Title: Incentives and innovative finance for scaling CSA up and out

1. Description

Start date	End date	Management liaison	Mgmt. liaison contact
Jul 2016	Dec 2022	F2	Bonilla, Osana <o.bonilla@cgiar.org>

Funding source types	Status	Lead Organization	Project leader
W1/W2	On-going	WUR - Wageningen University and Research Centre - Netherlands	Groot, Annemarie <annemarie.groot@wur.nl>

Project is working on

Flaship(s)
F2 (before F1 - Andy): Climate-Smart Technologies and Practices

Region(s)
Global

Project summary

A key enabler for CSA adoption by smallholder farmers and SMEs is access to sufficient and adequate finance along with the skills to rightly use finance. The project 'Business, incentives and innovative finance' looks at how tailored financial products and services in combination with competence building can support smallholder farmers and SMEs to invest in CSA practices and businesses. Through case study research the project aims to develop context-specific knowledge on the factors and conditions which constitute an effective technical and financial package to scale up and scale out CSA practices and businesses. The impact of these packages on the adoption of CSA and farmers' and SMEs' resilience to climate change will be assessed. Building upon the results of inventories of 2016, 2-3 pilot studies will be selected and designed in collaboration with implementing partners. Implementation of pilot case studies will start in the 2nd half of 2017.

2. Partners

Partner #1 (Leader)

Institution: WUR - Wageningen University and Research Centre

Contact(s):

Type	Contact	Responsibilities and contributions	Branch
Project Leader	Groot, Annemarie <annemarie.groot@wur.nl>	- Making connections with wider CCAFS community, other research organisations and (IN)NGOs working on scaling CSA through finance, capacity building and climate smart agribusiness development - Making connections with donors to attract additional funding for research on scaling CSA through finance, capacity building and climate smart agribusiness development - Attending workshops and conferences - Submitting scientific paper on farmers'/SMEs' demand for financial products and services as well as for capacity building for CSA adoption - Organising international workshop on scaling CSA through finance, capacity building and climate smart agribusiness development	HQ
Project Coordinator	Ruben, Ruerd <ruerd.ruben@wur.nl>	Will take over the Leadership of this project over Anne Marie Groot	HQ

Partner #2

Institution: CIMMYT - Centro Internacional de Mejoramiento de Maíz y Trigo

Contact(s):

Type	Contact	Responsibilities and contributions	Branch
Partner	Aggarwal, Pramod <P.K.Aggarwal@cgiar.org>	- Contribute to an inventory of smallholder farmers' and SMEs' demand for financial products and services in S Asia - Depending on the final selection of 2 -3 model pilot cases, partner may contribute to further design and implementation of a pilot case - Contribute to paper for publication - Participation in the cross regional kick off workshop	HQ

Partner #3

Institution: IRRI - International Rice Research Institute

Contact(s):

Type	Contact	Responsibilities and contributions	Branch
Partner	Leocadio, Sebastian <l.sebastian@irri.org>	- Contribute to an inventory of smallholder farmers' and SMEs' demand for financial products and services in SE Asia - Depending on the final selection of 2 -3 model pilot cases, partner may contribute to further design and implementation of a pilot case - Contribute to paper for publication - Participation in the cross regional kick off workshop	HQ

Partner #4

Institution: CIAT - Centro Internacional de Agricultura Tropical

Contact(s):

Type	Contact	Responsibilities and contributions	Branch
Partner	Loboguerrero, Ana Maria <a.m.loboguerrero@cgiar.org>	Contribute to an inventory of smallholder farmers' and SMEs' demand for financial products and services in L. America - Depending on the final selection of 2 -3 model pilot cases, partner may contribute to further design and implementation of a pilot case - Contribute to paper for publication - Participation in the cross regional kick off workshop	HQ
Partner	Lundy, Mark <m.lundy@cgiar.org>	- Contribute to the design of a model case study on CSA certification in coffee or cocoa value chain in West Africa or Central America - Participation in the cross regional kick off workshop	HQ

Partner #5

Institution: ICRISAT - International Crops Research Institute for the Semi-Arid Tropics

Contact(s):

Type	Contact	Responsibilities and contributions	Branch
Partner	Zougmore, Robert <R.Zougmore@cgiar.org>	- Contribute to an inventory of smallholder farmers' and SMEs' demand for financial products and services in West Africa - Depending on the final selection of 2 -3 model pilot cases, partner may contribute to further design and implementation of a pilot case - Contribute to paper for publication - Participation in the cross regional kick off workshop	Bamako, Mali

Partner #6

Institution: ILRI - International Livestock Research Institute

Contact(s):

Type	Contact	Responsibilities and contributions	Branch
Partner	Radeny, Maren <M.Radeny@cgiar.org>	- Contribute to an inventory of smallholder farmers' and SMEs' demand for financial products and services in East Africa - Depending on the final selection of 2 -3 model pilot cases, partner may contribute to further design and implementation of a pilot case - Contribute to paper for publication - Participation in the cross regional kick off workshop	HQ

Lessons regarding your partnerships and possible implications for the coming planning cycle:

Year	Lesson(s)
2016	Collaboration with the RPLs is essential in this stage of the project. Specifically, they will be involved in an inventory on demand for financial products and services which outcomes feed into the final selection and design of the planned case studies. Collaboration with Alberto Millan wil focus on: - a peer reviewed paper on finance and scaling smart agriculture - exploring opportunities for CARE led case studies

Partnerships overall over the last reporting period:

Partnership with RPLs had been established. They all have contributed to a first inventory of case studies. There has been regular contact with Alberto Millan (WB) on inventories on 'supply of financial products and services' and 'demand for financial products and services as well as on collaboration with CARE international . Alberto's knowledge is of value to the project. Unfortunately, Alberto can only participate on a personal basis. There has been regular contact with Mark Lundy about business models and certification in value chains. The NWO/CCAFS call could lead to a PhD proposal on certification as incentive for scaling CSA.

3. Locations

This project is global

4. Outcomes

4.1 Project Outcomes

Project Outcome statement:
- 15 Public-private actors (including financing) at national and sub-national levels are using new finance instruments and /or business models that explicitly promote climate smart approaches along the value chain, using CCAFS science - 15 Governments, private sector and farmer organizations have increased their investments and apply incentive mechanisms to promote wide scale adoption of improved climate-smart practices and technologies. - Increased access to financial services for smallholder farmers (of which 40% are women) and agri-business (of which 30 % are women led) - Evidence on equitable CSA certification schemes, new agri-business models, financial incentive mechanisms and policy instruments to promote and mainstream CSA adoption at different levels of the value chain.

Annual progress towards outcome (end of 2016*): - Increased knowledge on critical success factors for a variety of business models and innovative finance instruments to the scaling of CSA. - Increased knowledge on the lessons learned in CCAFS 1 and RCPs on business models and innovative finance in view of bringing CSA to scale. - 2-3 designed model cases. - CCAFS partners, strategic partners and other key stakeholders who need to be involved in the model cases are identified and contacted

Annual progress towards project outcome in the current reporting cycle (2016*): First CSA Case inventories resulted into increased knowledge on: - Projects in CCAFS regions with potentials for scaling CSA practices /technologies through business models and adequate financial products and services; - Supply of financial products and services in the CCAFS regions. Contact has been established with colleagues from other CCAFS flagships and CRPs; with CCAFS strategic partners (University in Galway, WB, CARE, GIZ... and other relevant funding agencies/networks/ organisations (UNFCCC, GAFSP, IFC, GACSA, SNV, Scope Insight, F3 Life & Climate Finance Lab..). The Dutch Food & Business Global Challenges Programme of the Dutch Ministry of Foreign affairs launched a call that aims to increase knowledge on the role of finance, capacity building, business models and other soc-economic incentives to support scaling CSA.
How communication and engagement activities have contributed to achieving your Project outcomes:* Presentations at CCAFS workshops (CSV workshop Nepal, Science meeting in Senegal, discussions with RPLs and other strategic partners contributed to futher define project focus and research questions. Presentations at international workshops (e.g. IFC and Agribusiness in a changing environment, 28 October 2016, The Hague) enabled discussions on the role of sufficient and adequate finance, capacity building and business models to support smallholder farmers/SMEs to invest in and scale CSA. Contribution to the development of the Dutch GCP/NWO/CCAFS call.
Evidence documents of progress towards outcomes:* https://marlo.cgiar.org/data/ccafs/projects//248/projectOutcome/CCAFS%202%20-%20CoA%202.4%20strategy.docx

Annual progress towards outcome (end of 2017): - 2-3 model cases will be in the stage of implementation - Increased competence in the development of business models and the use innovative finance instruments to support CSA along the value chain - Business plan are being developed - Relationship between smallholder farmers and agri-business with private sector parties, including financial institutes are established, - Contraints in the business environment such as policies or legislations hindering the development of business plans and their implementation are addressed

Annual progress towards outcome (end of 2018): - 2-3 new model cases will be selected and desgined - 2-3 model cases that started in 2017 are in a later stage of implementation: business plan are further developed and implemented - Relationships between smallholder farmers and agri-business with private sector parties, including financial institutes are strengthened - Contraints in the business environment such as policies or legislations hindering the development of business plans and their implementation are addressed

lessons regarding your Theory of Change and implications for the coming planning cycle; e.g. how have your assumptions changed, or do you have stronger evidence for them:* The project outcomes end 2018 can be formulated in terms of: an increase in context-specific knowledge on financial and technical factors and conditions which constitute an effective package to scale climate smart agriculture.

4.2 CCAFS Outcomes

F2 (before F1 - Andy) Outcome 2019: Public-private actors at national and sub-national levels are using new incentive mechanisms or business models/ markets that explicitly promote climate smart approaches along the value chain, using CCAFS science

Indicator #1: # of public-private actors at national and sub-national levels are using new incentive mechanisms or business models/ markets that explicitly promote climate smart approaches along the value chain, using CCAFS science

2015
Target value: <Not Defined>
Cumulative target to date: 0
Target narrative: <Not Defined>
The expected annual gender and social inclusion contribution to this CCAFS outcome: <Not Defined>

2016
Target value: 10 **Cumulative target to date:** 10 **Target achieved:** 5.0 **Target narrative:** 10 public - private actors at the national and sub-national level increased their knowledge about innovative finance instruments and the role of business models to promote CSA along the value chain **Narrative for your achieved targets, including evidence:** Contacts including Scope Insight, F3 Life & Climate Finance Lab and CARE aim to develop financial products and capacity assessment tools that support CSA. SNV developed a concept note for a new - five years project Climate Smart Food Systems in East Africa. The Food & Business Global Challenges Programme (GCP) of the Dutch Ministry of Foreign Affairs launched a call that supports the generation of new knowledge on the role of finance , capacity building and business models. **Narrative for your achieved annual gender and social inclusion contribution to this CCAFS outcome:** The GCP /NWO/CCAFS call explicitly looks for proposals that study appropriate gender-sensitive incentive mechanisms for adoption and scaling CSA. SNV 's proposal for a Climate Smart Food Systems project in East Africa stresses the importance of gender inclusiveness. Gender inclusiveness will be used as criterion to select model-cases. **The expected annual gender and social inclusion contribution to this CCAFS outcome:** - 4 out of the 10 public-private actors who will increase their knowledge about innovative finance instruments and the role of business models to promote CSA will be women - The review and exploration of experience with business models in the CCAFS regions will focus on inclusive business models involving women as business partners - Gender inclusiveness will be used as criterion to select the 2-3 model-cases

2017
Target value: 10 **Cumulative target to date:** 20 **Target narrative:** 10 Public - private actors at the national and sub-national level apply innovative finance instruments and/or are actively involved in business model development to promote CSA along the value chain. **The expected annual gender and social inclusion contribution to this CCAFS outcome:** - 4 out of the 10 public - private actors at the national and sub-national level who apply innovative finance instruments and /or will be actively involved in business model development will be women - The selected cases on business models will be inclusive business models involving women as business partners - 40 % of the participants of activities which aim to create an enabling business environment (e.g. innovation platforms, capacity building) will be women

2019
Target value: 15 **Cumulative target to date:** 35 **Target narrative:** 15 Public - private actors at the national and sub-national level use innovative finance instruments and/or are actively involved in business model development to promote CSA along the value chain. **The expected annual gender and social inclusion contribution to this CCAFS outcome:** - 50% of the15 public - private actors at the national and sub-national level who will use innovative finance instruments and/or are actively involved in business model development to promote CSA will be women - The selected cases on business models will be inclusive business models involving women as business partners - 40 % of the participants of activities which aim to create an enabling business environment (e.g. innovation platforms, capacity building) will be women

Major Output groups:

- F2 (before F1 - Andy): Evidence on equitable CSA certification schemes, new agri-business models, financial incentive mechanisms and policy instruments to promote and mainstream CSA adoption at different levels of the value chain (LAM, WA, SA, SEA)

4.3 Other Contributions

Contribution to other CCAFS Impact Pathways:
<Not Defined>

Collaborating with other CRPs

<This project does not have a CRP selected yet.>

4.4 Case Studies

No case studies added

5. Project outputs

5.1 Overview by MOGs

Major Output groups - 2019

F2 (before F1 - Andy): Evidence on equitable CSA certification schemes, new agri-business models, financial incentive mechanisms and policy instruments to promote and mainstream CSA adoption at different levels of the value chain (LAM, WA, SA, SEA)

Brief bullet points of your expected annual 2019 contribution towards the selected MOG: <Not Defined>

Brief`2019 plan of the gender and social inclusion dimension of the expected annual output: <Not Defined>

Major Output groups - 2017

F2 (before F1 - Andy): Evidence on equitable CSA certification schemes, new agri-business models, financial incentive mechanisms and policy instruments to promote and mainstream CSA adoption at different levels of the value chain (LAM, WA, SA, SEA)

Brief bullet points of your expected annual 2017 contribution towards the selected MOG: - 2-3 model cases in which different business model types and/or finance instruments will be piloted will be in the stage of implementation

Brief summary of your actual 2017 contribution towards the selected MOG: <Not Defined>

Brief`2017 plan of the gender and social inclusion dimension of the expected annual output: - The business models which will be piloted will be inclusive business model types involving women as inclusive business partners - The selection of finance instruments to be piloted will be mainly based on their expected utility for women farmers and women led agri-business

Summary of the gender and social inclusion dimension of the 2017 outputs: <Not Defined>

Major Output groups - 2016

F2 (before F1 - Andy): Evidence on equitable CSA certification schemes, new agri-business models, financial incentive mechanisms and policy instruments to promote and mainstream CSA adoption at different levels of the value chain (LAM, WA, SA, SEA)

Brief bullet points of your expected annual 2016 contribution towards the selected MOG: - Increased knowledge on types of business models and finance instruments in use and their critical success factors for scaling CSA - 2-3 model cases in which different business model types and/or finance instruments will be piloted will be identified and designed

Brief summary of your actual 2016 contribution towards the selected MOG: First inventories resulted into increased knowledge on: - Projects in CCAFS regions with potentials for scaling CSA through business models and adequate financial products and services; - Supply of financial products and services in the CCAFS regions. Draft outline scientific paper indicates gaps in current financial products and services.

