182.8	62.1	38.1
Maize	784.7	45.5	54.5
Vegetables	15.0	45.0	55.0

² For more details of other crops for respective districts see section 2.1.1 and 2.1.2

3.2.3 REASONS FOR USING SEEDS FROM FORMAL SOURCES

Farmers who used seeds from formal sources were asked to explain the reasons for their preference of such sources. Findings indicated that the main reasons that attracted them to do so was high yield of crops. This was indicated by 42.1% of the respondents. Drought resistance was another factor that influenced a number of farmers to use formal sources of seeds. The factor was mentioned by 14.6% of the respondents. Other factors included early maturity which was mentioned by 12.5%, advice from extension officers indicated by 8.8%, pest and disease resistance shown by 7.7% and influence from neighbours as shown in Figure 1.

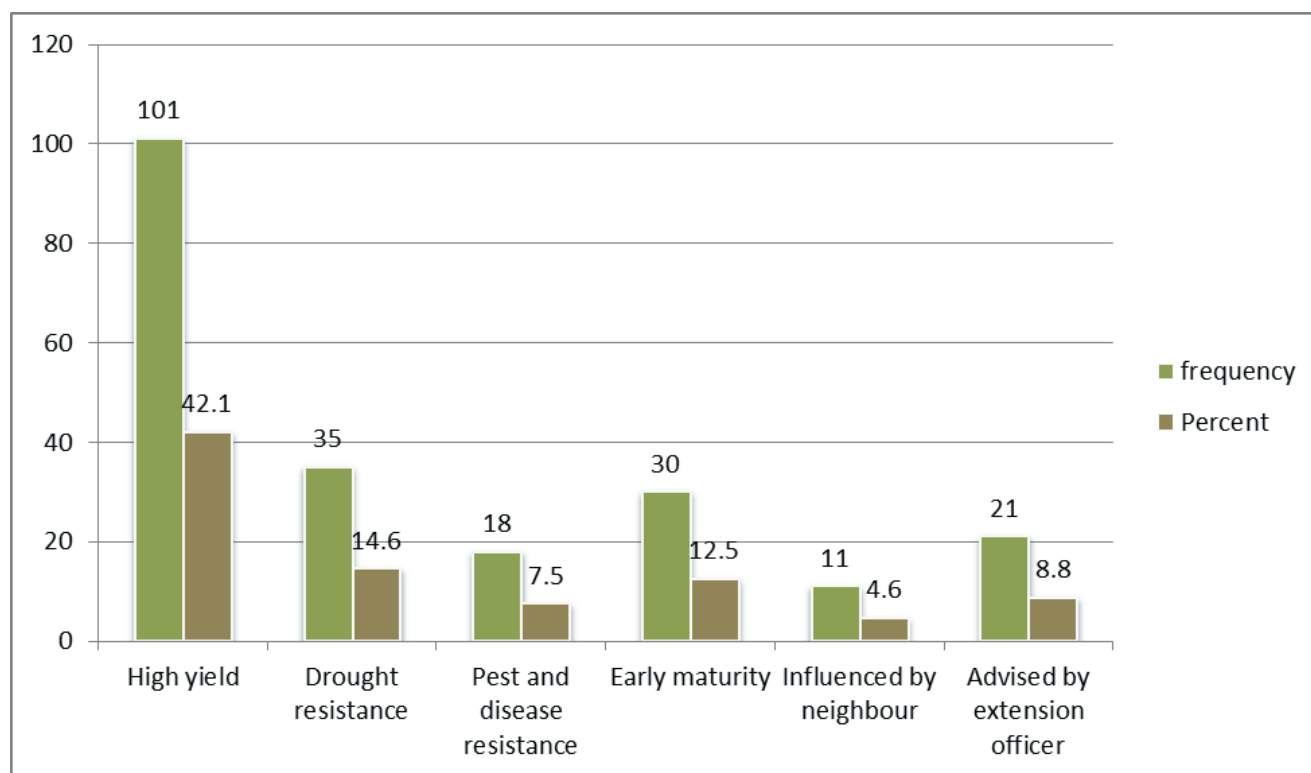


FIGURE 1: FACTORS INFLUENCING FARMERS' USE OF FORMAL SOURCES OF SEED

3.2.4 REASONS FOR USING FMSS

For farmers who used seed from Farmer Managed Seed System as their main source of seed, several factors influencing their preference were identified. The main reasons included affordability which was mentioned by 52.6% of the respondents. This was followed by availability of seeds per crop mentioned by 49.6%. Reliability³ of the seeds was another important factor which was mentioned by 25.8% of the respondents. Other factors included taste and aroma, pest and disease resistance, marketability, adaptability and good yield under local conditions as indicated in Figure 2.

³ Meaning that seeds are available on time and when used they perform as expected

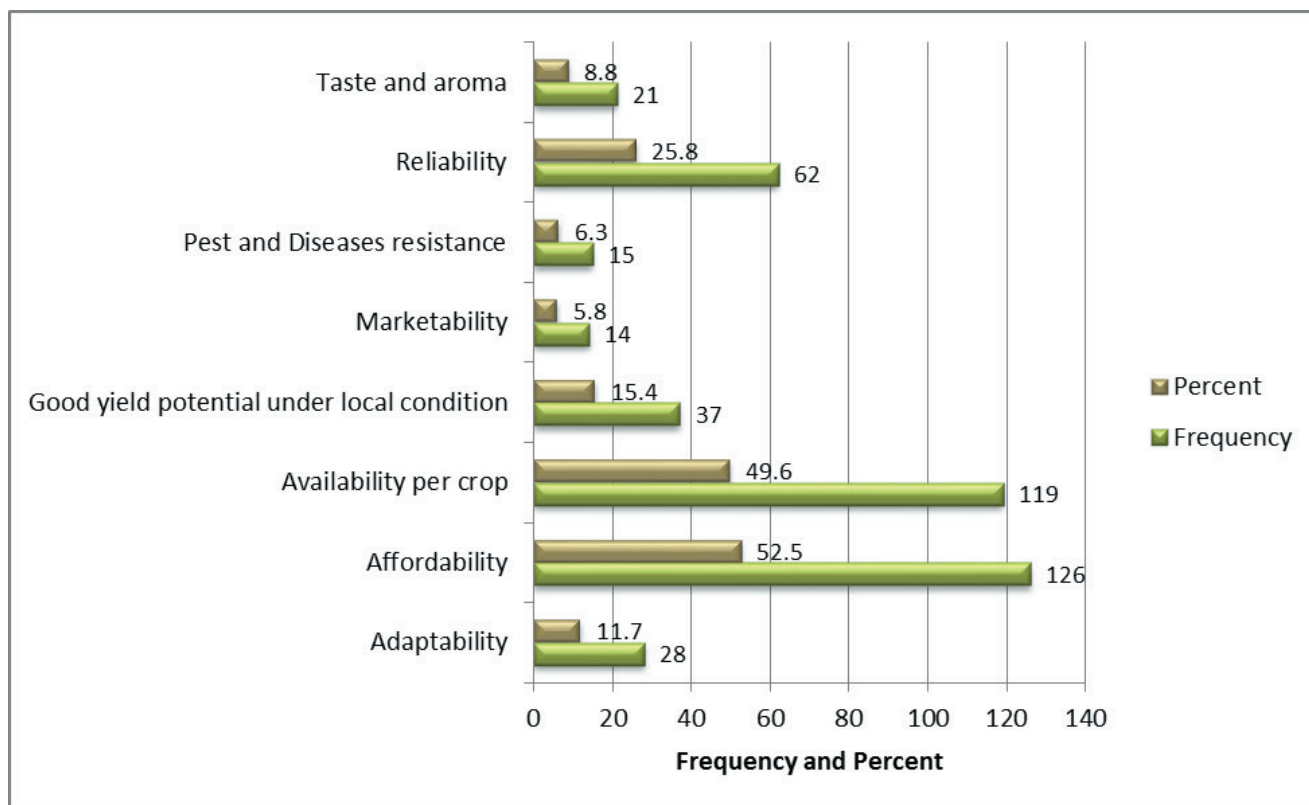


FIGURE 2: REASONS FOR USING FMSS

3.2.5 PREPARATION OF SEEDS FROM OWN HARVESTS

Respondents in each district of the respective agro-ecological zones were asked on how they prepare seeds from their own harvests. As it is indicated in Table 9, 39.3% respondents across all agro-ecological zones said that they prepared seeds from their own harvests through sorting in storage, 30.0% of the respondents sorted seeds at sowing time whereas the remaining (30.7%) sorted seeds in the field.

TABLE 9: PREPARATION OF SEED FROM OWN HARVEST (N = 267)⁴

Seed preparation method	Response per district								Total across district	% of total response
	Igunga	Iramba	Kasulu	Kongwa	Mkuranga	Siha	Chunya	Mvomero		
Selection in the field	25(30.5)	14(17.1)	9(11.0)	12(14.6)	4(4.9)	5(6.1)	11(13.4)	2(2.4)	82 (100.0)	82(30.7)
selection in storage	11(10.5)	12(11.4)	18(17.1)	10(9.5)	13(12.4)	15(14.3)	15(14.3)	11(10.5)	105 (100.0)	105(39.3)
selection at sowing time	25(31.3)	5(6.3)	3(3.8)	5(6.3)	11(13.8)	5(6.3)	5(6.3)	21(26.3)	80 (100.0)	80(30.0)

2.2.5.1 SEED SELECTION CASE IN IGUNGA

a) Selection in the field

⁴ Nres represents number of responses for a multiple response question

Paddy producers in Igunga select seeds in three phases. In the first phase, selection is done in the farm. Each farmer who intends to keep seeds for next cropping season from his/her own harvest identifies a section of the farm from which seeds will be harvested. In this section off-types are uprooted from the farm. The main reason for such selection is to ensure that the remaining paddy is uniform and of the same variety. This is done continuously until the paddy matures for harvest. Farmers reported that lack of selection at this stage leads to a mixture of varieties of seeds, a problem which cannot be solved outside the farm after harvesting. Plates 1 and 2 present two sections of the farms where sorting in the field is done and where it is not.



