

Maziwa Zaidi Theory of Change

Report of the Critical Reflection Workshop,
Bagamoyo, 31 October – 1 November 2016

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November 2016

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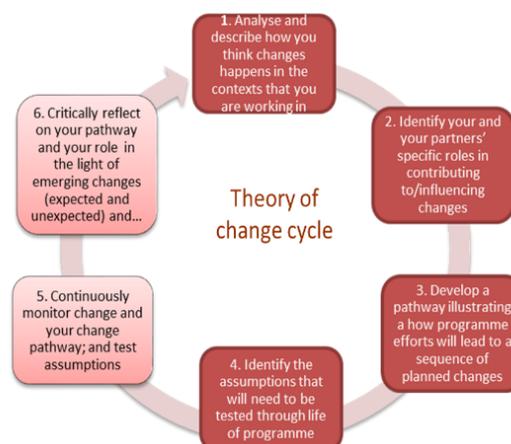
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Introduction

A theory of change (ToC) can help programs manage complexity by articulating expected outcomes and the logical links between outputs and impact, identifying underlying assumptions and risks associated with each link. Reflection on the results can be used to refine strategies to enhance delivery and prioritize further research.



A [ToC](#) was developed and piloted to evaluate the progress in the Tanzania smallholder dairy value chain program being facilitated by the CGIAR Research Program on Livestock and Fish (locally referred to as *Maziwa Zaidi*)¹. The aim is to periodically trace the contributions the program is making towards an envisaged transformation of the smallholder dairy value chain and, based on the results in each period, adapt the process for future use in learning, planning and accountability on what the program wants to change and influence. The program’s main contributions up to now have been on piloting market linkages to overcome market barriers and use of innovation platforms for co-learning and policy dialogue to catalyze widespread innovation. These platforms offer opportunities for experimenting with relevant innovations, adapting technologies and conducting research to identify appropriate entry points to spread the benefits of proven lessons.

A ‘[start point](#)’ on the context and changes that the program hoped to influence in the first year was developed in 2015. Following one year of piloting, [a critical reflection workshop](#) with partners working with the program was held to update contexts; review progress on planned changes; assess related assumptions, drivers and barriers; and, adapt the change pathway. This report presents the proceedings and analysis of the findings from the first reflection workshop held in November 2016.

The process of developing the ToC and piloting it in Tanzania including the first critical reflection workshop was facilitated by Maureen O'Flynn and Isabel Vogel.

¹ The program is supported locally by various donors including Irish Aid, IFAD, BMGF and globally through contributions by various donors to the CGIAR System <http://www.cgiar.org/about-us/our-funders/>.

Workshop objectives:

To provide an opportunity for *Maziwa Zaidi* (MZ) staff and partners to think together about the real progress that they are making against planned changes over the last 12 months and adapt change pathways and plans in the light of this:

- To agree how key elements of the context have changed; and how these may have affected the program
- To understand and agree what has really changed for the different target groups and what it means for them
- To explore how and where the program has been able to contribute to these identified changes
- To test the assumptions that were made at the beginning of the program
- To consider how they should adapt elements of the program to ensure that they are become more effective in supporting positive changes for their target groups
- To set a benchmark for monitoring in the next cycle

Selected change areas

Six change areas in the [Theory of Change](#) (ToC) listed in Table 1 were prioritized for monitoring on the basis of being representative of the short term change areas across various levels. Change area #3 is MZ partnership's contextualization approaches to meet needs of local men and women across all levels. The other change areas represent behavioral changes at community- (#5, #8 and #13) and national- (#10, 11) levels.

Table 1. Change areas in the Theory of Change pathway selected for monitoring

No	Change areas	Level
#3:	Research and development partners contextualize approaches to meet needs of local men and women	Local community and national
#5:	Processors, traders and service providers respond to business opportunities created in the dairy market hub	Local community
#8:	Smallholder farmers' access and experiment with gender-sensitive and relevant innovations including groups	Local community
#10:	DDF engages and mobilizes stakeholders effectively	National
#11:	DDF members are aware of evolving opportunities for investment	National
#13:	Local government incorporate hub development and gender issues in their plans and budgets	Local government

Update on context analysis

Participants reflected on changes in context in Tanzania over the previous year and how they have affected the efforts of the program (positively or negatively), as it works towards the medium term change objective to have more private and public investors in Tanzania replicating its approaches for upgrading the smallholder dairy value chain; as a step towards transformation and realizing the program's vision of an inclusive and sustainable dairy value chain². The justification for choosing this medium term change is elaborated in the context analysis and description in the "[start-point](#)" for the ToC. The following issues at local, national and international levels were highlighted as having had a bearing on the program.

Local level

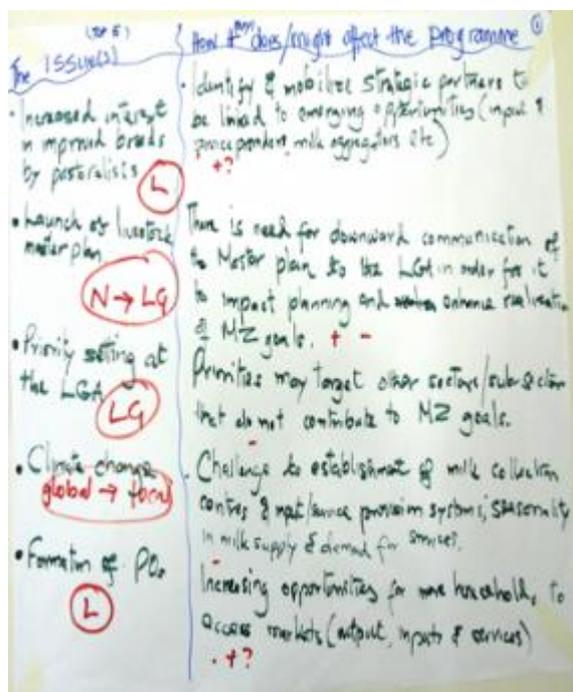
Issues that have **positively affected the program** at the local level were highlighted as **increasing business orientation** by value chain actors across both intensive and extensive areas in pilot sites. For example, increasing interest among agro-pastoralists to upgrade their cattle and engage in dairying as a business. The on-going livestock master plan led by MALF and facilitated by ILRI was seen as having potential to enhance the success of the program because dairy is expected to feature as an important investment opportunity.

Issues that **adversely affected the program** at the local level were: **increasing conflicts over use of common natural resources** (land, water and pasture); **poor roads** that are impassable especially in the wet season; high turn-over in personnel in partner organizations implementing MZ especially in local government; **poor incentives for extension staff** who are demoralized; ad-hoc implementation of some rules/regulations by government; and, the co-existence of livestock projects led by other organizations that may not be aligned with MZ objectives.

