



# UPSCALE

UPSCALING THE BENEFITS OF PUSH-PULL TECHNOLOGY FOR  
SUSTAINABLE AGRICULTURAL INTENSIFICATION IN EAST AFRICA



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# Proceedings of Uganda National MAC Meeting

Mum's Resort Hotel, Uganda  
18<sup>th</sup> – 19<sup>th</sup> February/2021

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<b>Abstract:</b>	Work Package 1 (WP1) through MACs' activities as creation of synergies, mapping out the value chain, building networks supporting advocacy, and Identifying 'best practices' for transformative transdisciplinary research, provides a foundation on which the UPSCALE Project implementation would be realised. It brings together and coordinate stakeholders and partners for a transdisciplinary research effort in a bid to achieve high transformative potential at all stages of the project. It endeavours to coordinate transdisciplinarity in co-design and co-creation sharing of knowledge, through participative approaches and innovation process, ensuring long-term sustainability, impact and exploitation of the project results.

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<b>UPSCALE Consortium</b>			
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2	THE INTERNATIONAL CENTRE OF INSECT PHYSIOLOGY AND ECOLOGY LBG	ICIPE	KE
3	BAYERISCHE FORSCHUNGSALLIANZ BAVARIAN RESEARCH ALLIANCE GMBH	BayFOR	DE
4	EASTERN AFRICA FARMERS' FEDERATION SOCIETY	EAFF	KE
5	JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY	JKUAT	KE
6	KENYA AGRICULTURAL AND LIVESTOCK RESEARCH ORGANISATION	KALRO	KE
7	MASENO UNIVERSITY	MU	KE
8	FH ASSOCIATION	FH	CH
9	RWANDA AGRICULTURE AND ANIMAL RESOURCES DEVELOPMENT BOARD	RAB	RW
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List of Abbreviations and Acronyms	
<b>MAC</b>	Multi Actor Community of Practice
<b>WP</b>	Work Package

## 1 Preliminaries

The Multi-Actor Communities (MACs) workshop was hosted by the National Agriculture Research Organization, Uganda on 18<sup>th</sup> – 19<sup>th</sup> February 2021 at Mum’s Resort Hotel, Uganda. The workshop started with registration of participants. There after the members introduced themselves. The workshop was well attended with a wide range of stakeholders. The stakeholders ranged from government agencies, Universities, media, farmer cooperatives, non-governmental agencies, insurance firms, input traders and off-takers. The welcome remarks were done by Ms. Winnie Nanteza of NARO, Uganda.

Dr. Benjamin Ombok from Maseno University presented the workshop objectives to the participants. The three objectives were to: i) raise awareness of UPSCALE project and push-pull technology; ii) form and launch a multi-actor community of practice (MAC); and iii) develop a MAC schedule of activities.

## 2 Session 1: Push-Pull Technology Overview presented by Dr. Grime Hailu (*icipe*, Uganda)

Dr. Girma Hailu of *icipe*, Uganda presented the overview of Push-Pull technology (PPT) to the workshop- participants. He reported that PPT in Uganda started in the year 2012 at Busia and Tororo areas. *icipe* has built capacity by training farmer group leaders and conducting training of trainers (TOT) to community focal persons. He highlighted that PPT has enhanced productivity and improved livelihoods in Uganda farming households.

He explained to the participants that push-pull technology has gone through three evolutionary development; i) conventional (silver leaf desmodium and Napier); ii) second-generation (green leaf desmodium and brachiaria) also known as climate smart push-pull, and; iii) third generation push-pull (new variants of desmodium and brachiaria). He reiterated that the PPT has enabled farmers to move away from conventional agricultural processes to integrated management platform. Conventional farming has had its problems in terms of declining soil fertility, insect pests, weeds, and crop diseases. He added that one of the prominent weed in Sub-Saharan Africa was *Striga* and pests such as fall army worms (FAW) and stem borer have are problematic to farmers. He further explained that integration of PPT enables behaviour modifying stimuli which manipulates the distribution and abundance of stem borers; and beneficial insects for management of stem borers and FAW. PPT is based on chemical ecology, agrobiodiversity, plant-plant, insect-plan interactions which is just agro-ecological approach to pest management.

Dr. Girma also presented the benefits of PPT. He noted that PPT can be successfully integrated PPT with livestock production as the desmodium and brachiaria provides high nutritious animal feed. If the technology is promoted at the community level it can be used for goats, chicken



and fish meal. PPT has led to engagement of youth and women in the market value chain. The PPT technology has also been introduced in primary schools' agriculture club.

Dr. Girma also talked about factors affecting retention and adoption of PPT in Uganda. He reported that; farmers' desire for crop rotation, high level of expectation for adopting the technology, change in weather pattern, extended drought or heavy downpour. Other issues: include non-germinating seeds of desmodium or bracharia, seeds dying due to drought or washed away due to heavy downpour. Other highlighted challenges were: lack of seed; change of residence and/or shift to off farm practices; destruction of push-pull by animals and other pests; poor performance of companion plants such as desmodium and bracharia. Much more issues of unpredictable and unforeseen household and/or community factors (divorce, family dispute) about the adoption of push pull technology and reduction of yield during subsequent seasons (this is because of long roots from desmodium).