Brief`2016 plan of the gender and social inclusion dimension of the expected annual output: - The assessment of access to and utility of finance instruments in view of scaling CSA will predominantly target smallholder farmers of which 50% are women - Existing and emerging business models will be assessed in terms of inclusiveness. Inclusive business models can promote women's economic empowerment

Summary of the gender and social inclusion dimension of the 2016 outputs: The inventory 'Supply of financial products and services in the CCAFS regions' distinguishes financial instruments that target women farmers or women led SMEs.

Major Output groups - 2015

F2 (before F1 - Andy): Evidence on equitable CSA certification schemes, new agri-business models, financial incentive mechanisms and policy instruments to promote and mainstream CSA adoption at different levels of the value chain (LAM, WA, SA, SEA)

Brief bullet points of your expected annual 2015 contribution towards the selected MOG: <Not Defined>

Brief summary of your actual 2015 contribution towards the selected MOG: <Not Defined>

Brief`2015 plan of the gender and social inclusion dimension of the expected annual output: <Not Defined>

Summary of the gender and social inclusion dimension of the 2015 outputs: <Not Defined>

5.2 Deliverables

D1907 - work plan 2017

Main Information

Type: Reports and other publications
Subtype: Concept note
Status: Complete
Year of expected completion: 2016
New expected year: 2016

Cross-cutting dimension:
- Gender
- Capacity Development

Gender level(s):
- Development of innovations/ interventions/ policies with explicit gender targeting

Deliverable dissemination

Is this deliverable already disseminated: No
Open access: No
Open access restriction: Intellectual Property Rights (confidential information)
License adopted: No

Deliverable Metadata

Disseminated title: Workplan 2017
Description / Abstract: <Not Defined>
Publication / Creation date: <Not Defined>
Language: <Not Defined>
Country: Global
Keywords: <Not Defined>
Citation: <Not Defined>
Handle: <Not Defined>
DOI: <Not Defined>
Creator / Authors: <Not Defined>

Deliverable Quality check

FAIR Compliant: F A I R

Deliverable Data sharing

Deliverable files:
https://marlo.cgiar.org/data/ccafs/projects//248/deliverableDataSharing/Full_Project_Report-CCAFS-P

248-20170117-0019.%202017%20last%20version.pdf

Partners contributing to this deliverable:

Institution	Partner	Type
WUR - Wageningen University and Research Centre	Groot, Annemarie <annemarie.groot@wur.nl>	Responsible

D1861 - Potential case studies for learning about finance, business models and capacity building for scaling CSA

Main Information

Type: Reports and other publications

Subtype: Concept note

Status: Complete

Year of expected completion: 2016

New expected year: 2016

Cross-cutting dimension:

- Gender
- Youth
- Capacity Development

Gender level(s):

- Collection of sex-disaggregated data

Deliverable dissemination

Is this deliverable already disseminated: No
Open access: No
Open access restriction: Intellectual Property Rights (confidential information)
License adopted: No

Deliverable Metadata

Disseminated title: Results of CSA Case Inventory Questionnaire
Description / Abstract: The concept note presents a list of 10 potential case studies generated on the basis of a questionnaire. Projects were included where financing was noted as a need or possibly able to enhance CSA adoption, and where facilitating agents were already present in the project. In addition, the financial viability of the CSA technologies/practices and scalability were taken into account.
Publication / Creation date: 2016-11-01
Language: English
Country: Global
Keywords: finance, business models and capacity building for scaling
Citation: Long, T., Martinez Baron, D. Ouedraogo, M., Recha, J., Zougmore, R. AGGARWAL, P. Loboguerrero Rodriguez, A.M., Sebastian, L., Khatri – Chhetri, A., Radeny, M., G. Swarte, and A. Groot (2016). Wageningen UR –CCAFS, Wageningen, The Netherlands.
Handle: <Not Defined>
DOI: <Not Defined>
Creator / Authors:

- Long - Thomas<Wageningen University and Research>
- Martinez Baron - Deissy<CIAT-CCAFS>
- Ouedraogo - Mathieu<ICRISAT-Mali>

- Recha - John<ILRI>
- Aggarwal - Pramod<CIMMYT>
- Loboguerrero Rodriguez - Ana Maria<CIAT-CCAFS>
- Sebastian - Leocadio<IRRI>
- Khatri - Chhetri, - Arun<CIMMYT>
- Radeny - Maren<ILRI>
- Groot - Annemarie<Wageningen University and Research>

Deliverable Quality check

FAIR Compliant: F A I R

Deliverable Data sharing

Deliverable files:
https://marlo.cgiar.org/data/ccafs/projects//248/deliverableDataSharing/Overview%20of%20first%20inventory%20results.%20fin.docx

Partners contributing to this deliverable:

Institution	Partner	Type
WUR - Wageningen University and Research Centre	Groot, Annemarie <annemarie.groot@wur.nl>	Responsible
CIMMYT - Centro Internacional de Mejoramiento de Maíz y Trigo	Aggarwal, Pramod <P.K.Aggarwal@cgiar.org>	Other
IRRI - International Rice Research Institute	Leocadio, Sebastian<l.sebastian@irri.org>	Other
CIAT - Centro Internacional de Agricultura Tropical	Loboguerrero, Ana Maria<a.m.loboguerrero@cgiar.org>	Other
ICRISAT - International Crops Research Institute for the Semi-Arid Tropics	Zougmore, Robert <R.Zougmore@cgiar.org>	Other
ILRI - International Livestock Research Institute	Radeny, Maren <M.Radeny@cgiar.org>	Other

5.3 Project Highlights

Project highlight 175	
Title: Fourth call Food & Business Global Challenges Programme (Dutch NWO-CCAFS call)	
Author: Food & Business Global Challenges Programme, CCAFS and NWO	**Subject:** Call on Business models, finance and other incentives for scaling CSA
Publisher: NWO-CCAFS	**Year reported:** 2016
Project highlights types: ● Gender and social inclusion ● Participatory action research ● Capacity enhancement ● Breakthrough science ● Policy engagement ● Food security	**Is global:** Yes
Start date: Nov 2016	**End date:** Dec 2016
Keywords: Business models, finance, incentives for scaling CSA	**Countries:**
Highlight description: This fourth GCP call is developed in collaboration with the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). It is considered a component in the Netherlands–CGIAR partnership for the years 2017-2020, on which a Memorandum of Understanding (MoU) between the government of the Netherlands and the CGIAR was signed on 21 September 2015. The partnership goals described in the MoU are: to jointly enhance International Agricultural Research (IAR) with a view to contributing to achieving the Sustainable Development Goals; to optimise the effectiveness of Dutch IAR knowledge, innovation and research capacities by enhancing leverage and strengthening linkages to the CGIAR system; to answer to CGIAR's interest in mobilising global partners for the best science and for those along the research impact pathways towards development outcomes by providing opportunities to engage Dutch partners with the relevant expertise. This GCP call, financed by the Dutch Ministry of Foreign Affairs and NWO-WOTRO Science for Global Development, will provide 2 million euros for projects closely aligned with current CCAFS projects to strengthen applied research on Business models, finance, incentives for scaling CSA.	
Introduction / Objectives: The aim of this call is to contribute to business models, incentives and innovative finance for scaling CSA. Specific objectives include: 1. Explore new business models for Climate-Smart Agriculture (CSA) at local levels; 2. Explore innovative value-chain based incentive mechanisms for CSA adoption 3. Explore emerging innovative finance instruments that will support CSA scaling up 4. Improve the enabling conditions for scaling up	
Results: The call is developed in 2016. The launch of the call was on 10-2-2017. Currently, consortia are being established and the development of proposals is ongoing	
Partners: CCAFS, Dutch Food & Business Global Challenges Programme, Dutch Ministry of Foreign Affairs and NWO (Dutch Research Council)	
Links / Sources for further information: http://www.nwo.nl/en/funding/our-funding-instruments/wotro/food--business-research/food--business-global-challenges-programme-gcp/food--business-global-challenges-programme-gcp.html	

6. Activities

A594 - Guidelines for inventory of practices and experiences with business models and finance instruments in CCAFS.

Description: Guidelines will be used for mapping existing practices and experiences with business models and innovative finance instruments as mechanisms to bring CSA to scale. The questions will focus on past and current practices and experiences with business models and (climate) finance gained from CCAFS1 and other CRPs in the CCAFS regions. It will consider different biophysical ? socio economic contexts and different target groups according to the level of integration in e.g. value chains. Experience with building small farmers? capacity with business modelling and the use of new finance instrument will be addressed as well.

Start date: Sep 2016 **End date:** Sep 2016

Activity leader: WUR - Wageningen University and Research Centre Groot, Annemarie <annemarie.groot@wur.nl>
Status: Complete

Overall activity or progress made during this cycle: <Not Defined>

Deliverables in this activity:

<Not defined>

A595 - Mapping smallholder farmers/SMEs'needs for financial products and services

Description: - Mapping smallholder farmers/SMEs'needs for financial products and services within the CCAFS regions - Develop a shortlist of priority case studies

Start date: Sep 2016 **End date:** Apr 2017

Activity leader: WUR - Wageningen University and Research Centre Ruben, Ruerd <ruerd.ruben@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: A questionnaire for mapping smallholder farmers/SMEs'needs for financial products and services has been developed

Deliverables in this activity:

- D1906: Selection, design, planning and implemenation of max. 3 cases studies

A596 - Drafting a paper- Gaps between smallholder farmers'/SMEs' demand and supply of finance for CSA

Description: Paper discusses the gaps between smallholder farmers' /SMEs' demand for finance to invest in CSA and its supply. The added value of the paper includes the inventory of demand and experience of smallholder farmers and SMEs with the avalaible financial instruments and services. Particular focus will be on the demand and experiences of women farmers and women led SMEs.

Start date: Sep 2016 **End date:** Jul 2017

Activity leader: WUR - Wageningen University and Research Centre Groot, Annemarie <annemarie.groot@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: A first draft of the paper has been prepared

Deliverables in this activity:

- D1960: 'Supporting farmers and SMEs to invest in and adopt climate smart agriculture'

A598 - Elaboration of work plan 2017

Description: The work plan for 2017-2019 will be developed in close collaboration with CCAFS partners (Regional programme leaders, CIAT), other partners including WB and Care and, with key stakeholders of the selected pilots.

Start date: Nov 2016 **End date:** Dec 2016

Activity leader: WUR - Wageningen University and Research Centre Groot, Annemarie <annemarie.groot@wur.nl>
Status: Complete

Overall activity or progress made during this cycle: <Not Defined>

Deliverables in this activity:

<Not defined>

A654 - Searching for additional funding for CoA 2.4

Description: There will be a continuous search for additional funds to extend the project. Opportunities such as the Dutch GPC/CCAFS/NWO call and the SNV supported initiative Climate Smart Agriculture in East Africa will be fully exploited.

Start date: Dec 2016 **End date:** Dec 2022

Activity leader: WUR - Wageningen University and Research Centre Groot, Annemarie <annemarie.groot@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: The project contributed to the text of the Dutch GPC/CCAFS/NWO call

Deliverables in this activity:

- D2186: Partnership landscape analysis and funding opportunities (yearly update)

A655 - Implementation of 2-3 case studies

Description: In the 2nd half of 2017, 2-3 case studies will be implemented. These case studies will target smallholder farmers and SMEs' who are assisted through tailored financial products and services in combination with capacity building to make their way of farming more climate smart and more market oriented.

Start date: Sep 2017 **End date:** Dec 2017

Activity leader: WUR - Wageningen University and Research Centre Groot, Annemarie <annemarie.groot@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: First identification of potential case studies was made

Deliverables in this activity:

- D1906: Selection, design, planning and implemenation of max. 3 cases studies

A726 - Building strategic partnership

Description: Partnership will be further develop with organisations such as CARE, GIZ, SNV, who assist smallholder farmers and SMEs in agribusiness development and provide them with financial support. These organisations lack CCAFS knowledge on climate smart portfolios. By combining different fields of expertise and networks synergy for scaling CSA is to be achieved.