² This is the vision for the DDF and the Tanzania smallholder dairy value chain research for development program (locally referred to as *Maziwa Zaidi*) implemented under the Value Chain and Transformation and Scaling (VCTS) flagship of the Livestock and Fish CGIAR Research Program

National level

Issues that have **positively affected the program** at the national level were highlighted as continued **recognition of dairying** by government as an important economic activity with potential for



promoting rural commercialization. This recognition has already begun to trigger increasing investment to the sector such as SAGCOT catalytic fund, the Livestock Master Plan, IFAD funded projects including the [Dairy Hub Integration project in Zanzibar](#), Sustainable Rangeland Management project in the mainland and a proposed [Southern Highlands Milkshed Development project](#). Additional national-level changes in context include advances in telephony and internet access that should make it easier for extension workers to communicate with their clients and business linkages to occur; and, steady increase in the amounts of milk being processed though the demand for processed milk in urban markets still outstrips supply. Demand for milk remained strong driven by continuing fast growth of the Tanzania economy³, increasing population

and urbanization.

Issues that **adversely affected the program** at the national level were: Slow pace in infrastructure development (e.g. roads, electricity) that discourage private investments; increasing imports of dairy products; and staff changes in implementing organizations; and, **uncertainty of stable funding for the MZ program**.

Global level

Milk production globally is reported to be growing steadily according to the [International Dairy Federation](#). This has led to increased dairy product supply for trade. An upward trend in demand and prices of milk globally has continued but the global prices are still significantly lower than local prices, encouraging importation. The adverse impacts of global climate change locally were also noted.

³ GDP growth in Tanzania has been above 6% per annum over the last decade

Critical reflection

Overview of changes across selected change areas

Analysis across the six areas revealed modest progress had been made with scores indicating that changes were either emerging or established⁴ as summarized in Table 2 and detailed in Annex 2.

Established changes are in relation to MZ's approaches that are considered to be appropriate in meeting local needs (change area #3) and in providing farmers with the opportunity to access and



experiment with relevant innovations (change area #8). The most effective contribution of MZ was deemed to be at the national level through catalyzing the **emergence of the DDF** to mobilize stakeholders and value chain actors (change areas #10 and #11). Though only emerging, the changes facilitated by MZ in these areas are considered to have **great potential for catalyzing widespread innovation**, a contribution that stakeholders would like to be further strengthened through stronger linkages and coordination so that value chain actors can

exploit emerging business opportunities more fully. Related research efforts should focus on identifying opportunities for growing and scaling inclusive agribusinesses involving young women and men.

⁴ Range of scores for changes were: Early stages = 1; Emerging changes=2; Established change=3; (Very) significant changes have taken place=4

Table 2: Summary of key actors, status at “start point”, and observed change at reflection for each prioritized change area⁵

ToC Change area	Key actors besides MZ implementing partners	Status at “start point”	Observed change at reflection
#3: Research and development partners contextualize approaches to meet needs of local men and women	Local men and women	R&D partners’ mandates are not exercised to address local needs	2.5 (emerging - established changes)
#5: Processors, traders and service providers respond to business opportunities created in the hub	Value chain actors	Low private investments; low volumes of transactions	2 (emerging changes)
#8: Smallholder farmers access and experiment with gender-sensitive and relevant innovations including groups	Farmers	Limited opportunities to experiment and innovate	3 (established changes)
#10: Dairy Development Forum (DDF) engages and mobilizes stakeholders effectively	DDF Secretariat	No DDF before MZ; few VC actors initially	2 (emerging changes)
#11: DDF members are aware of evolving opportunities for investment	DDF Secretariat	No DDF before MZ; few VC actors initially	2 (emerging changes)
#13: Local government includes hub development and gender issues into their plans and budgets	LGAs	No ‘hubs’ approach and gender is not planned and budgeted	2 (emerging changes)

Analysis of changes across the six areas was conducted under the following sub-headings:

- a) What has changed/is changing and for whom?***
- b) What exactly did MZ contribute to these changes?***
- c) Who/what else helped/ hindered and how?***
- d) What are MZ’s most useful effective contributions and ways of working in relation to these changes and why?***
- e) Were there other better ways the program could have achieved changes and how?***

Assumptions related to each change area were also assessed as true or false and related evidence provided. Details of the analysis across the six change areas is presented below.

⁵ See details in Annex 2

What has changed/ is changing? For whom?

A change noted in relation to MZ partnership's contextualization of approaches to meet needs of local men and women is in the way **participatory approaches have continued to be applied** in R&D pilot sites beyond the timeframe of the MZ projects that introduced and tested them. For example, TALIRI working with LGAs have continued to use innovation platforms (IPs) and FEAST tools and as approaches for engaging value chain actors and conducting participatory research/technology development in pilot sites in Tanga and Morogoro regions. IPs at various levels (mainly district level) have also been adopted in other regions outside the pilot sites promoted by projects, for example, by the East Africa Dairy Development (EADD) and Africa Rising projects in southern highlands and Babati region, respectively; and by the LGA in Mara region. There is increased collaboration between NARS and CGIAR as indicated by increasing joint publications and exchange of forage germ plasm. In addition, lessons have been learnt on approaches for promoting the trader-based market hubs approach (without collective bulking and marketing) by using enterprising milk traders as entry points in extensive areas, rather than forming farmer groups first. **New public investments** in the dairy sector over the past year in R4D aligned with MZ objectives that could be seen as outcomes of the program include: improving animal health (ITM2Scale project; USAID); improving genetics gain (ADGG project; BMGF); improving nutrition (BMGF/DFID); improving milk quality (with WUR; WOTRO); and, addressing rangeland management (with MALF, IFAD). These research initiatives and the new or proposed IFAD funded development investments cited above signify interest in scaling up the MZ approaches.



At **community level**, substantial increases, up to 47%, in the percentage of smallholder **farmers participating in dairy groups** were recorded, where training on cattle husbandry and dairy business management was provided. The farmers engaged other value chain actors (processors, traders, service providers) in various businesses, therefore **recording more transactions** in provision of various inputs and services for the dairy enterprises. The farmers also engaged non-dairy transactions. For example, a farmers group created in Mangae village is engaging in collective marketing of goats. Besides responses to business opportunities by small-scale milk traders, a large scale processor (ASAS Dairies Ltd) responded by independently exploring the feasibility of engaging groups formed by MZ in agro-pastoralist communities in Morogoro to collect milk from them. Financial institutions (e.g., covenant bank)

responded by offering credit to producer groups to purchase inputs such as heifers. Shambani Graduates Milk Processors Ltd contracted agro-pastoralists-cum-traders from around Morogoro to supply milk to their factory in the town.