Plate 1: Unsorted paddy in the field where maturation difference indicates mixed varieties



Plate 2: Potential paddy seed sorting of the farm where sorting in the field has been done

b) Selection at storage

Once sorting in the field is completed and paddy is ready for harvest, the section selected for seeds is harvested first. After harvesting the paddy threshing and winnowing are done. These seeds are then dried and preserved in specific labelled bags. During storage seed bags are preserved in a safe place in the house and household members are informed not to use them for any other intention. The rest of the paddy to be used for food or sold for income is stored separately.

“After winnowing, I pack the paddy into a bag and label it “SEED” then store it separately from other bags. During storage every family member is informed of which bag is for seed and which ones are for selling or for food,” a farmer from Mwanzugi – Igunga explained.

c) Selection at sowing time

Selection of paddy seeds continues at sowing time. At this phase, farmers take a 20-litre clean water bucket and add salt to the water. Then the concentration of the solution is monitored and checked using a fresh chicken egg. Required solution should be able to have the egg half in water

and half above the surface. It should be noted that in clean water, such an egg would sink to the bucket bottom. When the optimum concentration is reached, farmers use the solution to sort paddy seeds and determine their quality as follows:

The solution is divided into two containers and stored seeds (which were formally selected in the field and at storage) are mixed with the solution. Stirring of the mixture is done for a few minutes. Upon stoppage of the stirring, good paddy seeds settle at the bottom of the bucket while seeds of poor quality float on top. These are removed from the bucket and more stirring is done until all unwanted seeds are removed from the bucket. The seeds of good quality are then rinsed in clean water and dried (if the planting is not done immediately) or sown in the nursery ready for germination.

3.2.5.2 SEED SORTING CASE IN CHUNYA

In Chunya a different way of selecting maize seed was noted. Maize cobs are selected by counting the number of lines the cob has. A cob with 15 lines and above is considered suitable for seed and the one with less than 15 lines is considered not suitable for seed. Selection continues at sowing stage whereby the selected cobs are re-examined. Those which are not damaged farmers count five grains from the top as well as from the bottom and remove them from the cob. The top grains are removed because are small in size and the bottom ones are removed because have irregular shapes. The remaining grains of the cob are used as seeds.

3.2.6 STORAGE OF OWN SAVED SEEDS

With regard to how respondents stored their own saved seeds across all agro-ecological zones, results in Table 10 indicate that 83.0% reported to store seeds in their own houses, 9.2% of respondents said that they did not store own saved seeds while 8.2% of the respondents reported to store seeds in their own stores. The reasons for storing seeds in their own houses could be attributed to security reasons and inability to construct separate seed store.

TABLE 10: STORAGE OF OWN SAVED SEED (N = 240)

Seed storage place	District								Total	% of total response
	Igunga	Iramba	Kasulu	Kongwa	Mkuranga	Siha	Chunya	Mvomero		
In own house	28(14.1)	25(12.6)	25(12.6)	21(10.6)	22(11.1)	25(12.6)	27(13.6)	26(13.1)	199(100.0)	199 (83.0)
In own store	2(10.5)	0 (0.0)	1(5.3)	6(31.6)	2(10.5)	3(15.8)	1(5.3)	4(21.1)	19(100.0)	19 (8.2)
Do not store own seeds	0 (0.0)	5(22.7)	4(18.2)	3(13.6)	6(27.3)	2(9.1)	2(9.1)	0 (0.0)	22 (100.0)	22 (9.2)

3.2.7 METHODS OF SEED PROTECTION

In connection to seed storage mechanisms, respondents in all districts were asked to mention mechanisms used for seed protection. Table 11 indicates that about 50% of respondents use insecticides (Acteric, Shumba super) to protect seeds stored in their houses. This fact raises health concern because in some cases the same rooms are used for seed storage as well as bedrooms. Nevertheless it is worth pointing out that even those who used insecticides to store their seeds complained that at least a portion of their seeds was damaged by pests. Farmers attributed this to adulteration of chemicals. Moreover, it was noted that a significant number of respondents (31%) across the zones do not use any measure to protect their stored seeds. Again, this fact contributes to food and seed insecurity as produces suffer postharvest losses due to destructive pests. A small proportion of respondents (about 3%) use botanicals to protect their seed. This little usage of botanicals in seed protection can be attributed to not only availability but also farmers' preference on the use of chemical preservatives.

TABLE 11: METHODS USED TO PROTECT SEED DURING STORAGE (N =240)

Seed protection method	District								Total	% of total responses
	Igunga	Iramba	Kasulu	Kongwa	Mkuranga	Siha	Chunya	Mvomero		
Use of chemicals	1(0.8)	17(14.0)	23(19.0)	15(12.4)	5(4.1)	11(9.1)	26(21.5)	23(19.0)	121(100.0)	121(50.4)
Use of air tight containers	0 (0.0)	2(6.5)	0 (0.0)	1(3.2)	11(35.5)	16(51.6)	0 (0.0)	1(3.2)	31(100.0)	31(13.0)
Use of botanicals	1(16.7)	0 (0.0)	1(16.7)	0 (0.0)	1(16.7)	0 (0.0)	0 (0.0)	3(50)	6 (100.0)	6 (2.5)
Use of smoke	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	6(85.7)	0 (0.0)	0 (0.0)	1(14.3)	7(100.0)	7(3.0)
No protective measures	28(37.3)	11(14.7)	6(8.0)	14(18.7)	7(9.3)	3(4.0)	4(5.3)	2(2.7)	75(100.0)	75(31.3)
Total	30(100)	30(100)	30(100)	30(100)	30(100)	30(100)	30(100)	30(100)	240(100)	240(100)

3.2.8 DISTINGUISHING GRAIN FOR FOOD FROM THAT FOR SEED WHEN BOUGHT IN THE LOCAL MARKET

In certain circumstances respondents sought to buy seed from local grain market to fulfil their seed requirement. In connection to this, respondents who bought seed from local grain market were asked on which criteria they used to distinguish between grain for seed and that for food. As it is indicated in Table 12, about 32% of respondents across the zones used grain size and colour as criteria for distinguishing between grain for seed and that for food and about 30% considered grain not damaged by anything as good for seed. Clean grain and the history of the grain were also used by the respondents as criteria for seed selection. It was claimed by the respondents that for some crops for example sunflower, seeds bought from the market do well in terms of germination and flowering.

TABLE 12: HOW FARMERS DISTINGUISH GRAIN FOR FOOD FROM THAT FOR SEED WHEN BOUGHT FROM LOCAL MARKET (N = 94)

Seed quality distinguishing criteria	District								Total	% of total responses
	Igunga	Iramba	Kasulu	Kongwa	Mkuranga	Siha	Chunya	Mvomero		
Grain size & colour	2(6.7)	6(20)	5(16.7)	5(16.7)	1(3.3)	4(13.3)	2(6.7)	5(16.7)	30(100.0)	30 (31.9%)
Not damaged	2(7.1)	2(7.1)	5(17.9)	2(7.1)	3(10.7)	12(42.9)	2(7.1)	0 (0.0)	28 (100.0)	28 (29.8%)
Clean grain	0 (0.0)	0 (0.0)	5(22.7)	3(13.6)	1(4.5)	10(45.5)	0 (0.0)	3(13.6)	22(100.0)	22 (23.4%)
Grain history	2(14.3)	0 (0.0)	0 (0.0)	1(7.1)	2(14.3)	6(42.9)	2(14.3)	1(7.1)	14(100.0)	14 (14.9%)

3.2.9 NUMBER OF SEED STOCKISTS

Generally, results in Table 13 show that in most villages there are no seed stockists. This is indicated by about 38% of respondents across the zones. However, variations exist across the districts for example 80% of respondents in Siha, 69% in Kasulu and about 55% in Mkuranga reported having no stockists in their areas. On the other hand the situation was different in Chunya whereby about 57% reported having three stockists in their village. Even though farmers in Chunya reported having three stockists in their village, an interview with extension officer revealed that other business persons sell agricultural inputs including seed and agrochemicals during planting and harvesting time respectively. The fact that in most of the villages visited none of the stockists exist implies that farmers have to travel long distances in search of formal seeds. This increases the costs of production and hence discourages farmers from using seeds from FSS. This situation creates potential of usage of seed from farmer managed seed system.

TABLE 13: NUMBER OF SEED STOCKISTS IN STUDY VILLAGES

District	Number of stockists				Total
	None	One	Two	Three	
Chunya	3 (10)	2 (6.7)	8 (26.7)	17 (56.7)	30 (100.0)
Igunga	2 (6.7)	5 (16.7)	22 (73.3)	1 (3.3)	30 (100.0)
Iramba	12 (40.0)	18 (60.0)	0 (.0)	0 (.0)	30 (100.0)
Kasulu	20 (69.0)	0 (.0)	0 (.0)	9 (31.0)	29 (100.0)
Kongwa	5 (16.7)	25 (83.3)	0 (.0)	0 (.0)	30 (100.0)
Mkuranga	16 (55.2)	5 (17.2)	6 (20.7)	2 (6.9)	29 (100.0)
Mvomero	8 (26.7)	15 (50)	4 (13.3)	3 (10)	30 (100.0)
Siha	24 (80.0)	1 (3.3)	2 (6.7)	3 (10.0)	30 (100.0)
Total	90 (37.8)	71 (29.8)	42 (17.6)	35 (14.7)	238 (100.0)

3.2.10 PRESENCE OF FARMERS ENGAGED IN SEED PRODUCTION

A question was asked which sought to understand the incidence of farmers engaged in seed production. Results in Table 14 show that in all zones there are farmers engaged in seed production. Secondary information obtained from district offices show that Igunga district has many QDS producers (about 128) while Kongwa has the least number of QDS producers (about 7). However, the same district has a group of registered farmers who produce certified seeds. Therefore, it was noted that district offices do not have records of farmers who produce seeds under FMSS which implies that the system is not supported. For instance Igunga district has a number of paddy seed producers whose seeds are not under QDS program because they are not certified by TOSCI. This unique group of farmers commonly known as “*Wakulima viongozi*” (lead farmers) produce paddy seeds from their own saved seeds for fellow farmers. They received training on seed production and produce seed in groups. The training was provided by Kilimanjaro Agriculture Training Centre (KATC) which was promoting Saro 5 between 2004 and 2014. At the time of this study there were twenty such informal seed producers who produce seeds in the same block, but each working on his/her own plot. The plots are provided by paddy farmers’ cooperative located at Mwanzugi village. Each farmer is given four plots with 10mx8m in the same block and activities are synchronized at the production node but differ at the marketing node (i.e. each farmer sells seeds individually at an average price of 2250/kg). Synchronization of activities facilitates provision of extension services.