Start date: Jan 2017 **End date:** Dec 2022

Activity leader: WUR - Wageningen University and Research Centre Ruben, Ruerd <ruerd.ruben@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: Discussions with CARE and SNV on how to collaborate on scaling CSA have taken place

Deliverables in this activity:

- D2186: Partnership landscape analysis and funding opportunities (yearly update)

7. Leverages

No leverages added

Title: WUR Sustainable intensification of dairy production in Indonesia

1. Description

Start date	End date	Management liaison	Mgmt. liaison contact
Jul 2016	Jun 2019	F3	Wollenberg, Lini <Lini.wollenberg@uvm.edu>

Funding source types	Status	Lead Organization	Project leader
W1/W2	On-going	WUR - Wageningen University and Research Centre - Netherlands	Andeweg, Karin <karin.andeweg@wur.nl>

Project is working on

Flaship(s)
F3 (Lini): Low emissions development

Region(s)
SEA: Southeast Asia

Project summary

SIDPI is an action oriented research project aiming to develop feasible low-emission strategies for Indonesian small-holder dairy farmers that will: • sustainably increase farm productivity of small-holder dairy farmers, while; • reducing greenhouse gas emissions; • improving resource use efficiency, and; • improve farmer incomes and livelihoods on the long term. The project will do that by developing new knowledge and customised solutions for improved feeding, manure and animal management strategies at farm level and cooperative level. Activities consists of i) 'development' activities (design and piloting of improved feeding, manure and animal management practices), ii) scientific 'research' activities to assess ecological, economic and social sustainability of current and improved practices, including assessing the process of adoption of improved practices, and iii) activities to ensure upscaling and dissemination of results via training and demonstrations.

2. Partners

Partner #1 (Leader)

Institution: WUR - Wageningen University and Research Centre

Contact(s):

Type	Contact	Responsibilities and contributions	Branch
Partner	Vellinga, Theun <theun.vellinga@wur.nl>	Expert input on improving manure management; calculating impact of improved practices on GHG emissions	HQ
Project Leader	Andeweg, Karin <karin.andeweg@wur.nl>	Project leader - Overall project management and coordination; strategic planning; financial control. First contact person for partners and external contacts.	HQ
Project Coordinator	de Vries, Marion <marion.devries@wur.nl>	Research coordinator, coordinator MSc / PhD students, vice-project leader	HQ
Partner	Wouters, Bram <Bram.Wouters@wur.nl>	Expert input on feeding; improved feeding rations; feeding qualities; training and adoption	HQ

Partner #2

Institution: Bogor Agriculture University-Indonesia

Contact(s):

Type	Contact	Responsibilities and contributions	Branch
Partner	Abdullah, Luki <lukiabdullah@gmail.com>	Supervision & co-promotor PhD candidates Supervision MSc students	HQ

Lessons regarding your partnerships and possible implications for the coming planning cycle:

Year	Lesson(s)
2016	IPB: - One succesful application of SIDPI PhD project for Indonesian LPDP scholarship, other one failed. Latter PhD project is now financed by WUR-CCAFS budget (total EUR 110.000,-), with payment spread over 3 years. This implies less budget for WUR researchers in 2017/2018. - No Indonesian MSc's of IPB have started in 2016 due to less flexible curriculum at IPB - they should be starting September 2017.

Partnerships overall over the last reporting period:

In December I requested to add our partners (incl. all names of persons) to the dropdown list: unfortunately still not available? Accomplishments SIDPI Partners 2016: 1) Bogor Agricultural University (IPB): co-supervision 1 Dutch MSc, start-up 2 PhD sandwich projects co-supervised WUR/IPB, Dean of Faculty in Advisory Board. 2) KPSBU Jabar (dairy coop): very active support of project (5 meetings in 2016), confirmed in LoC SIDPI/KPSBU; 3) Frisian Flag Indonesia (FFI): very actively supporting and advising project; 4) Trouw Nutrition Indonesia (TNI): active participation in meetings and stakeholder workshops, seat in Advisory Board.

3. Locations

This project is not global

Project level	Latitude	Longitude	Name
Country			Aland Islands

4. Outcomes

4.1 Project Outcomes

Project Outcome statement:
The Sustainable Intensification of Dairy Production in Indonesia project will lead to low-emission strategies for small-holder dairy farmers in West Java that will increase productivity while reducing GHG emissions. The project directly targets members of dairy cooperative KPSBU Jabar (4500 active members), most of which are small-scale dairy farmers with little resources and depending on dairy farming for income generation. By developing improved strategies for feeding, manure, and animal health, resource use efficiency and productivity per cow will increase, farmers' income will increase while GHG emissions per unit of product will decrease. The project uses a participatory approach with farmers and the dairy cooperative to ensure implementation in practice. End-users of the low-emissions startegies are small-holder dairy farmers in Indonesia and the Southeast Asian region.

Annual progress towards outcome (end of 2016*): 1) Inception phase - will lead to a preliminary list of best management practices and solutions for improved low-emission feeding, manure, and animal management at farm, cooperative and regional level. The inception phase includes a stakeholder workshop on manure management and a farmer group discussion. 2) A baseline study among 300 farmers will result in a dataset containing baseline characteristics, practices and performance of KPSBU dairy farms. 3) First pilot at Demo Farm to demonstrate improved manure management practices 4) Training for lead farmers and extension workers on sustainable intensification to prepare for pilots in 2017 5) Communication: at least two news items 6) Scientific dissemination: presentation at World Dairy Summit, October 2016. 7) Two Phds and 1 MSc started.

Annual progress towards project outcome in the current reporting cycle (2016*): - Consensus with project partners and local stakeholders (farmers, private sector, policy makers) about locally suitable low-emission strategies for smallholder dairy farmers in project area Lembang, simultaneously improving productivity, income, resource use efficiency, and reducing GHG emission intensities. - Agreement on work plan for achieving project outcomes (Advisory Board meeting, kick-off meeting, Letter of Commitment SIDPI/KPSBU (see upload), stakeholder meeting Feb 2017) - Start-up of research (1 MSc, 2 PhD's, other researchers WUR&IPB) for estimating effects of these strategies on productivity, income, resource use efficiency, and GHG emissions. - First research results are available (see Deliverables: Farmer Focus Group Discussion, Baseline Survey, Farm Assessments) - Training for lead farmers and extension workers was moved to 2017. - Communication and dissemination activities accomplished (see below). Evidence documents can be found under Deliverables.
How communication and engagement activities have contributed to achieving your Project outcomes:* - Meetings, stakeholder workshop and FGD for raising awareness on poor feeding, manure, and animal health management and implications for environmental impacts of KPSBU dairy farms among i) farmers and dairy coop, ii) knowledge institutions and NGO's, iii) local and national policy makers, and iv) private sector. - Two news items on kick-off of SIDPI project: WUR Twitter (@WURlivestock) and website (https://www.wur.nl/en/newsarticle/Indonesian-smallholders-start-sustainable-intensification-of-dairy-pr

oduction.htm) - Scientific dissemination via poster presentation at World Dairy Summit (October 2016; problem description and project aims). Evidence documents can be found under Deliverables.

Evidence documents of progress towards outcomes:* <Not Defined>

Annual progress towards outcome (end of 2017): 1) Best management low-emission strategies at 10-15 demo farms implemented 2) Training of farmers and extention workers at the demo farms 3) Farmer focus group discussions on implementation of BMPs 4) Business case description for manure management at small holder dairy farms 5) 2 MSc thesis finalised 6) 1-2 Blogs, at least four news items at CCAFS website 7) Popular article / info brief 8) Presentation at international scientific event (TBD) 9) Farmer event to target more farmers in West Java region

Annual progress towards outcome (end of 2018): At least: 1) implementation of and upscaling to 100-150 pilot farms 2) Report on regional feed balance 3) Endline study to assess implementation of low emissions strategies and quantify reduced GHG emissions 4) Global Event

lessons regarding your Theory of Change and implications for the coming planning cycle; e.g. how have your assumptions changed, or do you have stronger evidence for them:* - The sourcing of higher quality feed stuffs is an immense challenge for most smallholder dairy farmers in Lembang, due to the scarcity of land (Lembang being a peri-urban area) and the lack of finance for purchasing higher quality feed inputs. Current feeding practices, however, are poor. This implies that farmers can optimize their feeding based on currently available feed resources. Therefore, the project will focus on improving feeding practices (e.g. increasing the frequency of roughage supply, ad libitum water supply) and balanced rations. These practices are expected to reduce feed inputs (e.g. lower amounts of concentrates) and to increase productivity, both of which are contributing to reduced GHG emission intensities. - Currently 85% of dairy farmers in Lembang are wasting at least part of the manure produced on their farm. Because the density of cattle per unit of land is extremely high in Lembang, not only production of sufficient fodder but also application of manure on land is an immense challenge. This is aggrevated by the fact that almost half of their land is located far away (i.e. more than 500 meters) from the farm. Solutions in the project are therefore focussing on i) increasing application on owned fodder crops in land-based farms, ii) sales to neighbouring farms, and iii) dairy farms collectively selling manure to a processor or trader, with application by large-scale end-users (e.g. horticulture, flower sector, tea plantation). Increased application of cattle manure in other sectors is expected to reduce synthetic fertilizer use in those sectors, thereby contributing to reduction of GHG emissions.

4.2 CCAFS Outcomes

RP SEA Outcome 2019: Public sector institutions, innovate, plan, invest, regulate/reform/enforce laws and provide incentives for understanding, accessing and implementing low-emission/CSA technologies appropriate for local contexts through multi-stakeholder consultation.

Indicator #1: # of low emissions plans developed that have significant mitigation potential for 2025, i.e. will contribute to at least 5% GHG reduction or reach at least 10,000 farmers, including at least 10% women.

2015
Target value: <Not Defined>
Cumulative target to date: 0
Target narrative: <Not Defined>
The expected annual gender and social inclusion contribution to this CCAFS outcome: <Not Defined>

2016
Target value: 1
Cumulative target to date: 1
Target achieved: 1.0
Target narrative: pre-limenary list of best management practices for low emission plans on feeding, manure, animal health. First testing of BMP at Demo Farm.
Narrative for your achieved targets, including evidence: Low emissions plans are captured in the work plans for the pilot activities on the KPSBU model farm and 10-15 practical dairy farms (2017). The low emission plans concern: - improved feeding and nutrition (incl. improved feeding practices, water provision, balanced rations, fodder conservation techniques, feed through design); - improved handling and utilization of cattle manure (incl. improved collection, storage and treatment methods; improved methods for application on fodder crops (field experiments), enhancing utilization of cattle manure outside dairy sector (horticulture, flower, other).
Narrative for your achieved annual gender and social inclusion contribution to this CCAFS outcome: Analyses of the baseline survey and farm assessment (Nov-Dec 2016) will be analyzed in 2017 (gender specific).
The expected annual gender and social inclusion contribution to this CCAFS outcome: The baseline study and BMP low emissions feeding, manure and animal management, will pay special attention to the role of gender in adoption of innovations and other improvements on farms

2017
Target value: 3 **Cumulative target to date:** 4 **Target narrative:** Uptake of BMPs and interventions by: BMPs upscaled to pilot farms and more farmers by means of training. BMPs presented to other dairy coops in West Java and FFI (private (dairy) sector organisations (3) BMPs presented to education institutes to support uptake of results in secondary and vocational training Local government **The expected annual gender and social inclusion contribution to this CCAFS outcome:** Training, demonstration, upsclaing activities of BMP low emissions feeding, manure and animal management, will pay special attention to the role of gender in adoption of innovations and other improvements on farms

2019
Target value: 10 **Cumulative target to date:** 14 **Target narrative:** BMPs & experiences in pilots, disseminated to other parts of Indonesia and SE Asia. Uptake of results by local government (1) national government (ministry) (1), Dutch Embassy (1) International (research) organisations (ILRI, GASL, FAO) (3) NGOs (Hivos, AgriProFocus) (2) Indonesian universities / education institutes (IPB, UNPAD) (2) **The expected annual gender and social inclusion contribution to this CCAFS outcome:** <Not Defined>

Major Output groups:

- F3 (Lini): Methods and data for quantifying low-emissions agriculture options appropriate to smallholder farmers

- F3 (Lini): Decision support for identifying and prioritizing low-emissions CSA options, including synergies and tradeoffs with development objectives

- F3 (Lini): Incentives and innovations for scale-up of low-emissions practices and avoided deforestation by agricultural commodities

4.3 Other Contributions

Contribution to other CCAFS Impact Pathways:
The project will liaise with CCAFS projects focused on dairy production, like the Mitigation in livestock and low emissions development pathways in East Africa led by ILRI, that aims to determine system-specific pathways for improving animal feeding and reduce emissions per unit of output; and the Nationally Appropriate Mitigation Actions for dairy development project in Kenya, led by ICRAF that aims to develop implementable strategies for reducing GHG emissions intensities from dairy production. Information and experience on emission measurement, and appropriate farm management options will be exchanged with both projects, as well as exchange visits and possibly joint publications.