The deliberate encouragement and support for more women to be actively involved in group activities (including in leadership positions) has borne fruit. **Women form a majority in the newly formed groups** where they are able to articulate their demands from site specific plans for extension support, besides engaging as milk traders in several villages. Increased uptake of new feed /improved forage varieties by producers and spill over to new villages/non project areas in Lushoto district and in/around Manyinga village in Mvomero district is mostly championed by women. Other forms of experimentation noted are farmer groups that spontaneously formed around those created by MZ (e.g., in Twatwatwa) to experiment with what was happening in neighboring villages. LGAs were reported to be more open to collaboration with researchers and are beginning to allocate more resources to livestock related activities.

Changes noted at **national level** in relation to the DDF were that the coordination role of TDB has become more visible; the **concept of innovation platform is now widely understood and used** including by the leadership in MALF; more stakeholders (besides mostly policy makers initially) are participating in DDF meetings and sharing information; more recognition of smallholder dairy production (inclusivity) and the increasing interest to increase business interactions through the DDF by formalizing it. Examples of linkages attributable to the DDF include use of the Forum by government to link with some actors for financing through the Tanzania Agricultural Development Bank. It was noted that while the participation and range of actors at the last two DDF meetings held in Babati and Njombe remained about the same, the proportion of women participants increased from 19% to 29%. A self-evaluation at the last [6th DDF meeting](#) noted the DDF's value in information sharing and providing a space to work together to bring lasting solutions to the dairy industry.

What exactly did MZ contribute to these changes?

As noted above, MZ's **contextualization of approaches to meet needs of local men and women** is considered to be appropriate. Interactions through the DDF and by MZ partners with others outside the partnership were identified as the main catalysts for changes that have happened outside the pilot sites in Morogoro and Tanga, besides the influence through joint CGIAR-NARS publications.

Funding by MZ donors was highlighted as critical without which activities at all levels as reported here would not have occurred. The contribution of the program to proactively target inclusion of women by ensuring their participation in producer groups and involvement in leadership positions was recognized. Conceptualization of the DDF idea, facilitating its DDF meetings and advocating for strengthening it (leading to widening support amongst stakeholders) was attributed to MZ. Further



contributions were through generation and dissemination of evidence from various targeted research, monitoring of interventions being tested at community level, and increasing effectiveness of the DDF in sharing knowledge among stakeholders.

In addition, MZ nurtured a good **working relationship among the partners**. The program coordinators noted that recognizing equality in the partnership in terms of the stakes and project ownership irrespective of the roles and responsibilities of the different partners has been important in nurturing and achieving a good working relationship. Specific positive behaviors noted in this regard were: a) respecting differences in methods of work, organization cultures, and expertise has provided a friendly environment for learning more about the strengths and weaknesses of the different partners; b) achieving synergy has come, not from preconceived notions on how to implement the partnership, but from partners learning through trial and error the best way to execute their roles, and c) MZ coordinators kept all lines of communication open, and almost all partners seemed impressionable. This created a free atmosphere for collegiality and quick learning. It was very important that we had room, in terms of both time and funding, to nurture and use this approach. This essentially means that flexibility in implementing the program activities was indispensable. We also note that relatively smaller organizations (e.g., Faida MaLi) are nimble and easier to engage perhaps due to less bureaucracy in work processes. Other channels of communication that were established such an all-inclusive MZ steering committee enabled feedback and information sharing between LGAs and other MZ partners.

Who/what else helped/hindered? How?

Increased **awareness and orientation about impact pathways** among NARS and CGIAR centers and the potential role of innovation systems approach to achieving impacts was considered to be the main factor that helped to internalize the approaches and contribution to progress along the pathway. **At community level**, the Tanga Dairy Cooperative Union helped by training members of producer groups and cooperatives in Lushoto on improving their milk businesses; brokerage by Land O Lakes facilitated by purchasing and milk cans in bulk and making them available to producers and value chain actors; active engagement of LGAs in facilitating smallholder farmers to access and experiment with relevant innovations; and, expansion of milk collection networks by processors. **At the national level**, an enabling policy environment; increased information sharing through the DDF facilitated by the secretariat at TDB; government interventions to improve AI services delivery by improving AI centres; and, the livestock minister's keen interest demonstrated by following up on issues coming from the DDF.

What hindered progress at community level were identified as lack of a critical mass of VC actors at the village level; lack of platforms for interaction; regulatory failures (e.g., lack of a process for improved forage seed importation and certification); and, lack of feed centres/fodder markets. It was observed that more research and capacity building would have been done had there been adequate number of students to engage and work with in the field.

Other factors that hindered progress were: roads that are impassable, therefore making it difficult to collect milk especially in the dry season; land conflicts that adversely affected the operations of some farmer groups and IPs (before the IPs were used to address the conflicts in some cases); worsening climatic conditions with longer droughts and hence transhumance that make it difficult to experiment with technologies like improved fodder varieties; misconception of program objectives by some producers who anticipated in tangible asset transfers like heifers; and, perception that prices offered by milk processors is rather low and tends to demoralize milk producers. Factors that hindered progress at the national and local government levels were lack of

or very little financial contribution for activities; lack of a strategy to communicate DDF activities; absence of effective linkages between the DDF at national level and lower level innovations platforms; tax policy that encourages importation of reconstituted powdered milk that competes with local production; and, staff changes at TDB that interrupted continuity in some activities as the new officials took office.

In addition, project coordinators noted the following cross-cutting changes that **adversely affected** the engagement of the CGIAR and NARS: **reduced funding to the L&F program hindered** the envisaged expansion of staffing and dropping of certain pilot activities that would have contributed to faster achievement of MZ objectives; **organizational bureaucracies** that tended to delay engagements (e.g., financial reporting delays, budget approvals for field activities in some partner organizations); limited capacity of the human resource in some partner organizations in terms of certain skill sets critical to project implementation; and, a general lack of **prior experience in implementing AR4D programs**, especially limited understanding of the role of research in AR4D and value chain approaches.

What are MZ's most useful and effective contributions & ways of working in relation to these changes? Why?

