



Enabling poor rural people
to overcome poverty

BILL & MELINDA
GATES *foundation*



Design Paper

for the impact evaluation of the
Root & Tuber Improvement & Marketing Program (RTIMP)

Participatory Impact Assessment & Learning Approach (PIALA)
developed with support of IFAD and BMGF

Adinda Van Hemelrijck (IFAD)

Glowen Kyei-Mensah (PDA)

(December 16, 2014)

Desk review and consultations by PDA:

Essi Haffar

Irene Dinye

Kobby Optson

Nana King

Atugba Efe

Bismark Dzahene-Quarshie;

Alando Bernard

Jonathan Anaglo

Sampling and Design support:

Irene Guijt

Andre Proctor

Steff Deprez

Anthony Amuzu

Table of Contents

Summary	3
Abbreviations	4
1 Participatory Impact Assessment & Learning Approach (PIALA)	6
2 RTIMP Theory of Change (ToC)	7
2.1 Articulation of the RTIMP ToC.....	7
2.2 RTIMP ToC Diagram.....	9
3 Data collection matrix.....	10
4 Sampling strategy	15
5 Selection and nesting of methods	16
5.1 Household Survey	16
5.2 Generic Change Analysis	17
5.3 Livelihood Analysis.....	18
5.4 Constituent Feedback.....	18
5.5 Semi-Structured Interviews with Key Informants	19
5.6 Participatory Sensemaking	19
6 Data collation, quality monitoring and aggregated analysis	19
7 Timeline	21
Bibliography and references.....	22
Annex I: Desk review note	25
Critical Issues affecting Impact and Scalability.....	25
Cluster 1: Commodity Chain linking.....	25
Cluster 2: Enhancement of R&T production.....	28
Cluster 3: Enhancement of R&T processing businesses.....	29
Management and coordination.....	31
Conclusion	32
Annex II: Sampling frame and procedure.....	33
Annex III: Field research schedule	35
Annex IV: District data collation table	38
Annex V: Approved budget.....	41

Summary

1. This document lays out the design of the impact evaluation of the Root & Tuber Improvement and Marketing Program (RTIMP) in Ghana that was executed by the Ministry of Food and Agriculture (MoFA) of the Government of Ghana (GoG) from 2007 until end of 2014. The RTIMP was co-financed for 59% of its total budget by the International Fund for Agricultural Development (IFAD) through a loan of USD \$ 18.96 million¹. The impact evaluation is commissioned jointly by the IFAD Country Office (ICO) and the MoFA, and will use the **Participatory Impact Assessment & Learning Approach (PIALA)** that is developed through the **Improved Learning Initiative (ILI)** of IFAD and the Bill & Melinda Gates Foundation (BMGF).

2. Following the official procurement procedures of IFAD and the GoG, Participatory Development Associates (PDA) have been contracted to conduct the impact evaluation. This design was headed jointly by IFAD's leading evaluation consultant, Adinda Van Hemelrijck, and PDA's managing director and research coordinator, Glowen Kyei-Mensah, and developed based on a consultative design, desk review and field testing process conducted by PDA's research team. Furthermore, important inputs were provided on the sampling by Anthony Amuzu from the Ghana Statistical Service (GSS), on the participatory methods by Irene Guijt, Andre Proctor and Steff Deprez from the PIALA design team, and some of the design aspects by evaluation and gender/youth experts from IFAD who are part of the PIALA design support team.

The impact evaluation will be conducted nation-wide and full-scope with an approved total budget of USD \$232,828 to produce credible evidence of the RTIMP's contributions to eradicating rural poverty in rural Ghana. The evaluation precedes and thus informs completion of RTIMP and the start-up of the GASIP². Focus and scope was determined based on a reconstruction of the program's Theory of Change (ToC) through a process of desk review and consultations with stakeholders, for which a Consultative Design Workshop was organised in Kumasi on 12 October 2014.³

3. Aiming at improving rural poor people's livelihoods in Ghana through the development of commodity chains for Roots and Tubers (R&T) supplied by smallholders, the RTIMP consisted of three main areas of work: a) linking of smallholders to old and new markets; b) enhancing smallholder R&T production; and c) enhancing smallholder R&T processing. While the production component was started much earlier in the Roots and Tuber Improvement Program (RTIP)⁴ that preceded the RTIMP, interventions related to enterprise funding and market-linking were added under RTIMP, some of which became effective country-wide only after the 2010 Mid-Term Review. The main reference period for evaluating the interplay between the three program components therefore will be the last 5 years (2010-2014) of program implementation, while the first two years after the RIMS baseline (2008-2009) will be considered as merely a start-up phase. The focus will be on the four types of commodity chains developed in past 5 years, which are: Gari, High Quality Cassava Flour (HQCF), Bonding Cassava Plywood (BCP) and Fresh Yam Export (FYE). The 2008 RIMS baseline forms the formal reference point for comparison of findings regarding the effects of enhanced R&T smallholder production on rural livelihoods and poverty status.

4. The content of this design paper is as follows. The first section briefly describes the impact evaluation approach called PIALA. The second section presents the RTIMP Theory of Change (ToC). The third section continues with the Data Collection Matrix (DCM) laying out the assumptions, evaluation questions and methods. The fourth section presents the multi-stage sampling strategy. The fifth section provided an overview of the methods used to inquire the various populations at different levels. The sixth section outlines the approach taken for data collation, quality monitoring, contribution analysis and rating. Finally, the last section shows the timeline for the evaluation. A bibliography, list of references and annexes are added at the

¹ Cf. IFAD Loan No. 670, Program ID 1312.

² Ghana Agricultural Sector Investment Program.

³ The participants in this workshop have been invited to further take part in the evaluation's Core Learning Partnership (CLP). These include: These include: the national and zonal RTIMP coordinators and senior staff, members of the RTIMP Steering Committee, the IFAD country program manager and senior staff, IFAD's supervision and evaluation consultants, MoFA national and regional directors and officers, and representatives of the participating financial and research institutions, the SCFs and TREND. The outcomes of the consultative design workshop has been integrated in the design presented in this paper, while a report on the workshop proceedings is available separately. The desk review note is included in Annex 1.

⁴ The RTIP focused primarily on cassava research and development. The RTIMP extended this focus to other roots and tubers and added a strong marketing component designed to improve poor farmers' access to food and income.

end. The annexes include the desk review note, the sampling frame and procedure, the field research schedule, the district data collation table, and finally, the approved budget.

Abbreviations

ADVANCE	Ghana Agricultural Development and Value Chain Enhancement Program
AMSEC	Agricultural Mechanisation Service Centre
ARB Apex Bank	Association of Rural and Community Banks
ASAP	Adaptation for Smallholder Agriculture Programme
BAC	Business Advisory Centre
BOG	Bank of Ghana
CSIR	Council for Scientific and Industrial Research
DADU	District Agricultural Development Unit
DDA	District Development Assistants
DDO	District Development Officer
DFR	Department for Feeder Roads
DOC	Department of Cooperatives
DSF	District Stakeholder Fora
ERB	Enterprise Record Book
FASDEP II	Food and Agriculture Sector Development Policy
FBB	Farmer's Business Book
FBO	Farmer Based Organization
FFF	Farmer Field Forum
GASIP	Ghana Agriculture Sector Investment Programme
GLDB	Grains & Legumes Development Board
GLSS	Ghana Living Standards Survey
GOG	Government of Ghana
GPC	Good Practice Centers
GRATIS	Ghana Regional Appropriate Technology Industrial Service
GSA	Ghana Standards Association
GSA	Ghana Standards Authority
GSS	Ghana Statistical Service
ICO	IFAD Country Office
IEC	Information Education and communication
MEF	Micro Enterprise Fund
MG	Matching Grant
MGF	Matching Grant Facility
MLGRD	Ministry for Local Government and Rural Development
MOAP	Market Oriented Agriculture Development Programme

MOFA	Ministry of Food and Agriculture
MOTI	Ministry of Trade and Industry
NIB	National Investment Bank
NORPREP	Northern Region Poverty Reduction Programme
NRGP	Northern Rural Growth Programme
PCU	Programme Coordination Unit
PFI	Participating Financial Institution
PPMED	Policy, Planning, Monitoring and Evaluation Division
R&T	Root and Tuber
RADU	Regional Agriculture Development Unit
RAFiP	Rural & Agricultural Finance Programme
RCB	Rural and Community Bank
REP	Rural Enterprise Programme
RIMS	Results and Impact Management System
RTIMP	Root and Tuber Improvement and Marketing Programme
SCF	Supply Chain Facilitators.
SME	Small and Medium Enterprise
SRID	Statistical Research and Information Directorate of the MoFA
VCF	Value Chain Facilitator
WAAP	West African Agriculture Programme
WEAI	Women's Empowerment in Agriculture Index
ZOC	RTIMP Zonal Office Coordinators

1 Participatory Impact Assessment & Learning Approach (PIALA)

5. IFAD's commitment to moving 80 million people out of poverty require rigorous assessment of contributions of its co-funded programs to eradicating rural poverty, and enhancement of learning and responsibility among its partners. For this IFAD has put in place a *self-evaluation system*. PIALA is developed to strengthen this self-evaluation system. It seeks to do so by helping IFAD and its partners to ***collaboratively assess, explain and debate*** program contributions to rural poverty impact in a way that feeds strategic planning, policy change and improvements in targeting and management towards achieving greater impact. Although initially designed for summative impact evaluation⁵, PIALA can be integrated with program design, coordination and M&E and is most useful in more complex and transformative development programs involving multiple partners.

6. An impact evaluation using PIALA is expected to facilitate participation of program partners and stakeholders in its design, data collection and analysis and at the same time also produce rigorous quantitative and qualitative evidence of contributions to rural poverty impact. In the context of IFAD-funded projects and programs, such impact implies significant and sustainable changes in rural poor people's capability to overcome poverty, requiring *systemic* changes in capabilities, relationships, policies and institutions.⁶ PIALA therefore searches for evidence of impact in terms of both the *positive* and the *negative, intended* and *unintended, primary* and *secondary* effects of a program, *directly* or *indirectly* contributing to such systemic change.

7. To address the challenge of rigorously assessing and learning about program contributions to impact from a systemic change perspective, PIALA draws on:

- A generic impact framework that links IFAD's standard rural poverty indicators (measured in a gender & generation disaggregated manner) to capitals and relationships (incl. women's and young-adults' access, ownership & leadership) and changes in policies and institutions (incl. gender & generation-sensitivity)⁷;
- A dynamic Theory of Change (ToC) approach that helps visualize the presumed systemic change pathways, map out program contributions among broader influences on impact, and identify the assumptions underneath;
- Multi-stage sampling that permits inquiring the effects of different (with/without) configurations of program mechanisms on different types of populations at different levels (incl. households, communities, market-bounded systems⁸, policy & administration units, and countries);
- Nested mixed-methods for collecting quantitative and qualitative data on different populations, using participatory processes and triangulation techniques to probe for unexpected changes/effects, discover patterns and overcome bias;
- A participatory sensemaking model using a contribution analysis logic that allows for extensive cross-validation of evidence at different levels of inquiry, which serves as an alternative for counterfactual analysis in complex and political evaluation contexts;
- Integrated qualitative-quantitative data analysis that looks at the evidence on each causal link in the ToC to arrive at a credible estimation of program contributions.
- A standardized data collation and reporting approach presenting the evidence of cascading changes and causes following the ToC *backwards* from rural poverty impact to program mechanisms.

⁵ This is impact evaluation at program completion to understand total contribution made to impact on rural poverty.

⁶ Cf. IFAD's mission on: <http://www.ifad.org/governance>.

⁷ PIALA's generic impact framework was developed and agreed with the IFAD design support of sponsor group in Rome in October 2012 and was included in the overall PIALA research strategy (IFAD, 2013). It is line with IFAD's Results- & Impacts Measurement System (RIMS) and Women's Empowerment in Agriculture Index (WEAI).

⁸ IFAD has an explicit hypothesis around empowering rural poor households and groups as *economic* actors in market systems, by developing market-related services and enhancing people's capacity to access those services. Hence 'market-bounded systems' form an important second stage of sampling to capture influences on the livelihoods of economic actors bound together by linked market transactions and supply chain activities. Identifying and sampling market-bounded systems is done based on: (a) a clear definition of 'market-bounded system' in the context of the IFAD program under consideration; (b) a mapping of the systems that are within the influence of the program; and (c) a representative selection from the 'average' systems in each agro-ecological and administrative zone.

8. To assess and enhance the quality of an impact assessment using PIALA, reflections will be held with participants, researchers and sponsors in various occasions at various levels using the following three quality dimensions:

- **Rigour** –referring to the consistency and reliability of the mixed-methods approach;
- **Inclusiveness** –referring to the credibility of evidence incorporating different stakeholder perspectives;
- **Feasibility** –referring to evaluation capacity and budget needed to deliver the expected outcomes for accountability, advocacy & learning purposes, and the extent to which the approach is cost-effective and can be used in different contexts;
- **Ethics** –referring to equitable voice and reciprocity in field interactions and validation processes.