Collaborating with other CRPs

<This project does not have a CRP selected yet.>

4.4 Case Studies

No case studies added

5. Project outputs

5.1 Overview by MOGs

Major Output groups - 2019
F3 (Lini): Methods and data for quantifying low-emissions agriculture options appropriate to smallholder farmers **Brief bullet points of your expected annual 2019 contribution towards the selected MOG:** - 2019: GHG emission reduction of interventions (BMPs) quantified based on Global Livestock Environmental Assessment Model (GLEAM), which is adapted for small holder farmers (De Vries et al, 2015, in prep) **Brief`2019 plan of the gender and social inclusion dimension of the expected annual output:** 15% of KPSBU members are women, and more women are working on the KPSBU farms. The endline study will differentiate emissions, yields and adoption barriers by gender.
F3 (Lini): Decision support for identifying and prioritizing low-emissions CSA options, including synergies and tradeoffs with development objectives **Brief bullet points of your expected annual 2019 contribution towards the selected MOG:** <Not Defined> **Brief`2019 plan of the gender and social inclusion dimension of the expected annual output:** <Not Defined>
F3 (Lini): Incentives and innovations for scale-up of low-emissions practices and avoided deforestation by agricultural commodities **Brief bullet points of your expected annual 2019 contribution towards the selected MOG:** <Not Defined> **Brief`2019 plan of the gender and social inclusion dimension of the expected annual output:** <Not Defined>

Major Output groups - 2017
F3 (Lini): Methods and data for quantifying low-emissions agriculture options appropriate to smallholder farmers **Brief bullet points of your expected annual 2017 contribution towards the selected MOG:** - 2016: list of key factors affecting adoption (barriers / success) - 2017: Interventions for (potential) emission reduction quantified based on Global Livestock Environmental Assessment Model (GLEAM), which is adapted for small holder farmers (De Vries et al, 2015, in prep), on coop and regional level. **Brief summary of your actual 2017 contribution towards the selected MOG:** <Not Defined> **Brief`2017 plan of the gender and social inclusion dimension of the expected annual output:** <Not Defined> **Summary of the gender and social inclusion dimension of the 2017 outputs:** <Not Defined>

F3 (Lini): Decision support for identifying and prioritizing low-emissions CSA options, including synergies and tradeoffs with development objectives

Brief bullet points of your expected annual 2017 contribution towards the selected MOG: - GLEAM adapted to quantify emission reduction in relation to cost-benefit analyses to assess feasibility of proposed interventions. This will support decision-making.

Brief summary of your actual 2017 contribution towards the selected MOG: <Not Defined>

Brief`2017 plan of the gender and social inclusion dimension of the expected annual output: <Not Defined>

Summary of the gender and social inclusion dimension of the 2017 outputs: <Not Defined>

F3 (Lini): Incentives and innovations for scale-up of low-emissions practices and avoided deforestation by agricultural commodities

Brief bullet points of your expected annual 2017 contribution towards the selected MOG: <Not Defined>

Brief summary of your actual 2017 contribution towards the selected MOG: <Not Defined>

Brief`2017 plan of the gender and social inclusion dimension of the expected annual output: <Not Defined>

Summary of the gender and social inclusion dimension of the 2017 outputs: <Not Defined>

Major Output groups - 2016

F3 (Lini): Methods and data for quantifying low-emissions agriculture options appropriate to smallholder farmers

Brief bullet points of your expected annual 2016 contribution towards the selected MOG: - Dataset containing baseline characteristics, practices and performance of KPSBU dairy farms (based on the Global Livestock Environmental Assessment Model (GLEAM), which is adapted for small holder farmers - List of potential solutions for improved low-emission feeding, manure, and animal management at farm, cooperative

Brief summary of your actual 2016 contribution towards the selected MOG: A baseline survey was performed among 300 randomly selected dairy farmers of KPSBU Lembang in Lembang on current dairy farming practices and performance and farmer barriers and incentives for change. Results of the baseline survey should contribute to identification of low-emission strategies that suit local farming systems and context.

Brief`2016 plan of the gender and social inclusion dimension of the expected annual output: 15% of KPSBU members are women, and more women are working on the KPSBU farms. The baseline will differentiate emissions, yields and adoption barriers by gender.

Summary of the gender and social inclusion dimension of the 2016 outputs: Not yet - Analyses of the baseline survey should yield information on the gender dimension of current dairy farming practices in Lembang (reporting in 2017).

F3 (Lini): Decision support for identifying and prioritizing low-emissions CSA options, including synergies and tradeoffs with development objectives

Brief bullet points of your expected annual 2016 contribution towards the selected MOG: n/a - contribution will be in 2017

Brief summary of your actual 2016 contribution towards the selected MOG: n/a - contribution will be in 2017

Brief`2016 plan of the gender and social inclusion dimension of the expected annual output: n/a - contribution will be in 2017

Summary of the gender and social inclusion dimension of the 2016 outputs: n/a - contribution will be in 2017

F3 (Lini): Incentives and innovations for scale-up of low-emissions practices and avoided deforestation by agricultural commodities

Brief bullet points of your expected annual 2016 contribution towards the selected MOG: In 2016, the project will start with a pilot at a Demo Farm to test and demonstrate low-emission interventions. The pilot will be supported by stakeholder workshop, farmer group discussion, training.

Brief summary of your actual 2016 contribution towards the selected MOG: Work plans for testing of low-emission interventions (feed, manure) and training at the Demo Farm are ready. Implementation, and reporting will become available in 2017. These work plans were discussed in stakeholder workshop in Feb 2017 with representatives of private sector, research institutes, and local/national government.

Brief`2016 plan of the gender and social inclusion dimension of the expected annual output: 15% of KPSBU members are women, and more women are working on the KPSBU farms. The activities to demonstrate and scale-up of low-emissions practices will give special attention to the role of women and specifically include women in the activities.

Summary of the gender and social inclusion dimension of the 2016 outputs: - 16% of respondents of baseline survey were women. - 27% of farmers in the Farmer Focus Group Discussions were women. - Both PhD students in the SIDPI project are women. - Female MSc student (2016-2017) - At least one female farmer (group leader) was selected for pilot farms 2017.

Major Output groups - 2015

F3 (Lini): Methods and data for quantifying low-emissions agriculture options appropriate to smallholder farmers

Brief bullet points of your expected annual 2015 contribution towards the selected MOG: <Not Defined>

Brief summary of your actual 2015 contribution towards the selected MOG: <Not Defined>

Brief`2015 plan of the gender and social inclusion dimension of the expected annual output: <Not Defined>

Summary of the gender and social inclusion dimension of the 2015 outputs: <Not Defined>

F3 (Lini): Decision support for identifying and prioritizing low-emissions CSA options, including synergies and tradeoffs with development objectives

Brief bullet points of your expected annual 2015 contribution towards the selected MOG: <Not Defined>

Brief summary of your actual 2015 contribution towards the selected MOG: <Not Defined>

Brief`2015 plan of the gender and social inclusion dimension of the expected annual output: <Not Defined>

Summary of the gender and social inclusion dimension of the 2015 outputs: <Not Defined>

F3 (Lini): Incentives and innovations for scale-up of low-emissions practices and avoided deforestation by agricultural commodities

Brief bullet points of your expected annual 2015 contribution towards the selected MOG: <Not Defined>

Brief summary of your actual 2015 contribution towards the selected MOG: <Not Defined>

Brief`2015 plan of the gender and social inclusion dimension of the expected annual output: <Not Defined>

Summary of the gender and social inclusion dimension of the 2015 outputs: <Not Defined>

5.2 Deliverables

D1873 - Stakeholder workshop manure management

Main Information

Type: Reports and other publications
Subtype: Research workshop report
Status: Complete
Year of expected completion: 2016
New expected year: <Not Defined>

Cross-cutting dimension:
- Capacity Development

Deliverable dissemination

Is this deliverable already disseminated: No
Open access: No
Open access restriction: Intellectual Property Rights (confidential information)
License adopted: No

Deliverable Metadata

Disseminated title: Minutes of Stakeholder Workshop Manure, March 2016 Bandung, West-Java.
Description / Abstract: Minutes of Stakeholder Workshop Manure, March 2016 Bandung, West-Java.
Publication / Creation date: 2016-03-01
Language: English
Country: Indonesia
Keywords: -
Citation: Minutes of Stakeholder Workshop Manure, March 2016 Bandung, West-Java.
Handle: <Not Defined>
DOI: <Not Defined>
Creator / Authors:
- Al Zahra - Windi

Deliverable Quality check

FAIR Compliant: F A I R

Deliverable Data sharing

Deliverable files:
https://marlo.cgiar.org/data/ccafs/projects//249/deliverableDataSharing/SIDPI_Stakeholder%20Workshop%20Manure_March%202016_Minutes.pdf

Partners contributing to this deliverable:

Institution	Partner	Type
WUR - Wageningen University and Research Centre	Andeweg, Karin <karin.andeweg@wur.nl>	Responsible
Bogor Agriculture University	Abdullah, Luki<lukiabdullah@gmail.com>	Other

D1874 - Farmer Focus Group Discussion

Main Information

Type: Reports and other publications
Subtype: Research workshop report
Status: Complete
Year of expected completion: 2016
New expected year: <Not Defined>
Cross-cutting dimension:
- N/A

Deliverable dissemination

Is this deliverable already disseminated: No
Open access: No
Open access restriction: Intellectual Property Rights (confidential information)
License adopted: No

Deliverable Metadata

Disseminated title: Minutes Farmer Focus Group Discussions, Oct 2016, Lembang
Description / Abstract: Minutes Farmer Focus Group Discussions, Oct 2016, Lembang
Publication / Creation date: 2016-10-01
Language: English
Country: Indonesia
Keywords: <Not Defined>
Citation: <Not Defined>
Handle: <Not Defined>
DOI: <Not Defined>
Creator / Authors:
- Panjaitan - Tangkas
- Suharyono - Deni

Deliverable Quality check

FAIR Compliant: F A I R

Deliverable Data sharing

Deliverable files:
https://marlo.cgiar.org/data/ccafs/projects//249/deliverableDataSharing/SIDPI_FGD_results_Oct%202016.pdf

Partners contributing to this deliverable:

Institution	Partner	Type
WUR - Wageningen University and Research Centre	de Vries, Marion <marion.devries@wur.nl>	Responsible

D1875 - Training on improved, low-emission feeding, manure, and animal management

Main Information

Type: Training materials

Subtype: Lecture/Training Course Material

Status: Extended

Year of expected completion: 2016

New expected year: 2017

Justification of new expected date of completion: Detailed insight in current dairy farming practices is required to develop training materials. Second, a pilot farm will be used for trainings, which is still in development. The baseline survey (300 farms) and farm assessments (50 farms) executed in 2016 will yield this information, based on which training material will be developed early 2017, and trainings to take place on the pilot farm towards mid 2017.

Cross-cutting dimension:
<Not Defined>

Deliverable dissemination

Is this deliverable already disseminated: No

Open access: No

Open access restriction: <Not Defined>

License adopted: No

Deliverable Metadata

Disseminated title: <Not Defined>
Description / Abstract: <Not Defined>
Publication / Creation date: <Not Defined>
Language: <Not Defined>
Country: <Not Defined>
Keywords: <Not Defined>
Citation: <Not Defined>
Handle: <Not Defined>
DOI: <Not Defined>
Creator / Authors: <Not Defined>

Deliverable Quality check

FAIR Compliant: F A I R

Deliverable Data sharing

Deliverable files:
<Not Defined>

Partners contributing to this deliverable:

Institution	Partner	Type
WUR - Wageningen University and Research Centre	de Vries, Marion <marion.devries@wur.nl>	Responsible

D1982 - News items Kick-off meeting Sustainable Intensification of Dairy Production Indonesia project

Main Information

Type: Outreach products

Subtype: Social Media Output

Status: Complete

Year of expected completion: 2016

New expected year: <Not Defined>

Cross-cutting dimension:

- N/A

Deliverable dissemination

Is this deliverable already disseminated: Yes

Dissemination Channel: Other

Dissemination URL: http://www.wur.nl/en/newsarticle/Indonesian-smallholders-start-sustainable-intensification-of-dairy-production.htm

Open access: Yes

License adopted: CC_BY_NC_ND

Deliverable Metadata

Disseminated title: New item official kick-off Sustainable Intensification of Dairy Production in Indonesia (SIDPI)
Description / Abstract: New item official kick-off Sustainable Intensification of Dairy Production in Indonesia (SIDPI)
Publication / Creation date: 2016-12-01
Language: English
Country: The Netherlands
Keywords: Sustainable, Intensification, Dairy, Indonesia
Citation: <Not Defined>
Handle: <Not Defined>
DOI: <Not Defined>
Creator / Authors:

- De Vries - Marion

Partners contributing to this deliverable:

Institution	Partner	Type
WUR - Wageningen University and Research Centre	de Vries, Marion <marion.devries@wur.nl>	Responsible

D1870 - Dataset containing baseline characteristics, practices and performance of feed, manure, animal health of dairy farms

Main Information

Type: Data, models and tools

Subtype: Database/Dataset/Data documentation

Status: Complete

Year of expected completion: 2016

New expected year: <Not Defined>

Cross-cutting dimension:

- Gender

Gender level(s):

- Collection of sex-disaggregated data

Deliverable dissemination

Is this deliverable already disseminated: No
Open access: No
Open access restriction: Intellectual Property Rights (confidential information)
License adopted: No

Deliverable Metadata

Disseminated title: Database Baseline Survey 2016 Dairy Farms KPSBU Lembang, West-Java
Description / Abstract: Database containing baseline characteristics, practices and performance of feed, manure, animal health of 300 dairy farms of dairy coop KPSBU Lembang (raw data). Baseline survey developed by WUR and IPB. Data collection by University of Padjajaran, Bandung (UNPAD).
Publication / Creation date: 2016-12-01
Language: English
Country: Indonesia
Keywords: <Not Defined>
Citation: <Not Defined>
Handle: <Not Defined>
DOI: <Not Defined>
Creator / Authors: <Not Defined>