TABLE 14: FARMERS ENGAGED IN SEED PRODUCTION

District	Are there farmers engaged in seed production in your village		
	Yes	No	Total
Chunya	8 (26.7%)	22 (73.3%)	30 (100.0%)
Igunga	25 (83.3%)	5 (16.7%)	30 (100.0%)
Iramba	1 (3.3%)	29 (96.7%)	30 (100.0%)
Kasulu	20 (66.6%)	10 (33.3%)	30 (100.0%)
Kongwa	29 (96.7%)	1 (3.3%)	30 (100.0%)
Mkuranga	8 (26.7%)	22 (73.3%)	30 (100.0%)
Mvomero	4 (13.3%)	26 (86.7%)	30 (100.0%)
Siha	14 (46.7%)	16 (53.3%)	30 (100.0%)

3.2.11 CROPS FOR WHICH FARMERS PRODUCE SEED

Results show that crops for which farmers produce seed include maize, paddy, beans, cassava, sunflower, sorghum, finger millet, cow peas and sesame. Results in Table 15 show that 50% of the districts visited produce seed for only one crop. Three districts including Kasulu, Kongwa and Chunya produce seed for two crops while Iramba district produce seed for four crops.

TABLE 15: CROPS FOR WHICH FARMERS PRODUCE SEED

Seed for which crop	District where respondent comes from							
	Chunya	Igunga	Iramba	Kasulu	Kongwa	Mkuranga	Mvomero	Siha
Maize	√				√			
Paddy		√						
Beans								√
Cassava				√				
Sunflower	√		√	√	√		√	
Sorghum			√					
Finger millet			√					
Cow peas			√					
Sesame							√	

3.2.12 SUPPORT GIVEN TO QDS PRODUCERS BY THE DISTRICT AGRICULTURAL OFFICERS

Interviews with district extension officers indicated that almost all districts visited provide some sort of training to QDS producers. The trainings cover a wide range of topics such as QDS production, seed marketing and postharvest handling including storage. Some district for example Iramba and Kasulu provide agro inputs such as seed. Other support provided includes establishment of multiplication plots (Siha), QDS registration, Field inspection and seed sampling (Kongwa) and technical advice (Siha and Mkuranga).

3.3 HOW THE FARMER MANAGED SEED SYSTEMS BENEFIT FARMER COMMUNITIES

To reveal how the farmer managed seed systems benefit farmer communities (in terms of food security, livelihoods, nutrition, health, democracy, food sovereignty etc.) farmers were asked the advantage they get from FMSS.

The advantages of FMSS reported by farmers include affordability, availability, adaptability, good yield potential, pest/disease tolerant/resistant, taste, marketability of produce from FMSS, health, nutrition, aroma, no seed adulteration, reliability, income and strengthened social network as shown in Table 16.

However, these advantages are not perceived in similar ways among farmers from different districts. For instance, about 68% in Kasulu, 80% in Kongwa, over 93% in Mkuranga, Siha and Mvomero, 60% in Chunya, farmers indicated that seed from FMSS are the most affordable. Similarly 90% in Igunga and Mvomero, 80% in Iramba, about 87% in Kasulu, over 93% in Mkuranga, over 83% in Siha and Chunya reported that seed from FMSS are the most available. On the contrary only 20% in Igunga and 33% in Iramba Districts reported affordability of seed from FMSS.

Nevertheless, on average in all agro-ecological zones there is a general agreement that seed from FMSS are the most affordable (over 67%) and available (about 83%) seed. This implies that most farmers rely on seed from FMSS. In all agro-ecological zones there is an agreement that seed from FMSS are reliable though at different levels. For instance 80 % farmers in Kasulu, 50% in Igunga, Siha and Chunya, about 57% in Iramba reported that seed from FMSS are reliable. These findings may be used to explain some of the reasons as to why only few farmers use seeds from formal sources as highlighted in (NAP, 2013).

TABLE 16: ADVANTAGES OF FARMER MANAGED SEED SYSTEM

Advantage of FMSS	Districts (%)										Mean (%)
	Igunga	Iramba	Kasulu	Kongwa	Mkuranga	Siha	Chunya	Mvomero			
Availability	90.0	80.0	86.7	56.7	93.3	83.3	83.3	90			82.9
Affordability	20.0	33.3	66.7	80.0	93.3	93.3	60	93.3			67.4
Reliability	50.0	56.7	80.0	33.3	43.3	50.0	50	23.3			48.3
Good yield potential	36.7	16.7	33.3	23.3	40	30.0	3.3	20.0			25.4
No seed adulteration	16.7	10.0	3.3	10.0	43.3	70.0	20.0	10.0			22.9
Taste	46.7	13.3	13.3	10.0	36.7	46.7	50	20.0			29.5
Marketability of produce from FMSS	36.7	0.0	13.3	0.0	36.7	50.0	33.3	3.3			21.6
Pest /disease tolerant/resistant	10.0	20.0	30.0	10.0	16.7	50.0	16.7	13.3			20.8
Adaptability	0.0	0.0	33.3	16.7	46.7	6.7	30.0	3.3			17.0
Aroma	53.3	10.0	0.0	3.3	33.3	16.7	23.3	3.3			17.9
Health	0.0	3.3	0.0	0.0	10.0	10.0	36.7	0.0			7.5
Nutrition	0.0	6.7	0.0	0.0	6.7	16.7	20.0	0.0			6.2
Income	0.0	0.0	0.0	13.3	13.3	43.3	13.3	13.3			12.0
Strengthened social network	6.7	3.3	0.0	6.7	3.3	3.3	0.0	30.0			6.6

Source: FMSS Agro-ecological zone survey April 2015

3.4 TO ANALYSE AND DOCUMENT THE EXTENT TO WHICH THE FARMER MANAGED SEED SYSTEMS ARE SUPPORTED BY NATIONAL POLICY AND LEGISLATION

To analyse and document the extent to which the farmer managed seed systems are supported or not supported by national policy and legislation, farmers were asked to indicate the focus of agricultural extension officers on which seed to use during sowing.

The findings from this study indicate that the focus of extension advice on seed is placed on those distributed by stockists which normally come from the formal seed system. Table 17 indicates that over 60% of farmers in all agro-ecological zones reported that most of the extension advice on seed focuses on seed from the formal system. But among districts in different agro-ecological zones emphasis of agricultural extension officers on which kind of seed to use during sowing differs. Table 17 also indicates that almost all farmers (about 97%) in Igunga and majority in Chunya (about 76%), Iramba (70%), Mkuranga (70%) and Siha (70%) have received advice to use seed from formal system during sowing.

Nevertheless, it is important to note that on average a good number of farmers (about 35%) reported having no advice related to seed use from agricultural extension officers. Furthermore, it is important to note that having no extension advice on seed differs among districts. For instance about 52% farmers in Mvomero, over 53% in Kasulu and about 67% in Kongwa Districts reported having no extension advice on which kind of seed to use during sowing as shown in Table 17 and Figure 3.

TABLE 17: THE FOCUS OF EXTENSION ADVICE ON SEED FOR SOWING

Extension advice on seed	District where respondent comes from								Total
	Chunya	Igunga	Iramba	Kasulu	Kongwa	Mkuranga	Mvomero	Siha	
No advice on seed	4 (13.8%)	1 (3.3%)	9 (30.0%)	16 (53.3%)	20 (66.7%)	8 (26.7%)	16 (51.6%)	9 (30.0%)	83 (34.6%)
Advised to use seed from stockists	22 (75.9%)	29 (96.7%)	21 (70.0%)	14 (46.7%)	9 (30.0%)	21 (70.0%)	8 (25.8%)	21 (70.0%)	145 (60.4%)
Advised to use seed from QDS producers	2 (6.9%)	0 (0%)	0 (0%)	0 (0%)	1 (3.3%)	1 (3.3%)	5 (16.1%)	0 (0%)	9 (3.8%)
Advised to use own saved seed	1 (3.4)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (6.5%)	0 (0%)	3 (1.2%)
Total	29 (100%)	30 (100%)	30 (100%)	30 (100%)	30 (100%)	30 (100%)	31 (100%)	30 (100%)	240 (100%)