2 RTIMP Theory of Change (ToC)

9. The process of reconstructing and articulating the Theory of Change (ToC) of RTIMP began with a desk review of program documents and other relevant reports. An initial draft was presented in a one-day consultative design workshop with program stakeholders on 12th of November 2014 in Kumasi to verify the causal claims and assumptions, identify external influences, and improve and validate the theory of change diagram. A core Incl. leaders and senior staff from RTIMP, MOFA, ICO, the national service-providers and main off-takers (industries and exporters) of the 4 commodity chains.

10. The RTIMP ToC diagram that came out of this process is presented in Subsection 2.1 while a short description is provided in Subsection 2.1.

2.1 Articulation of the RTIMP ToC

11. The goal of RTIMP is to enhance income and food security by improving the livelihoods of the rural poor and build market-based systems generating profitability at all levels of the commodity chains. The focus is on R&T-based livelihoods. The program's change theory to realize this goal, as reconstructed from the desk review and stakeholder consultations, is as follows.

12. RTIMP is based on an 'inclusive value chain development' rationale that implies: (a) improvement and growth of small R&T production and processing businesses, and (b) the linking of these local supply actors to old and new commodity markets. The RTIMP sought to enable resource-poor farmers and processors to seize new business opportunities emerging from these markets and develop strong local supply chains that would make Ghana's R&T commodity chains a strong driver for sustainable rural-economic growth. Through the development of these local supply chains, it was assumed that livelihoods would improve to the extent that rural poor people living in the R&T catchment areas, and by extension in entire rural Ghana, would become food and income secure. To arrive at this, RTIMP focused on enhancing smallholder production, processing and market-linking as the three main program intervention components.

13. By gradually commercialising and linking smallholders' production and processing businesses, supply chains would be formed that effectively can meet old and new market demands. Access to improved technologies, certified seeds and standardized equipment was expected to sufficiently increase production quality and quantity to trigger this change process. Access to business training and financing and exposure to good practices would enable smallholders to develop profitable businesses and accelerate the growth of smallholder economies at scale. To trigger and enable these change processes, the RTIMP has piloted and put in place following mechanisms that will be scaled up in the next GASIP program:

- Establishment of District Stakeholder Forums (DSF) to address supply and demand and technical problems of supply chain actors;
- Supply Chain Facilitation (SCF) and linking to larger and new markets with the aid of a small initiative fund;
- Establishment of Farmer Field Forums (FFF) for involving resource-poor farmers and seed growers in field-testing and demonstration of improved seeds and technologies and developing a basis for farmer organization and commercialization;
- Co-financing of resource-poor supply chain farmers and processors through the establishment of a matching grant with the support of a Micro-Enterprise Fund (MEF);

- Establishment of Good Practice Centers (GPC) for demonstrating and promoting good processing, quality management and business development practices, using standardized equipment;
- Information, Education and Communication (IEC) to inform about the R&T commodity chain support services for resource-poor farmers, seed multipliers and processors and engage them in program activities.

14. This ToC is based on the overarching assumption that livelihoods and poverty status in rural Ghana can be improved by commercializing smallholder R&T production and processing businesses combined with the development of competitive market-driven and inclusive supply chain linkages in selective R&T commodity chains. This considers the RTIMP's overall **impact claim**. The assumptions underneath each of the 3 program components constitute the program's three main **contribution claims** that need to be evaluated in relation to this impact claim, which are presented in the Data Collection Matrix (DCM) in Section 3.

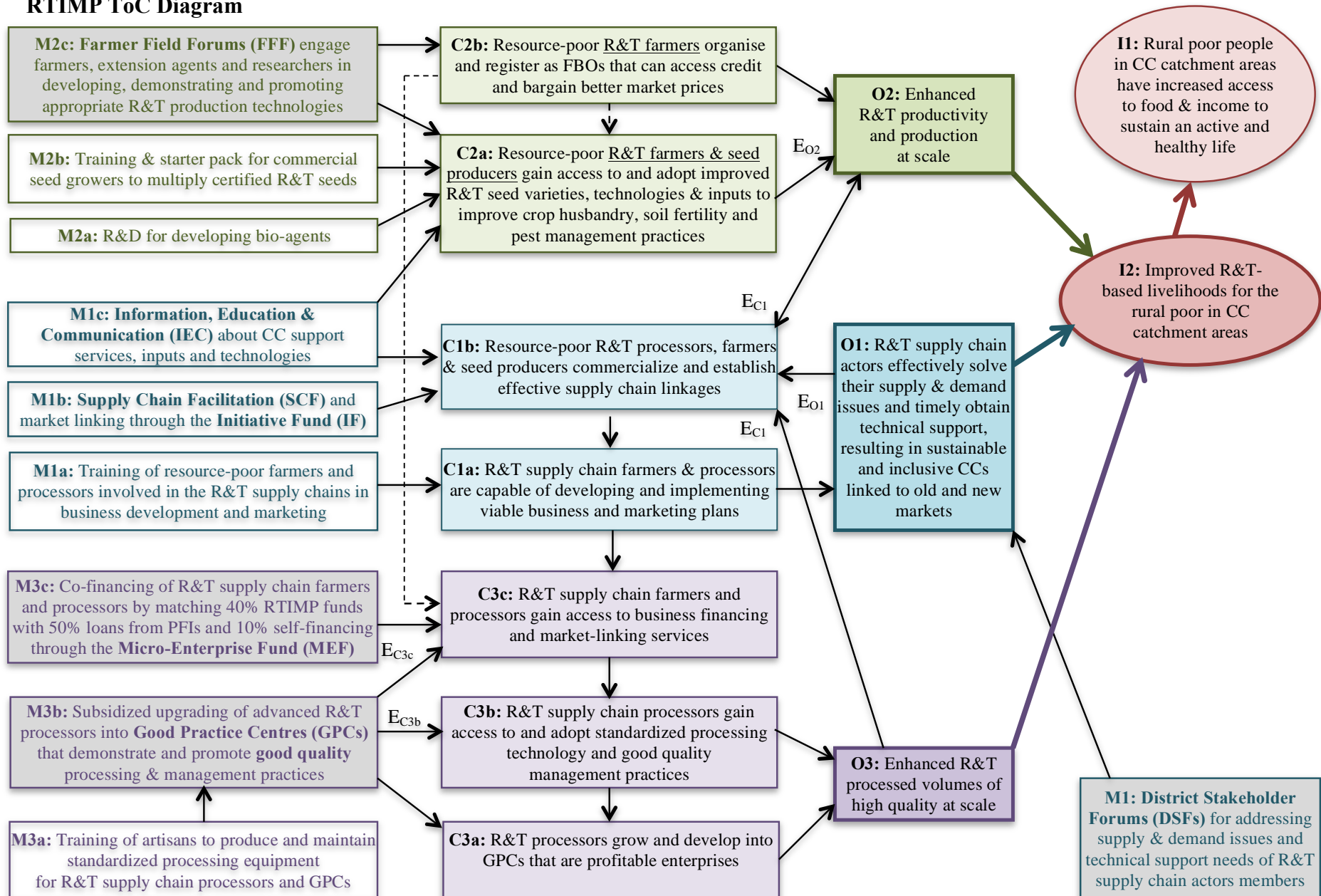
15. The changes and causes in the ToC diagram are coded to enable identification of methods and processes for data collection on each of the links between these. The numbers in the codes correspond with the program components; while the letters reflect the type of cause or change: 'I' depicts the impacts, 'O' the outcomes, 'C' the intermediate changes, 'M' the program mechanisms, and 'E' the external influences.

16. Important external influences that likely have affected the outcomes of RTIMP, identified by the participants in the consultative design workshop and indicated⁹ as 'E' in the ToC diagram (on the next page), include:

- **E₀₁**. *The provision of infrastructure in the form of feeder roads by the Central Government and District Assembly.*
- **E₀₂**. *Policy inconsistency related to free seed distribution that had a negative effect on commercialised seed production and marketing, and consequently on increasing smallholders' R&T production.* Resource-poor farmers received small amounts of free planting materials sufficient to sustain in their food needs yet insufficient to commercialise, making them aid dependent and undermining incentives for developing a market-oriented approach. Also RTIMP distributed certified seeds freely in its early start-up years, until 2010 when the Program Mid-Term Review recommended a commercialisation of certified seed multiplication and distribution supported by the Good Practice Centres. Between 2010 and 2012 a transitioning took place, in which free seed distribution coincided with commercialised production and sales. Only from 2012 free distribution by RTIMP has stopped. Other programs such as WAPP have continued distributing free planting materials.
- **E_{C1}**. *Steady improvement in policy and change in discourse from R&T subsistence farming to commercialisation, with climate change negatively affecting and threatening this trend.* Prior to RTIMP, cassava was considered as merely a food sufficiency crop. By focusing on increased production and market-linking, RTIMP has created a change in perception and moved away from free hand-outs and government subsidies. Parallel successful initiatives by private actors have increased the demand for cassava by breweries and other consumers such as Guinness and DADTCO. All this had a positive influence on the commercialisation of the R&T production in Ghana, and created the conditions for the GASIP. On the other hand, climate change has negatively effected and continues threatening the enhancement of R&T production and development of commercial R&T supply chains. Interventions addressing the challenges related to climate change have been introduced only later on in the program lifetime, thus likely will have had little impact.
- **E_{C3b}**. *Influence of the IFAD-funded Rural Enterprise Programme (REP) on the Micro Enterprise Fund (RTIMP's second component).* REP has built the capacities of the Participating Financial Institutions (PFIs) and their local branches (e.g. in loan appraisal and disbursement techniques).
- **E_{C3c}**. *Lack of regulatory procedures and institutions needed to ensure proper regulation and quality enhancement of R&T production and processing to meet new market standards.*

⁹ The codes in subscript correspond with the changes and outcomes in the ToC diagram that were affected by these external influences. Not all influences that were mentioned in the workshop are listed here. Only those that should be taken into account in the value judgements of program contributions have been included. The evaluation will further probe for other possible influences.

2.2 RTIMP ToC Diagram



3 Data collection matrix

17. The Data Collection Matrix (DCM) outlines the main evaluation & learning questions relative to the hypothesis and assumptions of each of the impact and contribution claims in the ToC. These questions were selected and agreed by the participants in the consultative design workshop to guide and focus the impact evaluation. Furthermore the DCM also identifies the methods that are used for data collection at each level of inquiry relative to each of the causal links in the impact and contribution claims of the RTIMP ToC. The selection and nesting of methods is described in [Section 5](#).

18. The causal links are listed in the left column of the DCM. The middle columns present the methods and processes for each level of inquiry (incl. household level, community cluster level, district level, and zonal/national level). The right column summarizes the sampling approach for each claim. The sampling strategy is described in greater detail in [Section 4](#).

Impact Claim - Poverty reduction

Hypothesis:

[Enhanced smallholder R&T production and processing at scale] + [Sustainable and inclusive CC market linkages]
=> Improvement livelihoods and poverty reduction in rural Ghana

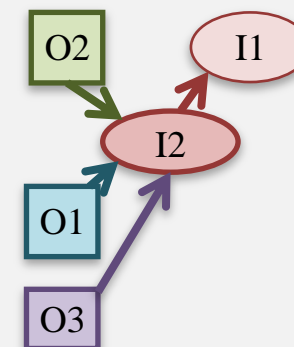
Assumption:

- *Livelihoods and poverty status in rural Ghana can be improved by commercializing smallholder R&T production and processing businesses combined with the establishment of competitive market-driven and inclusive CC linkages.*

Evaluation/learning question:

- *To what extent and for whom does this assumption hold true (or not) and under which conditions? Does it hold true for resource-poor women and youth/young adults in remote rural areas? What conditions need to be changed to enable women and young adults overcome cultural and socio-economic barriers?*

Evaluation focus: *livelihoods improvements and secured access to food and income, particularly for women and youth/young adults*



Causal link	Household level	Community cluster level	District level	Zonal & national level	Sampling approach
I2→I1	HH survey (with households in the the supply chain catchment area)			Review of the 2010 Ghana Living Standard Survey report and other relevant secondary data ¹⁰	Stratified sampling of 30 households from the community clusters in each sampled district
O3+O2+O1→I2		Generic change analysis (in gender/age-specific focus groups of community members from the supply chain catchment area)		Review of RTIMP RIMS baseline and other M&E data	Stratified sampling of community members from the community clusters in each sampled district

¹⁰ E.g. from the Ghana Statistical Service, Food and Crops Research Institutes (CSIR), FAO, WB, UNDP, etc.