MZ's most effective contributions were identified as follows: enhancing awareness on opportunities in commercial dairying; promoting businesses as a pathway for achieving dairy development; sharing expertise and experience because approaches promoted by MZ entail new concepts for dairy development like use of multi-stakeholder processes (IPs and flexible market hubs); enhancing collaboration, synergy and trust among partners; significant communication and knowledge sharing among partners and with other audiences; building the capacity of value chain actors; facilitation of the value chain linkages; encouraging inclusion of women in dairy beyond production as group leaders and milk traders; and, use of a robust monitoring, learning and evaluation (MLE) framework to closely monitor project activities.

Were there other better ways the program could have achieved changes? What? How?

Potential better ways the program could have achieved the changes above were identified as follows: enhancing communication among partners according to the MZ communication strategy; **availability of complementary funding at LGAs; more predictable funding for longer durations;** engagement in selling our approaches to existing and potential partners to raise more funding; earlier involvement of milk traders, processors and service providers in hub formation (MZ had prioritized formation of producer groups before creating linkages with other value chain actors); and, **closer engagement of producers to monitor their activities perhaps facilitated by having a field coordinator at a lower (district) level.** Capacity building of TAMPRODA to have more grass-roots linkages was also suggested as a way to strengthen the voice of producers. Other better ways are improving infrastructure and networks for milk aggregation are outside the scope of MZ.

Assessment of assumptions on change areas and reasons/comments

Assessments of the assumptions on links between each prioritized change area and the next change in the pathway are summarized below with related reasons/comments from the workshop and links to available supporting evidence. In cases where they have been judged as FALSE, we will follow up to assess how they have affected the program and the next sequences of change. They will also have implications for adaptation of the pathway and new assumptions.

In relation to **change area #3**, the assumption that promoted approaches are appropriate for smallholder farmers was judged to be **TRUE**⁶. It was noted that entry points identified by production system (with or without chilling plants) are generally appropriate and that the ToC would not hold if this assumption does not hold true, even though sequencing may be different. The program now recognizes that focusing more on enterprising milk traders as an entry point is a faster approach towards commercialization of pre-commercial producers before investing efforts in capacity building of the producers linked to them. A related assumption to the above was that partners have flexibility to test alternative approaches that the program entails as they work towards achieving their institutional mandates and program objectives. This was judged as MIXED because different partners are affected differently; e.g., non-governmental partners' organizations have flexibility while government is restricted in some cases (e.g., interactions with donors); bureaucratic contracting between partners; frequent consultations have ensured synergy.

In relation to **change area #5**, the assumption that value chain actors are behaving competitively, are maximizing profit and there are no information asymmetries was judged to be **FALSE**⁷. It was noted that significant information asymmetries exist because value chain agents are yet to build trust among themselves (information asymmetry is a major cause of poorly functioning markets and a major reason for MZ intervention). Where input and service providers have not been able to provide inputs and services to groups as a whole, they have served individual milk producers.

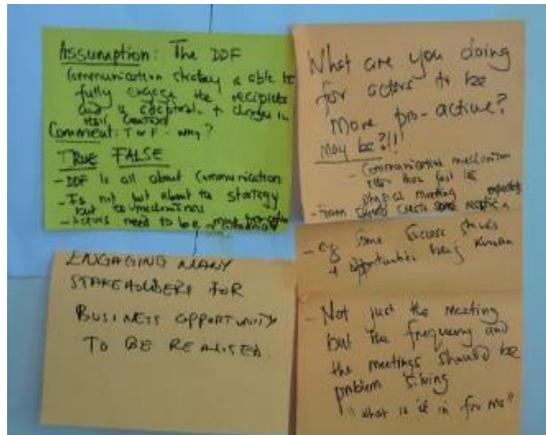
In relation to **change areas #8**, the assumption that groups not involved in collective bulking and marketing of milk are able to meet farmer needs was judged to be **FALSE**⁸. The slow pace at which groups in extensive areas have developed clearly invalidates the assumption that groups not involved in collective bulking and marketing of milk are able to meet farmer needs. As a result, MZ has had to shift emphasis from building hubs around producer groups to building hubs around enterprising milk traders.

⁶ Link related to assumption: <http://livestockfish.cgiar.org/2015/10/26/dbh-tanzania/>

⁷ Links related to assumption: <https://cgspace.cgiar.org/handle/10568/65162>;
<https://cgspace.cgiar.org/handle/10568/64462>

⁸ Links related to assumption: <https://cgspace.cgiar.org/handle/10568/71120>;
<https://livestockfish.cgiar.org/2016/02/25/moremilkit-update/>;
<https://livestockfish.cgiar.org/2016/11/03/moremilkit-producer-groups/>;
<https://livestockfish.cgiar.org/2016/07/22/tanzania-milk-business/>

In relation to **change area #10**, the assumption that the DDF is the right modality to drive the chain was judged as still valid but results so far are **MIXED**⁹. It was noted that the informal nature of the DDF may not be appropriate for advancing policy advocacy for the dairy industry, though it has so far been useful in raising awareness.



In relation to **change area #11**, the assumption that the DDF effectively communicates emerging investment opportunities was judged as **FALSE**¹⁰. It was noted that a communication strategy is not in place yet DDF is all about communication. Developing a strategy is a good starting point besides engaging in a whole range of communication mechanisms. Actors need to be encouraged to be more proactive in sharing what they do more known within the DDF so as to stimulate engagements by stakeholders in exploiting emerging business

opportunities.¹¹

In relation to **change area #13**, the assumption that commercial milk production and gender issues are considered by district authorities a priority in efforts to alleviate food and nutrition insecurity and in improving household incomes was judged to be **TRUE** (in relation to departmental plans thought budgets are limited)¹². It was noted that LGA plans recognize women as bearers of the greatest burden in milk production yet they have less control in relation to commercial dairy. They are also largely in charge of household food decisions, so targeting them in dairy interventions would therefore positively impact on food security. Most smallholders have limited commercial orientation so there is need to encourage such households to commercialize dairy production to realize more household income.

The implications of the assessments on each assumption, whether true/false or strong/weak, will be reviewed by the program team in relation to the new change areas to be identified and monitored in the next cycle.

⁹ Links related to assumption:

<http://ddftz.wikispaces.com/Papers+on+the+DDF+and+local+area+innovation+platforms>

¹⁰ Links related to assumption: http://livestock-fish.wikispaces.com/DDF_Comms_Review;

<http://ddftz.wikispaces.com/Papers+on+the+DDF+and+local+area+innovation+platforms>

¹¹ TDB initiated a DDF Whatsapp Group shortly after the reflection workshop to begin to address this shortcoming.