Source: FMSS Agro-ecological zone survey April 2015

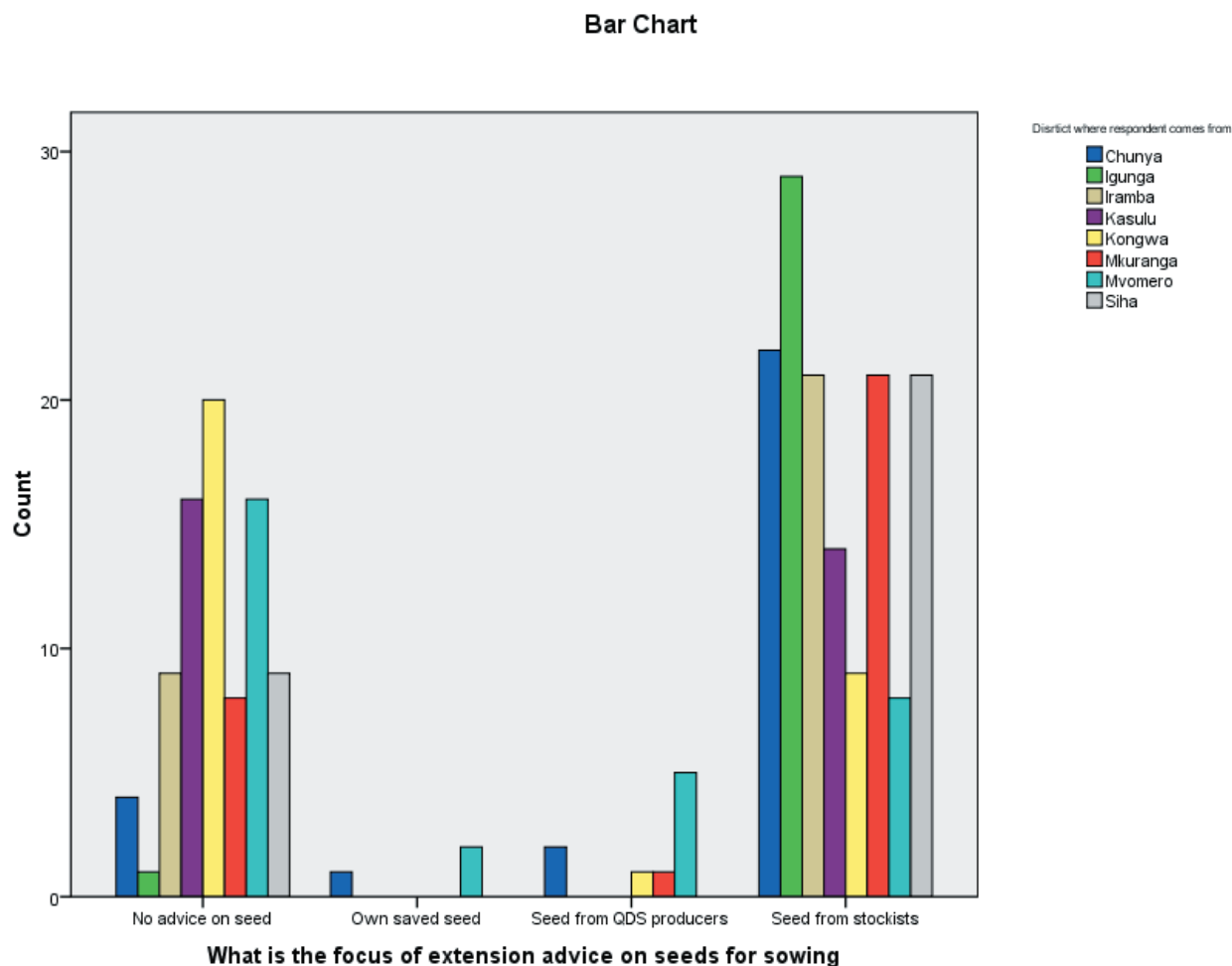


FIGURE 3: FOCUS OF EXTENSION ADVICE ON SEED FOR SOWING

3.4.1 ENCOURAGEMENT TO USE SEED FROM FMSS

To know whether farmers are encouraged to use seed from their own managed system or not, they were asked to point out the encouragement they get for using seed from FMSS. Table 18 and Figure 4 indicate that they are not encouraged to use seed from FMSS. The findings indicate that in all agro-ecological zones over 71% of farmers are not encouraged to use seed from FMSS. Apart from being discouraged by extension agents to use seed from FMSS, farmers are being discouraged by the performance of seeds from FMSS which they claimed to have yield and take long time to mature. Despite this fact, farmers were optimistic that if FMSS seeds are improved they can meet their requirements⁵

⁵ Requirements in terms of taste, aroma, reliability and adaptability,

TABLE 18: ENCOURAGEMENT WHICH FARMERS GET FOR USING SEED FROM FMSS

Encouragement	District where respondent comes from							Total	
	Chunya	Igunga	Iramba	Kasulu	Kongwa	Mkuranga	Mvomero		Siha
No encouragement to use FMSS seeds	25 (86.2%)	14 (46.7%)	28 (93.3%)	15 (50.0%)	18 (60.0%)	26 (86.7%)	21 (67.7%)	24 (80.0%)	171 (71.2%)
Farmer to farmer encouragement	3 (10.3%)	13 (43.3%)	2 (6.7%)	1 (3.3%)	6 (20.0%)	3 (10.0%)	9 (29.0%)	1 (3.3%)	38 (15.8%)
Good performance under local condition	1 (3.4%)	0 (0%)	0 (0%)	4 (13.3%)	4 (13.3%)	1 (3.3%)	1 (3.2%)	4 (13.3%)	15 (6.2%)
Some crops have no improved seeds	0 (0%)	3 (10.0%)	0 (0%)	10 (33.3%)	2 (6.7%)	0 (0%)	0 (0%)	1 (3.3%)	16 (6.7%)
Total	29 (100%)	30 (100%)	30 (100%)	30 (100%)	30 (100%)	30 (100%)	31 (100%)	30 (100%)	240 (100%)

Source: FMSS Agro-ecological zone survey April 2015

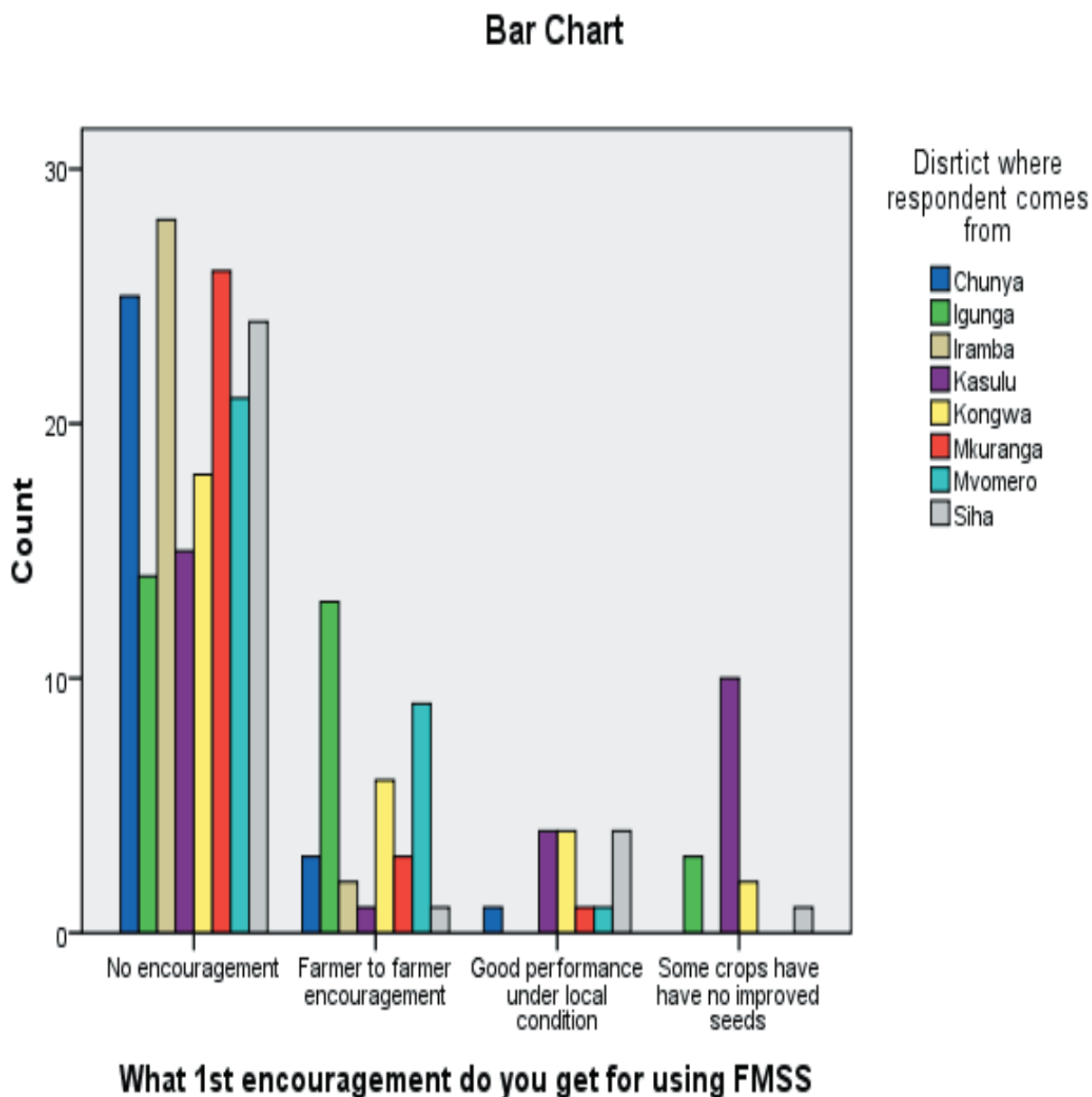


FIGURE 4: ENCOURAGEMENT ON USING FMSS

TABLE 19: FACTORS WHICH DISCOURAGE FARMERS FROM USING SEED FROM FMSS

Discouragement	District where respondent comes from								Total
	Chunya	Igunga	Iramba	Kasulu	Kongwa	Mkuranga	Mvomero	Siha	
Discouraged by extension agent	8 (27.6%)	24 (80.0%)	18 (60.0%)	11 (36.7%)	3 (10.0%)	13 (43.3%)	11 (35.5%)	3 (10.0%)	91 (37.9%)
No discouragement	12 (41.4%)	6 (20.0%)	8 (26.7%)	14 (46.7%)	9 (30.0%)	2 (6.7%)	18 (58.1%)	3 (10.0%)	72 (30.0%)
Low productivity	5 (17.2%)	0 (0%)	4 (13.3%)	5 (16.7%)	10 (33.3%)	12 (40.0%)	2 (6.5%)	18 (60.0%)	56 (23.3%)
Late maturity	0 (0%)	0 (0%)	0 (0%)	0 (0%)	7 (23.3%)	2 (6.7%)	0 (0%)	5 (16.7%)	14 (5.8%)
Unpredictable rainfall	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (3.3%)	1 (3.3%)	0 (0%)	1 (3.3%)	3 (1.2%)
Seed companies	4 (13.8%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	4 (1.7%)
Total	29 (100.0)	30 (100.0)	30 (100.0)	30 (100.0)	30 (100.0)	30 (100.0)	31 (100.0)	30 (100.0)	240 (100.0)

Source: FMSS Agro-ecological zone survey April 2015

3.4.2 EXTENSION GUIDANCE ON SEEDS

Agricultural Extension Agents are employed to implement the national agricultural policy. Their focus on seeds from formal sources is in line with the policy which they are there to implement. The National Agricultural Policy of 2013 (NAP 2013) acknowledges use of improved seeds. The policy further supports farmers to access modern inputs. Therefore, focusing on seeds from informal sources cannot be done by the agents employed to implement this policy. Despite the fact that the Seeds Act No. 18 of 2003 recognizes seed as “that part of plant which is or is intended to be used for propagation and includes any true seed, any vegetative material including seedling, corm, cutting, bulb, bulbil, layer, marcott, root, runner, scion, set, split, stem, stock, stump, sucker or tuber so used or intended to be so used”, the standards set for seed discriminates seeds from FMSS. According to FAO (2015) the features which are used to determine the quality of seed include “germination, physical purity, seed health and – for some crops – varietal purity” The Seeds Regulations of 2007 which are currently used regulate seed related issues disregard seed from informal sources where the minimum acceptable is Quality Declared Seed. For instance the regulations set the minimum acceptable seed standards which cannot be determined in seed from FMSS. For example for beans the minimum acceptable standards are 98% purity and 80% germination; maize 95% purity and 80% germination; rice 95% purity and 70% germination; sunflower 95% purity and 65% germination. However it is important to note that the NAP 2013 acknowledges the fact that only 10% of improved seed was used in agricultural production in 2008/2009, which implies that 90% seed used was from informal sources.