Deliverable Quality check

FAIR Compliant: F A I R
Process of data quality assurance: ● No
Data dictionary:
● File:
https://marlo.cgiar.org/data/ccafs/projects//1870/deliverable/Dictionary/SIDPI_baseline_survey_datadi

ct_MARLO.xlsx

Are the tools used for data collection available:

- File: https://marlo.cgiar.org/data/ccafs/projects//1870/deliverable/Tools/SIDPI_baseline_survey_QNR_MARLO.xlsx

Deliverable Data sharing

Deliverable files:

https://marlo.cgiar.org/data/ccafs/projects//249/deliverableDataSharing/SIDPI_baseline_survey_results_MARLO.xlsx

Partners contributing to this deliverable:

Institution	Partner	Type
WUR - Wageningen University and Research Centre	de Vries, Marion <marion.devries@wur.nl>	Responsible

D1871 - Conference poster - Reducing environmental impact&nuisance at landless dairy farming systems in Indonesia

Main Information

Type: Outreach products

Subtype: Presentation/Poster

Status: Complete

Year of expected completion: 2016

New expected year: <Not Defined>

Cross-cutting dimension:

- N/A

Deliverable dissemination

Is this deliverable already disseminated: Yes

Dissemination Channel: Other

Dissemination URL: http://www.idfwds2016.com/wp-content/uploads/2016/10/Abstract-book-def.pdf

Open access: Yes

License adopted: No

Deliverable Metadata

Disseminated title: Reducing environmental impact and nuisance in landless dairy farming systems in Indonesia: an example of improving manure management

Description / Abstract: Increasing demand for dairy products in urban areas worldwide causes a shift towards more geographically concentrated livestock system in peri-urban areas, where little land is available. As a result, a disconnection occurs between the location where livestock production takes place and where feed is produced, and, consequently, where manure can be applied. The aim of this project was to develop improved manure management options for landless dairy farming, customised to the local context. Dairy cooperative KPSBU in peri-urban Lembang, Java, has indicated manure as key challenge for the sustainability of its business. 55% of the cooperative's smallholder dairy farmers (3-4 cows) have no land. 45% has little land, often located away from the dairy farm. Only 20% of the estimated 100,000 tonnes of dung annually produced in Lembang could be used for fertilisation of own land. Excess manure could be used by nearby crop farmers, however, this is hardly done in practice while expensive chemical fertilisers are purchased for crop production. Manure is discharged into waterstreams, leading to loss of nutrients, environmental pollution, and complaints from neighbours. This project defined two chains for improved manure utilisation: 1) Direct manure delivery between dairy farms and nearby crop farms, 2) Manure collection points to deliver manure to crop farms/plantations and organic fertiliser plants. By means of stakeholder interviews and field visits, a SWOT-analysis of these chains is presented. The main strengths are considered to be the organic matter content of manure; reduced environmental impact and nuisance; and improved animal hygiene. Main challenges are transportability of manure; insecure markets for manure products and motivation of farmers. The next step is further design, test and demonstrate improved manure chains, combined with improved feeding and animal health strategies, together leading to increased

productivity and farmer income and reduced GHG emissions and nutrient losses.
Publication / Creation date: 2016-10-01
Language: English
Country: The Netherlands
Keywords: Dairy, manure, environment, nutrient loss
Citation: K. ANDEWEG, M. de Vries, W. Al-Zahra, T. Vellinga. Reducing environmental impact and nuisance at landless dairy farmingsystems in Indonesia: example of improving manure management. Abstract in: Abstract Book IDF World Dairy Summit 2016.
Handle: <Not Defined>
DOI: <Not Defined>
Creator / Authors:
- Andeweg - Karin
- Vellinga - Theun<orcid.org/0000-0002-0784-1318>
- Windi - Al Zahra
- Marion - de Vries<orcid.org/0000-0002-0221-389X>

Deliverable Quality check

FAIR Compliant: F A I R

Partners contributing to this deliverable:

Institution	Partner	Type
WUR - Wageningen University and Research Centre	Andeweg, Karin <karin.andeweg@wur.nl>	Responsible
WUR - Wageningen University and Research Centre	Vellinga, Theun<theun.vellinga@wur.nl>	Other
WUR - Wageningen University and Research Centre	de Vries, Marion<marion.devries@wur.nl>	Other

5.3 Project Highlights

No project highlights added

6. Activities

A602 - Monitoring and evaluation

Description: The monitoring and evaluation component consists of: 2016: - Baseline survey executed among 300 KPSBU dairy farms in November-December 2016. Aim of the baseline study is to provide insight in current farming practices (especially feeding, manure, and animal health), with.specific attention for roles of women. - Farm assessment executed among 50 KPSBU dairy farms in December 2016. Aim of the 1-day farm assessment is to obtain more detailed data on feeding and nutrition, manure, animal health, economics, labour, and farmer motivations. 2017: - Monitoring and evaluation of 10-15 pilot farms. Aim is to evaluate effects of improved practices on technical, ecological, and economic performance of dairy farms. 2018: - Monitoring and evaluation of 100-150 pilot farms. Aim is to evaluate adoption pathways of improved practices, and effects of improved practices on technical, ecological, and economic performance in a large number of dairy farms.

Start date: Aug 2016 **End date:** Dec 2018

Activity leader: WUR - Wageningen University and Research Centre de Vries, Marion <marion.devries@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: - Baseline survey completed (database uploaded in MARLO, analyses in 2017). - Farm assessment completed (database upload and analyses in 2017). - Msc student started in 2016 (MSc report in 2017).

Deliverables in this activity:

- D1870: Dataset containing baseline characteristics, practices and performance of feed, manure, animal health of dairy farms
- D1969: Baseline characteristics, practices, and technical, economic, and ecological performance of dairy farms Lembang
- D1970: MSc thesis: GHG emissions from cattle manure in dairy farms in Lembang, West Java
- D1980: Newsitems on results of baseline survey
- D2211: Key factors influencing adoption of LED practices on 100-150 practical dairy farms in Lembang
- D2208: Effects of BMPs on productivity, resource use efficiency, and GHG emissions of Lembang dairy farms

A603 - Piloting of improved practices

Description: Feasible interventions will be piloted, implying low-cost and low-labour solutions on improved manure, feeding, and animal health management simultaneously on the same farms. Pilot farms will be designated based on the purpose of improving manure management, with pilots of improved feeding and health management starting half a year after the start of manure management interventions. A 3-step implementation of piloting activities will be used: 1. Improvement of manure-, feeding-, and animal health management on the KPSBU model farm in Cikahuripan (demo farm, 2016); 2. Improvement of manure-, feeding-, and animal health management on 10-15 practical dairy farms in Cikahuripan and Suntenjaya (demo farms, 2017); 3. Improvement manure-, feeding-, and animal health management on 100-150 practical dairy farms (?pilot farms?, 2018).

Start date: Aug 2016 **End date:** Dec 2018

Activity leader: WUR - Wageningen University and Research Centre de Vries, Marion <marion.devries@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: - Work plan for KPSBU model farm is ready and agreed upon by project partners. - Pilot farms are selected for pilot activities 2017, work plans in development.

Deliverables in this activity:

- D1974: Factsheet BMP low-emission feeding, manure, and animal management in SHF
- D1977: News items on piloting of low-emission practices at 10-15 practical dairy farms Lembang
- D2213: Practice guidelines for countries, supply chains and donors for LED priorities in smallholder dairy production

A604 - Inception Phase

Description: - preparatory field visits - stakeholder workshop - kick-off meeting project partners and advisory board meeting

Start date: Mar 2016 **End date:** Sep 2016

Activity leader: WUR - Wageningen University and Research Centre Andeweg, Karin <karin.andeweg@wur.nl>
Status: Complete

Overall activity or progress made during this cycle: <Not Defined>

Deliverables in this activity:

- D1873: Stakeholder workshop manure management
- D1982: News items Kick-off meeting Sustainable Intensification of Dairy Production Indonesia project
- D1871: Conference poster - Reducing environmental impact&nuisance at landless dairy farming systems in Indonesia

A605 - Workshops and meetings

Description: 2016-2019 - Stakeholder workshops (at least one per year) on feeding, manure, and/or animal management, to discuss opportunities and challenges for improving low-emission dairy production in Lembang, with stakeholder from local government, research institutes, private sector, ngo's, and farmers. (in 2016 a workshop was organized on the topic of manure management) - Regular Farmer Focus Group Discussions, to discuss and understand farmer motivations, opportunities and challenges for improving low-emission dairy production using improved feeding, manure and animal management practices in Lembang.

Start date: Mar 2016 **End date:** Mar 2019

Activity leader: WUR - Wageningen University and Research Centre de Vries, Marion <marion.devries@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: Two workshops and one FGD accomplished: - Stakeholder workshop March 2016 (manure management) - Stakeholder workshop February 2017 (feeding, manure, animal health) - Farmer Focus Group Discussions October 2016 (feeding, manure, animal health)

Deliverables in this activity:

- D1873: Stakeholder workshop manure management
- D1874: Farmer Focus Group Discussion
- D1971: Farmer focus group discussions on implementation of BMPs
- D1976: Stakeholder workshop on BMPs for feeding, manure, and animal management in Lembang dairy farms
- D2212: Farmer and stakeholder workshops on adoption of BMPs in Lembang dairy farms;

A606 - PhD and MSc research

Description: 2 PhD and 6-9 MSc research projects focussed on monitoring and evaluating ecological, economic and social sustainability of SHF in Lembang. (deliverables concern 2017 only) Supervision by WUR and IPB. PhD 'Sustainable Intensification of small-holder dairy farming by improving feeding and nutrition: - evaluate effects of improved feeding management strategies on economic, ecological, and social sustainability of dairy production systems in Lembang, West-Java. - identify barriers, incentives and extension methods that lead to adoption of improved practices at a wider scale. PhD 'Sustainable Intensification of small-holder dairy farming by improving manure management': - evaluate effects of improved manure management strategies on economic, ecological, and social sustainability of dairy production systems in Lembang, West-Java. - identify barriers, incentives and extension methods that lead to adoption of improved practices at a wider scale.

Start date: Oct 2016 **End date:** Oct 2020

Activity leader: WUR - Wageningen University and Research Centre de Vries, Marion <marion.devries@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: - 2 PhD projects started - 1 MSc research project started

Deliverables in this activity:

- D1871: Conference poster - Reducing environmental impact&nuisance at landless dairy farming systems in Indonesia
- D1970: MSc thesis: GHG emissions from cattle manure in dairy farms in Lembang, West Java
- D1972: MSc thesis: GHG emissions and identification of hotspots in pilot dairy farm of coop KPSBU
- D1979: Presentations scientific conferences
- D2216: Scientific publications on GHG, resource efficiency, and adoption of LED strategies in smallholder dairy farming

A610 - Field experiments

Description: 2017: - field experiments on fertilizer effects of cattle manure. Aims are to improve utilization of manure (versus disposal) and to increase productivity of fodder crops used for dairy cow feeding, as well as locally produced vegetables, and tea. To support use of organic fertilizer (versus synthetic fertilizer) by local vegetable farmers, a local vegetable research institute (IVEGRI) will be involved in the field trials and demonstrations to vegetable farmers.

Start date: Jan 2017 **End date:** Dec 2017

Activity leader: WUR - Wageningen University and Research Centre de Vries, Marion <marion.devries@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: - Project partners agreed upon field experiments on fertilizer effects of cattle manure in fodder production. Design of experiments wil be prepared during next months, with field experiments starting in May 2017. - IVEGRI is preparing a proposal for executing a survey among vegetable farmers in Lembang to identify barriers and incentives for using cattle manure. Field experiments on vegetables will not be executed because of limited budget (one PhD project had to be financed by SIDPI budget).

Deliverables in this activity:

<Not defined>

A681 - Trainings and demonstrations

Description: 2017: - Training (ToT) of dairy coop extension workers, private sector partner extension workers, researchers, and pilot farmers on improved, low-emission feeding, manure, and animal management in smallholder dairy farms in Lembang. - Demonstrations of improved practices for farmers and other stakeholders at: i) KPSBU model farm, ii) 10-15 practical pilot farms, iii) KPSBU farmer event (March 2017), iv) IVEGRI farmer event (vegetable research institute).

Start date: Mar 2016 **End date:** Dec 2017

Activity leader: WUR - Wageningen University and Research Centre de Vries, Marion <marion.devries@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: - Training of dairy coop extension workers and pilot farmers on improved feedin practices (incl. balanced rations) and manure management is planned for spring 2017; - SIDPI project will be presented at the KPSBU farmer event on 21/22 March 2017. - In 2018, demonstrations of improved practices will take place for farmers and other stakeholders at KPSBU model farm, and ii) 10-15 practical pilot farms.

Deliverables in this activity:

- D1875: Training on improved, low-emission feeding, manure, and animal management

7. Leverages

No leverages added

Title: WUR Bringing CSA practices to scale: assessing their contributions to narrow nutrient and yield gaps

1. Description

Start date	End date	Management liaison	Mgmt. liaison contact
Jul 2016	Jun 2019	F3	Wollenberg, Lini <Lini.wollenberg@uvm.edu>

Funding source types	Status	Lead Organization	Project leader
W1/W2	On-going	WUR - Wageningen University and Research Centre - Netherlands	Van Ittersum, Martin <martin.vanittersum@wur.nl>

Project is working on

Flaship(s)
F3 (Lini): Low emissions development

Region(s)
EA: East Africa

Project summary

Agricultural area expansion and agricultural intensification in Sub Saharan Africa (SSA) are expected to cause further increases in agricultural GHG emissions over the next decade. The current project aims at substantially improving food productivity in SSA (Ethiopia, Kenya and/or Tanzania) without corresponding increases in emission intensity of GHGs and nutrients to the environment. We will translate yield gaps into nutrient gaps. We aim at formulating promising smart options for managing nutrient gaps, based on the ?4Rs nutrient stewardship? approach in fertilization, which is also supported by the fertilizer industry (IFA). Our approach will take location specific conditions into account and assumes best use of available technologies building upon the 4Rs. Trade-off analysis of environmental and farm economic objectives and upscaling of detailed work at farm level are important components of the The approach will be generic and applicable to other countries, which is an important interest of the private sector.