Dr Girma also elaborated on the way forward that has been stipulated on the managing the upscale and the challenges of PPT adoption. He noted that there was need for provision for sufficient technical backstopping to farmers; for linking technology with other farming system (livestock and vegetables); for determining the PPT sustainability; for developing seed systems; enhancing community level adoption of PPT; embedding new research findings and approaches into farmers and TOT (training of trainers) trainings; and responding to merging issues regarding PPT adoption and use in time.

### **3 Session 2: UPSCALE Project Overview presented by Dr. Abubakar Muwonge (NARO, Uganda) on behalf of Prof. Dr. Emily Martins, Project Coordinator.**

Prof. Dr. Martins attended the meeting from Hannover using the Zoom Platform. She greeted the members and briefly stated that the project has 8 objectives with 18 partners across Europe and Sub-Saharan Africa. She informed the members that the object of the workshop was to turn the MACs formed in Uganda to be the Community of Practice.

Dr. Muwonge in his presentation of the UPSCALE project overview, introduced the project to MAC Uganda meeting. He reported that UPSCALE project is being undertaken in 10 countries (4 from the European and 6 from African Countries). There are 18 partners for the project with 7 from Universities (LUH, UWUE, JKUAT, MU, UKN, ULUND, SLU and UZH), 10 associations, federations and research institutes (*icipe*, BayFOR, EAFF, KALRO, FH, RAB, TARI, NARO and ISD). The project has a funding European Union of € 7.66 million.

He highlighted that the project has two main objectives: i) addressing food security, livelihoods and climate change resilience in East Africa while reducing the environmental impact of agricultural practices. ii) fostering the design adaptation and adoption of strategies for

integrated agro-ecological management based on push-pull technology for wide-spread and climate resilient sustainable intensification in East Africa.

Dr. Muwonge explained that two main objectives are further broken to down five key axes:

Axis1: Expand push-pull adoption to as many farmers as possible. (Work Packages 1and 8)

Axis 2: Expand push-pull effectively using optimal conditions for success. (Work Packages 2, 5, 7)

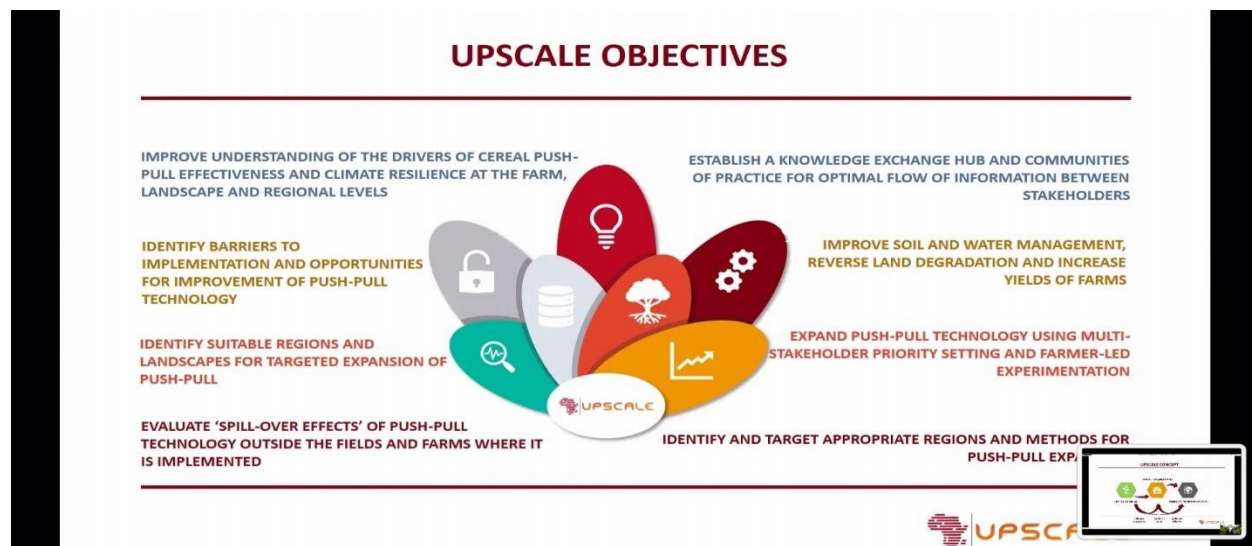
Axis 3: Further improve existing technology, increase push-pull flexibility and added value. (Work Packages 6 and 7)

Axis 4: Address the integration of push-pull in long term sustainability and climate resilience strategies. (Work Packages 1-7)

Axis 5: Mainstream women and youth in technology dissemination and adoption. (Work Packages 7 and 8).

He further presented the specific objectives aligned to work packages of the project as shown in the Diagram 1.

**Diagram 1: Upscale Objectives.**



The first and second session had questions and answer slots. The questions from MAC workshop participants covered gender integration, support to farmers, effectiveness of the technology and the household's dynamics in adoption of the technology.