3.4.3 SUCCESSES OF THE FMSS AND THE CHALLENGES THEY FACE

To document the successes of the FMSS and the challenges they face, farmers were asked whether Farmer managed seed system is successful or not in their villages. It was found that generally FMSS is considered to be successful in all agro-ecological zones. The findings in Table 20 and Figure 5 indicate that many farmers (about 62%) acknowledge the fact that FMSS is successful in their villages. However, district wise there are variations on how farmer managed seed system is successful. For instance over 83% farmers in Igunga, 80% in Kasulu and 70% in both Mkuranga and Siha reported FMSS to be successful.

TABLE 20: WHETHER FMSS IS SUCCESSFUL

District	Yes	No	Total
Chunya	16 (55.2%)	13 (44.8%)	29 (100.0)
Igunga	25 (83.3%)	5 (16.7%)	30 (100.0)
Iramba	9 (30.0%)	21 (70.0%)	30 (100.0)
Kasulu	24 (80.0%)	5 (16.7%)	30 (100.0)
Kongwa	13 (43.3%)	17 (56.7%)	30 (100.0)
Mkuranga	21 (70.0%)	8 (26.7%)	30 (100.0)
Mvomero	19 (61.3%)	12 (38.7%)	31 (100.0)
Siha	21 (70.0%)	9 (30.0%)	30 (100.0)
Total	148 (61.7%)	90 (37.5%)	240 (100.0%)

Source: FMSS Agro-ecological zone survey April 2015

On the contrary more than two thirds of farmers in Iramba reported that FMSS is not successful. This fact could be attributed to the high usage of seed from FSS. For example secondary data from Iramba district show that for the 2014/15 cropping season, out of 35705 hectares planted with sorghum, 24994 hectares (equivalent to 70.0%) were planted with seeds from formal sources. For maize out of 47569 hectares, 40434 hectares (equivalent to 85.0%) were planted with formal seeds. Following climate change rainfall in no longer reliable in Iramba. Therefore the district has taken an initiative of promoting early maturing maize and sorghum seed varieties which are locally known as “mbegu fupi”.

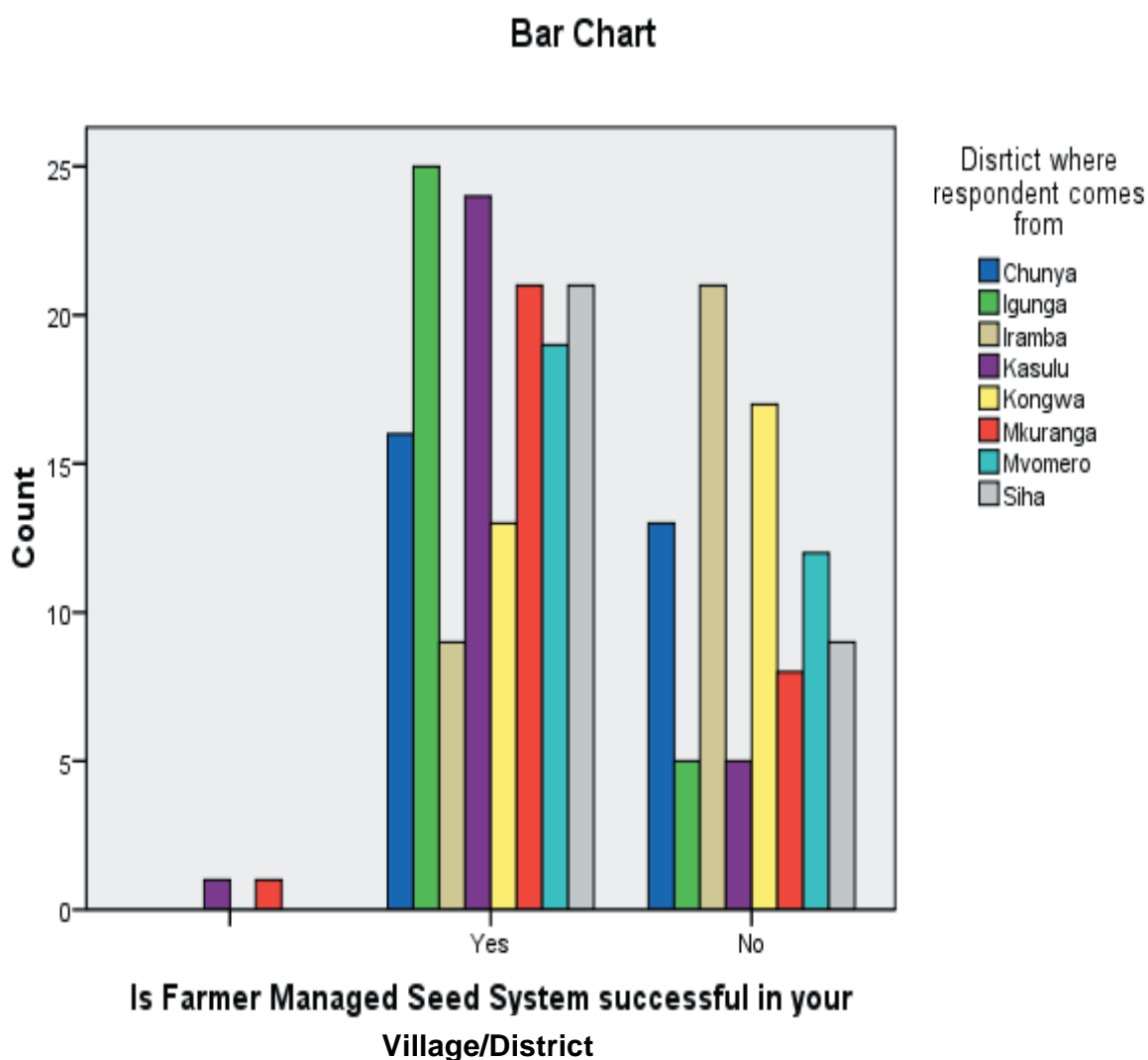


FIGURE 5: WHETHER FMSS IS SUCCESSFUL

3.4.4 WAYS IN WHICH FMSS IS SUCCESSFUL

A follow up question to understand how FMSS is successful was asked to those who responded

in affirmative. Different reasons were given as to why FMSS was considered successful. Major reasons given as indicated in Table 21 include low cost source of seed (indicated by about 34% of the responses equivalent about 52% of respondents who answered the question), farmers have access to seed on time (indicated by about 27% of the total responses equivalent to about 40% of respondents who answered the question) and has ensured yield stability. With regard to seed stability farmers reported that in high risk areas, yield stability is more important than yield per se.

TABLE 21: WAYS IN WHICH FMSS IS SUCCESSFUL

Reasons for FMSS success	Responses	% of respondents (N = 203)
It is a low cost source of seed	105	51.7%
Farmers have access to seed on time	82	40.4%
Have ensured yield stability	68	33.5%
Covers all of the crops that most farmers grow	53	26.1%
Total	308	151.7⁶%

3.4.5 CHALLENGES WHICH FMSS FACE

Results in Table 22 show the challenges that the FMSS face. As depicted in Table 22 two major challenges mentioned include difficulties in getting seed when crop fail (43% of total responses equivalent to 67% of all respondents who answered the question) and pests and diseases that destroy seeds especially during storage (about 27% of total responses). Also the results show that only about 3% of total responses equivalent to about 4% respondents who answered the question reported no challenges.

⁶ This was a multiple response question in which one respondent was allowed to provide more than one suggestion on support. The total challenges given were 286 which when taken as a percent of total respondents exceeds the usual 100%

TABLE 22: CHALLENGES WHICH FMSS FACE

Challenge	Responses	% of respondents (N=232)
Difficult to get seed if crop fails	155	67.0%
Seed damaged by pests and diseases	97	42.0%
Take long time in the field	45	19.4%
Inadequate knowledge of seed production	32	13.8%
Poor germination	21	9.1%
No challenge	10	4.3%
Total responses	360	155.6%

3.4.6 TO IDENTIFY HOW THE FMSS CAN BE SUPPORTED, AND BY WHOM

To identify how the FMSS can be supported, and by whom farmers were asked to indicate the support needed to overcome the challenges. About 85% of farmers who answered the question indicated that training on seed production from their own saved seed would solve most of the challenges they face. However, it was mentioned that the training should go hand in hand with provision of subsidies (indicated by about 31% of all respondents who answered the question) as shown in Table 23.

TABLE 23: SUPPORT NEEDED TO IMPROVE FMSS

Support needed	Responses	% of respondents (N=214)
Training for production of seeds from farmers fields	181	84.6%
Subsidies	66	30.8%
Storage technologies/places	39	18.2%
Total responses	286	133.6%

3.4.7 PROVIDERS OF SUPPORT NEEDED TO IMPROVE FMSS

Farmers were asked who can provide the support they need. When asked the person who can provide the support needed, about 68% of total responses (equivalent to about 95%) of all respondents mentioned the government as person who can provide the required support. This was followed by 22.3% of total responses (equivalent to about 31%) of all respondents who mentioned research institutions and the rest including NGOs and farmers were mentioned by less than 10% as shown in Table 24.