Contribution Claim of Component 1 – Market linking

Hypothesis:

[Promotion and facilitation of R&T supply chain linking of resource-poor farmers and processors]

+ [Business capacity-building of R&T supply chain members]

=> Development of sustainable market-driven & inclusive CC => Improvement of R&T-based rural livelihoods

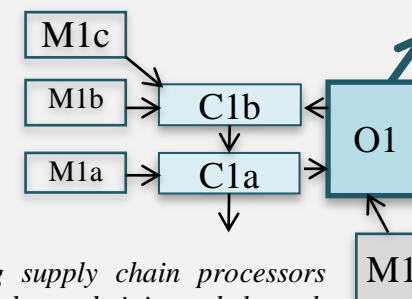
Assumptions:

- Sustainable and inclusive CC linkages can be established by building business and marketing capacities among supply chain processors and farmers and creating a platform where they can discuss these needs and demands. These platforms (or DSFs) are best administered through collaboration between MOFA and MOTI (NBSSI/BAC/GRATIS) decentralised structures in the districts.
- More resource-poor farmers and processors (incl. women and youth/young adults) will participate in the DSFs and sign up for market-linking support services if they sufficiently increase their production quantity and quality and are sensitized about the benefits and opportunities.

Evaluation/learning question:

- To what extent do these assumptions hold true (or not)?
- What enables or thwarts DSFs to become viable “chambers of commerce” –i.e. member networks that serve as private business linking and market-information platform empowering buyers, producers and processors (incl. women and young adults) to address their demand & supply issues independently?
- What are the main barriers to linking resource-poor farmers and processors (incl. women and young adults) to old and new R&T commodity markets? What conditions need to be in place to help them overcome these barriers? What is missing (e.g. certification, packaging, tracability, market prospection)?

Evaluation focus: linkages with old & new markets; CC inclusiveness (incl. women and youth/young adults); reach & benefits of participation in DSFs



Causal link	House-hold level	Community cluster level	District level	Zonal & national level	Sampling approach
C1a+(M1)→O1 C1b+M1a→C1a		Review of DDA reports Constituent feedback (with mixed groups of (non-)DSF participants)	KIIs with DDAs, BACs and supply chain leaders (SMEs, GPCs, aggregators and exporters)	KIIs with Supply Chain Facilitators (SCF) and the off-takers (industries, food traders...)	Proportional sampling of 20 districts in the catchment areas of the 4 types of commodity chain across the 3 main agro-eco zones
M1c+M1b+O2 +O3→C1b		Livelihood analysis (in gender/age-specific focus groups with supply chain farmers and processors)		Review of RTIMP Enterprise Record Books (ERBs), ZOCs progress reports; MoFA and DADU Organisational Capacity Assessments; RTIMP M&E data (incl. 2014 thematic impact studies on DSF & SCF and IEC)	Identification of max. 30 community clusters in the 20 sampled districts Stratified sampling of supply chain farmers, seed growers and processors

Contribution Claim of Component 2 –Enhanced R&T production

Hypothesis:

[Communication and participatory R&D on new technologies] + [Production & distribution of certified seeds and bio-agents]
=> Enhancement and scaling of smallholder R&T production, contributing to the growth of the R&T supply chains

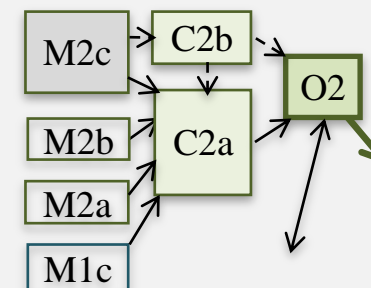
Assumption:

- Resource poor R&T farmers and seed producers can become commercial growers by organising into FBOs and adopting improved production technologies. FFFs encourage them to do so.

Evaluation/learning questions:

- To what extent and for whom does this assumption hold true (or not) and under which conditions?
- Do FFFs sufficiently reach more vulnerable and/or illiterate resource-poor farmers (incl. women and young adults) and help them overcome barriers to participate? What motivates¹¹ resource-poor farmers and seed producers (particularly women and young adults) to participate in the FFFs?

Evaluation focus: FFF reach and farmers' & see growers' commercialisation



Causal link	Household level	Community cluster level	District level	Zonal & national level	Sampling approach
C2a+C2b→O2		Livelihood analysis (in gender/age-specific focus groups with supply chain farmers and processors)		Review of RTIMP productivity surveys and progress reports from the SRID, GLDB, DDAs and ZOCs	Stratified sampling of supply chain farmers, seed growers and processors
M2a+M2b+(M2c)+M1c→C2a M2c→C2b		KIIs with FFF facilitators, extension agents, District Development Advisors (DDAs), and officers from the District Agricultural Development Unit (DADU) Constituent feedback (with mixed groups of (non-)FFF participants)		KIIs with research team leaders ¹² of the regional research institutes (CSIR/KNUST/UCC) Review of RTIMP M&E data, including the 2014 thematic impact assessment of FFFs	Stratified sampling of FFF- and non-FFF-participants

¹¹ This concerns an important condition that was mentioned in the consultative design workshop, which needs to be assessed as part of the plausible explanation of program contributions to O2.

¹² There are 7 research team leaders, involved in the FFFs, 5 of which are based in Kumasi, 1 in Cape Coast, and 1 in Tamale.

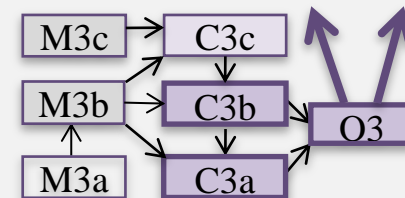
Contribution Claim of Component 3 – Enhanced R&T processing

Hypothesis:

[Access to business financing] + [Demonstration of good practices]

=> Development of profitable processing enterprises by R&T supply chain farmers and processors

=> Enhancement and scaling of smallholder R&T processing, contributing to the growth of the R&T supply chains



Assumptions:

- Resource-poor processors and farmers who are well trained in quality management, business planning and marketing apply for matching grant funding (MEF) to invest in their businesses. PFIs are prepared to provide credit to well-trained resource-poor processors and farmers up to 50% of their planned investments.
- GPCs can reach and teach resource-poor processors to develop more profitable agri-processing businesses by demonstrating good quality processing and management practices, including the use of improved technologies and standardized equipments. As a result, resource-poor processors apply to the MEF and invest in new technologies and equipment that help them to produce greater volumes of higher quality at lower cost.

Evaluation/learning question:

- To what extent and for whom do these assumptions hold true (or not)?
- What conditions need to be in place for GPCs to become profitable and attractive businesses particularly for young adults living in remote areas? What supports or hinders GPCs to better link the supply chain farmers to old and new markets, and how is this influenced by the DSF?
- Reach and added value of the MEF? Effects of the MEF on growth of the funded agro-processing businesses? Avoidance of elite capture?

Evaluation focus: GPC's reach, profitability and market-linking; MEF's reach and cost-effectiveness; processors' loan-taking and commercialisation

Causal link	Household level	Community cluster level	District level	Zonal & national level	Sampling approach
M3b→ C3a+C3b→O3		Livelihood analysis (in gender/age-specific focus groups with supply chain farmers and processors)	KIIs with GPCs	Review of RTIMP and REP M&E data and supervision reports (incl. the 2014 thematic impact studies on MEF and GPC); the comparative case study on matching grant facilities	Stratified sampling of supply chain farmers, seed growers and processors
M3b+M3c+C3a→ C3c		Constituent feedback (with mixed groups of (non-) GPC participants and MEF beneficiaries)	KIIs with BACs and PFI local branches		Stratified sampling of GPC- and non-GPC-participants (incl. MEF beneficiaries)

4 Sampling strategy

19. Reconstructing the RTIMP Theory of Change (ToC) with program management and sponsors forming the Core Learning Partnership (CLP) has helped identify and reach agreement on the focus and scope of the evaluation. The ToC reveals the impact & contribution claims, and the assumptions related to the three main program intervention areas or components that this impact evaluation needs to examine, namely: enhancement of root & tuber production, processing and market-linking.

20. The evaluation is expected to conduct a systemic analysis of the interplay between the three components, and produce credible and convincing evidence of the *extent* to which these contribution and impact claims hold true, *for whom, why* (or *why not*) and *under which conditions*. It needs to do this for the four main types of commodity chains that the program has developed in past 5 years¹³, which are: Gari, High Quality Cassava Flour (HQCF), Bonding Cassava Plywood (BCP) and Fresh Yam Export (FYE).

21. A **multi stage sampling approach** is used to ensure representativeness according to the characteristics of the different populations of interest at different levels of inquiry across the main agro-ecological zones of Ghana covered by the program (incl. savannah in the North, transitional in central part, and deciduous forest in the South). This is to avoid sampling bias and enable systemic research and analysis using mixed-methods. **Probability proportional to size (PPS)** sampling techniques are used to select proportional amounts of units from different types of populations at different stages/levels and in different geographic areas with different combinations of mechanisms supported by the program, taking into account agro-ecology and population density. By including sufficient 'with/without' configurations of these program mechanisms in the sampling, **variations in program implementation**¹⁴ across different agro-ecological and administrative zones is covered to reach objective conclusions valid for the entire program/country.

22. Counterfactual analysis of program influences on rural poverty impact indicators at the household level will not be possible, however, as the RTIMP has been implemented nation-wide and substantial influences from many other donors and development agencies on the rural population would make it quasi impossible to select not-confounded and non-treated households that can serve as control groups. It was also considered rather unnecessary and not useful by the members of the CLP, since the interest is primarily in learning *why* certain mechanisms could contribute to systemic change (or not) that impacted on rural poverty, for whom it did (or did not), under which circumstances, and whether these can be considered sustainable, transformative and scalability.

The sampling frame and procedure is attached in [Annex 3](#). The principle unit of analysis is formed by the main catchment areas of the commodity chains. These catchment areas are led by 'supply chain leaders' or principle actors that link suppliers (e.g. producers, processors, traders and transporters) to markets –generally referred to as 'supply chains'. These supply chain areas are administratively served at the district level. Hence twenty five districts have been sampled among the sixty seven districts that were engaged in the RTIMP nation-wide, and it covers the four types of commodity chains proportionally across the different agro-ecological zones and population density areas. Within these twenty five districts, thirty localities have been identified that form the centres of the commodity supply chain areas and constitute a cluster of three communities. For the household survey, thirty households will be randomly sampled in each of the thirty clusters of communities forming the catchment or supply chain areas. This will be done by systematically



¹³ Following consultations with the sponsors of this evaluation, it has been decided therefore that the **main reference period** for evaluating the interplay between the three program components should be the last **5 years (2010-2014)** of program implementation, while the first two years after the RIMS baseline (2008-2009) will be considered as an important a start-up phase that merely focussed on production.

¹⁴ For instance, sampled districts will also have to include the areas where the supply chains are not yet completely functional.

selecting every tenth household and looking for 60% primary and 40% secondary beneficiaries of RTIMP¹⁵. It's assumed that most of these were/are (resource-) poor since they are sampled from a population that for 80-90% was/is relatively (resource-) poor. Last, within each of these thirty community clusters, seventy to eighty community members will be stratified-sampled from the lists we hope to obtain from the districts and zonal coordination offices (with 80% primary target population, half female and half male, and 10-20% youth and young adults) to participate in the focus group discussions."

23. **To conclude:** this impact evaluation will conduct a household survey with 900 households and a systematic participatory research with approximately 2000 participants from 30 community clusters in 25 districts representing the 4 types of commodity chains with probability proportional to size at 95% precision level."

5 Selection and nesting of methods

24. Nested mixed-methods will be used for collecting quantitative and qualitative data on different populations at different levels. This implies a concurrent design, in which quantitative and qualitative data are collected simultaneously, independently, and with equal weight.

25. Quantitative survey and individual scoring with randomly selected, primary and secondary program beneficiaries are combined with qualitative causal flow mapping using participatory processes and recall and triangulation¹⁶ techniques. In each sampled district (25 in total), following a number of district-level interviews and the review of relevant secondary sources, between 30 and 40 household surveys (average 36 per district) will be conducted and between 7 and 21 focus group discussions (with 10-12 participants) held using a selective set of methods and tools.

26. The different focus group and household survey questionnaires inquire the reach, outcomes and contributions to impact of the program mechanisms, thus also the extend to which poorer and more vulnerable households have been reached and benefitted from the services and opportunities developed by RTIMP. Emerging evidence will be presented back to the local stakeholders who participated in the research, in a way that enables them to discuss and validate the preliminary findings and provide additional information *before* the research is completed in their district.

27. All the methods, tools and questionnaires used in this impact evaluation have been field-tested and adjusted to the Ghanaian context. A detailed field manual is provided to the researchers to ensure that the methods are used and data collected in an appropriate and systematic manner across all populations, and that participatory processes are facilitated in a way that is sensitive to power dynamics, inclusive, ethical and free from external influence. Standard note-taking templates and data entry spread sheets have been prepared to warrant systematic data capturing and early data processing. Raw data reports will be produced as part of the deliverables.