#### **4 Session 3: Multi-Actor Platforms Formation -Setting the Scene presented by Dr. Benjamin Ombok (MU, Kenya)**

Dr. Benjamin Ombok reported to the workshop participants that Multi-Actor Community formation was embedded in WP1 of the UPSCALE project being undertaken by Maseno University as a Project Partner. He explained that WP1 focuses on multi actor transdisciplinary coordination across the five countries in East Africa. Namely, Uganda, Kenya, Rwanda, Tanzania and Ethiopia. In his presentation he highlighted that the MAC formation and coordination embodies transdisciplinary, inclusivity and co-creation of adoption and utilization of PPT among farmers.

Dr. Ombok explained to the participants the key objectives of the work-package. The objective explained included: coordination and creation of synergy with projects and platforms for Sustainable Intensification Agriculture (SIA); creation and establishment of MACs for effective transdisciplinary collaboration and participatory research and technology implementation; building networks that support advocacy for enabling policy environment for institutionalized dissemination and adoption of push-pull; strengthening functional linkages between UPSCALE research and innovation activities, farmers and other stakeholders (value chain); identifying 'best practices' for transformative transdisciplinary research on SIA.

He added that the WP1 consists of four key tasks in which the workshop participants will play a key role in the 5 years of the project; The tasks included: developing and implementing multi-actor communities of practice on sustainable intensification; organizing multi-actor transdisciplinary workshops and meetings; developing a multi-actor transdisciplinary knowledge building strategy; and multi-actor feedback and con-construction process for transformative transdisciplinary research processes. He highlighted that Tasks 1 and 2 were being implemented in the workshop which was being held.

#### **5 Session 4: Undertaking Task 1.1 MAC Formation for Uganda facilitated by Dr. Fredrick Aila (MU, Kenya)**

Dr. Fredrick Aila presented the MAC formation check list to the workshop participants. The National MAC for Uganda is composed of representative are: researchers/higher education, farmers and farmers organizations, UPSCALE partners, research and extension, policy makers, cooperative/associations, financial institutions/intermediaries, government agencies (MDAs), local and federal governments, insurance providers, agro-dealers/agrovets, processors, distributors/market chains, consumers, NGOs, women and youth representation. The composition was likely to vary with country specific characteristics.

The partners included in the National MAC Uganda includes: NARO, icipe, EAFF and MU. The initial proposed MACs are presented in Table 1.

**Table 1: Proposed Multi-Actor Communities for Uganda**

UPSCALE CONTACT PARTNER	STAKE HOLDER TYPE	STAKEHOLDER NAME
EAFF	Buyer (Agribusiness)	• Aponye LTD
EAFF, NARO	Financial Institutions	• Equity Bank Uganda
	Producer	• Individual farmers, farmer groups and cooperatives • Uganda National Farmers Federation (UNFF)
NARO	Agricultural research and extension	• Mbarara Zonal Agricultural Research and Development Institute. • National Crops Resources Research Institute (NaCRRI)
	Higher education and research	• Makerere University
	NGO Producer	• Operation Wealth Creation (OWC) • Uganda Cooperative Alliance (UCA)
	Federal Government	• Uganda Ministry of Agriculture, Animal Husbandry and Fisheries
	Agribusiness	• Keith Associates LTD • Akorion Company Ltd.
	NGO	• Association of Uganda professional women in agriculture and environment (AUPWAE) • Transcultural Psychosocial Organization. • O-Omulumisa Innovative Agricultural Services.
	Seed Supplier	• NASECO 1996 Ltd.

Table 2 gives information on the stakeholders across the value chain present at National Workshop Meeting held on 17<sup>th</sup>- 18<sup>th</sup> March 2021.

**Table 2: The Multi-Actor Communities stakeholders present at the National Workshop Meeting**

No.	Stake Holder Type	Stakeholder Name
1	Partners	<ul style="list-style-type: none"> <li>• <i>icipe</i></li> <li>• Maseno University</li> <li>• NARO</li> </ul>
2	Farmers' Federation and Cooperative Societies	<ul style="list-style-type: none"> <li>• Uganda National Farmers Federation (UNFFE)</li> <li>• Kamuli Nakulyaku Farmers</li> <li>• Kamuli District Farmers Association (KDF)</li> <li>• Nawaningi Integrated Grains Farmers' Cooperative Society Limited</li> <li>• Kamuli Ena Cooperative Enterprise</li> <li>• Nakalokwe Young Farmers Association</li> <li>• Bugeru Town Council Akanabala Oil Seed Farmers Cooperatives</li> </ul>
3	Agribusiness	<ul style="list-style-type: none"> <li>• Keith Associates Ltd.</li> <li>• NALG Agribusiness Centre</li> </ul>
4	Federal and Local Government	<ul style="list-style-type: none"> <li>• Iganga District Local (Production Department)</li> <li>• Namutumba District Local Government</li> <li>• Kamuli District Local Government</li> <li>• Iganga District Local Government</li> <li>• Ministry of Agriculture Animal Industry Fisheries</li> </ul>
5	NGO	<ul style="list-style-type: none"> <li>• Association of Uganda professional women in agriculture and environment (AUPWAE)</li> <li>• One Acre Fund</li> <li>• O-Omulumisa Innovative Agricultural Services.</li> <li>• Iyukula Women Development and Aids Initiative.</li> <li>• The Hunger Project, Uganda</li> </ul>
6	Higher education and research	<ul style="list-style-type: none"> <li>• Busitema University</li> <li>• Kabale University</li> </ul>
7	Research Institutes	<ul style="list-style-type: none"> <li>• Mbarara Zonal Agricultural and Research Institute</li> </ul>

Dr. Aila also presented information requirements for the profile of each stakeholders. Information sheet was developed and presented to members to give their information. The information was collected on the basis of; disciplinary spectrum/expertise; roles played in the agricultural value chain.