TABLE 24: PROVIDERS OF SUPPORT TO IMPROVE FMSS

Responsible person to provide support	Responses	% of respondents (n = 219)
Government	207	94.5%
Research institutions	68	31.1%
NGOs	19	8.7%
Farmer themselves	11	5.0%
Total responses	305	139.3

4 NATIONAL POLICIES AND FMSS

4.1 TANZANIA SEED POLICY ENVIRONMENT

Recently, Tanzania adopted a UPOV 1991-compliant Plant Breeders Rights Act (2012) which is designed to protect the interests and intellectual property rights of large scale commercial seed companies, keen to penetrate the African market with hybrid and GM seeds. The changes criminalize (for PBR protected varieties) the traditional farmers' practice of breeding, saving, and exchanging seeds. Similarly the Seed Act 2003 is currently being revised to align with the PBR Act, and is likely to continue to disadvantage the 'informal' farmer-saved seed system. Government lawyers claim to be in the process of 'domesticating' the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), which theoretically would strengthen farmers' seed rights.

The current seed legislation (Seeds Act of 2003 and its amendment of 2014) is largely silent on the issue of smallholder farmers. Senior government officials claim that the new legislation is aimed at the 'commercial' farming sector, and will not impact smallholder farmers. The focus is on the commercialization of agriculture, and the provision of a conducive policy environment for foreign direct investment in seed breeding and distribution. The threats to smallholder farmers are wide ranging; in the short term including exclusion from access to the benefits of improved seeds, in the longer term the gradual weakening of the rights of small farmers to operate their traditional practices of seed sharing and exchange, and their increased dependence on external inputs.

4.2 IMPLICATIONS OF NEW LEGISLATION TO FMSS

Throughout this report it is vividly clear that FMSS plays a significant role not just to individual householders but also economic development in Tanzania. The fact that FMSS contributed 75% of national seed requirements annually dictates the importance of the sector. With the amendment of Seed Act of 2003 highlighted above, many scholarly comments have been aired to indicate a major threat to smallholder farmers. TOAM (2015) indicated that, in the short term it will exclude access to the benefits of improved seeds, in the longer term it will gradual weaken the rights of small farmers to operate their traditional practices of seed sharing and exchange, and their increased dependence on external inputs.

Furthermore, the provisions of UPOV 1991 is considered to disregard the contribution of small-scale farmers, marginalize their varieties, and adversely impact their interests and livelihoods, as they severely restrict farmers from engaging in their customary practices of freely sharing, exchanging and selling seed/propagating material. A major concern for local farmers is that adoption of the new UPOV 1991 rules will strictly restrain their ability to reuse seed from their own crops, as they have done throughout history. This exerts pressure on farmers' seed rights.

Farmers depend on the farmer-managed seed systems (informal seed sector) and the customary practices of freely saving, using, exchanging and selling farm-saved seeds and other propagating material. Due to slow development of the formal seed sector, high prices of certified seed and rudimentary infrastructure to enable timely delivery of seed to remote places, it is clear that - at least for several decades to come - Tanzania will continue to depend on informal seed systems. This means that the policy makers ought to rethink and provide special allowance to recognize and support FMSS.

5 CONCLUSIONS - INSIGHTS INTO THE FINDINGS

FMSS in all districts was the main source of seeds for both food and cash crops. Although formal seeds were available in some districts, they were not reliable. The fact that a large proportion of cultivated area in the study area depended on FMSS indicates that this source of seed forms the backbone of the seed system in all agro-ecological zones. Majority of the farmers confirmed that this source of seeds was the most reliable and they were able to afford. For some crops, FMSS was the only source of seeds without which cultivation of such crops would be impossible.

FMSS had benefited the farmers in a number of ways. Although a number of farmers were aware of the benefits of formal seeds such as drought resistance and early maturation, FMSS was still considered the most important source of seeds which had a number of advantages to farmers. Among the mentioned benefits that farmers enjoyed from FMSS included availability of seeds on time, reliability and good yield potential. However, FMSS was discouraged by most of the extension agents. Also, although FMSS seems to be a default option for farmers throughout Tanzania the policy and legislation encourage and promote the Formal Seed System and not FMSS.

FMSS is mainly supported and campaigned for by the farmers who used its seeds. Extension officers discourage farmers from relying on FMSS and promoted use of formal seeds. However, farmers were knowledgeable and skilful enough in comparing FMSS as a source of seeds with that of the formal system. Although traditional methods were used in preparing, storing and using seeds from FMSS, farmers were assured of food security, income and freedom by making FMSS their priority source of seeds.

FMSS was to a large extent successful in most of the agro-ecological zones, the case was not the same in a few of them. In brief, FMSS was seen to be more farmer friendly than the formal seed system where farmers had to spend a significant portion of their incomes to get the seeds. Since most smallholder farmers had unreliable capital for agricultural inputs FMSS was the system that worked perfectly for them as it assured them of the desired yield in each season.

FMSS had its challenges as well. Continuous seed recycling led to poor yield and at times the crops were not able to mature. This was because the seeds took longer time to mature and at times they were affected by diseases. However, handling such challenges was easier for smallholder farmers than opting for formal seeds which were expensive, unavailable and in some cases unreliable in terms of their quality.

6 RECOMMENDATIONS

Based on the above conclusions, we recommend the following:

1. Training on participatory variety selection, multiplication, storage and protection of seeds from FMSS is required and can make such a huge transformation on the seed system in the country.
2. To realise the benefits of FMSS there is a need for farmers to be trained on the number of times they may recycle their own seeds.
3. In some places there exists knowledge on how to recycle the seeds. Training on improving such practices would help farmers improve their agronomic practices without having to spend too much money on the same.
4. The government should continue to support improvement of QDS seed system with minor modification of the established regulations to enable expanded area of coverage.

REFERENCES

- A 2014 “Legal Opinion on the Tanzania Plant Variety Protection Act” provided valuable insight into the new Plant Breeders Rights Act, and has been quoted extensively in this proposal.
- A 2014 guide for preserving and banking seeds for small farmers by ESAFF: “Community Seed Systems in Eastern and Southern Africa”.
- A recent 2014 study “An Overview of Seed Systems in Tanzania” touched briefly on the farmer managed seed system, but focused much more on the commercial seed industry.
- A recent UDSM Law Dept. study “The impact of changing seed and plant breeders’ rights laws on farmer managed systems in Tanzania” provided a comprehensive overview of the seed laws in Tanzania and is a useful resource.
- ASARECA/KIT, 2014. Tanzania Seed Sector Assessment: A Participatory National Seed Sector Assessment for the Development of an Integrated Seed Sector Development (ISSD) Programme in Tanzania. April 2014, Entebbe, Uganda
- ESAFF INSARD (2013). A Scoping Study report on Seeds and Agriculture Research Processes in Tanzania: The case of small scale farmers’ participation in setting research agenda
- L. Sperling and H. D. Cooper. Understanding seed systems and seed security. In *Improving the effectiveness and sustainability of seed relief.* Proceedings of a stakeholders’ workshop, Rome, 26.–28 May 2003. Rome: Food and Agriculture Organization.
- Lema, N.M (2013). Scoping Study on Seeds and Agriculture Research Processes in Tanzania “The case of small scale farmers’ participation in setting research agenda” A consultancy report for Eastern & Southern Africa Small Scale Farmers' Forum (ESAFF). Morogoro, Tanzania
- National Agricultural Policy 2013
- Nchimbi-Msolla, S.; J.P Hella, R Haug; D. L. Mwaseba; G. Synnevåg; A.M. Mwashha (2015). Assessment of the impact of seed policies on availability and accessibility of improved seeds of staple food crops by smallholder farmers in Tanzania. EPINAV research report, Sokoine University of Agriculture, Morogoro Tanzania.
- Seeds Act No. 18 of 2003, URT
- Seeds Regulations of 2007, URT
- The “ESAFF INSARD Seed Study Report 2014” focused primarily on developing the case for farmer involvement in agricultural research.
- The FAO guide to the QDS system: “Quality Declared Seed System: FAO Plant production and protection
- The Plant Breeders’ Right Act 2012, URT

ANNEXES

ANNEX 1. TERMS OF REFERENCE

SEEDS OF FREEDOM

TERMS OF REFERENCE (TOR)

FOR A STUDY OF FARMER MANAGED SEED SYSTEMS IN TANZANIA - THEIR OPERATION, BENEFITS, SUCCESSES, CHALLENGES & SUPPORT

CLIENT	TANZANIA ORGANIC AGRICULTURE MOVEMENT (TOAM)
SUPPORTED BY	ROSA LUXEMBURG STIFTUNG

1. BACKGROUND AND CONTEXT

The current wave of investment in African agriculture emerges on the back of the global financial, food, and energy crisis. Africa and Tanzania in particular is seen as underperforming but in possession of vast natural resources. We are told that Tanzania has an abundance of available fertile land, but that production is inefficient, based on many small farms, and needs modernization through private sector investment in large scale high-input agriculture. African governments, desperate for some financial relief, are willing to make whatever changes are necessary to bring investment into their countries, with favourable seed laws, access to land, free trade and intellectual property rights as the preconditions for investment.

1.1 SEED LEGISLATION

Recently, Tanzania adopted a UPOV 1991-compliant Plant Breeders Rights Act (2012) which is designed to protect the interests and intellectual property rights of large scale commercial seed companies, keen to penetrate the African market with hybrid and GM seeds. The changes criminalize (for PBR protected varieties) the traditional farmers’ practice of breeding, saving, and exchanging seeds.

Similarly the Seed Act 2003 is currently being revised to align with the PBR, and is likely to continue to disadvantage the ‘informal’ farmer-saved seed system. Government lawyers claim to be in the process of ‘domesticating’ the ITPGRFA (International Treaty of Plant Genetic Resources for Food and Agriculture), which theoretically would strengthen farmers’ seed rights.

The current seed legislation (Seeds Act of 2003 and its amendment of 2014) is largely silent on the issue of smallholder farmers. Senior Government officials claim that the new legislation is aimed at the ‘commercial’ farming sector, and will not impact smallholder farmers. The focus is on the commercialization of agriculture, and the provision of a conducive policy environment for foreign direct investment in seed breeding and distribution. The threats to small holder farmers are wide ranging; in the short term including exclusion from access to the benefits of

improved seeds, in the longer term the gradual weakening of the rights of small farmers to operate their traditional practices of seed sharing and exchange, and their increased dependence on external inputs.