5.1 Household Survey

28. To measure the impact of RTIMP as reflected in its goal statement –i.e. *enhanced income and food security of rural poor households through improvements in R&T-based livelihoods and strengthened market-based systems generating profitability at all levels of the commodity chains*–, a succinct survey will be conducted in 900 households in 30 catchment areas across the country. Through this household survey,

¹⁵ The primary beneficiaries of RTIMP include all root & tuber farmers, seed producers and processors that were resource-poor until at least 5 years ago and thus were or should have been targeted by the various program activities. The secondary beneficiaries are the poorer rural households in the supply chain areas that do not work root and tubers but should have indirectly benefitted from increased economic opportunities. In many cases we may expect that almost the entire population is working roots and tubers, in which case the percentage of secondary beneficiaries will be less than 40.

¹⁶ Triangulation is a principle technique of social science that involves the use of more than one type of data source, method and researcher for creating a richer picture, by including different perspectives and crosschecking the information obtained in order to achieve greater credibility and confidence of findings. It builds on the premise that politics and interests always influence research and no single source or method can entirely avoid bias, unless complemented with others to overcome the methodological limitations.

essential data will be collected on changes in food, assets and revenues as compared to the baseline that was carried out in 2007-2008.

29. At the consultative design workshop for the impact evaluation held in Kumasi on 12/11/2014, it was suggested to use the definition of the FAO for food security¹⁷. This is to avoid using a too narrow interpretation of food security as ‘food self-sufficiency’ and ensure sufficient attention is paid to the ‘profitability’ and ‘sustainability’ aspects of the R&T-based livelihoods. Hence the impact that the program aimed for is re-stated in the Theory of Change in terms of “*access to food and income to lead and sustain an active and healthy life*”, which allows to focus the household survey on a few variables that are congruent with those used in the baseline survey and IFAD’s impact indicators, and most essential and appropriate to investigate the correlation between food, assets¹⁸ and profits in the Ghanaian context and link it back to RTIMP¹⁹. The survey is meant to take no longer than 15 minutes per household and collect only data that are essential (thus leaving out those merely ‘nice to have’).

30. In addition to the household survey, focus group discussions using the generic change analysis method will collect qualitative data on improvements in livelihoods that have affected wealth & wellbeing as defined by the beneficiaries themselves, in order to capture not only *intended* but also *unintended* influences (both positive and negative) on rural poverty.

5.2 Generic Change Analysis

31. The Generic Change Analysis is a PRA-inspired method that uses two tools to further inquire RTIMP’s impact claim²⁰—namely: *change ranking*, followed by a *causal flow mapping*. The data collected from this method is qualitative and complementary to the quantitative data from the household survey.

32. The *change ranking* is a descriptive data collection tool that seeks to identify and rank the main changes in roots- & tubers-based livelihoods of the past 5 years in terms of their impact on people’s wealth & wellbeing as defined by the beneficiaries themselves. Subsequently the *causal flow mapping* inquires the possible explanations by taking the one or two changes with greatest impact (thus highest rank) as a starting point to map out their impacts and causes, link these back to RTIMP, and collect detailed information on who has been affected most/least and why.

33. The generic change ranking and causal flow mapping will be conducted with separate **gender-specific** groups with a good representation of **young people in the age range between 15 and 34**, randomly sampled from the communities in the community clusters in the sampled districts. Each group will be composed of 10 people (either women or men), of which 6-8 from the primary target groups (R&T processors and farmers) and the others from the wider group of rural poor that was targeted by the program.

¹⁷ The definition of the FAO is as follows: “*Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life.*” (cf. <http://www.fao.org/economic/ess/ess-fs/en/>) To measure this, FAO looks at undernourishment as a condition of “*continued inability to obtain enough food*”, and the Prevalence of Undernourishment (PoU) measuring the “*probability that a randomly selected individual from a population is found to be consuming less than her/his requirement for an active and healthy life*”. The methodology to measure these two aspects, however, is too elaborate and not relevant for this impact evaluation.

¹⁸ Incl. financial, productive, household and knowledge assets.

¹⁹ IFAD requires the measurement of “number of people lifted out of poverty” through the programs and projects it co-funds, using the following two main standard indicators: a household asset index (as a proxy for poverty) and malnutrition among children under 5 years of age (cf. IFAD, 2005). The household survey for this impact evaluation looks at a limited set of variables on food, assets, economic activities and income. RIMS impact survey questions related to diet diversity or daily intake requirements, and children’s malnutrition or anthropometrics, have been left out since these require more time and thus resources to be measured properly while not being considered useful proxy’s by the Ghana Statistical Service (GSS) for measuring food security and poverty in Ghana. A more elegant proxy for instance is the incidence of children under 15 being put to sleep without sufficient food and thus remaining hungry, since the evening meal is the most important meal for Ghanaian families and only skipped by children if there is severe food shortage.

²⁰ This concerns the links between the O’s and the I’s in the ToC diagram.

5.3 Livelihood Analysis

34. The livelihood analysis and causal flow mapping is a participatory method that uses three tools to investigate the changes in roots- & tubers-based livelihoods caused by RTIMP or other influences²¹ – namely: *change matrix*, *change signification*, and *causal flow mapping*. The data collected from this method is mainly qualitative, although systematic data collection and the use of sensemaker techniques also permit quantitative analysis of patterns of perceptions and experiences across larger populations.

35. The *change matrix* is a descriptive data collection tool that helps to obtain an overview of the different types of livelihood activities in the communities related to roots and tubers and the major changes that have happened in these livelihood activities in the past 5 years, as well as women’s and men’s engagement in each of these and the relative income and risk levels. For this it uses PRA-based ranking, proportional piling and scoring techniques. The *change signification* tool uses techniques borrowed from the patented *Sensemaker* approach²² to help surface patterns (both expected and unexpected) and provide an additional layer of quantified qualitative data collected in a systematic manner across larger populations. Finally, the *causal flow mapping* is an explanatory data collection tool that maps out the impacts and causes of the one or two most significant changes in the R&T livelihood activities, link these back to RTIMP, and collect detailed information on who has benefited (or not) and why.

36. The livelihood change analysis and causal flow mapping will be conducted with separate **gender-specific** groups with a good representation of **young people in the age range between 15 and 34**, randomly sampled from the communities in the community clusters in the sampled districts. Each group will be composed of 10 people (all women or all men) that are direct program beneficiaries (R&T farmers, seed growers and processors).

5.4 Constituent Feedback

37. Constituent Feedback (CF)²³ is a performance assessment method for collecting quantified feedback and engaging in dialogue with key constituents or beneficiaries using standardized metrics similar to the customer satisfaction surveys developed in the private sector. Although mostly empowering and effective for improving performance when used recurrently throughout the lifetime of a program, it is also useful in participatory impact evaluation to assess and critically debate program effectiveness and contributions to changes in livelihood activities and outcomes.

38. In this impact evaluation, the method will collect quantified perceptual data on the reach, quality and outcomes of the services and relationships that have been developed as part of the following RTIMP mechanisms²⁴:

- Farmer Field Forums (FFF)
- District Stakeholder Fora (DSF)²⁵
- Good Practice Centres (GPC)²⁶

39. In each community cluster in each of the sampled districts, a constituent feedback session will be organised on each of these three program mechanisms with a **gender/age-mixed** group of 12 people (half women and half men, and at least 8 who actively participated in the mechanism), involving a facilitated group discussion and individual/anonymous scoring on a standardized set of questions.

40. Also the service-providers involved in these mechanisms will be surveyed and asked to score on 3-4 key performance questions as part of the KIIs that are mirroring those scored by the beneficiaries.

²¹ This concerns the links between the C’s and the O’s in the ToC diagram.

²² Cf. <http://www.sensemaker-suite.com>.

²³ Also called *Constituent Voice* –see: <http://www.keystoneaccountability.org/analysis/constituency>.

²⁴ These form the ‘key touch points’ of program performance and delivery, or the most important links between the M’s and the C’s in the ToC diagram (cf. Section 2.1) on which the evaluation has to focus (as agreed with program stakeholders in the consultative design workshop on 12/11/2014 in Kumasi).

²⁵ In case of the DSF, also the contribution of the Supply Chain Facilitators (SCF) to the functioning and outcomes of the DSF are inquired.

²⁶ The Micro-Enterprise Fund (MEF) on the other hand is assessed in relation to and as an outcome of the GPCs.

5.5 Semi-Structured Interviews with Key Informants

41. In each sampled district, key informant interviews (KIIs) will be conducted with the major service-providers involved in RTIMP. These include: district officials (incl. DDAs, BAC officers, extension officers, and RTIMP desk officers), the directors/leaders of the GPCs and other supply chain leaders, the local branch officers of the PFIs, and the research and extension service providers involved in the FFFs. Detailed questionnaires have been prepared for these.

42. Finally, KIIs will also be conducted with zonal and national stakeholders such as the R&T industries, PFIs, SCFs, and the RTIMP staff and coordinators.

5.6 Participatory Sensemaking

43. The purpose of participatory sensemaking is to enhance the empowering value of impact evaluation by creating the opportunity for program stakeholders to validate, challenge and strengthen the evidence *during* the research. At the local level, this is done by instantly processing the data collected during fieldwork²⁷, and presenting back rising evidence and remaining data weaknesses to local research participants in a small sensemaking workshop. Since the principle unit of analysis for this impact evaluation are commodity supply chains administrated by the districts, local sensemaking workshops will be organised at district level in each sampled district (25 in total). The participants in the local sensemaking workshop will form a representative sample of the local stakeholders who participated in the research in each district –including district officials²⁸, local service providers²⁹, supply chain leaders³⁰ and primary beneficiaries³¹ (average 30-40 per workshop).

44. By stimulating critical dialogue around the emerging evidence between these different local stakeholder perspectives, an additional layer of explanatory data is generated around why certain program mechanisms worked well (or not so well) in certain locations and had a significant and sustainable impact on rural livelihoods and poverty (or not). Doing this *before* finalising fieldwork in every district helps improve and strengthen the evidence base, while avoiding top-down data extraction and researcher-dominated analysis.

45. At the end of the entire field research, a national sensemaking workshop will be organised, involving both local and national program stakeholders in a discussion of the evidence coming out of the initial *aggregated* analysis and reconstruction of the chain of *actual* changes and program contributions as compared to what was *envisioned* in the ToC. Participants in this workshop will include members of the CLP³² and a representative sample of the local stakeholders who participated in district-level workshops (total amount estimated at 100 participants).

6 Data collation, quality monitoring and aggregated analysis

46. Data quality monitoring involves daily research team reflections on research processes and outcomes as the basis for timely identifying data gaps/weaknesses and assessing the robustness of the evidence base being built. To identify gaps and weaknesses, early data collation is needed. This is the process by which the qualitative and quantitative data collected in each sampled district from both primary and secondary sources is processed, integrated and linked to each of the causal claims in the ToC. Data quality monitoring thus goes hand in hand with data collation.

²⁷ Standardized data capturing templates and spread sheets will be used to enable data processing and cross-checking during fieldwork.

²⁸ Incl. district head, DDA, extension officer, BAC officer, RTIMP desk officer.

²⁹ Incl. local branch officer of the PFIs, supply chain facilitator, FFF facilitator and researcher.

³⁰ Incl. leaders of the GPCs, aggregators and SMEs that form the market hubs of the commodity supply chains.

³¹ Incl. R&T farmers, seed growers and processors.

³² Cf. Footnote 3. These will include: managers and senior staff from RTIMP, MOFA, ICO, the national service-providers and main off-takers (industries and exporters) of the 4 commodity chains.

47. A set of questions for data quality monitoring and a basic tool³³ for data collation is prepared for this. The tool contains a simple rating system for estimating: (a) the robustness of the emerging evidence; (b) the extent and scope of each causal link; (c) the extent and quality of program contributions; and (d) the interference of other influences. The average score for each contribution claim in the ToC obtained from the scoring (0-6) of each of its links on these four criteria, will provide a total value from ‘highly unsatisfactory’ up to ‘highly satisfactory’³⁴. The rating values are described in the table below.