He reported that the National Coordinator of Upscale in Uganda is to draw a charted in regard to formation and coordination; its objectives and scope; its management coordination team;

management team's terms of reference, proposed schedule of activities; knowledge sharing (knowledge Exchange Hub) and co-creation and co-construction of new knowledge etc.

He further presented to the Workshop participants the role of MAC management teams. The role of management teams included; organizing meetings and workshops; coordinate implementation of field activities; and prepare and share progress reports. He noted that the MAC management coordination team consisted of a representative from the following multiple player; farming environment determinant agents; farmers direct interest representation; research agency; government agencies (representatives); funding model institutions; risk management agents (e.g. relevant insurance packages); advocacy channels; processors representation; farming systems advisory. The representation to management coordination team are to be derived from the workshop participants.

Dr. Aila led the workshop participants in selecting the representatives. The representatives to the MAC management coordination committee were selected as shown in Table 3.

**Table 3: Leadership of National MAC Uganda Management Coordination Team**

S. No	Management Position	Stakeholder Type	Organization	Name of Representatives
1	National Coordinator	Partner	NARO	Dr. Abubaker Muwonge
2	Chairman	Government Agency	Principal Agricultural Officer, MAAIF	Mr. Stephen Magume
3				Mr. Richard Msenero
4	Secretary	NGO	Association of Uganda professional women in agriculture and environment (AUPWAE)	Ms. Adeline Muhegwa
5	Member	Farmers Cooperatives	Bugeri Town Council Akanabala Oilseed Farmers Area Cooperative	Mr. Moses Kidaghole

6	Member	Higher Education	Kabale University	Dr. Prossy Ntakyo
7	Member	Media	Nation TV (Media)	Mr. Daniel Nsima
8	Member	Agribusiness	NALG Agribusiness Centre	Mr. Moses Balikowa
9	Member	NGO	One Acre Fund	Mr. Cosmas Buyinza

Dr. Aila also presented to the workshop participants, the terms of reference for the management coordination team. The terms of references were presented as follows: to upscale push-pull technology within the region; organize relevant activities jointly and/or severally; determine levels of engagement with transdisciplinary MACs; identify effective marketing channels by linking producers to markets. Other issues in terms of reference includes to constitute MAC management teams in each region; set specific terms of reference for workshops and meetings; develop agendas for meetings; organize logistics for attending meetings and workshops; and top perform any other duty as determined by the project national coordinator from time and time. He explained the National Coordinator for Uganda, NARO has to draw a charter for the National MAC executive Committee on the following: formation and coordination; objectives and scope; management of the executive team, management team terms of references; propose schedule of activities; knowledge sharing (Knowledge Exchange Hub) and co-creation and co-construction of new knowledge etc. He added that, the specific roles of the MAC management teams; organizing of meetings and workshops; coordination and implementation of field activities; preparation and sharing of progress report.

He further explained that in Tasks 1.2, the National MAC Uganda management coordination committee will work together with National Coordinator, NARO and Maseno University in organizing multi-actor transdisciplinary workshops and meetings. Additionally, he elaborated that there shall be one national MAC workshop in Uganda annually and one regional workshop held in the country within the period of the. The main roles of the National MAC executive will to open discussion forums on objectives, scale of implementation, approaches, and propose any necessary changes on the actionable parts of the project. The committee will raise awareness and facilitate transdisciplinarity of the UPSCALE. They will also support advocacy for an enabling policy environment as well as ground for policy brief drafting.

For Task 1.4 he elaborated it involved developing a multi-actor transdisciplinary knowledge-building strategy. This is to optimize continuous flow of research results to MAC. This is to be done through: establishment of repositories and advocacy knowledge resource success stories and regular updates on progress to stakeholders; enabling information sharing and capacity-

building materials and media outreach for different stakeholder audiences; providing input into the knowledge Exchange HUB (WP8) for MAC stakeholders and the broader public.

Dr Aila provided the action time lines for different tasks involved in WP1 for the first two years of the project. Table 4, gives information on the milestones and deliverables of Work Package 1.

**Table 4: MAC Formation and Knowledge Building Strategies Timelines**

	Year 1												Year 2											
	I			II			III			IV			I			II			III			IV		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Milestones				8.1		2.2						6.1	2.1					5.1			4.2			3.1
						4.1						8.3	6.3								6.2			3.2
						8.2																		7.1
WP1: Multi-actor transdisciplinary coordination									1.1						1.5									
Task 1.1 Coordinate with projects & networks in Africa & the EU to develop & implement MACs																								
Task 1.2 Organize multi-actor transdisciplinary workshops & meetings																								
Task 1.3 Develop multi-actors transdisciplinary knowledge-building strategy																								
Task 1.4 Synthesize multi-actor feedback & co-construction processes																								

He also presented to the workshop participants Task 1.4 of Work Package 1. He highlighted that it concerns synthesization of multi-actor feedback and co-construction processes for transformative transdisciplinary research approaches. The key lessons to be learnt are to be from the stakeholder meetings, multi actor information sharing and capacity-building channel. The key lessons are to encompass policy, agro-ecological and socioeconomic challenges and solutions for adaptation of sustainable intensification research and dissemination strategies. He further explained that the task is to derive a synthesis of ‘best practices’ for future research and innovation efforts able to accomplish the highest level of transformative impact on agricultural practices, policy and overall stakeholder perspectives.