1.2 THE RELATIONSHIP OF THIS STUDY TO THE SEEDS OF FREEDOM PROJECT

The Seeds of Freedom project recognises the comprehensive failure of government to recognise the value of, and provide support for, farmer managed seed systems. The project aims to address the issues in two main ways:

- by supporting farmers to engage directly with policy makers to advocate more effectively for change;
- by developing a strategy and action plan for a programme of action aimed at supporting farmer managed seed systems, building on the strengths of the farming community

This study will inform the Seeds of Freedom project advocacy strategy and action plan.

2. PURPOSE AND OBJECTIVES OF THE STUDY

The Seeds of Freedom project seeks to gain a clear understanding of the status of the farmer managed seed system, the challenges it faces, and the opportunities for improvement. Policy barriers to farmers' rights will be identified along with opportunities for policy advocacy. Practical needs of farmers engaged in the farmer managed seed system will be identified, along with recommendations for action to improve farmers' effectiveness, and to strengthen their ability to engage in advocacy at local and national level.

2.1 AUDIENCE FOR THE STUDY

The main target audiences for the study findings are policy makers along with donors and the private sector, as well as farmers, farmers' organisations and civil society actors who will share the findings of the research and advocate for policy change.

2.2 SCOPE OF THE STUDY

A study will be commissioned to unpack and understand the farmer managed seed system including the quality declared seed system, to explore the justification for support for the farmer managed seed systems, how they benefit farmer communities (food security, livelihoods, health, democracy, food sovereignty etc.), the extent to which they are supported / not supported by national policy and legislation, what successes and challenges they face, how they can be supported, and by whom.

The study aims to provide the national picture, with comprehensive information across the country's eight agro-ecological zones, targeting the key crops that farmers rely on for food security and income.

The study will focus on the farmer managed seed systems (FMSS) in Tanzania and aim to:

- unpack, understand and document the farmer managed seed system including the quality declared seed (QDS) system,
- explore and document the justification for support for the farmer managed seed systems,

- reveal how the farmer managed seed systems benefit farmer communities (in terms of food security, livelihoods, nutrition, health, democracy, food sovereignty etc),
- analyse and document the extent to which the farmer managed seed systems are supported / not supported by national policy and legislation,
- document the successes of the FMSS and the challenges they face,
- identify how the FMSS can be supported, and by whom.

The study will also summarise the findings of recent seed related research including the studies referred to in Annex 2.

2.3 EXPECTED OUTPUTS

- One comprehensive report with results, charts and diagrams
- A PowerPoint presentation summary to be customized to various target groups/policy makers
- A two-four page summary with a few of the most interesting findings.

2.4 METHODOLOGY

The Research Team is expected to propose an acceptable, efficient and cost effective methodology for executing the assignment; and undertake a participatory consultation with all relevant stakeholders when executing the assignment. The consultants shall undertake, but not be limited to, the following activities in order to reach the main objectives of the assignment:

- Meet with the Client's representatives to discuss and review methodology and approach to be used;
- Review all relevant documentation related to FMSS including the reports referred to in annex 2.
- Collect and synthesize inputs by consulting relevant stakeholders (e.g. in-person and telephone interviews, field visits, correspondence);
- Prepare draft and final study reports, incorporating feedback comments from Client representatives and partners.
- Present the results of the study to stakeholders during a one day workshop to be arranged.

3. PROFILE OF THE STUDY TEAM.

Team members should collectively display the following qualifications:

- Relevant academic background, considerable experience and detailed knowledge of the farmer managed seed sector in Tanzania;

- Experience in innovative ways of gathering evidence that can be used in mobilizing public opinion leading to reforms will be a distinct advantage;
- Multi disciplinary, multi sectoral background and experience across public and civil society sectors.
- Excellent writing (English) and communication (English and Kiswahili) skills.

4. OUTPUTS AND DELIVERABLES

- An inception report documenting the consultants' ideas, views and preliminary findings from the literature review. The report must also highlight the overall approach to the assignment.
- Draft study report
- Final study report.

The required format for the report is attached as Annex 1. All reports should be delivered in English and submitted in both soft and hard copy (4 bound copies) formats.

6. TENDERING PROCEDURES

Eligible consultants are invited to submit technical and financial proposals to undertake this work.

Selection of consultants will be made on the basis of Most Economically Advantageous Tender. This means that the tenders will be evaluated not merely on price but on other factors e.g. technical capability, quality of personnel, methodology, adherence to Terms of Reference, experience of similar work and track record, experience in particular region/country, cost.

ANNEX 2. REQUIRED FORMAT FOR THE STUDY REPORT

Title Page, including project title and number, date of report, authors and their affiliations;

The study report will prominently feature the words “supported by Rosa Luxemburg Stiftung with funds from German Federal Ministry for Economic Cooperation and Development (BMZ)” and affix the RLS logo.

Executive Summary (1-4 pages):

- Brief project description and context
- Purpose and expected use of the study
- Objectives of the study
- Summary of the methodology
- Principal findings and conclusions
- Key recommendations
- Summary of lessons learned

Acknowledgements

Table of Contents

List of Acronyms and Abbreviations

Main Report

- Purpose of the study
- Audience for and use of the study
- Objectives of the study
- Study methodology, including: rationale for choice of methodology, data sources, methods for data collection and analysis, participatory techniques, ethical and equity considerations, major limitations of the methodology
- Composition of the research team, including any specific roles of team members
- Study findings, documented by evidence
- Conclusions: insights into the findings
- Recommendations (based on evidence and insights)

Annexes to the study report:

- Terms of Reference for the study
- Timetable

- List of individuals interviewed and of stakeholder groups and/or communities consulted
- List of supporting documentation reviewed
- Research instruments: questionnaire, interview guide(s), etc. as appropriate
- Short biographies of the evaluators.

ANNEX 3 RECENT STUDIES ON THIS SUBJECT

ESAFF (2014). Community Seed Systems in Eastern & Southern Africa: Towards food security and food sovereignty. ESAFF report. Morogoro, Tanzania.

A 2014 “Legal Opinion on the Tanzania Plant Variety Protection Act” provided valuable insight into the new Plant Breeders Rights Act, and has been quoted extensively in this proposal.

A 2014 Guide for preserving and banking seeds for small farmers by ESAFF: “Community Seed Systems in Eastern and Southern Africa”.

A recent 2014 study “An Overview of Seed Systems in Tanzania” touched briefly on the farmer managed seed system, but focused much more on the commercial seed industry.

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ASARECA/KIT, 2014. Tanzania Seed Sector Assessment: A Participatory National Seed Sector Assessment for the Development of an Integrated Seed Sector Development (ISSD) Programme in Tanzania. April 2014, Entebbe, Uganda

ESAFF/INSARD (2013). A Scoping Study report on Seeds and Agriculture Research Processes in Tanzania: The case of small scale farmers’ participation in setting research agenda

FAO (2015). Building capacity for seed security assessments. Household seed security concepts and indicators: Discussion paper

National Agricultural Policy 2013

Saidi, P.S. and A.M. Mkinga (2014). An Overview of seed systems in Tanzania. Paper presented to African Centre for Biodiversity,

Seeds Act No. 18 of 2003

Seeds Regulations of 2007

Sperling, L. and H. D. Cooper. Understanding seed systems and seed security. In *Improving the effectiveness and sustainability of seed relief*. Proceedings of a stakeholders.’ workshop, Rome, 26.–28 May 2003. Rome: Food and Agriculture Organization.

The “ESAFF INSARD Seed Study Report 2014” focused primarily on developing the case for farmer involvement in agricultural research.

The FAO guide to the QDS system: “Quality Declared Seed System: FAO Plant production and protection pap

URT (2014). Special bill supplement. Gazette of URT, Government Printers, Dodoma. No. 20 Vol. 95

ANNEX 4: WORK PLAN**Work plan**

The timing of the most important activities of the assignment, following the approach and methodology presented earlier is indicated in Table 25.

Work plan

S/No	Activity	Dates
1	Preparation of instruments and presentation of inception report	23 rd March to 26 th March
2	Submission of reviewed instruments and inception report	27 th March to 30 th March
4	Desk study	31 th March to 3 rd April
5	Pretesting of the instrument	4 th April to 6 th April
6	Team travelling to zones and data collection	15 th April to 15 th May
7	Data entry and analysis	18 th May to 25 th April
8	Writing and presentation of draft report	26 th May to 10 th June
9	Incorporating client's comments and submission of final report	15 th June 20 th June

ANNEX 5: LIST OF INDIVIDUALS INTERVIEWED AND OF STAKEHOLDER GROUPS AND/OR COMMUNITIES CONSULTED

LIST OF PEOPLE CONTACTED DURING FMSS STUDY

DISTRICT/ INSTITUTE/ MINISTRY	KEY INFORMANT	Sex (M/F)	Contact	TITLE
Chunya	Paul Lusungu	M	0754 638287	District Agricultural officer
Igunga	Dickson Kanyanka	M	0784 528366 0765 687448	District Authorised seed inspector
Iramba	Ziwa E. Rodgers	M	0784 886890 0754 085332	District Authorised seed inspector
Siha	Anankira Siyao	M	0754 246569	QDS supervisor
	Gemma Kundyia	F	0682452018	QDS producer
Mkuranga	Philipo Nimrodi	M	0755313477	District Agricultural officer
Mvomero	Amanda Hilary	F	0757 912511	Ward Agricultural Extension Officer
Kongwa	Peter Makuya	M	075424505484	QDS supervisor
	Jairos Ngwangwalu	M	0755206 010 0786430 604	QDS & Certified seed producers
	Nelson Malima Sunha	M	0752596 979	
	Mathias Mtwale	M	0784 881 352 0767 881 352	
Kasulu	Monica Paul Kilatungwa	F	0768 318657	District Agricultural officer
TOSCI	Emmanuel Mwakatobe	M	0713594853	TOSCI officer
MAFC	Twalib Mustafa Njohole	M	0782146447 0716178328	MAFC Seed Unit
	George Mandepo	M	0754375056 0715375056	MAFC Legal unit

ANNEX 6: RESEARCH INSTRUMENTS: QUESTIONNAIRE, INTERVIEW GUIDE(S), ETC. AS APPROPRIATE

Questionnaire

Demographic characteristics

Name of respondent.....
 Mobile number of respondent.....
 District
 Village
 Hamlet.....
 Age in years of respondent.....
 Sex of respondent () (a) Male (b) Female
 Marital status (Tick) (a) Single (b) Married (c) Separated (d) Divorced (e) Widow
 Education level (Tick) (a) No formal education (b) Primary education (c) Secondary education (d) Tertiary education (e) Other (Specify.....)