2. Partners

Partner #1 (Leader)

Institution: WUR - Wageningen University and Research Centre

Contact(s):

Type	Contact	Responsibilities and contributions	Branch
Project Leader	Van Ittersum, Martin <martin.vanittersum@wur.nl>	Coordination of the project and team leader Contributing to WP1-5. Supervising sandwich PhDs from Ethiopia and Tanzania (funded through TAMASA) that have started in the autumn/winter 2015. We foresee engagement of these PhDs in the proposed project.	HQ
Partner	Reidsma, Pytrik <Pytrik.Reidsma@wur.nl>	Contributing to WP1-5 Supervising sandwich PhDs from Ethiopia and Tanzania (funded through TAMASA) that have started in the autumn/winter 2015. We foresee engagement of these PhDs in the proposed project.	HQ
Partner	van Loon, Marloes <Marloes.VanLoon@wur.nl>	Contributing to WP1-5	HQ
Partner	Lubbers, Marcel <marcel.lubbers@wur.nl>	Technical assistance (TechnoGIN, mathematical programming and GIS)	HQ
Partner	Zijlstra, Mink <Mink.Zijlstra@wur.nl>	Technical assistance (R scripts and dynamic modelling)	HQ
Partner	ten Berge, Hein <Hein.tenBerge@wur.nl>	Team leader Contributions to WP2 (generation of nutrient management options) and WP3 (trade-off analysis at farm level and experimental piloting). Contribute to dissemination and impact activities (WP5)	HQ
Partner	de Vries, Sander <sander.devries@wur.nl>	Contributions to WP2 (generation of nutrient management options) and WP3 (trade-off analysis at farm level and experimental piloting). Contribute to dissemination and impact activities (WP5) Contributing to WP1-5	HQ

Partner	Boogaard, Hendrik <Hendrik.Boogaard@wur.nl>	Team leader (matching from AgMIP); Responsible for database and Atlas visualisation (WP1 and WP4) and contributions to stakeholder engagement and uptake of project outcomes (WP5).	HQ
Partner	de Groot, Hugo <hugo.degroot@wur.nl>	Responsible for database and Atlas visualisation (WP1 and WP4) and contributions to stakeholder engagement and uptake of project outcomes (WP5).	HQ

Partner #2

Institution: IFA - International Fertiliser Association

Contact(s):

Type	Contact	Responsibilities and contributions	Branch
Partner	Heffer, Patrick <pheffer@fertilizer.org>	Help reaching out to fertilizer suppliers active in the three target countries, which could be among the main beneficiaries of the project Some of these leading suppliers could also be solicited to sponsor the project, and IFA could help create the link. Involvement in follow-up activities to help bridge the fertilizer gap and promote climate smart fertilizer management practices	HQ

Partner #3

Institution: UNL - University of Nebraska

Contact(s):

Type	Contact	Responsibilities and contributions	Branch
Partner	Grassini, Patricio <pgrassini2@unl.edu>	Team leader Contributions to WP1 (development of global protocol for determining nutrient gaps) and WP4 (defining and applying Technology Extrapolation Domains). This team will bring in expertise from GYGA and various maize agronomy projects in the US.	HQ
Partner	Cassman, Kenneth <kcassman1@unl.edu>	Contributions to WP1 (development of global protocol for determining nutrient gaps) and WP4 (defining and applying Technology Extrapolation Domains).	HQ
Partner	Rattalino Edreira, Juan Ignacio <rattalino@unl.edu>	Contributions to WP1 (development of global protocol for determining nutrient gaps) and WP4 (defining and applying Technology Extrapolation Domains).	HQ
Partner	Deng, Dr. Nanyang <Nanyang.Deng@gmail.com>	Technical assistance	HQ

Partner #4

Institution: YARA-United States

Contact(s):

Type	Contact	Responsibilities and contributions	Branch
Partner	Brentrup, Dr Frank. <frank.brentrup@yara.com>	Team leader Pre-financing fertilizers for piloting experiments of the project Network of Yara agronomists to get direct contact with farmers Other experts in the Yara team: Sharing expertise around fertilizers (including efficiency, nutrient losses, carbon footprint) Sharing of agronomic/soil/environmental data from previous projects (ECCAg); Bringing in the national partnerships developed by the other (past or ongoing) bilateral projects in the region Contributing to calculation of GHG emissions and N losses (WP2)	HQ

Partner #5

Institution: CIMMYT - Centro Internacional de Mejoramiento de Maíz y Trigo

Contact(s):

Type	Contact	Responsibilities and contributions	Branch
Partner	Stirling, Clare <c.stirling@cgiar.org>	Team leader CIMMYT-CCAFS Contact Point; CCAFS-funded Global N2O project and other projects Contributions will focus on coordination of CIMMYT inputs to WP2 (Calculation of greenhouse gas emissions) and WP5 (Impact pathways), but also include some contributions to WP1 (data sourcing for yield and nutrient gap analysis) and WP4 (adding socio-economic dimension to TEDs). CIMMYT will provide expertise in agronomy of maize and maize-legume systems in Sub-Saharan Africa together with links to related projects in the region for data/model sharing and through extensive partnerships scaling of projects outputs.	Harare, Zimbabwe
Partner	Tesfaye Fantaye, Kindie <k.tesfayefantaye@cgiar.org>	Involved in IMAGINE, Global N2O, Global Futures and other projects Contributions will focus on WP2 (Calculation of greenhouse gas emissions) and WP5 (Impact pathways), but also include some contributions to WP1 (data sourcing for yield and nutrient gap analysis) and WP4 (adding socio-economic dimension to TEDs).	Harare, Zimbabwe
Partner	Craufurd, Peter <P.Craufurd@cgiar.org>	Sustainable Intensification in East and Southern Africa - Strategic Research Team Leader; TAMASA. Contributions will focus on coordination from TAMASA to WP2 (Calculation of greenhouse gas emissions) and WP5 (Impact pathways), but also include some contributions to WP1 (data sourcing for yield and nutrient gap analysis) and WP4 (adding socio-economic dimension to TEDs). Bringing in the national partnerships developed by the other bilateral projects in the region, in particular TAMASA, for scaling and impact pathways.	Harare, Zimbabwe

Lessons regarding your partnerships and possible implications for the coming planning cycle:

Year	Lesson(s)
2016	No novel insights gained.
2016	No novel insights gained.
2016	No novel insights gained.
2016	No novel insights gained.
2016	No novel insights gained.
2016	No novel insights gained.

Partnerships overall over the last reporting period:

The partnership has lived up to its expectations. A solid basis was already established during the Global Yield Gap Atlas project, where the same partners were active. All partners have performed as expected.

3. Locations

This project is not global

Project level	Latitude	Longitude	Name
Country			Ethiopia
Country			Kenya
Country			United Republic of Tanzania

4. Outcomes

4.1 Project Outcomes

Project Outcome statement:
Yield gaps of maize and maize-legume cropping systems in three Sub-Saharan African countries will be translated into nutrient requirements for closing these gaps to different degrees (40, 60 and 80%). For addressing these nutrient requirements, smart fertilizer management options and agronomic practices (e.g. liming, applying available organic residues and manures) will be identified and assessed (for productivity and environmental impacts including GHGs), resulting in site and crop-specific fertilizer best management practices (BMPs). Most promising BMPs, also in terms of farm income and social acceptability will be selected, tested experimentally (on-farm and on-station) and piloted. These practices may be rolled out by local extension services, CCAFS networks and the fertilizer industry, to the benefit of smallholders. Technology Extrapolation Domains (TEDs) will be developed for selecting suitable areas for deployment of the BMPs and hence scaling up. End users of the TEDs are thus policy makers, international organizations and the fertilizer industry.

Annual progress towards outcome (end of 2016*): 1. Addition of yield gaps of key legume crops in the project countries to the Global Yield Gap Atlas 2. Development of a generic protocol for calculating nutrient gaps. 3. Maps of nutrient gaps for different percentages of yield gap closure at weather station, climate zone and national level for project countries 4. Definition of Technology Extrapolation Domains (TEDs) with climate, soil water and farming system dimensions 5. Method to identify nutrient management variants at field-cropping system level using 4Rs

Annual progress towards project outcome in the current reporting cycle (2016*): 1. Good progress has been made in quantifying yield gaps of key legume crops in the project countries. Legume yield gaps for Ethiopia will shortly be available (time of writing 14 feb 2017). However, due to late start of the project (August 2016) and delays in obtaining the required input data from local partners, there have been delays, particularly for Kenya and Tanzania. 2. A generic protocol for calculating nutrient gaps was drafted and distributed among thye project partners. Also, a python program, based on the QUEFTS model, was developed to perform the calculations. 3. Maps of nutrient uptake gaps for different percentages of yield gap closure at weather station, climate zone and national level for project countries were calculated according to the protocol described under 2.; they can be viewed at http://www.yieldgap.org/gygamaps/test/GygaMaps.swf?ext=1&ROI=7 4. TEDs have been defined in 2016, including socio-economic criteria. Their refinement has continued over the first weeks of 2017 and a first draft is now close to completion. 5. A document was drafted as an initial step in defining a method to identify nutrient management variants. However, due to the late start of the project this requires substantial further development in 2017.
How communication and engagement activities have contributed to achieving your Project outcomes:* An initial stakeholder consultation was carried out. Through engaging with stakeholders, essential data have been sourced for quantifying legume yield gaps, for use in defining nutrient packages in WP2, for selecting suitable trial sites and for setting up joint trials. Contacts were established with e.g. the N2Africa project and regional contacts from the Global Yield Gap Atlas project (both

sponsered by the Bill & Melissa Gates foundation) and the TAMASA, IMAGINE and SIMLESA projects; joint trials are set up in Kenya with the Geodatics project (sponsored by the Netherlands Space Agency),

Evidence documents of progress towards outcomes:*

https://marlo.cgiar.org/data/ccafs/projects//250/projectOutcome/Estimating%20Nutrient%20Uptake%20and%20Input%20Gaps%20v4.pdf

Annual progress towards outcome (end of 2017): 1. Completing a detailed and comprehensive assessment (people, planet, profit) of nutrient management variants at the field-cropping system level, including an analysis of potential GHG emissions effects after scaling up. 2. Conducting first set of piloting experiments (on-farm and/or on-station) of promising nutrient management variants in two of the three countries. 3. Running a prototype of the bio-economic farm model NUTMATCH for trade-off analysis at farm level 4. Testing of TEDs for Ethiopia, Kenya and Tanzania

Annual progress towards outcome (end of 2018): 1. Conducting second set of piloting experiments (on-farm and/or on-station) of promising nutrient management variants 2. Trade-off analysis at farm level of productivity (physical, economic), NUE, GHG emissions and soil organic carbon, to identify low emissions options. 3. Identification of feasible and promising low emissions options for increasing productivity of maize and maize-legume systems 4. Scaling out of local work (both model-based and experimental) at field and farm level to the regional and national level using TEDs. Quantification at regional or national level for different yield gap closures: required nutrient and fertilizer inputs, labour and cash requirements, crop production, GHG emissions and economic results

lessons regarding your Theory of Change and implications for the coming planning cycle; e.g. how have your assumptions changed, or do you have stronger evidence for them:* No lessons yet at this stage; significant time has been invested in drafting the ToC, and, based on it, an initial stakeholkder consultation has just been completed. Insights and data obtained from this consultation are being and will be used in the 2017 project activitities

4.2 CCAFS Outcomes

RP EA Outcome 2019: National Governments and Agencies (Ministries of Environment, Agriculture and the National Environment Authorities) are designing, developing and implementing low emissions strategies for agriculture.

Indicator #1: # of low emissions plans developed that have significant mitigation potential for 2025, i.e. will contribute to at least 5% GHG reduction or reach at least 10,000 farmers, including at least 10% women.

2015
Target value: <Not Defined>
Cumulative target to date: 0
Target narrative: <Not Defined>
The expected annual gender and social inclusion contribution to this CCAFS outcome: <Not Defined>

2016
Target value: 0
Cumulative target to date: 0
Target achieved: 0.0
Target narrative: From experience, it is possible to target up to 2-3 districts in the respective study countries depending on the strength of the extension service. If the crop management packages are ready by year-2 and it is possible to train 50 extension workers per year, consequently, about 1000 farmers can be reached per country in the second project year. If a trained farmer trains one of his colleagues in the following year, and additional 50 extension workers are trained, it is possible to reach at least 3,000 farmers per country in the third project year.
Narrative for your achieved targets, including evidence: In 2016, preparatory work has been done (e.g. a protocol and accompanying computer program were developed for estimating maize nutrient gaps and legume yield gaps in the study region) which will allow for formulation of the nutriënt packages in 2017.
Narrative for your achieved annual gender and social inclusion contribution to this CCAFS outcome: The work planned for 2016 mostly had a biophysical and analytical character. Nevertheless, literature was scanned for possible gender-sensitive issues in relation to the nutriënt packages that are to be developed (in 2017) and distributed. Based on this, bag size and transport/delivery were identified as issues deserving additional attention in this respect.
The expected annual gender and social inclusion contribution to this CCAFS outcome: The work planned for 2016 will mostly have a biophysical and analytical character, developing tools for subsequent project work. In selecting legume crops for inclusion into the Global Yield Gap Atlas and nutrient management varieties, experts will be consulted on any possible gender/social biases that particular crops and management variants may entail, to ensure enhanced chances for adoption by female headed households and groups of vulnerable farmers. Further, in defining the TEDs with climate, soil water and farming system dimensions, social scientists will be consulted to ensure inclusion of female headed households and groups of vulnerable farmers.