Contribution claim	Quality descriptors for the contribution claim
6 Highly satisfactory	<ul style="list-style-type: none"> • Evidence on most causal links is robust. • Extent and scope of all CMCOI- links in the contribution claim is convincing. • RTIMP interventions and achievements can be demonstrably linked to the changes. • Negative influences (intended or unintended) minimized, and positive (intended or unintended) influences changes maximized.
5 Satisfactory	<ul style="list-style-type: none"> • Evidence on causal links is quite strong, although some gaps still exist. • Extent and scope of most CMCOI-links in the contribution claim is convincing. • RTIMP interventions and achievements can be demonstrably linked to most of the changes but perhaps not to all. • Some negative influences might have occurred that were not entirely mitigated.
4 - 3 Moderately satisfactory / unsatisfactory	<ul style="list-style-type: none"> • Evidence on some causal links is generally strong but on others remain rather unclear and inconsistent. • Extent and scope of some CMCOI-links in the contribution claim is not entirely clear or not entirely convincing. • Although there is evidence of RTIMP contributions to some changes, the evidence is insufficient and lacking on others. • Unintended influences that affected the results not entirely mitigated.
2 Unsatisfactory	<ul style="list-style-type: none"> • Evidence on causal links is rather weak and/or inconsistent. • Extent and scope of most CMCOI-links is unclear and/or unconvincing. • Evidence of RTIMP contributions to most changes is lacking or insufficient. • Unintended influences have been largely overlooked.
1 Highly unsatisfactory	<ul style="list-style-type: none"> • Evidence on causal links is negative. • Extent and scope of CMCOI-links is limited. • Evidence of RTIMP contributions to all changes is lacking, insufficient and/or negative. • Other influences have been neglected, indicating mismanagement.
0 Insufficient evidence	<ul style="list-style-type: none"> • There is insufficient information available on changes or causal links to assess the contribution claim.

48. Finally, techniques of Qualitative Comparative Analysis (QCA) combined with statistical inference techniques will be used to conduct an aggregated analysis of the various configurations of “*Contexts – Mechanisms – Changes – Outcomes – Impacts*” (CMCOI) across districts, and reach conclusions regarding the program’s overall influence on rural poverty impact in Ghana.

³³ Cf. data collation table presented in [Annex V](#). The field manual contains the guidance and questions for daily data collation and quality monitoring.

³⁴ These are similar to the rating values used by IFAD in supervisions and reviews.

7 Timeline³⁵

Task	November				December				January				February				March				April			
	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4
Phase 1: Design (November)	4 weeks																							
Desk review and consultative design																								
Tool development, training & field testing																								
Design paper containing – Synthesis, Theory of Change, Data Collection Matrix, Sampling Strategy and Desk Review Note.																								
PHASE 2: Field-level Data Collection & Field-level Sensemaking (December 2014 – January 2015)																								
Data collection at village, district, zonal & national levels																								
Reflection with the entire PIALA research teams																								
Holidays																								
Notes of sense-making workshops																								
- district level interim report																								
- data set																								
PHASE 3: Sensemaking, Analysis & Reporting (February – April 2015)																								
Data collation workshop																								
Aggregated data collation and preparation of national sensemaking workshop																								
Zonal/national sensemaking workshops																								
Report writing																								
Draft report																								
Debrief and management response																								
Finalize report																								
Final Report																								

³⁵ Note that the evaluation has been delayed with 2 weeks due to difficulties in timely obtaining the information for the sampling. At the time of submission of this design paper, fieldwork is planned to start in the second week of January, right after the Christmas & New Year break, provided of course there is no further delay in lower-level sampling and field preparations.

Bibliography and references

- Bamberger, M. (2012). *Introduction to Mixed Methods in Impact Evaluation* (Guidance Note No. 3). InterAction, Rockefeller Foundation.
- Befani, B. (2012). *Models of Causality and Causal Inference* (Review prepared as part of the DFID study: *Broadening the range of designs and methods for impact evaluation*). UK Department for International Development (DFID).
- Bonbright, D., & Power, J. (2010). *Private Sector Metrics Contributions to Social Change: Customer Satisfaction Meets Agriculture Development*. IDS Bulletin, 41(6).
- Cameron, Sara & Kyei-Mensah, Glown, (2014). *Situation Analysis of Youth and Young People in Ghana, UNICEF Ghana, Yet to be Published*.
- Copstake, J. (2013). *Credible impact evaluation in complex contexts: Confirmatory and exploratory approaches (Draft 18 Oct 2013)*. Centre for Development Studies, University of Bath.
- Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. SAGE.
- Creswell, J. W., & Clark, V. L. P. (2010). *Designing and Conducting Mixed Methods Research*. SAGE.
- Deprez, S., Huyghe, C., & Van Gool Maldonado, C. (2012). *The use of Sensemaker for measuring, learning and communicating about smallholder farmer inclusion* (Case Report). Vredeseilanden-Coopibo (VECO).
- Guijt, I. (2008). *Seeking Surprise: Rethinking Monitoring for Collective Learning in Rural Resource Management*. Wageningen University and Research Center (WUR).
- Holland, J. (2013). *Who Counts? The Power of Participatory Statistics*. Practical Action.
- IFAD (2014). *Root and Tuber Improvement and Marketing Programme (RTIMP) Supervision Mission Aide Memoire*. November 2014.
- IFAD (2014). *Ghana Agriculture Sector Investment Programme (GASIP) Design Completion Report*.
- IFAD (2014). *Root and Tuber Improvement and Marketing Programme (RTIMP) Supervision Mission Report*. March 2014.
- IFAD & FAO (2014). *Matching Grants with Loans - Experiences and Lessons Learned from Ghana*. Rome.
- IFAD & BMGF. (2013). *Improved Learning Initiative for the design of a Participatory Impact Assessment & Learning Approach (PIALA): Insights and lessons learned from the reflections on the PIALA piloting in Vietnam*.
- IFAD & BMGF. (2013). *PIALA Research Strategy. Improved Learning Initiative (Internal Document)*.
- IFAD (2013). *Root and Tuber Improvement and Marketing Programme (RTIMP) Supervision Mission Report*.
- IFAD (2012). *Root and Tuber Improvement and Marketing Programme (RTIMP) Supervision Mission Report*.
- IFAD (2010). *Root and Tuber Improvement and Marketing Programme (RTIMP) Mid-Term Review Mission Main Report*.
- IFAD. (2009). *Evaluation manual. Methodology and processes*.
- IFAD. (2005). *Results and Impact Management System. Practical Guidance for Impact Surveys*
- Kyei-Mensah, Glown, (2012). *Significant Change Stories, ODI Sponsored Mwananchi Ghana Project*.
- Levy, S., & Barahona, C. (2002). *How to generate statistics and influence policy using participatory methods in research* (Working Paper). Statistical Services Centre, University of Reading.
- Macpherson, A. (2014). *Root and Tuber Improvement and Marketing Programme Implementation Support Mission Presentation 3-27 November 2014 Mini Wrap-Up*. Kumasi.

- Mertens, D. M. (2009). *Transformative Research and Evaluation*. Guilford Press.
- Ministry of Food and Agriculture (MoFA). (2014). *RTIMP 2013 Annual Report* .
- Ministry of Food and Agriculture (MoFA). (2013). *RTIMP 2012 Annual Report*.
- Ministry of Food and Agriculture (MoFA). (2013). *Brief Status of RTIMP as at May, 2013*. Kumasi.
- Ministry of Food and Agriculture (MoFA). (2012). *RTIMP 2011 Annual Report*.
- Ministry of Food and Agriculture (MoFA). (2012). *Brief on Status of RTIMP as at June, 2012*. Kumasi.
- Ministry of Food and Agriculture (MoFA). (2011). *RTIMP 2010 Annual Report*.
- Ministry of Food and Agriculture (MoFA). (2011). *Brief on Status of RTIMP as at June, 2011*. Kumasi.
- Patton, M. Q. (2012). *A utilization-focused approach to contribution analysis*. Evaluation, 18(3).
- Pawson, R. (2013). *The science of evaluation: a realist manifesto*. London ; Thousand Oaks, Calif: SAGE.
- Rihoux, B., & Ragin, C. C. (2009). *Configurational Comparative Methods: Qualitative Comparative Analysis (QCA) and Related Techniques*. SAGE.
- Stern, E., Stame, N., Mayne, J., Forss, K., Davies, R., & Befani, B. (2012). *Broadening the range of designs and methods for impact evaluations*. (Working Paper No. 38). Department for International Development (DFID).
- Van Hemelrijck, A. (2014). *Understanding 'Rigor': Challenges in Impact Evaluation of Transformational Development*. PhD Research Outline Paper (revised version). Institute for Development Studies (IDS).
- Van Hemelrijck, A. (2013). *Powerful Beyond Measure? Measuring complex systemic change in collaborative settings*. In *Sustainable Participation and Culture in Communication: Theory and Praxis*. Intellect Ltd.

Terms of Reference for the following consultancies:-

1. Assessment of impact of the distribution and commercialization of improved planting material
2. Assessing the impact and cost-benefit analysis of processing equipment
3. Cost benefit analysis of Esoko subscription to beneficiary farmers and processors
4. Impact assessment of IEC materials distributed by RTIMP
5. Impact of fresh yam for export value chain- under RTIMP
6. Impact of SCF's activity and DSF's on market linkages-under RTIMP
7. Assessment of impact of FFF on beneficiaries
8. Assessing the effectiveness of GPC models on Cost/revenue, income/ha and employment creation along the value chain
9. Tracer study on effectiveness of business development and marketing training, and how it has changed behavior of farmers and processors
10. Effectiveness of the micro-enterprise fund in enabling private sector investments in root and tuber value chains.

Annexes

Annex I: Desk review note

This desk review note aims at summarising the results from the review of program documents and secondary literature as well as the stakeholder design consultation workshop. The review helps to identify causal claims to be evaluated and critical issues to focus on.

The main objectives of the desk review & consultative design process are

- to obtain the necessary inputs and support for ensuring a robust and credible design to conduct impact assessment
- to obtain agreement among main sponsors and users on the objectives, expected outcomes, questions, methods & processes, and the timeline of the impact assessment.

The process began with a review of major documents relating to the Root and Tuber Improvement and Marketing Programme (RTIMP) including Supervision Mission Reports, RTIMP Annual Reports, RTIMP Status Reports, and the Ghana Agriculture Sector Investment Programme (GASIP) design report. Following the initial reading, the research team had a first round of individual conversations with program management and key staff of implementing partners in order to verify the first reading, expand and improve upon it. From the reading and interviews, an initial TOC to show visually the contribution and impact claims that the impact evaluation for RTIMP should focus on was created.

The team also visited the final RTIMP supervision mission in Kumasi to further inform the desk review. A participatory one-day consultative design workshop was held on the 12th of November 2014 in Kumasi with stakeholders to verify the impact claims and assumptions and validate the TOC and methodology. The results were documented.

Critical Issues affecting Impact and Scalability

From the supervision reports, it is unclear whether indeed the impact, that is, food and income security and improved livelihoods for the rural poor in Ghana is actually being achieved.

Cluster 1: Commodity Chain linking

Commodity Chain (CC) members received capacity building on how to develop and implement viable business and marketing plans. Such knowledge not only made it easier for them to access funding from the Micro Enterprise Fund (MEFs) to upgrade equipment but also enlightened them on efficient ways of managing their businesses.

The literature indicates that the programme has supported the development of 4 types of commodity chains in the country. These are Gari, HQCF, BCF for plywood industry, and fresh Yam. A total of 3,146 actors made up of 2,731 farmers, 359 processors and 56 transporters are involved in the 4 commodity chains developed by the SCFs. The number of actors involved in the commodity chains being developed by the Programme totalled 7,662 as against the end of programme (Programme Year 8) target of 10,500 (73% achievement) (RTIMP, 2013).

A new programme, The Ghana Agricultural Sector Investment Programme (GASIP) has been designed by the Government of Ghana as a way of operationalizing the Medium Term Agricultural Sector Investment Plan (METASIP), together with its Development Partners (DPs) and other country partners (farmer organizations, private sector, etc.). GASIP aims at providing a framework and institutional basis for a long-term engagement and supplementary financing for scaling up investments in private sector-led pro-poor agricultural value chain development. It has three main components namely, Value Chain Development, Enabling Rural Infrastructure and Coordination, M&E, Knowledge Management and Policy Optimization.

Under GASIP, there shall be formalisation of agribusiness agreements with smallholder farmers, allowing them to reliably access factor and output markets (GASIP, 2014). GASIP therefore intends to improve on the existing achievements of RTIMP. Some value chains which would be selected for initial support, for which evidence is provided by on-going projects, may include (a) cassava; (b) maize; (c) sorghum; (d) yam; (e) fruits and vegetables. Thus GASIP is not concentrating on only roots and tubers but is adding grains and vegetables as well. GASIP will make resources available for value chain development in 160 districts by the end of the first cycle (PY3), and in at least 180 districts by the end of the second cycle (PY6).

Link small producers to larger scale markets and promoting new uses of R&T:

There was the indication that there has been little development of market linkages other than with existing GPCs and 14 associated value chains. However, there is now an emerging opportunity for Public-Private Partnerships, between RTIMP supported farmers and DADTCO and other large-scale users. Two major breweries (Guinness Ghana Ltd and Accra Breweries Ltd) which are being linked to buy larger quantities of R&T products will provide the programme and its clients with a major opportunity for scaling up. The programme would also identify the annual raw material needs of these firms and support them to buy improved planting material for their out growers. It is proposed that this would be done through an arrangement with commercial planting material growers, a Participating Financial Institution (PFI) and purchasing firm, on behalf of its out growers (RTIMP Supervision Report, 2014).