Section A: Farmer managed seed systems

1. Which crops did you grow last cropping season? (**Tick the crop(s) grown**)

Maize, Paddy, Sorghum, Millet, Beans, Pigeon peas, Sunflower, Sesame, Cassava, Sweet potato, Round potato, other (Specify).....

2. Of the crops grown in 1 above what are the three main crops you depend on most for food security

Crop 1.....

Crop 2.....

Crop 3.....

3. Of the main crops grown in 2 above what was the source of seed you used for the crop mentioned (Tick the source used) (Table 1)

Table 1: Seed source per food security crop

Source of seed	Crop 1.....	Crop 2.....	Crop 3.....
From my own harvest			
From my neighbours			
From my friend			

From my relatives			
From local grain market			
From stockist			
From QDS producers			
From Seed company			
From SACCOS			
From Extension officer			
From Research station			
From NAIVS			
Other (specify)			

4. Of the crops grown in 1 above what are the three main crops you depend on most for income

Crop 1.....

Crop 2.....

Crop 3.....

5. Of the main crops grown in 4 above what was the source of seed you used for the crop mentioned (Tick the source used) (Table 2)

Table 2: Seed sources per income crop

Source of seed	Crop 1.....	Crop 2.....	Crop 3.....
From my own harvest			
From my neighbours			
From my friend			
From my relatives			
From local grain market			

From stockist			
From QDS producers			
From Seed company			
From SACCOS			
From Extension officer			
From Research station			
From NAIVS			
Other (specify)			

6. If you used seed from your own harvest in 3 and/or 5 above how did you prepare them. **(Tick all that apply)**

- (a) Sorting in the field,
- (b) sorting in storage, (c) Sorting at sowing time (d) Other (specify-----
-----)

7. Where do you store your own saved seeds for use in the next season?

- (a) In my own house (b) In my own store (c) Neighbour's store (d) Village store (e) Warehouse (f) Community Seed Bank (g) Other (Specify.....)

8. How do you protect seeds (a) Use chemicals (b) Use botanicals (c) Use air tight containers (d) Use smoke (e) Other (Specify.....)

9. If you bought seed from the local grain market in 2 above how did you distinguish grain for seed and that for food

- (a).....
- (b).....
- (c).....
- (d).....

10. How many stockists are in your village? (Tick)

- (a) None (b) One (c) Two (d) Three

11. Are there farmers engaged in seed production in your village (Tick) (a) Yes (b) No

12. If yes in 11 above they are producing seed for which crops

- (a)
- (b).....
- (c).....
- (d).....

13. If yes in 11 above are they producing as (a) Individual (b) Groups or (c) Contract farmers (d) Other (Specify-----)

Section B: Explore and document the justification for support for the farmer managed seed systems,

1. How many acres did you cultivate last cropping season for each of the most relied-upon crops? (Fill in Table 3)

2. Of the cultivated acres in 1 above for each most relied-upon crop which farm size did you plant seed from formal sources (Fill in Table 3)

Table 3: Seed system used per area planted

	Food crop 1	Food crop 2	Food crop 3	Income crop 1	Income crop 2	Income crop 3
Crop name						
Total acres						
Acres planted with farmer own saved seed						
Acres planted with seed from neighbours						
Acres planted with seed from local market						
Acres planted with seed from formal source						

3. Which factors influenced you to plant seed from formal sources on part of your farm?

- (a)
- (b).....
- (c).....
- (d).....

4. Which factors influenced you to plant seeds from farmer managed seed system sources on part of your farm

- (a)
- (b).....
- (c).....
- (d).....

Section C: Reveal how the farmer managed seed systems benefit farmer communities (in terms of food security, livelihoods, nutrition, health, democracy, food sovereignty etc)

What do you consider to be the advantages of using farmer managed seed system (**Tick whichever is applicable in Table 4**)

Table 4: Advantages of farmer managed seed system

Advantage of Farmer managed seed system	Tick all those apply <i>BUT</i> they must be mentioned by the farmer
Affordable Seed price	
Seed availability per crop	
Adaptability	
Good yield potential under local condition	
Pest/disease-resistant/tolerant	
Taste	
Marketability of harvests	
Health	
Nutrition	
Aroma	
No Seed adulteration	
Reliability	
Income from selling farmer managed seed	
Strengthened social networks	
Other 1.....	
Other 2.....	
Other 3.....	

Section D. Analyse and document the extent to which the farmer managed seed systems are supported / not supported by national policy and legislation,

1. What is the focus of extension advice on seeds for sowing in your field (a) No advice on seeds (b) Own saved seed (c) Seed from local grain market (d) Seed from QDS producers (e) Seed from stockists (f) Other
(Specify.....)
2. What encouragement/support do you get for using farmer managed seed system
3. What discouragement do you get for using farmer managed seed system
4. In which aspect of seed production do you need support (a) Variety choice, (b) Variety testing, (c) Selection (d) Seed multiplication (e) Storage (f) Dissemination (g) Other
(Specify.....)

SECTION E: Document the successes of the FMSS and the challenges they face,

1. Is Farmer managed seed system successful in your village (a) Yes (b) no
2. If yes in 1 above how
 - (a).....
 - (b).....
 - (c).....
 - (d).....
3. What major Challenges is farmer managed seed system face in your village?
 - (a).....
 - (b).....
 - (c).....
 - (d).....

SECTION F: Identify how the FMSS can be supported, and by whom.

5. What support do you need to overcome the challenges you face in your farmer managed seed system
 - (a).....
 - (b).....
 - (c).....
 - (d).....
6. Who do you think can support you to overcome the challenges you face
 - (a).....
 - (b).....

(c).....

CHECKLIST FOR DISTRICT AUTHORISED SEED INSPECTORS

Name of key informant.....

Mobile number of Key informant.....

Title.....

Section A: Farmer managed seed systems

1. What are the three main crops your district depends on most for food security
2. What are the sources of seed for the main food security crops mentioned in one above?
3. What are the three main crops your district depend on most for income
4. What are the sources of seed for crops used as source of income?
5. How many stockists are in your district?
6. How many farmers are engaged in seed production in your district?

Section B: Explore and document the justification for support for the farmer managed seed systems,

1. How many acres did your district cultivate for the last five cropping seasons for each of the most relied-upon crop?
2. Of the cultivated acres in 1 above for each most relied-upon crop which farm size did farmers plant seed from formal sources
3. Of the cultivated acres in 1 above for each most relied-upon crop which farm size did farmers plant seed from FMSS
4. Which factors influenced your district to plant seed from formal sources?
5. Which factors influenced your district to plant locally produced seeds

Section C: Reveal how the farmer managed seed systems benefit farmer communities (in terms of food security, livelihoods, nutrition, health, democracy, food sovereignty etc)

1. What are the benefits of the FMSS to famer communities?
2. What are the disadvantages of the FMSS to farmer communities?
3. Do you think that your farming communities will benefit most from improvements to the FMSS or the formal seed system?

Section D. Analyse and document the extent to which the farmer managed seed systems are supported / not supported by national policy and legislation,

1. Are there farmers producing QDS in your district

2. How many QDS producers are in your district
3. What does your district do to support QDS producers
4. Do you support the farmer managed seed system yes/no
5. If Yes in four above what kind and how do you support farmer managed seed system
6. If No why don't you support farmer managed seed system

SECTION E: Document the successes of the FMSS and the challenges they face,

1. What is the contribution of farmer managed seed system in your district
2. What challenges does your district face in promoting farmer managed seed system

SECTION F: Identify how the FMSS can be supported, and by whom.

1. What support do the farmers of your district need to improve the farmer managed seed system?
2. Who do you think can support the farmers of your district to improve the farmer managed seed system?
3. At what node in the seed chain do the farmers of your district need support to improve the farmer managed seed system?
4. Are there bylaws promoting or discouraging the use of farmer managed seed systems?

Checklist for QDS Producers

1. What is the Source of seed you use to produce QDS?
2. Which Seed class do you use to produce QDS?
3. What are the procedures involved in accessing seed class used to produce QDS
4. Which benefits does your village get from QDS?
5. Which challenges do you face in producing, distributing and selling QDS?
6. What support do you need to address the challenges you face?
7. Who do you think can support you in addressing those challenges?





Tanzania Organic Agriculture Movement is a registered NGO formed in 2005 under the NGO Act of 2002. TOAM is an umbrella organization that coordinates and promotes the development of organic farming among farmers, distributors and consumers through networking and information distribution. TOAM sees development of the organic farming sector as a crucial factor for sustainable livelihoods and envisions establishing a vibrant, sustainable and mutually beneficial organic sector in Tanzania.

TOAM organises and promotes capacity building on organic practices, quality management for compliance to organic standards, facilitating market access, lobbying and advocating for supportive policies, and information collection and distribution. TOAM implements projects with partners to reach out and support smallholder farmers in improving their livelihoods and adapting to climate change while conserving the environment and biodiversity. For more information visit www.kilimohai.org



The Rosa Luxemburg Stiftung (RLS) is one of the largest political education institutions in Germany today and sees itself as part of the intellectual current of democratic socialism. The foundation evolved from a small political group, "Social Analysis and Political Education Association", founded in 1990 in Berlin into a nationwide political education organisation, a discussion forum for critical thought and political alternatives as well a research facility for progressive social analysis. Apart from its work in Germany the RLS is supporting progressive initiatives and social movements worldwide. In Africa it is running regional offices in Johannesburg, Dakar, Dar es Salaam and Tunis. For EAC region visit www.rosalux.co.tz

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