¹² Links related to assumption: <https://livestockfish.cgiar.org/2016/11/24/local-government-authorities-in-tanzania-commit-to-support-continued-growth-of-producer-groups-created-by-the-moremilkit-project/>
https://moremilkit.wikispaces.com/file/view/Moremilkit%20handing%20over_notes_final.pdf/600389828/Mo-remilkit%20handing%20over_notes_final.pdf

Overall evaluation

Participants listed the following as in response to where the MZ program is making the most effective contribution, where it is failing and desired immediate changes (Table 3).

Table 3: Overall evaluation

Question	<i>Where is MZ program making the most effective contribution to change: at what levels and why?</i>	<i>Where is the program failing to make progress as planned: at what levels and why?</i>	<i>Desired changes immediately</i>
Answers	a. Most effective change has been realized at the national level where the DDF has been able to mobilize members. However, the business opportunities that have emerged at the DDF have not been fully exploited by stakeholders.	a. DDF failing to mobilize all the necessary stakeholders to exploit emerging business opportunities b. The informal nature of DDF minimizes commitment and thus limits opportunities for enforcing recommendations from the platform c. The MZ program could do better in coordinating projects at local community level in order to tighten the research-development nexus	a. Further strengthen DDF via formalization of the platform b. Engage more directly and pro-actively with regional platforms to nurture them

Top priorities for MZ to consider for next cycle

Top priorities that emerged from the workshop for MZ partners to consider for its research and development efforts in the next cycle in 2017 and beyond were suggested as follows:

- Cascading the DDF to local levels and strengthening communication between the national and local levels;
- Further consultation on the need for and structure of a formally registered DDF and co-facilitating (with other stakeholders) its emergence
- Strengthening the capacity of Tanzania Dairy Board and Tanzania Milk Producers Association;
- Developing and implementing a strategy for sustaining the DMHs and related producer groups (roles for LGAs and NGOs in this);
- Scaling businesses around milk traders and linked producers; and,
- Promoting traders' associations to have a stronger voice.

It appears from the above list that the appropriate role for MZ R4D partners is to re-focus their energies towards resource mobilization to support agribusiness and developing and answering relevant research questions to facilitate growth of agribusinesses. The questions should bear in mind the outcome of assessments of assumptions in the current cycle. As already stated above we will assess how the assumptions that have been judged as FALSE have affected the program and their implications for adaptation of the pathway and new assumptions. The FALSE assumptions should be dropped going forward.

The revised ToC and change areas will be produced at the start of the new cycle.

Recommendations

The first reflection workshop has provided a number of observations from which we make the following recommendations:

1. It has been difficult to separate the 'WE' between researchers and development partners and their roles in the current ToC, given the close interactions and collegiality among the partners in program implementation. We recommend that the 'WE' henceforth be clarified as the research part of MZ (R4D partnerships) only, while the larger MZ or DDF with a wider array of development partners and value chain actors be seen as a broader partnership that the research component seeks to influence. MZ could facilitate the development of a separate but complementary ToC for a wider dairy development partnership that could be driven by the secretariat of the formalized DDF.
2. MZ to consider continuing to use the ToC approach for better planning and accountability on what it wants to change and influence through research towards achieving greater development outcomes and impacts. Attracting stable and flexible bilateral funding aligned to MZ objectives will be critical for this.
3. Alignment of the ToC with annual plans and reporting could be looked into with a view to consolidating planning and reporting at various levels.

Annex 1: Update on Context Analysis: Group discussions

Purpose: to reflect together on and highlight changes in contexts in Tanzania since ToC was developed in 2015. Each group was asked to identify up to five top issues (at local, national and international levels) that have changed and/or affected efforts of the program positively or negatively over the last year and for each, to note down how they have affected the program

Group	The issue	How they do/might affect the program	Level
1	Increasing natural resource conflicts (land, water and pasture)	Poor implementation of interventions (access to inputs, markets and services are affected) -	Local
	Increased dairy products imports	Threatens profits for value chain actors -	National
	Slow pace in infrastructure development (electric power, roads etc.)	Discourages investors due to higher costs of investment -	National, local
	Leadership changes	Ad-hoc implementation of rules and regulations which affects value chain actors -	All levels
	Staff changes in institutions	Affects project information flows -	Local, national, international
2	Increased improved breeds by pastoralists	Identify and mobilize strategic partners to be linked to emerging opportunities (input and service providers, milk aggregators etc.) +?	Local
	Launch of Livestock Master Plan	There is need for downward communication of the master plan to the local govt in order for it to impact planning and enhance realization of MZ goals +/-	Local, national
	Priority setting at the local govt authority	Priorities may target other sectors/sub sectors that do not contribute to MZ goals -	Local
	Climate change	Challenge to establishment of milk collection centres and input service provision systems; seasonality in milk supply and demand for services -	Global to local
	Formation of producer organizations	Increasing opportunities for more households to access markets, inputs and services +?	Local
3	Declining activity funding and incentives	Not enough resources to support the program on the ground and low morale -	Local and national
	Declining number of extension workers	Reduced effectiveness of available extension workers -	Local and national

	Advances in telephony	Easier to promote business linkages (but a national-database would help) +	Global, national and local
	SAGCOT catalytic trust fund	Importing dairy cattle for SAGCOT area through ASAS to pass on to producer associations to fill installed capacity +	National and local
	Government emphasis on commercialization or industrialization	Supports program aims +	National
	Support to growth of stakeholder association	To overcome narrow dialogue space +	
4	Steady rise in milk processing prior to 2016 but now on the decline because of taxation in processing sector	Reduced farm level production, exit of processors, but production was on the rise at first +	National and local
	Farm gate price reduced (cost of production by processors)	Reduced farm level production and exit of processors	National and local
	Better perception of producers (milk as a commercial commodity)	Increase farmer business orientation and use of inputs +	Local
	Govt recognition of economic importance of dairy in Tanzania	Trigger more investment to the sector (accelerated delivery of outputs) +	National
5	Merger of ministries into one MALF	Less attention (funding) to dairy sector by the govt.	National
	Land use planning by districts	Better targeting of cattle keepers. This enables program to support intensification +	Local
6	Competitiveness of dairy (milk prices regionally and internationally)	Barrier to entry into formal value chain, leads to low production at farm level as processor turns to cheap imports -	National
	Investment (bilateral, private)	Opportunities by private sector to invest in dairy e.g. UHT plants, medium and large scale dairy farms, banks e.g. covenant	Govt, local
	Political will	Positive impact on regional political support e.g. Tanga and Njombe regions	National
	Livestock Master Plan	Prioritization of dairy on livestock master plan. The govt is proactively seeking funds to invest in the dairy sector +	National
	New projects not integrated in the broader MZ objective	Missing contribution, duplication of efforts, confusing producers, lack of harmonized approach and conflicting objectives -	Local