It was considered that specific attention be given to the identification of additional R&T value chains as well as detailed plans to scale up support of these chains under the GASIP. GASIP needs to find new markets such as beer breweries or commercial livestock feed producers to support effective linkages between these new market entrants and farmers, and seed multipliers. There are significant new entrants into the market for roots and tubers, specifically for cassava products. These new markets, mainly emanating from new demand from breweries and the promotional efforts by entrepreneurs, are under-pinning an already growing demand situation. It will be important for the programme to support easy access to these markets by the farmers being served (Supervision Reports 2012-2014). Additionally, processors have now identified markets outside Ghana - Mali, Nigeria, Niger, Burkina Faso, Europe and the USA - and are supplying increased volumes to these markets. Interactions with processors during field visits indicated that, those trained and helped to acquire improved processing equipment, especially graters, presses and roasting units have significantly increased their income levels through higher sales volumes.

Regarding *commodity chain price-setting*, it is reported that the use of inaccurate or inappropriate procedures of setting advance prices for raw materials and processed products are likely to lead to an erosion of cohesion and trust between farmers and processors when market prices change. To avoid advance price setting and to facilitate a transparent dialogue between seed multipliers, processors and out growers, actors avoid selling commodities on the side thereby maintaining competitiveness. Further, the District Stakeholder Forums (DSFs) have resulted in improved trade relations among chain actors and have led to some contracts between parties. However, it is noted that DSFs are not an appropriate forum for price-setting within value chains, since the role of the intervention and its implementing partners are limited to facilitating communication between value chain actors (Supervision Reports 2012-2014).

Even though RTIMP worked in these districts with farmers, there was no specific focal person for gender, youth and targeting. The focus of GASIP will be on creating opportunities in value chain development particularly for the youth (15 – 24 years) and young adults (25 – 34 years). From the RTIMP, notably, young people have challenges such as access to land, start-up capital, integration and acceptance of youth among other value chain actors, lack of interest due to hard manual labour coupled with small returns and lack of tailored agricultural extension services to help them.

R&T supply chain farmers & processors to develop and implement viable business and marketing plans:

A total of 3,617 beneficiaries (1,438 males and 2,179 females) out of a target of 6,000 were trained by Training consultants and BACs/local trainers. This represents 60% of the target farmers. ***There is therefore a gap of 40% to be filled.*** The entrepreneurs have been equipped with knowledge in business development and marketing skills including quality packaging and labelling and the use of financial tools in all aspects of business operations that have been initiated through the implementation of the Enterprise Record Book. This has enhanced the quality of their products (e. g. more attractive packaging – Mack & B-Face, Harii Farms, Jenefal, etc).

District Stakeholder Forums (DSFs):

The District Stakeholders Forum (DSF) is a platform for learning by farmers and processors. The focus of the DSFs was mainly on establishing structures that ensure effective participation in the commodity chains. They have provided the various value chain actors a platform to interact to build relationships and even make trade deals.

The DSFs have become popular with stakeholders. Some of the benefits participants have reported include; sharing of ideas leading to profitable operations within the chain, enhanced networking among actors and enhanced forward-backward linkages leading to expanded market opportunities within chains (RTIMP Status reports, 2011 to 2013), RTIMP Annual Reports, 2010 to 2013). Additionally, the DSFs have provided capacity building to Farmers Associations (FAs) and VCCs to better manage and use their financial records and their contracts with suppliers and buyers to become more credit worthy. Three hundred and fifty (350) out of a targeted 417 DSFs have been conducted in the operational districts representing 83.9% achievement. This involved 6,365 participants (**3,882** females and **2,483** males).

Information, Education & Communication (IEC):

The RTIMP programme was promoted through the IEC campaign which included promotional materials such as posters, flyers, fact sheets, CDs and documentaries which were aired on 3 television networks in the country. The beneficiaries of the project and the general public have been well informed and educated on RTIMP in relation to the Programme's products and the socio-economic benefits. The targeted 74,755 promotional materials have been exceeded to the tune of 104, 703. These have been developed in several areas of R&T crop development and are being distributed across the country (<http://www.rtimpgh.org/components/component-a>). The areas include rapid multiplication of planting material (cassava and yam), pest and disease control etc. Documentaries of the Programme have been telecast on 3 Television networks of the country.

One website was established and 14 interactive radio discussions were organised to educate communities on R&T issues. Through the radio programmes, RTIMP activities were highlighted in the districts and farmers and processors were given the opportunity to ask questions through phone-ins (RTIMP, 2013a).

Though these promotional activities are in line with the policy brief, it leaves questions of who the targets of these promotions were; to determine if they have been effective (RTIMP Status Reports, 2011 to 2013), RTIMP Annual Reports (2010 to 2013). Supervision Reports (2012-2014) stated that clients are now well informed about programme services due to the campaign. The selection of groups and individuals for training should target all actors (including members of the FFF, traders and transporters) from identified chains, to improve not only their knowledge and skills but also their chances of accessing MEF and other financial services.

Experience with small enterprise programs in rural areas, including microfinance, indicates that the women generally represent the largest number and often the best performing entrepreneurs. Learning from other poverty reduction programs including REP I and II suggests that when rural women are well informed, trained and provided with the appropriate support including financial services, adequate equipment and market access, they can move further from survival level to more proactive growth.

The Initiative Fund:

The main activities being supported by the Initiative Fund (IF) have been:

- **Mechanical Harvesters:** Ten (10) mechanical harvesters were acquired for distribution to selected centres across the country. Two have been delivered for testing so far, and all will be evaluated for technical and financial efficiency. Some will be tested on typical farmers' fields.
- **Esoko – Market information platform:** The Esoko platform is an ICT based platform which is being used to provide the structures for linkage activities for market information. It has been designed primarily to help actors in the value chain to access and share market information, communicate with other actors, establish business relationships and manage the flow of goods and services among them. Eighty six (86) Facilitators and Administrators have been trained in the use of the platform and Zonal Coordinators have been given special rights to manage their Zones (inputting market information). About 1,151 actors are currently exchanging information on the platform.
- **Enterprise Records Books (ERB):** Enterprise Records Books were developed in association with National Board for Small Scale Industries (NBSSI)/BACs and introduced to all actors with emphasis on the farmers and processors in an effort to mainstream financial analysis and record keeping in the value chain business. Two thousand (2,000) copies of the Enterprise Record Book have been printed and so far and 1,013 distributed to farmers and processors. Here as well, the literacy levels need to

be taken into account for the intervention to be effective. There is no mention of who the recipients of these books are.

Cluster 2: Enhancement of R&T production

Enhanced R&T productivity at scale:

Annual Reports 2012-2013 stated that better productivity at the farm levels have resulted in increased profitability and reduced costs per unit of revenue. This is most closely linked with impact but information is not disaggregated to know which farmers have experienced the increased productivity and profitability.

Commercial Planting Materials:

According to the RTIMP 2013 Annual Report, to ensure the continuous multiplication and distribution of improved planting material the programme supported pilot commercial growers with ‘starter packs’ made of seed/planting materials and funds for maintenance (land preparation and 1 weeding). The farmers’ contribution is land, planting and maintenance (3 weeding). The Supervision Reports state that sustainability has also been enhanced by adopting a commercial approach to planting material reproduction and has shown initial positive results.

According to the RTIMP Status Report 2013, the programme has multiplied and distributed healthy planting material of root and tuber crops in Ghana. The multiplication of planting material has been accelerated at a pace faster than envisaged and RTIMP Status Reports (2011-2013) attributed this to increased demand for cassava roots from processors. RTIMP contract farmers close to GPCs were linked to the centres to market their produce. The strong linkage established between farmers and processors was to ensure continuous supply of raw material to the processing centres and provide ready market for pilot commercial farmers to enhance their income by selling improved planting material to large scale growers. In order to sustain the multiplication and distribution of root and tuber planting material when RTIMP phases out, experienced secondary/contract multipliers and FFF graduates/groups have been selected as pilot commercial growers. The programme has distributed free improved planting material to 173,448 tertiary farmers (119,083 males and 54,365 females) out of a target of 174,400 farmers representing 95.93%. It is unclear whether farmers here refers to the seed farmers or the root and tuber farmers themselves. However, in recognition of the need for sustainability of this initiative, commercial reproduction of planting material commenced in 2012 (Supervision Reports, 2012-2014). The continued good progress in promoting commercial reproduction of improved planting materials also is a positive factor in ensuring sustainability. The programme now plans to increase this effort to assist farmers to meet increased demands (Supervision Reports, 2012-2014).

There is an observed inconsistency in the support for the development of a commercially viable supply of improved planting materials. In some districts, planting material has been distributed freely to cassava farmers, destroying the market for commercial multipliers, and undermining the sustainability of the chain once the programme is completed. To mitigate this risk, it has been agreed that the programme will no longer support the distribution of free planting material. It will engage relevant MOFA directorates, implementing partners and sister programmes such as WAAP in a dialogue to ensure a consistent approach to ensuring farmer’s sustained access of planting material. Given the processors’ interest to support their outgrower productivity in view of ensuring a steady and affordable raw material supply, they could act as an intermediary towards a more systematic commercial arrangement, particularly, in view of their access to credit (Supervision Reports, 2014). Further, in order to build a more robust improved planting material multiplication system, MOFA mainstream and harmonize the commercial approach and align other programmes supporting the sector to discontinue any distribution of free material.

In order to sustain the multiplication and distribution of improved planting materials and cassava roots to GPCs the programme has strategized in key areas:

- curtailing the free distribution of planting materials from August 2013;
- supplying planting materials to farmers linked to GPC value chains;
- building the capacities of pilot commercial growers;
- constructing 100 seed yam storage structures for seed yam growers; and

- mainstreaming the inspection and certification of R&T planting materials into Ghana Seed Inspection Division of PPRSD, Ministry of Agriculture (RTIMP Status Reports, 2011 to 2013, RTIMP Annual Reports, 2010 to 2013).

Farmer Field Fora (FFF):

RTIMP has instituted the Farmer Field Fora (FFF) as a platform for innovation and sharing of knowledge and experience by farmers, researchers and extension workers. The farmers involved in the FFF are learning new technologies to improve the productivity of their farms. In all, 421 FFFs out of a programme target of 500 have been established and 256 FFF facilitators trained. As at May 2013, cumulative numbers of farmers reached through FFF is 13,951 (6,783 males and 7,168 females) out of a target of 17,639 representing 79.09% achievement (RTIMP Status Report, 2013). The FFFs thematic areas are as follows:

- Soil Fertility Management
- Integrated Pest Management
- Weed Management
- Cultivation Practices
- Planting Material selection
- Seed yam multiplication

Three (3) learning plots: Integrated Crop Management (ICM), Farmer Practice (FP) and Participatory Action Research (PAR)) were established for each FFF. With the ICM plots all recommended practices were applied to get the maximum yield and healthy crop; On FP plots farmers demonstrate their practices and PAR plots were for experimentation. Seven (7) to 9 sessions were conducted per FFF depending on the crop. It was recommended that the FFFs be trained and converted to FBOs (Supervision Report, 2012). As at June 2014, The Programme was transforming 20 post-FFF farmer groups into viable FBOs (Supervision Report, March 2014).

GASIP will attempt to scale up the Farmer Field Forums (FFFs) since the programme targets resource-poor rural people – women, young people (15-24years) and young adults (25-34years). Through these forums, these various groups are able to organise, form Associations to bargain for better market prices, engage with extension agents and other key actors, and thereby gain access to necessary farm technology and equipment to increase their productivity.

Bioagents for control of cassava pests produced and released:

A total of 2,220,511 actives of *Typhlodromalus manihoti* have been mass produced and released and 1504555 actives of *Teretrius nigrescens* was also mass produced and released. Biological control of pests was introduced to reduce the dependence on chemical pesticides (<http://www.rtimpg.org/components/component-b>)

Cluster 3: Enhancement of R&T processing businesses

Enhanced R&T processed volumes of high quality at scale:

As women are the main processors of roots and tubers, the gender perspective must be considered. Based on the local cultural context, women have limited access and control of assets such as land and credit facilities especially in rural savannah. Given these constraints, their productivity levels are limited.

There should also be attempt to scale up GPC's where women are mostly the best performing entrepreneurs and finally the Micro-Enterprise Fund (MEF) to provide financial services for women to upgrade their technology and equipment and thereby increase their profitability and economic status.