**DAY 2: 19<sup>th</sup> February 2021****6 Session 1: Field Visit Coordinated by the Principal Agricultural Officer, Iganga and NARO Team**

This day started with a field visit in Iganga where the work-shop participants met and interacted with a farmer practicing PPT. The workshop participants were taken through the Desmodium pooling field that other farmers had access to. Notably, the farmer had no active PPT field but had one at the inception of the programme to his farmer group. The participants were able to observe the mechanism of desmodium trapping the stem-borers.

**7 Session 2: Feedback from the Participants on the Field Experience**

The feedback emanating from the field led to the observations and suggestions from the workshop participants

1. Scaling up the push pull technology (PPT) may be limited by availability of seed of desmodium and Napier.
2. It seemed like the farmer who was visited was working alone since other members of the group were not available. It appears the community was not engaged in the beginning. So there is a need for cohesive and transparent engagement of the farmers in the project activities. This will enable the farmers to support each other.
3. The maize and Napier grass that were grown by the farmer were not improved varieties, yet NARO has released improved varieties of maize and Napier grass. So there is a need to promote PPT as a package that integrates other yield enhancing technologies.
4. It was noted that the farmer visited could not accurately estimate the costs and benefits of PPT. There is therefore a need to train the farmers in farm-planning, which will enable them to keep accurate records of the investments and returns from PPT.
5. Farmers normally attached value to technologies that immediately address their needs for food and income. However, it appears that the farmer who was visited did not have striga in their field. So the question is whether the farmer had really planted desmodium to control striga. So the project needs to look for sites that actually have the problem of striga.
6. In addition, sugarcane growing, which is predominant in Busoga has shrunk the land available for crop farming. Most farmers have to hire land for farming, and cannot therefore maintain seed fields of desmodium for long. This might have affected availability of desmodium seed.

7. Entry into the community is critical for success of the project. So there is a need to always engage the community through an inception meeting to introduce the meeting and elicit community support, in addition to managing farmer expectations and minimize negative side-talk.
8. There is lack of cohesiveness among the farmers group that was visited. The visitors were only welcomed by one farmer (who is the Chairman). So it appears like this is a one-man show. The project must work to encourage cohesiveness within group in order to scale out PPT.
9. In the past PPT was promoted as a technology that controls stemborers, fall armyworm and striga, and improves soil fertility in addition to providing nutritious animal feeds. Information on PPT has always been presented in ways that address those aspects/areas individually. So there is a need to develop a comprehensive package of information that covers all the aspects of PPT.
10. There is a lot of untapped potential in women, who are mostly engaged in farming.
11. Every component of focus on disease free/tolerant varieties of Napier. We must also take advantage of the fact that some of these farmers groups have worked on PPT for a long while and are therefore already technically empowered, which is an opportunity for the project.
12. There is an opportunity to engage youth in multiplication of planting materials for desmodium. The project should look to engage the youth involved in the commercial tree nursery business also to propagate and sell planting materials (seedlings already with roots) for desmodium, so that farmers just have to transplant.
13. The field that was visited was not an ideal PPT field, and since farmers normally believe by seeing, the project should demonstrate that PPT actually works to re-new farmers' interest in PPT.

### **8 Session 3: MAC Schedule of Activities.**

This session was guided by Dr. Fredrick Aila and gave the activities to be organized by the National MACs. The main activities fronted were field visits, preparation and organizing of annual National MAC meetings for the UPSCALE project life. Other meetings to be organized by MAC in country Regional Meeting for respective countries.

### **9 Session 4: Project Reporting for National MAC presented by Dr. Scholastica Odhiambo (MU, Kenya)**

Dr. Odhiambo took the Workshop participants through the project reporting framework. She explained that the reporting framework is embedded on Tasks 1.3 and 1.4.

In Task 1.3 the reporting framework underlines the optimization of research results inflow and outflows to MACs. This is in terms of establishing repositories and advocacy knowledge resource-success stories and regular updates on progress to stakeholders. The task also involves information sharing and capacity-building materials and media outreach for different stakeholder audiences; and provision of input into the Knowledge Exchange Hub (WP8) for MAC stakeholders and the broader public.

In Task, 1.4 she explained to the workshop participants that it involved a synthesis of multi-actor feedback and co-construction processes for transformative transdisciplinary research processes. From this tasks, key lessons are to be learnt from stakeholder meetings, multi-actor information sharing and capacity-building channels. Key lessons are to be extracted from policy, agro-ecological; and socio-economic challenges and solutions for adaptation of sustainable intensification research and dissemination strategies. The task also focuses on derivation of synthesis of 'best practices' for future research and innovation efforts able accomplish the highest level of transformative impact on agricultural practices, policy and overall stakeholder perspectives.