Annex 2: Reflection on selected change areas

	ToC Change Areas					
Reflection question	#3: <i>Research and development partners contextualize approaches to meet needs of local men and women</i>	#5: <i>Processors, traders and service providers respond to business opportunities created in the hub</i>	#8: <i>Smallholder farmers access and experiment with gender-sensitive and relevant innovations including groups</i>	#10: <i>Dairy Development Forum (DDF) engages and mobilizes stakeholders effectively</i>	#11: <i>DDF members are aware of evolving opportunities for investment</i>	#13: <i>Local government includes hub development and gender issues into their plans and budgets</i>
What has changed/ is changing? For whom?	<ol style="list-style-type: none"> 1. Innovation platforms (IPs) are now institutionalized in NARS as an approach for engaging value chain actors in communities in pilot sites 2. IPs are emerging in other regions 3. Hub approaches being adapted elsewhere 4. NARS increasingly embrace participatory research/technology development with communities 5. Increasing joint (NARS-CGIAR) publications 6. Exchange of forage germplasm 7. Greater use of evidence in facilitating development pilots 8. Increase in number of trained and certified milk traders 	<ol style="list-style-type: none"> 1. Greater involvement of agro-pastoralists (e.g., Masaai) in milk selling 2. Financial institutions willing to provide credit to producer groups 3. Dairy processors willing to procure milk from producers in the hubs 4. Milk traders and input sellers are providing inputs and services to farmers 5. Tendency by service providers to free-ride, e.g., AI service provider expecting subsidy for liquid nitrogen from program 	<ol style="list-style-type: none"> 1. More women actively involved in dairy group activities and as milk traders. Also in leadership positions at the group 2. Replication of collective action by producers through own initiative 3. Uptake of new feed /improved forage varieties by producers and spill over to new villages/non project areas 4. Improved milk quality through use of quality milk cans 5. Men and women actors join and actively participate in the hub (as they see monetary benefits) 6. Farmer groups are able to articulate their demands from site specific plans (including extension) to support their enterprises 7. Farmers and service providers enter into contractual arrangements for increased access to inputs 8. Extension agents (public and private) offer more sustainable approaches to fit in with farmers changing demands e.g. tailored and bundled 	<ol style="list-style-type: none"> 1. Coordination role of TDB has been made more visible 2. Perception on issue of quality cows by farmers, policy makers etc. 3. Concept of a platform understood by national leadership in the ministry 4. Stakeholders are talking to each other (interacting, knowledge sharing) 5. Recognition of smallholder dairy farmers/producers 6. Raised expectations that cannot be met/implemented 7. DDF potential recognized by another project proposed to be formalized 	<ol style="list-style-type: none"> 1. Increased participation of producers 2. Better linkages between value chain actors and the government 3. Stakeholders are in the process of making the DDF more autonomous 4. Business opportunities are happening through the DDF 5. DDF is now a more diversified forum with various types of stakeholders 	<ol style="list-style-type: none"> 1. Inclusive research for development via platforms involving farmers and researchers 2. Increasing openness by LGAs to collaboration with researchers 3. Increased appreciation of the 15% allocation of livestock revenue to livestock development 4. Site specific plans have provided forums for villages/groups to engage LGAs 5. Establishment of peace committees to address land conflicts/development of land use plans
Evidence/ Examples?	<ol style="list-style-type: none"> 1. Increase in new projects using the IPs as entry points (e.g., ADGG) 2. EADD in southern highlands (facilitated through ADGG) 3. Innovation platforms set up by LGA in Mara region; in Babati district through Africa Rising; through IFAD/Heifer projects in Zanzibar/Rwanda 4. E.g., SUA staff, TALIRI, use of FEAST which is a participatory tool 5. E.g., TALIRI/CIAT/LRI publications 6. E.g., TALIRI, LRI, CIAT have exchanged germplasm 7. E.g., Faida Mali greater use of evidence within MZ and within other engagements (e.g., TOSCI on Sunflower seeds selection) 8. TDB continues to train and certify milk traders 	<ol style="list-style-type: none"> 1. Three men in Madoto and Mbwade villages decided to start milk collection and selling after receiving training on gross margin analysis 2. Covenant bank and Tanzania Agricultural Development Bank are exploring the possibility of extending credit services to producers in Lushoto district 3. ASAS Dairies Ltd engaged 5 producer groups in Mvomero and Kilosa districts; Shambani 4. Shambani Milk Graders Ltd contracted milk producer-cum-seller from Wami Sokoine to supply them with milk 5. Kadori Agrovets, Bw. Saidi Mbegu, Bw. Kingazi 	<ol style="list-style-type: none"> 1. Women are a majority in producer groups and hold leadership positions 2. Emergence of new groups e.g. Twatwata 3. Cases of IP villages in Lushoto and Manyinga Group 4. Mwangoi groups through Land o Lakes use cans to transport milk 5. Mangae group, men are selling goats taking advantage of the group as platform to collectively market the goats 6. Mwangoi Lobby land o lake on purchase of milk can, same group articulating need to be assisted in developing a business plan to assist them acquire a loan facility from covenant bank to purchase improved dairy cows 7. Over 50% of the producers groups have linkages with BDS, Mwangoi and Viti are experimenting on check off 8. Handeni, service provider bundling inputs e.g. Heat synchronization hormone and AI 	<ol style="list-style-type: none"> 1. Six meetings conducted, two working groups actively working (dairy genetics and feeds) 2. Increasing demand of quality cows 3. DDF held parallel with milk promotion week event 4. Wide range of participants in DDF meetings. i.e. Mary Tesha (a producer cum small-scale processor) following up on issues of feeds, using her own resources after DDF meeting 5. A dairy smallholder farmer being inspirational to others in Moshi DDF meeting 6. World bank engaged a consultant to start a dialogue to formalize DDF 	<ol style="list-style-type: none"> 1. An increasing number of producers in milk week 2. E.g. Government is using the DDF to link with some actors for financing through the Tanzania Agricultural Development Bank 3. This was emphasized in a meeting between TDB, WB (L-MIRA) 4. E.g. ASAS decided to visit some MZ sites (kilosa and Mvomero) and promised to set up cooling plants 5. At the start the forum (DDF) was mostly composed of only high level actors 	<ol style="list-style-type: none"> 1. Ubiri IP for forage research and dissemination of forages 2. A number of researchers supported by LGAs 3. Specific inclusion of this budgetary requirement (15%) in budgeting process in Kilosa 4. Field facilitation support occasionally 5. Budgets set aside for livestock improvement (AI in Lushoto; sensitization etc)
What exactly did MZ contribute to these changes?	<ol style="list-style-type: none"> 1. Through the DDF and interactions with TALIRI staff 2. MZ staff hired to facilitate IP in Babati 3. Integration if hub approaches in Ifad funded projects in Zanzibar/Rwanda 4. DDF supported EADD to start IPs in Southern highlands 5. Increased publications and meetings to share information 	<ol style="list-style-type: none"> 1. Funds (all changes) 2. Expertise (training in business management, contract management) Information (MZ wiki) 	<ol style="list-style-type: none"> 1. Mobilization of producers into groups 2. Linkages creation with BDS providers for over 50% of farmer groups 3. Capacity Building 4. Finance 5. Proactively targeting women by ensuring they are in producer groups and in leadership position 	<ol style="list-style-type: none"> 1. Capacity building of TDB staff on communication 2. Training and certification of milk handlers and traders 3. Increasing communication among stakeholders 	<ol style="list-style-type: none"> 1. Leading to No. 4: Technological support for business opportunities e.g site allocation, data, evidence and facilitation 2. Leading to all: Financial support to the DDF meetings 3. Leading to all: Conceptualization of the DDF idea 	<ol style="list-style-type: none"> 1. Maziwa Zaidi availed technologies and expertise that catalyzed platforms 2. Established linkages among actors 3. Facilitated formation of groups for technology dissemination 4. Capacity building for groups on governance to ensure sustainability 5. Establishment of an all-inclusive steering committee enabled feedback and information
Who/what else helped (+)/ hindered (-)? How?	<p>Helped</p> <ol style="list-style-type: none"> 1. General awareness about impacts and innovation (+) <p>Hindered</p> <ol style="list-style-type: none"> 1. Not all VC actors are available in IPs at local level (-) 2. Process for certification of seeds not in place (-) 3. Lack of feed centres/fodder markets (-) 4. Unclear procedures for immigration and import rules (-) 5. Not enough graduate students to engage in research (-) 	<p>Helped</p> <ol style="list-style-type: none"> 1. Tanga Dairy Cooperative Union – cap. dev for member cooperatives in Lushoto 2. ASAS Dairies Ltd. – facilitated study visit to its facilities by producer groups <p>Hindered</p> <ol style="list-style-type: none"> 1. Roads that are impassable, especially in the dry season, make it difficult to collect milk 2. Land conflicts hindered the operations of some farmer groups and IPs before the IPs were used to address the conflicts in some cases 3. Worsening climatic conditions with longer droughts hence transhumance 	<p>Helped</p> <ol style="list-style-type: none"> 1. Land O Lakes (milk cans bulk breaking) 2. Private sector (Inputs) 3. MILKIT project 4. TALIRI 5. Local Government (capacity building and Resources) <p>Hindered</p> <ol style="list-style-type: none"> 1. Culture (in Extensive system producers did not adopt improved forage varieties as they had never grown even food crops 2. Misconception of project goals (producers expected tangible asset transfer) 	<p>Helped</p> <ol style="list-style-type: none"> 1. Enabling environment (government policies, strategies and programs) 2. Govt ministers are keen interest to ensure that issues coming from the DDF are addressed 3. Sharing of information among DDF members 4. Government interventions to improve AI delivery services by rehabilitating AI centres <p>Hindered</p> <ol style="list-style-type: none"> 1. Lack of or little financial contribution by LGAs 2. Expectations of private sector stakeholders for quick wins not met 	<p>Helped</p> <ol style="list-style-type: none"> 1. TDB as a secretariat supporting the DDF 2. Processors' are looking for more milk 3. Changes in staff and leadership at TDB may bring new ideas and fresh energy <p>Hindered</p> <ol style="list-style-type: none"> 1. Lack of efficient strategy to communicate DDF activities 2. Absence of linkages between DDF at national level and the lower local area IPs 3. Village-level IPs are non-functional in some areas (extensive areas) 4. Changes in staff and leadership at TDB may cause lack of continuity 	<p>Helped</p> <ol style="list-style-type: none"> 1. Expansion of milk collection networks by processors <p>Hindered</p> <ol style="list-style-type: none"> 2. Low prices from the milk processors tend to demoralize milk producers 3. Tax policy that encourage importation of powdered milk 4. Competition by processors leading to competitive milk prices to the producers
What are MZ most useful effective contributions & ways of working in relation to these changes? Why?	<ol style="list-style-type: none"> 1. Enhanced collaboration and trust among partners 2. Increased knowledge sharing among partners 3. Increased use of MLE among partners 4. Engaging and building the capacity of VC actors besides producers 	<p>Expertise, because DMHs a new concept for dairy development in Tanzania</p>	<ol style="list-style-type: none"> 1. Capacity building of producers, traders (collectively access inputs, create awareness on opportunities in dairy) 2. Linkage facilitation (input and output) (business arrangement to create sustainability of access of inputs and Markets 3. Inclusion of women in dairy beyond production as group leaders and milk traders 	<ol style="list-style-type: none"> 1. Multi stakeholders engagement and synergy 2. Improvement of communication among stakeholders (TDB website and communication strategy) 3. DDF national to have stronger linkages at the lower levels. 	<ol style="list-style-type: none"> 1. MZ having a project focusing on creating business opportunities 2. MZ having a project focusing creating lower level platforms (villages) for technologies 	<ol style="list-style-type: none"> 1. Formation of groups as an avenue for technology dissemination 2. Groups are also sustainable for continued benefits beyond projects 3. Linkage among actors as a platform for sharing and co learning