R&T processors grow and develop into GPCs that are profitable enterprises:

RTIMP has promoted technologies for processing and storage of R&T commodities through prototype testing, manufacturing/fabrication, facilitating acquisition of equipment, training towards the production of high quality products, enhancement of sanitation and hygiene as well as process flow. Twenty-four (24) out of a target of 30 new (i.e. 80% achievement), appropriate, more efficient and cost-effective technologies (prototypes) for the processing of R&T crops have been made available and are being promoted for adoption (RTIMP Status Report, 2013).

There were 69 exposure visits made to the GPCs. Exposure visits are expected to expose small scale processors to good practices. The participants were exposed to improved equipment, hygiene and manufacturing practices to enable them come out with high quality products. They have created strong desire in beneficiaries to acquire the improved processing equipment and to adopt the appropriate manufacturing practices (<http://www.rtimpg.org/components/component-c>).

Through the exposure visits to the GPCs, other processors either on their own or through the MEF, have acquired some of the new technologies seen at these GPCs. GPCs are serving as demonstration centres for clients of RTIMP and other stakeholders, to adopt some of the technologies (RTIMP Status Reports, 2011 to 2013), RTIMP Annual Reports (2010 to 2013).

The 2013 RTIMP Status Report indicates however that the adoption rate of new technologies at the GPCs, especially those technologies that involve stainless steel materials, is slow due to high cost of stainless steel equipment.

Under the value chain concept, the GPCs serve as the hub of all chain linkage activities and marketing points for raw cassava producers. Several cassava farmers now sell their produce at these GPCs. Farmers, processors and other chain actors around the GPCs livelihoods were enhanced, evidenced by positive changes in their dressing, residential accommodation, means of transport (from bicycles to motorbikes and KIA trucks) and also, meeting a lot more of their social and financial commitments.

There are observations that the best performance is from GPCs that had a robust and transparent arrangement with other chain actors especially farmers (Supervision Reports 2012-2014). However, there has so far been little development of market linkages other than with existing GPCs and associated value chains (Supervision Reports, 2012-2014).

GASIP will attempt a scale up of testing and promoting processing technology, out-grower schemes, structured market linkages, including certification, traceability, packaging and market prospection.

The GPC owners are constantly undergoing technical and business training. These training/services given to the GPCs are transforming them in so many ways including safe and quality, high incomes, expansion of facilities, product development and enhanced packaging. As a result of the expanded capacities and the use of accepted standards of equipment, hygiene and improved processing technologies at the level of the GPCs the centres are now attracting high patronage (RTIMP Status reports, 2011 to 2013), RTIMP Annual Reports (2010 to 2013).

Training of artisans to produce and maintain standardized processing equipment for R&T supply chain processors and GPCs:

Through the programme 'Rural Technology Facility' (RTF), one hundred and ninety seven (197) local artisans/technicians have been trained in the fabrication, testing and repairs of prototype equipment to fabricate and repair processing equipment for RTIMP clients (RTIMP Status Reports, 2011 to 2013), RTIMP Annual Reports, 2010 to 2013).

A hydraulic press was identified but is yet to be acquired. There was a challenge with the acquisition of the hydraulic press due to intellectual property right which affected the training of RTFs and local artisans on it. The other prototype is the mechanical harvester which is in its final stage of development. It is being proposed that the final product be given to the Agricultural Engineering Services Directorate (AESD) of the Ministry of Food and Agriculture (MoFA) for dissemination (Annual report, 2012).

Upgrading of advance R&T processors into GPCs:

Twenty-six (26) processing facilities have been upgraded into GPCs. Effectively, the GPCs are playing a pivotal role in the value chains implemented by RTIMP. The GPCs have provided ready market for fresh produce from the farmers who hitherto were receiving lower prices for their produce. The GPCs themselves have led to enhanced profitability for the owners. Those facilities which were able to access the MEF to acquire transport have further increased their profitability.

It is expected that GASIP will attempt to scale up the GPCs' coverage areas especially in the Northern regions since these three Upper regions are considered to be the poorest and have large numbers of women and young people living in poverty. The current map on the RTIMP website shows only three GPCs in the

northern regions. Again, the GPC's are managed and owned by women groups on a commercial basis after RTIMP intervention through initial investment.

Facilitation of MEF disbursement:

Though MEF was set up since the inception of the programme, disbursement is still not up to expectation. It has in recent times, however improved as a result of enhanced sensitisation and the involvement of the NBSSI/BACs in facilitating the process of accessing the fund. So far, 82 Enterprises/Groups (constituting 1,189 beneficiaries (713 females and 476 males) have been trained and supported to access USD 508,498.00 through eleven (PFIs). Experiences sharing from the Kwamanman and Naara Rural Banks on the secret behind impressive loan recovery (100%) have all contributed towards the new turn.

Monitoring the disbursement and loan repayment was conducted on 58 Enterprises/Groups. Loan Repayment has been substantially commendable. 90% beneficiaries have met repayment deadlines with most of them (52%) having done 100% repayment. GASIP intends to collaborate with other projects to build capacity of rural and community banks to improve performance in liquidity management, delinquency management, structured trade finance and savings mobilization (GASIP, 2014).

Another initiative to enhance access to the fund and broaden the base of the PFI is that, Ecobank Ghana Ltd. has been accredited to participate in the implementation of the Micro Enterprise Fund. The Micro-Enterprise Fund has been launched and promoted in all operational districts since programme inception.

Low disbursement of MEF to beneficiaries has been due to various reasons including:-

- High nominal interest rates (up to 25-30%);
- Demand of up to 50% collateral by Public Financial Institutions (PFIs) as security against loans;
- Lack of capacity of PFIs to provide up to 60% credit financing in a timely manner using their short term deposits for medium term financing;
- Miscommunication to beneficiaries regarding the repayment of the 60% loan financing and the fear that price fluctuation of gari affects the cash flow of processors and therefore ability to repay their loans;
- PFIs still have limited ability to appraise investment loans and structure loan terms according to projected cash flows due to their limited access to long-term funding sources. This has an impact on the sustainability of the project;
- Dissatisfaction with the terms and conditions of the loans received from PFIs, due to insufficient loan amounts;
- Delays in implementation and disbursement of funds to beneficiaries resulting in low impact. One of the central purposes for the MG, which is to enable PFIs and clients to repay medium term loans at market rates was not achieved in a satisfactory manner.
- Some value chains are not using appropriate price-setting procedures, increasing the risks of contract defaults when prices change due to market forces. It is unclear exactly what inappropriate procedures are being used and which ones are preferred (Supervision Reports, 2012-2014).

It is expected that GASIP will attempt to scale up the co-financing of CC members through the MEFs. Commodity chain members will receive capacity training and information on how to develop and implement viable business marketing plans which will enable them to approach MEFs confidently. There would also be collaboration with rural banks to finance seasonal credit and investment and matching grants to leverage external financing.

In attempt to minimize the mutual suspicion between farmers and bankers and to put an end to a long drought of finance to farmers, the programme has introduced a win-win relationship into the commodity chains through a Tripartite Agreement among Farmers, Processors and Bankers (RTIMP Status Reports, 2011 to 2013), RTIMP Annual Reports, 2010 to 2013).

Management and coordination

The coordinating office of RTIMP provided support to the components and carried out the necessary supervision and coordination of the implementation of the Work Programmes and Budgets. The programme also collaborated extensively with Implementing Partners and other IFAD funded projects for the

implementation of the relevant component activities. Collaboration/partnership were maintained with the following partners:

- Regional Cassava Processing and Marketing Initiative (RCPMI)
- Rural Enterprise Project (REP-II)
- Rural Technology Facilities (RTF)
- Northern Region Growth Project (NRGP).
- Rural and Agricultural Finance Programme (RAFIP).
- West Africa Agricultural Productivity Project (WAAPP)

Staff of the Programme also participated in relevant IFAD –funded workshops to build capacities for improved work performance.

Monitoring and Evaluation

Participatory monitoring approaches involving the Programme’s stakeholders have been employed by the Programme and a number of monitoring activities have taken place. These include:

- Monitoring visits by the MES and other Specialists from the PCO to operational districts;
- RADU monitoring/supervision of activities of DADUs in operational districts; and
- Monitoring of activities in operational districts by National Programme Steering Committee (NPSC) members (RTIMP Status Reports (2011 to 2013), RTIMP Annual Reports, 2010 to 2013)).

However, according to the Supervision Reports 2012-2014, there is a lack of a functioning M&E system which means that only limited qualitative or quantitative analysis of progress is possible. In addition weak budget monitoring system and poor administrative records management systems have been mentioned.

Residual problems in programme financial management could continue to hamper effective implementation, as programme management requires up-to-date information on budget execution and flow of resources at all times to optimize implementation and disbursement. A number of detailed recommendations have been agreed upon to mitigate this risk, which will require close monitoring by programme management, the implementing agency and IFAD (Supervision Reports 2012-2014).

The projects using the MG with loan approach faced considerable implementation delays. Problems included attracting and accrediting PFIs, some of which had had negative experiences with other donor funded programmes, building capacity and full understanding of the approach among project implementers.

There were considerable delays between the approval of the MG with loans by PFIs and the disbursement of funds by ARB Apex Bank (RTIMP) and Bank of Ghana (REP II). Only 41% of MG beneficiaries received their MGs within 2 months after application, whereas 23% experienced delays were between 7 and 12 months, and 10% between 18 and 36 months. Project design and implementation lacked clarity as to whether incremental working capital would be eligible under the MG-cum-loan scheme. Long delays in disbursement and outtake of funds need to be addressed by stamping out bureaucracy from ARB apex Bank, PMUs.

Linkages and Partnerships:

At least 10 Implementation Support Missions (ISM) have been held since the inception of the programme. The main purpose of the missions has been to undertake a technical review of the progress of implementation to ensure that implementation is tracked regarding focus on intended programme activities, outputs, outcomes and impacts. These missions reviewed most of the working programme documents and reports, and made some vital recommendations. The mission also met and held discussions with stakeholders on progress of implementation of the programme.

Conclusion

There have been some improvements in the main planned outputs regarding the four program components. Also, there was a stronger promotion of linkages among value chain actors, planting materials were being supplied to farmers, pests and diseases were being controlled and more education was being done. Upgrading of processing activities was being carried out as well as establishments of GPCs. It is believed that a final evaluation would actually report the level of improvements, especially, poverty reduction among project participants.

1 Annex II: Sampling frame and procedure

The sampling frame used is the frame of the list of the commodity supply chains from the four main types of the commodities in the RTIMP market system stratified into agro ecological zones. [Table 1](#) shows that there are 67 catchment districts of the commodity supply chains of the 4 types of commodity chains developed by RTIMP. [Table 2](#) shows the relative distribution of the total number of the supply chain leaders per type of commodity chain. [Table 3](#) presents the number of districts sampled (25 in total) that has been proportionally allocated to each zone. Six districts were systematically selected in the North zone, 12 in the Central zone and 7 in the South zone. [Table 4](#) presents the numbers of distribution of the proportional allocation of commodity supply chain areas among the sampled districts. [Table 5](#), finally, presents the numbers of distribution of the proportional allocation of commodity supply chain areas among the 3 main agro-ecological zones covered by the program.

The samples are stratified and selected independently in two stages from this sampling frame. In the first stage, 25 districts will be selected with probability proportional to size (PPS) selection procedure according to the sample allocation given in [Table 3](#). Implicit stratification with proportional allocation will be achieved at each of the lower administrative unit levels by sorting the frame before the sample selection according to a certain geographical order, within each of the explicit stratum, and by using a probability proportional to size selection procedure.

After the selection of districts a list of the distribution of the various types of the commodity supply chain in each district has been prepared. This list helps identify the communities and locations of the commodity supply chains in each of the selected districts.

A fixed number of 30 locations/clusters have been proportionally allocated to each commodity using a probability proportional to size (PPS) according to the sample allocation given in [Table 4](#). These locations form the centres of the supply chain areas in which qualitative interviews and household surveys will be conducted.

In each of the supply chain areas, 30 households will be systematically selected among three communities that form the cluster, i.e. approximately 10 in each community with equal probability.