She added that the project reporting for national Macs are to be presented in terms minutes of National MAC Coordination meetings; documentation of MAC activities such as field activities, audio reporting, videos, field reports. Other reporting mechanisms are seasonal reports for adoption, utilization and challenges of PPT and feedback from farmers from the fields; sharing information on UPSCALE EMDESK and e-Granary.

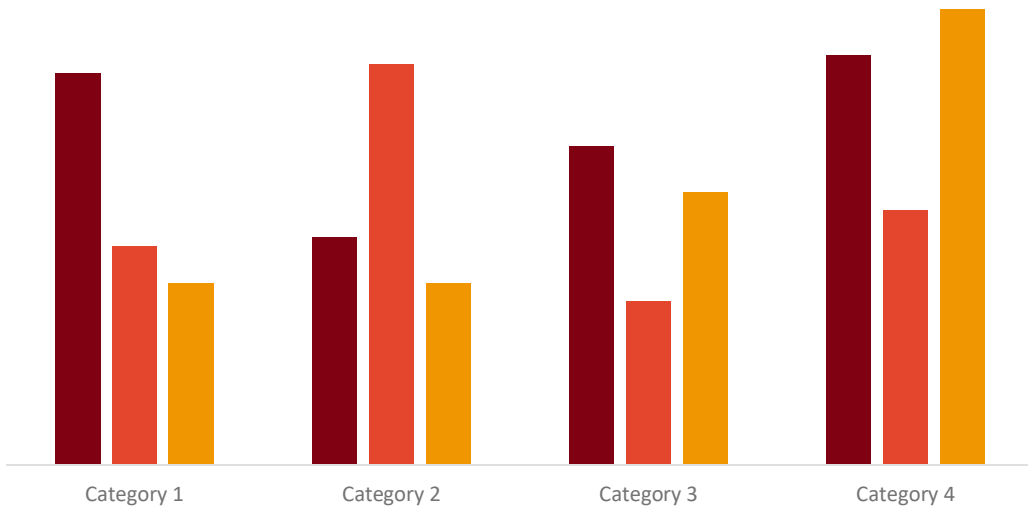
Annex: National MAC Profile for Uganda

Uganda National Multi-Actor Community of Practice Information Sheet																
SN	Organisation Name	TEL +256	ORGANISATION EMAIL	WEBSITE	Street	City	County/ District	Postal Address	Post Code	Contact Person	Tel 1	PERSONAL EMAIL	Sector	Who we are	What we do	Who our clients are
1	Uganda National Farmers Federation (UNFFE)	256,312,103,345	<a href="mailto:info@unffe.org">info@unffe.org</a>	<a href="http://www.unffe.org">www.unffe.org</a>	Nakasero Road	Kampala	Kampala	6213 Kampala	256041	Perez Kawumi	256772625465	<a href="mailto:p_kawumi@yahoo.com">p_kawumi@yahoo.com</a>	Farmer Organisation	Farmer based organisation	We mobilise, organise and empower farmers through training and linkage to meet opportunity	Small holder farmers mainly across the country through farmers organisation
2	Keith Associates Limited	772,456,840	<a href="mailto:info@keithassociates.com">info@keithassociates.com</a>	<a href="http://www.keithassociates.com">www.keithassociates.com</a>	Entebbe Road	Kampala		4188	256		772456840	<a href="mailto:fredmuduuli@gmail.com">fredmuduuli@gmail.com</a>	Input Trading	Agro-dealer	Import and distribute agricultural inputs introduce and market new products in Uganda	Commercial (large scale) farmers, retail/stockiest of agricultural inputs
3	Kamuli Nakulyaku Farmers						BUGABULA/KAMULI	88 KAMULI		GUBI STEPHENE	772868643		Farmers Group/ Individual Farmers	Cooperative society	Farming produce bulking produce quality hired seed and buying farmers produces especially maize beans and coffee	Input dealers extension workers microfinance bank
4	District Local (Production Department)		<a href="mailto:dpoiganga@gmail.com">dpoiganga@gmail.com</a>		Nakigo Road	Iganga	Iganga	358 Iganga		Dr.Baligeza Moses(Dpo)		<a href="mailto:dpoiganga@gmail.com">dpoiganga@gmail.com</a>	Government agency	Production department/ extension/ MAAIF based at the district local government	Offer extension advisory services to farmers	Farmers traders in agricultural products
5	Association Of Uganda	0772389548/0392898597	<a href="mailto:aupwae2010@gmail.com">aupwae2010@gmail.com</a>	<a href="http://www.aupwae.net">www.aupwae.net</a>	Namirembe Guest House	Kampala		34192, Kampala	256	Ms. Grace Okiror-Es	772389548	<a href="mailto:grace2okiror@gmail.com">grace2okiror@gmail.com</a>	NGO	We are a not for profit organisation with members who are professional women forestry fishery food science and technology. These members are spread across the country in all regions of the country	Advocacy, networking technology transfer project for rural women and community commissioned studies training and capacity building professional women advancement sensitization and awareness on gender related issues	Professional women in agriculture and environment rural women girl child
6	Namtumba District Local Government	775,632,391	<a href="mailto:apolomusita300@gmail.com">apolomusita300@gmail.com</a>				NAMTUMBA	53/ BUSEMBOTI A				<a href="mailto:apolomusita300@gmail.com">apolomusita300@gmail.com</a>	Government Agencies	We are a government agency specialized in management of agricultural production	We supervise and monitor agriculture extension officers we directly interact with farming communities through technical service provision	Farmers are major clients. Other includes infarst access processors etc
7	icipe	728,524,647	<a href="mailto:ghallo@icipe.org">ghallo@icipe.org</a>			JINJA	UGANDA			Dr.Girma Hailo		<a href="http://ghallo@icipe.org">ghallo@icipe.org</a>	Research Institution	Icipe is an international research institution with headquarters in Nairobi and a country coordinating office in Jinja Uganda.	Technology research in insect science, technology dissemination capacity building research in the area of animal, human and environment	Farmers , research organisation academic institution
8	Nalg Agribusiness Centre	256,782,455,783	<a href="mailto:balikowanalg@gmail.com">balikowanalg@gmail.com</a>	N/A	Nakivumbi Rd	Iganga	Kigulu Iganga	Balikowa Moses	782455783				Community Based	NALG Agribusiness Centre Is A Farmers Organization That Promotes Improved	We Do Extension Services By Promoting Farmer To Farmer Extension Services	Our clients are farmers agro input dealers traders transporters