Were there other better ways the program could have achieved changes? What? How?	1. More students to get more research done + capacity building 2. Enhanced communication among partners 3. Availability of complementary funding at LGAs 4. More predictable funding for longer durations 5. Engagement in selling our approaches to existing and potential partners	Yes – earlier involvement of milk traders and processors and service providers in hub formation	1. Communication strategy to better deliver the message on project goals 2. There was need to have a field coordinator at a lower level e.g. district to constantly engage the producers and monitor their progress	1. Capacity building of TAMPRODA could have brought positive changes, this was not done 2. Invite more stakeholders-smallholder farmers, traders in project meetings 3. DDF at district levels IP meetings are too adhoc. If it is formalized then meetings can be more structured.	1. Improving the capacity of lower level platforms in terms of leadership skills and resource mobilization 2. Mechanisms for sustainable financial contribution from MZ and MZ partners (cost sharing strategy)	1. Collaborate with LGA and national government to improve infrastructure expanded network for milk aggregation 2. Wholesome technology dissemination (including breeding) to increase overall productivity (long term)
Assumptions	1. Promoted approaches are appropriate for smallholder farmers. 2. Partners engage in a concerted manner to achieve their objectives and have flexibility to test alternative approaches that the MZ program entails	Value chain actors are behaving competitively, are maximizing profit and there are no information asymmetries	Groups not involved in collective bulking and marketing of milk are able to meet farmer needs	The DDF is the right modality to drive the chain	DDF effectively communicates emerging investment opportunities	Commercial milk production and gender issues are considered by district authorities a priority in efforts to alleviate food and nutrition insecurity and in improving household incomes
Assumption judged true or false and reasons/comments	1. TRUE. Comments: a) appropriate entry points identified by production system; b) TOC would not hold if this assumption does not hold 2. MIXED: Comments: Mixed because different partners are affected differently; e.g., non-governmental partners' organizations have flexibility while government is restricted in some cases (e.g., interactions with donors); bureaucratic contracting between partners; frequent consultations have ensured synergy	FALSE. Comments: Significant information asymmetries exist because value chain agents are yet to build trust among themselves (information asymmetry is a major cause of poorly functioning markets and a major reason for Maziwa Zaidi intervention).	FALSE. Comment: Groups not involved in collective marketing have not been able to meet the needs of the producers. Instead, Maziwa Zaidi has had to establish input provision to groups through a business arrangement revolving around a milk trader (currently involved individual producers)	MIXED Comment: The informal nature of the DDF was questioned as to whether it is appropriate for advancing policy advocacy for the dairy industry. It has so far been good in raising awareness for advancing policy advocacy for the dairy sector, there is need for formalization. Question: What legal status DDF should take? Consider pros and cons	FALSE. 1. A communication strategy is not in place yet DDF is all about communication 2. It is not just about a strategy but about whole range of communication mechanisms 3. Actors need to be more proactive in making what they do more known within the DDF 4. Need to engage many stakeholders for business opportunities to be realized 5. The DDF should be able to provide a mechanism that is based on solving real problems. Meetings should be based on value: "what is in there for me?". It should not just be meeting but the frequency should also be prioritized 6. Meetings should not just be physical but also taking advantages of emerging communication platforms 7. Forum should create more realistic expectations for instance communicating more success stories and emerging opportunities.	TRUE (in relation to departmental plans but budgets are limited) 1. Women bear the greatest burden in milk production yet they have less control in relation to commercial dairy. They are also largely in charge of household food decision, targeting them in dairy intervention would therefore impact on food security 2. Most smallholder have limited commercial orientation so there is need to encourage such households to commercialize dairy production to realise more household income
Overall analysis of this change area in relation to the program as a whole. Scores: Early stages = 1; Emerging changes=2; Established change=3; (Very) significant changes have taken place=4	2.5 (emerging - established changes)	2 (emerging changes)	3 (established changes)	2 (emerging changes)	2 (emerging changes)	2 (emerging changes)
Reasons for score / peer review comments	Some group members scored 2 given that changes on the ground are not established, while others scored 3 pegged on 'contextualization' that is established among most partners.			Ranking is 2+ because quite some work has been done Q: what legal status can DDF take? Understand the pros and cons. Comments: 1. WB/BMFG L-MIRA project is engaging a consultant to find out if/how DDF can be formalized and how 2. Linkages with other levels –DDF at national, regional, district levels 3. Participation of smallholder farmers in advocacy 4. Did DDF make any attempt on this? Need for inclusive platform with smallholder farmers in it. 5. Formalization will enable more stakeholders		
Links related to assumptions	http://livestockfish.cgiar.org/2015/10/26/dbh-tanzania/	https://cgspace.cgiar.org/handle/10568/65162 https://cgspace.cgiar.org/handle/10568/64462	https://cgspace.cgiar.org/handle/10568/71120 https://livestockfish.cgiar.org/2016/02/25/moremilkit-update/ https://livestockfish.cgiar.org/2016/11/03/moremilkit-producer-groups/ https://livestockfish.cgiar.org/2016/07/22/tanzania-milk-business/	http://odtz.wikispaces.com/Papers+on+the+DDF+and+local+area+innovation+platforms	http://livestock-fish.wikispaces.com/DDF+Comms+Review http://odtz.wikispaces.com/Papers+on+the+DDF+and+local+area+innovation+platforms	https://livestockfish.cgiar.org/2016/11/24/local-government-authorities-in-tanzania-commit-to-support-continued-growth-of-producer-groups-created-by-the-moremilkit-project/ https://moremilkit.wikispaces.com/file/view/Moremilkit%20handling%20over+notes+final.pdf/600389828/Moremilkit%20handling%20over+notes+final.pdf