Table 1: Distribution of the number of catchment districts of the commodity supply chains

ZONES	NAME OF ZONE	NUMBER OF CATCHMENT DISTRICTS OF THE COMMODITY SUPPLY CHAIN
1	North (Savannah)	14
2	Central (Transitional & deciduous)	36
3	South (Deciduous)	17
Total		67

Table 2: Distribution of the number of supply chains for each type of commodity chain

	TYPE OF COMMODITY	NUMBER OF SUPPLY CHAINS
1	PCF Chain	8
2	High Quality Cassava Flour (HQCF)	7
3	Fresh Yam Export chain (FYE)	7
4	Gari Chain	29
Total		51

Table 3: Distribution of the proportional allocation of districts among the zones

ZONES	NAME OF ZONE	ALLOCATION OF DISTRICTS TO THE AGRO-ECOLOGICAL ZONES
1	North (Savannah)	6
2	Central (Transitional & deciduous)	12
3	South (Deciduous)	7
Total		25

Table 4: Distribution of the proportional allocation of commodity supply chain areas among the sampled districts

	TYPE OF COMMODITY	NUMBER OF SUPPLY CHAINS
1	PCF Chain	5
2	High Quality Cassava Flour (HQCF)	4
3	Fresh Yam Export chain (FYE)	4
4	Gari Chain	17
Total		30

Table 5: Distribution of the proportional allocation of commodity supply chain areas among the zones

	NAME OF ZONE	PCF	HQCF	FRESH YAM	GARI
1	North (Savannah)	1	0	2	4
2	Central (Transitional & deciduous)	3	2	2	9
3	South (Deciduous)	1	2	0	4
Total		5	4	4	17

Annex III: Field research schedule

The schedule presented in this annex lays out a tentative plan for field research in the districts, implying the systematic use and sequencing of the different PIALA methods and processes across the country, as to enable inference at the national level. The exact timing though will vary according local conditions. Thirty household surveys are conducted in each cluster, taking average 15 min each (plus 15 min travel and introduction). Focus group discussions take 20-2.5 hours average per session.

Day	Location	Time	Team A	Team B
Day 1	District level and First Cluster	early morning	District Level "entry", organization of 6 KIIs and preparation for sense-making- workshop	community entry in 1st community of 1st Cluster
		morning	KIIs: DDAs and BAC	10 household surveys in 1st community
		afternoon	KIIs: Supply Chain Leaders (GPCs and SMEs)	community entry in 2nd community of 1st cluster
		late afternoon	KIIs: Supply Chain Leader (Retailers) and PFIs (local branches)	community entry in 3rd community of 1st Cluster
		evening	Debrief and data entry	Debrief and data entry
Day 2	First Cluster	early morning	5 household surveys in 2nd community of 1st cluster	5 household surveys in 2nd community of 1st cluster
		morning	FGD: Generic Change Analysis, men	FGD: Generic Change Analysis, women & youth
		afternoon	FGD: Livelihood Analysis, women & youth	FGD: Livelihood Analysis, men
		late afternoon	5 household surveys in 3rd community of 1st cluster	5 household surveys in 3rd community of 1st cluster
		evening	Debrief and data entry	Debrief and data entry
Day 3	First Cluster	early morning	mopping up and preparation of FGDs	mopping up and preparation of FGDs
		morning	FGD: Constituent Feedback, participants in DSF	FGD: Constituent Feedback, FFF
		afternoon	FGD: Constituent Feedback, GPC	
		late afternoon	move to second cluster	move to second cluster
		evening	Debrief and data entry	Debrief and data entry

Day 4	Second Cluster	early morning	community entry in 1st community of second cluster and 5 household surveys	community entry in 1st community of second cluster and 5 household surveys
		morning	community entry in 2nd community of second cluster and 5 household surveys	community entry in 2nd community of second cluster and 5 household surveys
		afternoon	community entry in 3rd community of second cluster and 5 household surveys	community entry in 3rd community of second cluster and 5 household surveys
		late afternoon	FGD: Generic Change Analysis, men	FGD: Generic Change Analysis, women & youth
		evening	Debrief and data entry	Debrief and data entry
Day 5	Second Cluster	early morning	FGD: Livelihood Analysis, women & youth	FGD: Livelihood Analysis, men
		morning	FGD: Constituent Feedback, participants in DSF	FGD: Constituent Feedback, FFF
		afternoon		FGD: Constituent Feedback, GPC
		late afternoon	moving to next cluster	Debrief and data entry
		evening	Data entry	Data entry
Day 6	Third Cluster	early morning	community entry in 1st community of third cluster and 5 household surveys	community entry in 1st community of third cluster and 5 household surveys
		morning	community entry in 2nd community of third cluster and 5 household surveys	community entry in 2nd community of third cluster and 5 household surveys
		afternoon	community entry in 3rd community of third cluster and 5 household surveys	community entry in 3rd community of third cluster and 5 household surveys
		late afternoon	FGD: Generic Change Analysis, men	FGD: Generic Change Analysis, women & youth
		evening	Debrief and data entry	Debrief and data entry
Day 7	Third Cluster	early morning	FGD: Livelihood Analysis, women & youth	FGD: Livelihood Analysis, men
		morning	FGD: Constituent Feedback, participants in DSF	FGD: Constituent Feedback, FFF
		afternoon	FGD: Constituent Feedback, GPC	
		late afternoon	Debrief and data entry	Debrief and data entry
		evening	Data entry	Data entry

Government of Ghana / Ministry of Food & Agriculture (MoFA)
 Root & Tuber Improvement and Marketing Program (RTIMP)
 Impact Evaluation Design Paper (December 1, 2014)

Day 8	District Level	early morning	Travel to district level (sensemaking workshop location)	
		morning	Preparation of sensemaking-workshop	
		afternoon		
		late afternoon		
		evening	Mopping up	Mopping up
Day 9	District Level	early morning	Half-day of sense-making workshop at district level	
		morning	Travel to next District	
		afternoon		
		late afternoon		
		evening	Debrief and Data Entry	

Annex IV: District data collation table

The table below serves as a basic tool for systematic integration and collation of the data collected in every district from primary and secondary sources related to each link in each causal claim of RTIMP's ToC.

Causal link	Secondary data	Primary QUANT data	Primary QUAL data	Strength of evidence <i>(Score 0-6, whereby 0 means there is insufficient information, and provide critical notes on remaining data gaps and process observations suggesting possible bias in the data)</i>	Conclusions <i>(Score 0-6, whereby 0 means there is insufficient information, and provide main conclusions about: (a) the extent and scope of each causal link; (b) the extent and quality of RTIMP influence in the M-links; and (d) interference of other influences at all levels)</i>
IMPACT CLAIM – POVERTY REDUCTION					
I2→I1	<ul style="list-style-type: none"> • 2010 Ghana Living Standard Survey report • RTIMP RIMS baseline and other M&E data 	30-90 gender/age-disaggregated household surveys			
O3+O2+O1→I2			2-6 sessions of generic change analysis & causal flow mapping in gender/age-specific focus groups		
Data Gaps:					Total average score (0-6):
CONTRIBUTION CLAIM OF COMPONENT 1 – ENHANCED MARKET LINKING					
M1c+M1b+O2+O3→C1b	<ul style="list-style-type: none"> • DDA reports • RTIMP Enterprise Record 	2-6 sessions of livelihood analysis & causal flow mapping in gender/age-specific focus groups			

C1a+(M1)→O1 C1b+M1a→C1a	<ul style="list-style-type: none"> • <i>Books (ERBs)</i> • <i>ZOCs progress reports</i> • <i>MoFA and DADU Organisational Capacity Assessments</i> • <i>RTIMP M&E data (incl. 2014 thematic impact studies on DSF & SCF and IEC)</i> 		<i>KIIs with DDAs, BACs, SCFs, GPCs and other supply chain leaders (SMEs, aggregators and exporters) and off-takers (industries, food traders...)</i>		
		3-9 constituent feedback sessions with mixed groups of (non-)DSF participants			
Data Gaps:					Total average score (0-6):
CONTRIBUTION CLAIM OF COMPONENT 2 –ENHANCED R&T PRODUCTION					
C2a+C2b→O2	<ul style="list-style-type: none"> • <i>Review of RTIMP productivity surveys and progress reports from the SRID, GLDB, DDAs and ZOCs</i> • <i>RTIMP M&E data, (incl. the 2014 thematic impact assessment of FFFs)</i> 	2-6 sessions of livelihood analysis & causal flow mapping in gender/age-specific focus groups			
M2a+M2b+(M2c) +M1c→C2a M2c→C2b			<i>KIIs with FFF facilitators, extension agents, DDAs, DADU officers, and 7 research team leaders³⁶ of the regional research institutes (CSIR, KNUST & UCC)</i>		
		3-9 constituent feedback sessions with mixed groups of (non-)FFF participants			
Data Gaps:					Total average score (0-6):

³⁶ There are 7 research team leaders, involved in the FFFs, 5 of which are based in Kumasi, 1 in Cape Coast, and 1 in Tamale.

CONTRIBUTION CLAIM OF COMPONENT 3 – ENHANCED R&T PROCESSING				
M3b→ C3a+C3b→O3	<ul style="list-style-type: none"> • <i>RTIMP and REP M&E data and supervision reports (incl. the 2014 thematic impact studies on MEF and GPC)</i> • <i>IFAD/FAO 2014 study on matching grant facilities in Ghana</i> 	<i>2-6 sessions of livelihood analysis & causal flow mapping in gender/age-specific focus groups</i>		
M3b+M3c+C1a→ C3c			<i>KIIs with GPCs, BACs and PFI local branches</i>	
		<i>3-9 constituent feedback sessions with mixed groups of (non-)GPC participants (incl. MEF beneficiaries)</i>		
Data Gaps:				Total average score (0-6):

Annex V: Approved budget

The figures presented below are for 3 lead researchers and 9 assistants in 30 localities country-wide (4 days per locality, thus a total of 40 days fieldwork).

A. FEES

DESIGN	unit	cost/unit	#	total
Research Coordinator	22	400	1	8,800.00
Co-writer	5	200	1	1,000.00
Lead Researchers	15	200	3	9,000.00
Research assistants	8	100	9	7,200.00
Total				26,000.00

DATA COLLECTION	unit	cost/unit	#	total
Research Coordinator	20	400	1	8,000.00
Co-writer	10	200	1	2,000.00
Lead Researchers	40	200	3	24,000.00
Research assistants	40	100	9	36,000.00
Total				70,000.00

ANALYSIS AND REPORT WRITING	unit	cost/unit	#	total
Research Coordinator	25	400	1	10,000.00
Co-writer	10	200	1	2,000.00
Lead Researchers	15	200	3	9,000.00
Research assistants	10	100	9	9,000.00
Sub-Total				30,000.00

SUB-TOTAL: \$126,000.00

B. REIMBURSABLES

DESIGN	unit	cost/unit	#	total
Transportation to Kumasi	1	\$35.00	4	\$140.00
Accommodation lead researchers + coordinator	7	\$50.00	4	\$1,400.00
Accommodation co-writer + research assistants	0	\$50.00	10	\$0.00
Per Diem lead researchers + coordinator	14	\$20.00	4	\$1,120.00
Per Diem co-writer + research assistants	7	\$20.00	9	\$1,260.00
Consultation WS -transport participants	1	\$50.00	8	\$400.00
Consultation WS -accommodation participants	1	\$50.00	8	\$400.00
Consultation WS -conf package participants	1	\$35.00	30	\$1,050.00
Stationary, materials, printing & copies	1	\$100.00	1	\$100.00
Car fuel	4	\$30.00	4	\$480.00
Sub-Total				\$6,350.00

DATA COLLECTION & PROCESSING	unit	cost/unit	#	total
------------------------------	------	-----------	---	-------

Government of Ghana / Ministry of Food & Agriculture (MoFA)
 Root & Tuber Improvement and Marketing Program (RTIMP)
 Impact Evaluation Design Paper (December 1, 2014)

Per Diem research coordinator	20	\$20.00	1	\$400.00
Per Diem co-writer	0	\$20.00	1	\$0.00
Per Diem lead researchers + assistants + drivers	40	\$20.00	15	\$12,000.00
Accomodation research coordinator	20	\$40.00	1	\$800.00
Accomodation co-writer	0	\$40.00	1	\$0.00
Accomodation lead researchers + assistants + drivers	40	\$40.00	15	\$24,000.00
Interpreters	40	\$20.00	6	\$4,800.00
Community entry	1	\$20.00	30	\$600.00
Community sensemaking workshops	40	\$2.50	30	\$3,000.00
Stationary, materials, pinting & copies	1	\$500.00	1	\$500.00
Car fuel	40	\$30.00	3.5	\$4,200.00
Quant + Qual Data entry	1	\$2,000.00	1	\$2,000.00
Sub-Total				\$52,300.00

ANALYSIS & REPORTING	unit	cost/unit	#	total
Transportation to Kumasi	1	\$35.00	14	\$490.00
Per Diem research team	5	\$20.00	14	\$1,400.00
Accomodation research team	5	\$50.00	14	\$3,500.00
Consultation WS -transport participants	1	\$35.00	130	\$4,550.00
Consultation WS -accomodation participants	2	\$50.00	130	\$13,000.00
Consultation WS -conf package participants	3	\$35.00	130	\$13,650.00
Stationary, materials, pinting & copies	1	\$500.00	1	\$500.00
Sub-Total				\$37,090.00

SUB-TOTAL: \$95,740.00

C. TOTAL:

Fees	\$126,000.00
Reimbursables	\$95,740.00
SUB-TOTAL:	\$221,740.00
Overhead 5%	\$11,087.00

TOTAL: \$232,827.00