												Organisation	Farming Practice Post Harvest Handling Grain Marketing Value Addition	Provides Inputs To Farmers Through The Village Agente Modola And Organize Field Days	extension workers (government)
9	One Acre Fund					Iganga						cormas buyinza@oneacrefund.org	We are one acre fund Uganda limited	We give inputs to farmers on credit	Small holder famers
10	Kamuli District Local Government		<a href="mailto:mawejeandrew@gmail.com">mawejeandrew@gmail.com</a>	<a href="http://www.kamuli.go.ug">www.kamuli.go.ug</a>		Kamuli Municipality	Kamuli		Maweje Andrew	772301899		Government Agencies	Local government	Offer extension service: undertake overall development planning covering agriculture and production in general farmer training and inputs supply	Farmers agro processor consumers in general
11	Busitena University	772,965,752	<a href="mailto:ghubadde@gmail.com">ghubadde@gmail.com</a>		Arapain Company	Soroti	Soroti	256	Dr Geoffrey Lubade		<a href="mailto:gghabadde@gmail.com">gghabadde@gmail.com</a>	Academic Institution	Busitena University	Training students conduct research conduct outreach	Students studying agriculture related programmes (bachelor of science in agriculture animal production and diploma and certificate agribusiness and extension
12	Iganga District Local Government			IGANGA					BAZALAKISULLY NAMNTATYA	772593773	<a href="mailto:nantaty@yahoo.com">nantaty@yahoo.com</a>	Government Agencies	We are agricultural extension services providers	We teach farmers in all aspects of agricultural production all the crop	The crops enterprise value chain actors
13	Iganga District Local Government	778,043,001	<a href="mailto:awanume@gmail.com">awanume@gmail.com</a>				IGANGA DISTRICT		WANUME AMOS	778603001	<a href="mailto:wanume@gmail.com">wanume@gmail.com</a>	Government Agencies	Iganga District Local Government Department of Production	We train farmers to improve on yield hence income, we do market linkage	Farming community , produce value chain actors
14	Mbaraka Zonal Agric And Research Insitute Kabale University	772,031,051	<a href="mailto:muhumuzajb@yahoo.com">muhumuzajb@yahoo.com</a>	<a href="http://www.kab.acug">www.kab.acug</a>	Kabale University	Kabale	Kabala	387	Muhmwaza John Bosco		<a href="mailto:muhumuzajb@yahoo.com">muhumuzajb@yahoo.com</a>	Academic Institution	Kabale university is a public university with department of agriculture of conducting teaching and research on agricultural related issues	Kabale does teaching and research on agriculture	Kabale university students farmers agricultural extension workers as well as processors
15	Kamuli District Farmers Association (KDF)	752,353,504	<a href="mailto:peter.balinaina@gmail.com">peter.balinaina@gmail.com</a>	<a href="http://www.Unffe.ug">www.Unffe.ug</a>	Saaza Road Opp DSC	Kampala	Kamuli	88 Kamuli	Baliname Peter	776353504	<a href="mailto:kamulidfa@gmail.com">kamulidfa@gmail.com</a>	Farmer Group /Individual Farmer	KDFA was formed in 1992 by the farmers of great Kamuli. the association has permanent office in Kamuli	We offer extension services to our members mobilize sensitize farmers for information and knowledge members	Individual farmers (male female youth elderly farmer group 15-30 members) registered cooperative
16	Nawaningi Intergrated Grains Farmers Co-Operative Society Limited	779,538,346	<a href="mailto:nidfac02019@gmail.com">nidfac02019@gmail.com</a>				UGANGA		WAZUGYO MUHAMAD	779538246	<a href="mailto:walugyomomuhameed@gmail.com">walugyomomuhameed@gmail.com</a>		This cooperative is found in Bobukonko village	Forming collective bulking and marketing advocacy ferther issue which ca affects production and the farming system	Farmers and consumers
17	M-Omululionisa Innovative Agriculture Servises	701,035,192	<a href="mailto:dninsiima@gmail.com">dninsiima@gmail.com</a>	<a href="http://m-omulimisa.com">m-omulimisa.com</a>	Kisaasi-Kyanja Road	Kampala	Kampala	35999	256	Minsiima Daniel	701035192	Agribusiness	An agritech company that provide agriculture related	Agriculture insurance, extension services , weather information	Farmers agro input company ,insurance company