2017
Target value: 0.3 **Cumulative target to date:** Cannot be Calculated **Target narrative:** From experience, it is possible to target up to 2-3 districts in the respective study countries depending on the strength of the extension service. If the crop management packages are ready by year-2 and it is possible to train 50 extension workers per year, consequently, about 1000 farmers can be reached per country in the second project year. If a trained farmer trains one of his colleagues in the following year, and additional 50 extension workers are trained, it is possible to reach at least 3,000 farmers per country in the third project year. **The expected annual gender and social inclusion contribution to this CCAFS outcome:** In assessing nutrient management variants, specific attention will be given to intra-household labor division impacts in terms of gender, to inter-household equity effects, and to possible consequences for female-headed households. A priori, in defining these variants, social scientists will be consulted to ensure the selection is free of social/gender biases. In testing the promising nutrient management variants (on-farm and/or on-station), social scientists will be consulted to ensure absence of any biases in the selected treatments; stakeholders feedback will be collected. These principles will also be applied in running the bio-economic farm model at farm level and in testing the TEDs.

2019
Target value: 1 **Cumulative target to date:** Cannot be Calculated **Target narrative:** From experience, it is possible to target up to 2-3 districts in the respective study countries depending on the strength of the extension service. If the crop management packages are ready by year-2 and it is possible to train 50 extension workers per year, consequently, about 1000 farmers can be reached per country in the second project year. If a trained farmer trains one of his colleagues in the following year, and additional 50 extension workers are trained, it is possible to reach at least 3,000 farmers per country in the third project year. **The expected annual gender and social inclusion contribution to this CCAFS outcome:** The work planned for 2018 consists of scaling out the detailed and local work done at field and farm level to the regional and national level, by applying the TEDs. Research results will be translated into key-messages of relevance to stakeholders through popular media and policy briefs. As the TEDs will include farming system dimensions with a special focus on female headed households and groups of vulnerable farmers, the policy briefs and messages will be fine-tuned to these farmers groups.

Major Output groups:

- F3 (Lini): Decision support for identifying and prioritizing low-emissions CSA options, including synergies and tradeoffs with development objectives

4.3 Other Contributions

Contribution to other CCAFS Impact Pathways:
Apart from the FP3 Impact Pathway (Low Emissions Agriculture), the project will contribute to FP1 (Climate Smart Agricultural Practices) by packaging enhancing adoption and scaling-up of CSA practices, to FP2 (Climate Risk management) via improved food supply and to FP4 (Policies & Institutions) by informing policy makers.

Collaborating with other CRPs

Maize
Description of collaboration: Since this project focuses on maize and maize-legume systems, we will collaborate with the Maize CRP (e.g. through the TAMASA project). We will also build on extensive local data that has been collected in other CCAFS projects, and TAMASA and IMAGINE (http://imagine.pps.wur.nl/).

4.4 Case Studies

No case studies added

5. Project outputs

5.1 Overview by MOGs

Major Output groups - 2019

F3 (Lini): Decision support for identifying and prioritizing low-emissions CSA options, including synergies and tradeoffs with development objectives

Brief bullet points of your expected annual 2019 contribution towards the selected MOG: Technology Extrapolation Domains (TEDs) tested for Ethiopia, Kenya and Tanzania Detailed local work scaled out to regional and national level.

Brief`2019 plan of the gender and social inclusion dimension of the expected annual output: Research results will be translated into key-messages of relevance to stakeholders through popular media and policy briefs. As the TEDs will include farming system dimensions with a special focus on female headed households and groups of vulnerable farmers, the policy briefs and messages will be fine-tuned to these farmers groups.

Major Output groups - 2017

F3 (Lini): Decision support for identifying and prioritizing low-emissions CSA options, including synergies and tradeoffs with development objectives

Brief bullet points of your expected annual 2017 contribution towards the selected MOG: 1. Maps of nutrient gaps for project countries/cropping systems 2. Detailed and comprehensive assessment (people, planet, profit) of nutrient management variants at the field-cropping system level 3. Most promising and best feasible low emissions options identified.

Brief summary of your actual 2017 contribution towards the selected MOG: <Not Defined>

Brief`2017 plan of the gender and social inclusion dimension of the expected annual output: By consulting social scientists/regional experts, it will be ensured that selected (legume) crops, cropping systems, farming systems and nutrient management variants contain no intrinsic biases favoring specific user groups or fractions of the rural population. Farming system dimensions of the TEDs must be characterized with at least (2-3) variables.

Summary of the gender and social inclusion dimension of the 2017 outputs: <Not Defined>

Major Output groups - 2016

F3 (Lini): Decision support for identifying and prioritizing low-emissions CSA options, including synergies and tradeoffs with development objectives

Brief bullet points of your expected annual 2016 contribution towards the selected MOG: No contribution yet; this is planned for 2017

Brief summary of your actual 2016 contribution towards the selected MOG: In 2016, preparatory work was done, including the addition of yield gaps of key legume crops and nutrient uptake gaps of maize to the Global Yield Gap Atlas and the definition of Technology Extrapolation Domains (TEDs) with climate, soil water and socio-economic dimensions.

Brief`2016 plan of the gender and social inclusion dimension of the expected annual output: No annual output yet under MOG 2.

Summary of the gender and social inclusion dimension of the 2016 outputs: Preparatory work was done, i.e. a quickscan of literature for possible gender-sensitive issues in the field of fertilizer use and distribution was made.

Major Output groups - 2015

F3 (Lini): Decision support for identifying and prioritizing low-emissions CSA options, including synergies and tradeoffs with development objectives

Brief bullet points of your expected annual 2015 contribution towards the selected MOG: <Not Defined>

Brief summary of your actual 2015 contribution towards the selected MOG: <Not Defined>

Brief`2015 plan of the gender and social inclusion dimension of the expected annual output: <Not Defined>

Summary of the gender and social inclusion dimension of the 2015 outputs: <Not Defined>

5.2 Deliverables

No deliverables added

5.3 Project Highlights

Project highlight 207	
Title: Fertilizers and low emission development in sub-Saharan Africa	
Author: Meryl Richards, Martin van Ittersum, Tekalign Mamo, Clare Stirling, Bernard Vanlauwe and Robert Zougmoré	**Subject:** Policy brief for COP22 in Marakesh
Publisher: CCAFS	**Year reported:** 2016
Project highlights types: ● Successful communications ● Policy engagement ● Food security	**Is global:** Yes
Start date: Jan 2016	**End date:** Dec 2016
Keywords: fertilizer use, mineral, organic, greenhouse gas emissions, food security, policy brief	**Countries:**
Highlight description: A policy brief on food security, fertilizer use and greenhouse gas emissions in SSA was drafted, to contest the view that SSA should lower miner fertilizer use (and use organic fertilizers).	
Introduction / Objectives: See above	
Results: The policy brief was widely disseminated and discussed at COP22 in Marakesh (November 2016)	
Partners: CCAFS CG partners and Wageningen University	
Links / Sources for further information: https://ccafs.cgiar.org/publications/fertilizers-and-low-emission-development-sub-saharan-africa	

6. Activities

A628 - WP1 - Assess legume yield gaps and nutrient gaps

Description: 1.1 Estimation of yield gaps of key legume crops in project countries 1.2 Development of a generic protocol to calculate and prioritize nutrient gaps 1.3 Mapping of nutrient gaps for different percentages of yield gap closure for project countries

Start date: Jul 2016 **End date:** Mar 2017

Activity leader: WUR - Wageningen University and Research Centre Van Ittersum, Martin <martin.vanittersum@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: 1. Good progress has been made in quantifying yield gaps of key legume crops in the project countries. Legume yield gaps for Ethiopia will shortly be available (time of writing 14 feb 2017). However, due to a late start of the project (8/2016) and delays in obtaining the required input data from local partners, Kenya and Tanzania are delayed. 2. A generic protocol for calculating nutrient gaps was drafted and distributed among the project partners. Also, a python program, based on the QUEFTS model, was developed to perform the calculations. A working document on relevant concepts and methods was drafted which may develop into a full paper over the next months. 3. Maps of nutrient uptake gaps for different percentages of yield gap closure at weather station, climate zone and national level for project countries were calculated according to the protocol described under 2.; they can be viewed at http://www.yieldgap.org/gygamaps/test/GygaMaps.swf?ext=1&ROI=7

Deliverables in this activity:

- D1862: 1.1 Yield gaps of key legume crops added to the Global Yield Gap Atlas
- D1863: 1.2 A generic protocol to calculate crop nutrient gaps for achieving balanced plant nutrition
- D1864: 1.3 Maps of nutrient gaps for different percentages of yield gap closure for project countries

A629 - WP2 - Identify and assess 4R nutrient management options at field-cropping system level

Description: 2.1 - Method development to identify nutrient management options at field-cropping system level using 4Rs 2.2 - Detailed and comprehensive assessment of nutrient management options at the field-cropping system level

Start date: Jul 2016 **End date:** Dec 2017

Activity leader: WUR - Wageningen University and Research Centre Van Ittersum, Martin <martin.vanittersum@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: A document was drafted as an initial step in defining a method to identify nutrient management variants. However, this requires substantial further work in 2017.

Deliverables in this activity:

- D1865: 2.1 Method to identify nutrient and soil management variants at field-cropping system level using 4Rs
- D1934: 2.2 Detailed and comprehensive assessment of nutrient management options at the field-cropping system level

A630 - WP3 - trade-off analysis of 4R nutrient management options and piloting experiments

Description: 3.1 - Running prototype of bio-economic farm model (NUTMATCH) for trade-off analysis at farm level of productivity (physical, economic), NUE and GHG emissions. 3.2 - Trade-off analysis at farm level to identify low emissions options 3.3 - First set of piloting experiments (on-farm and/or on-station) of promising nutrient management options 3.4 - Second set of piloting experiments (on-farm and/or on-station) of promising nutrient management options

Start date: May 2017 **End date:** Dec 2018

Activity leader: WUR - Wageningen University and Research Centre ten Berge, Hein <Hein.tenBerge@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: On-farm field experiments have been planned for Western Kenya, in collaboration with the Geodatics project (Task 3.3). For Ethiopia also first experiments have been discussed. The activities on the whole farm model NUTMATCH (Task 3.1) will start in May 2017.

Deliverables in this activity:

- D1935: 3.1 Running prototype of bio-economic farm model (NUTMATCH) for trade-off analysis at farm level
- D1936: 3.3 First exploratory experiments of promising nutrient management variants in target countries
- D1939: 3.2 Trade-off analysis at farm level of productivity (physical, economic), NUE and GHG emissions
- D1940: 3.4 Second set of piloting experiments (on-farm and/or on-station) of promising nutrient management options

A631 - WP4 - Defining and testing Technology Extrapolation Domains; scaling out to regional and national level

Description: 4.1 Defining Technology Extrapolation Domains (TEDs) with climate, soil water and farming system dimensions 4.2 Testing of TEDs for Ethiopia, Kenya and Tanzania 4.3 Scaling out local work at field and farm level to the regional and national level

Start date: Jul 2016 **End date:** May 2019

Activity leader: WUR - Wageningen University and Research Centre Van Ittersum, Martin <martin.vanittersum@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: A review of TEDs has been produced and then a procedure to add socio-economic dimensions to biophysical TEDs has been proposed in 2016 (Task 4.1). Their refinement has continued over the first weeks of 2017 and is now close to completion of a first full draft, including datasets for the three countries.

Deliverables in this activity:

- D1869: 4.1 Definition of Technology Extrapolation Domains (TEDs) with climate, soil water and farming system dimensions
- D1937: 4.2 Testing of TEDs for Ethiopia, Kenya and Tanzania
- D1941: 4.3 Scaling out local work at field and farm level to regional and national level

A632 - WP5 - Project governance, external engagement and communication

Description: 5.1 Project governance and external engagement 5.2 Communication and (end) user engagement

Start date: Jul 2016 **End date:** Jun 2019

Activity leader: WUR - Wageningen University and Research Centre Van Ittersum, Martin <martin.vanittersum@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: A Theory of Change was drafted and an initial stakeholder consultation was carried out. Contacts were established with related initiatives and collaborative trials with the Geodatics project (funded by the Netherlands Space Office) have been planned in 2017. All this work has been compiled in a progress report, which is available upon request.

Deliverables in this activity:

<Not defined>

7. Leverages

No leverages added

Title: WUR Reducing food loss and waste

1. Description

Start date	End date	Management liaison	Mgmt. liaison contact
Jul 2016	Jun 2019	F3	Wollenberg, Lini <Lini.wollenberg@uvm.edu>

Funding source types	Status	Lead Organization	Project leader
W1/W2	On-going	WUR - Wageningen University and Research Centre - Netherlands	Timmerman, Toine <toine.timmermans@wur.nl>

Project is working on

Flaship(s)
F3 (Lini): Low emissions development

Region(s)
Global

Project summary

Globally ~1/3 of food is lost or wasted, contributing to ~8% of annual GHG emissions and this will increase further with growth of the middle class, diet shifts and increased incomes. Reducing food loss and waste (FLW) therefore has a high potential for reducing emissions across subsectors. However, although agendas for reducing FLW exist, the link to climate change remains poorly understood. The aim of CoA 3.3.3 is thus to provide evidence for the mitigation of climate change that could be achieved by reducing FLW, the drivers for FLW in supply chains important to mitigation, and strategies for reducing FLW in ways that achieve a food- and nutrition- secure food system while also reducing emissions.