Annex 3. List of participants and organisations that they represent

Name & email address	Job title	Organization	Category
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32. Liundi, Beauty <B.Liundi@cgiar.org>	Admin/logistics:	ILRI/IITA	
33. Maureen O'Flynn <maureenoflynn4@gmail.com>			Facilitator



Annex 4. Grouping of participants for reflection exercise

Change area	Group members
<p>#3: Research and development partners contextualize approaches to meet needs of local men and women</p> <p><i>Facilitator: Amos Omoro</i></p>	<p>Tom Sillayo Birthe Paul Julius Bwire Osarya, Johannes</p>
<p>#5: Processors, traders and service providers respond to business opportunities created in the hub</p> <p><i>Facilitator: Edgar Twine</i></p>	<p>Adolf Mushi, Nisefori Mkwama Irene Bayiyana Lukuyu Margaret</p>
<p>#8: Smallholder farmers access and experiment with gender-sensitive and relevant innovations including groups</p> <p><i>Facilitator: Julius Githinji</i></p>	<p>Eline Nkya, Leonard Herman Celestine Munyaneza Daniel Kangogo</p>
<p>#10: Dairy Development Forum (DDF) engages and mobilizes stakeholders effectively</p> <p><i>Facilitator: Aichi Kitalyi</i></p>	<p>Henry Njakoi, Nelson Kilongozi, Anunciate Njombe, Lusato Kurwijila</p>
<p>#11: DDF members are aware of evolving opportunities for investment</p> <p><i>Facilitator: Michael Kidoido</i></p>	<p>Mayasa Simba, Mary Nkwabi Ben Lukuyu Isabelle Baltenweck</p>
<p>#13: Local government includes hub development and gender issues into their plans and budgets</p> <p><i>Facilitator: James Rao</i></p>	<p>Yuda Mgeni Sekiara Kiariro Elizier Moses Nsanya Ndanshau</p>

NB: the facilitators switched around the groups for different reflection exercises