													services by leveraging mobile technology			
18	Kamuli Ena Cooperative Enterprise	702,136,395	mitanda.johnson@gmail.co		Kamuli	Kamuli	Kamuli Municipality	11		Mitala John Son	702136395		Farmer Group /Individual Farmer	We are group people who came together to try to fight certain problem which was poverty huges	Through office d.p.oan our parents we are trained in a good agrochemical practises	Sesekawa global 2000 VEDCO icipe post-harvest uganda
19	Namtumba District Local Govt	772,890,206	opolotapoli@yahoo.com			KAMPALA	NAMTUMBA	53 BUSEMBATI A					Government Agencies	District local	Extending services in all sector to the community as afront	Tre general community
20	National Agricultural Research Organization		nimuzira@yahoo.com			MBARARA		389		MUZIRA ROBERT	772472173		Research Institution	Agricultural research organisation mandated to conduct basic and applied research relevant to farmers and others		Farmers extension workers agro-processors
21	Ministry Of Agriculture Animal Industry Fisheries	414,320,801	btukahinwa@gmail.com	<a href="http://www.agriculture.go.ug">www.agriculture.go.ug</a>	Plot 16-18 Lugard Avenue	Entebe	Wakiso	102 Entebe	256	Benius Tukahirwa	414320187	<a href="mailto:ps@agriculture.go.ug">ps@agriculture.go.ug</a>	Government Agencies	We are a department in the ministry agriculture animal industry and fisheries chased with sustainable control of crops pest and diseases for improve find security	Control of crop pest and diseases	Local government extension
22	Nakalokwe Young Farmers Association	783,760,420					BUSIKI/NAMTUMBA	53 BUSEMBATI A		WAGALUKA BADAGAWAE RIASA			Farmer Group /Individual Farmer	We are an group with farmers groupmoving under us	We train farmers groups for production in crops eg rice maize tomatoes etc ewe do prosesing and serving	Retail shops and consumers
23	Ivukula Women Development And Aids Initiative	782,044,639	bbalidawa@gmail.com		Kaliro Road		Bukono Namtumba	53 Busembatia		Balidawa Badiru Siwa	773534414		Farmer Group /Individual Farmer	We are a community based farmers group located in IVUKULA town council	Grow maize grow soya bean bulk maize	Community off takers women and youths
24	Ministry Of Agriculture Animal Industry Fisheries		stephema@gmail.com		Plot 16-18 Lugaro Avenew	Entebe	Wakiso	102, Entebe	256	Mugume Stephene	25641433200 04		Government Agencies	Directorate of Agricultural Extension Services	Directorate of Agricultural Extension Services of MAAIF quality assure agricultural extension seems	Public and private extension advisory sameses players - Africa commodity value chain
25	Kabale University		ntakyp@yahoo.com	<a href="http://www.kab.ac.ug">www.kab.ac.ug</a>	Kukungiri	Kabale	Kabale	317		Dr Prossy R Ntaiyo	25677255923 6		Academic Institution	Public university in South Western Uganda	Training and research	Students professionals and fisheries
26	Namtumba District Local Govt						NAMTUMBA	53 BUSEMBATI A			772055373		Local Government	Local district government	Provide extension services and advisory services	Farmers faim organisation former cooperative csos molved in agriculture activities
27	Kamuli Dsrict Local Gvt			<a href="http://kamuli.go.ug">http://kamuli.go.ug</a>	Sata Road	Kamuli Munisipality	Kamuli	88 Kamuli		Chief Administrative			Government Agencies	Local government agency	Coordination of agricultural extension delivery system programs	Farmer group cooperative and agricultural extension offers

28	Mawamingi Intergrated Community	783,806,077					KIGULU	358			705171203			CBO/integrator	We advocate on fallow farmers to us push and pull method and better of agrics	The district local government
29	The Hunger Project Uganda	782,415,097		<a href="http://www.thp.org">www.thp.org</a>	Plot 8 Nakasero	Kampala	Kanga	26393 Kampala Uganda		Andrew Mudangha			Non Government al Org	NGO	We implement programmes that are holistic to human livelihood	Rural farmers
30	Kamuli District Local Govermet			<a href="mailto:mpaulojames@gmail.com">mpaulojames@gmail.com</a>			Kamuli	88 Kamuli		Mpaulo James Felix	751386611		Government Agencies			
31	Bugiri Town Council Akanabala Oil Seed Farmers	774,140,089		<a href="mailto:kidagholemoses@gmail.com">kidagholemoses@gmail.com</a>				53 Busembatia		Doa Namutumba	701306575			Farmers/ cooperative major crop maize and soya (cereals)	grow cereals and add value and produce posho maize brain	Local community , agroways produce company BUSIA market



*Figure 1: Figure 1*