2. Partners

Partner #1 (Leader)

Institution: WUR - Wageningen University and Research Centre

Contact(s):

Type	Contact	Responsibilities and contributions	Branch
Project Leader	Timmerman, Toine <toine.timmermans@wur.nl>	Project leader, responsible for project implementation and realization of output.	HQ
Project Coordinator	Waldhauer, Nina <nina.waldhauer@wur.nl>	Project collaborator, strongly cooperates with project leader, operational management of project on day-to-day basis	HQ

Lessons regarding your partnerships and possible implications for the coming planning cycle:

Year	Lesson(s)
2016	n/a as no existing partnerships Developing partnerships is one of the points to be worked on in the coming planning cycle.

Partnerships overall over the last reporting period:

This project was started mid-2016 and at that point no partnerships were existing.

3. Locations

This project is global

4. Outcomes

4.1 Project Outcomes

Project Outcome statement:
The project will contribute to understanding the link between FLW reduction and emissions mitigation, drivers for reducing FLW relevant to mitigation and promising interventions and their potential impacts on food, nutrition and emissions. The project will achieve this by setting up initiatives in selected value chains and regions with strong consortia that target the reduction of FLW, including business models and finance, stakeholder incentives, and interventions in the enabling environment.

Annual progress towards outcome (end of 2016*): 2016 is defined as the project start-up phase. Identification of relevant partners and scoping of priority value chains and geographical regions will lay the basis for setting up interventions in these value chains in cooperation with strong partners in the coming years. Also, anchoring the CCAFS FLW program in the global movement to reduce FLW and being respected as a valuable partner is an important step towards realizing the project outcome.

Annual progress towards project outcome in the current reporting cycle (2016*): 1. Identification of relevant partners In 2016 relevant internal and external partners were identified. Relevant CGIAR programmes are: Policies, institutions and markets (++), Agriculture for Nutrition and health (+), Dryland Cereals (+), Maize (+), Roots, tubers and bananas (+). First links were established with PIM (Karen Brooks) and A4NH (Ruerd Rueben) in particular in getting a better understanding in the respective work and scope of these programmes. This will be continued in 2017. Potentially the most interesting CGIAR research centers are IFRPI and IRD. A first contact with IFRPI was set up (Karen Brooks). As for external partners, the most relevant work was to set up a first basis for potential partnership with the Rockefeller Foundation in the context of the YieldWise program (Steve Sonka, Rafael Flor). Several meetings took place as to develop a form of a partnership and a role within the YW program. A common proposal is currently developed and expected to lead to specific results in 2017. 2. Scoping of priority value chains and geographical regions Geographical regions are prioritized based on the preference countries of CCAFS, countries with emerging economies, countries where we have access to relevant networks and stakeholders, countries where action would have a significant impact. Following these criteria the following countries were identified as relevant: India, China, Vietnam, Colombia, Ethiopia, Ghana and Kenya. Priority value chains will have to be scoped further as per country.
How communication and engagement activities have contributed to achieving your Project outcomes:* The main goal of our communication and engagement activities in 2016 was to anchor the CCAFS FLW program in the global movement to reduce FLW. For this to be reached the main activities were presenations and side events at relevant national and global events on FLW (see attachment). All events were well attended and the integration of FLW into the CCAFS program was well received. This is considered a good basis for further development of the network within the FLW program.
Evidence documents of progress towards outcomes:* https://marlo.cgiar.org/data/ccafs/projects//251/projectOutcome/20161026%20Overview%20events%20CCAFS%202016.pdf

Annual progress towards outcome (end of 2017): In 2017 preparation of larger initiatives in the chosen supply chains and geographic regions will be focussed on. Evidence building in these chains will be started, and consortia for executing the initiatives will be built.

Annual progress towards outcome (end of 2018):

lessons regarding your Theory of Change and implications for the coming planning cycle; e.g. how have your assumptions changed, or do you have stronger evidence for them:* During 2016 the ToC and corresponding workplan 2017 - 2019 was developed (activity 3).

4.2 CCAFS Outcomes

F3 (Lini) Outcome 2019: Global standards organizations and national decision-makers are planning and implementing low-emissions development initiatives that contribute to food security, using reliable, comparable quantification data and decision support tools.

Indicator #1: # of low emissions plans developed that have significant mitigation potential for 2025, i.e. will contribute to at least 5% GHG reduction or reach at least 10,000 farmers, including at least 10% women.

2015
Target value: <Not Defined>
Cumulative target to date: 0
Target narrative: <Not Defined>
The expected annual gender and social inclusion contribution to this CCAFS outcome: <Not Defined>

2016
Target value: 0
Cumulative target to date: 0
Target achieved: 0.0
Target narrative: As 2016 is defined as start-up and inception phase of the project, outcome in terms of # of low emission plans developed with significant mitigation potential will not be realized yet. An important step towards future outcome will be building awareness and initiating leadership on the CCAFS' research cluster regarding reducing food loss and waste.
Narrative for your achieved targets, including evidence: n/a 2016 was the start-up and inception phase of the project
Narrative for your achieved annual gender and social inclusion contribution to this CCAFS outcome: n/a (see above)
The expected annual gender and social inclusion contribution to this CCAFS outcome: n/a (see above)

2017
Target value: <Not Defined>
Cumulative target to date: 0
Target narrative: <Not Defined>
The expected annual gender and social inclusion contribution to this CCAFS outcome: <Not Defined>

2019
Target value: <Not Defined>
Cumulative target to date: 0
Target narrative: <Not Defined>
The expected annual gender and social inclusion contribution to this CCAFS outcome: <Not Defined>

Major Output groups:

- F3 (Lini): Decision support for identifying and prioritizing low-emissions CSA options, including synergies and tradeoffs with development objectives

4.3 Other Contributions

Contribution to other CCAFS Impact Pathways:
Possible collaboration with other CRPs and thus contribution to other CCAFS Impact Pathways will be defined during the start-up phase of the project in the remainder of 2016. A linkage with FP1 scenarios as well as collaboration with PIM seem obvious choices, however, how to give body to this remains to be defined.

Collaborating with other CRPs

<This project does not have a CRP selected yet.>

4.4 Case Studies

No case studies added

5. Project outputs

5.1 Overview by MOGs

Major Output groups - 2019

F3 (Lini): Decision support for identifying and prioritizing low-emissions CSA options, including synergies and tradeoffs with development objectives

Brief bullet points of your expected annual 2019 contribution towards the selected MOG: <Not Defined>

Brief`2019 plan of the gender and social inclusion dimension of the expected annual output: <Not Defined>

Major Output groups - 2017

F3 (Lini): Decision support for identifying and prioritizing low-emissions CSA options, including synergies and tradeoffs with development objectives

Brief bullet points of your expected annual 2017 contribution towards the selected MOG: <Not Defined>

Brief summary of your actual 2017 contribution towards the selected MOG: <Not Defined>

Brief`2017 plan of the gender and social inclusion dimension of the expected annual output: <Not Defined>

Summary of the gender and social inclusion dimension of the 2017 outputs: <Not Defined>

Major Output groups - 2016

F3 (Lini): Decision support for identifying and prioritizing low-emissions CSA options, including synergies and tradeoffs with development objectives

Brief bullet points of your expected annual 2016 contribution towards the selected MOG: Through this project CCAFS as a program will have stronger links with the global movement - specifically Champions 12.3 but also other major initiatives and organizations - to reduce FLW in order to contribute to improved food security, stronger economic wealth and reduced impact on natural resources, including reduced emissions.

Brief summary of your actual 2016 contribution towards the selected MOG: Set up cooperation with Rockefeller YW program as well as first steps to cooperation opportunities in China.

Brief`2016 plan of the gender and social inclusion dimension of the expected annual output: The output of 2016 as described above does not have gender or social inclusion aspects. Whether and how to include them in future years will be determined in the remainder of the year.

Summary of the gender and social inclusion dimension of the 2016 outputs: 2016 as the initiation phase of the project did not formulate gender and social inclusion aspects yet. This will be integrated in the further development of the program.

Major Output groups - 2015

F3 (Lini): Decision support for identifying and prioritizing low-emissions CSA options, including synergies and tradeoffs with development objectives

Brief bullet points of your expected annual 2015 contribution towards the selected MOG: <Not Defined>

Brief summary of your actual 2015 contribution towards the selected MOG: <Not Defined>

Brief`2015 plan of the gender and social inclusion dimension of the expected annual output: <Not Defined>

Summary of the gender and social inclusion dimension of the 2015 outputs: <Not Defined>

5.2 Deliverables

No deliverables added

5.3 Project Highlights

Project highlight 193

Title: Food losses and waste in the context of metropolitan food and nutrition security

Author: Nina Waldhauer, Guido Santini, Camelia Bucatariu, Larissa Uwase	**Subject:** Food losses and waste, urban rural challenges, people/ profit/ planet impacts
Publisher:	**Year reported:** 2016
Project highlights types: ● Successful communications	**Is global:** Yes
Start date: Oct 2016	**End date:** Oct 2016
Keywords: Side event, CFS 43	**Countries:**

Highlight description: During the Committee on World Food Security (CFS) Plenary Session 43, together with the Postharvest Network, Wageningen University & Research, CCAFS, the Dutch Ministries of Economic and Foreign Affairs and FAO we organized a Side Event, entitled "Food losses and waste in the context of metropolitan food and nutrition security". Programme 13.00 – Ms Nina Waldhauer, Project Manager Supply Chain Management, Wageningen University & Research. Topic: The global challenge of metropolitan food security: How to translate into local solutions? 13.10 – Mr Guido Santini, Programme Coordinator – Food for the Cities Programme, Rural and urban crop and mechanization systems (AGPML), FAO. Ms Camelia Bucatariu, Technical Officer (Food Waste), Global Initiative on Food Loss and Waste Reduction (SAVE FOOD), Nutrition and Food Systems Division (ESN), FAO Topic: City Region Food Systems and Food Waste Management: Linking Urban and Rural Areas for Sustainable and Resilient Development. 13.20 – Ms Larissa Uwase, Chief Operations Officer & Co-founder, Carl Group Ltd. Topic: The role of innovations in reducing food losses and wastes for sustainable urban food systems Moderator: Mr Hans Hoogeveen, Netherlands Representative to the FAO Interaction and discussion with the audience.

Introduction / Objectives: The growing world population, urbanization and growing middle classes will increase challenges for metropolitan food and nutrition security. The supply of (mega)cities needs robust and efficient supply chains in order to provide sufficient food in good quality and for affordable prices. Surrounding rural areas will be key for supplying cities, strong urban-rural linkages are needed in order to come to solutions. The urban-rural transformation has a significant impact on

this development. FLW are a significant indicator of inefficient food systems and without interventions these will only increase leading to even more losses in social, economic and ecological respect.

Results: The speakers and audience agreed on a number of points, the most important of which are: Food System perspective and Strong urban-rural linkages are essential to make the city region food system more sustainable. Important aspects in this are shorter supply chains, as feasible, transparency and more decision power for cities in coordination with the national level in order to ensure the urban-rural linkage. Actions need to be taken on three levels: national, regional and chain level. Capacity building is essential, all along the supply chains, as is the understanding and appreciation of the value of food, in order to reduce food loss and waste. Solutions need to be highly context-specific and giving incentives for cooperation on reducing FLW is much more effective than forced cooperation. All stakeholders – government, the private sector, knowledge institutes and civil society – have their specific role to play in making the global food system sustainable. In order to achieve global targets cooperation of all players is essential.

Partners: Postharvest Network, Wageningen University & Research, the Dutch Ministries of Economic and Foreign Affairs and FAO

Links / Sources for further information:
http://www.fao.org/cfs/cfs-home/plenary/cfs43/side-events/44/en/

6. Activities

A635 - WP1 Modelling FLW related GHG emissions

Description: 1.1 Develop model In order to assess the link between FLW and GHG emissions and thus the mitigation potential globally as well as per interventions, it is necessary to have an overarching model. This will encompass sustainable consumption and production with a focus on FLW, taking into account products/ product groups, regions, types of value chains, steps in the value chain and other. In the longer term, we will also consider integrating other aspects and trends such as changes in the dietary pattern and urbanization. The model will also contain indicators for measuring interventions and mitigation. For this, we will review existing methods, models, and KPIs in order to choose for either adapting an existing model or developing a new one. We will do this in cooperation with external partners. 1.2 Apply model After developing a first version, it will be applied in the pilots and further reviewed and refined.

Start date: Jan 2017 **End date:** Jun 2018

Activity leader: WUR - Wageningen University and Research Centre Timmerman, Toine <toine.timmermans@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: n/a Start Jan 2017

Deliverables in this activity:

- D1945: Overarching model for sustainable consumption and production, focusing on FLW and related GHG emissions
- D1946: 1 article for broader public regarding model on FLW and related GHG emissions
- D1945: Overarching model for sustainable consumption and production, focusing on FLW and related GHG emissions
- D1872: 1 scientific article regarding developed model on FLW and GHG emissions
- D2219: Contribution to website on 2017 findings
- D2218: Presentation of findings regarding FLW and GHG emissions model to broader audience
- D2224: 1 scientific article regarding business models

A636 - WP2: Pilots for FLW and emissions reducing interventions

Description: 2.1 Prepare pilots 4 pilots will be set up in different contexts and with a different focus in which interventions to reduce FLW and thus GHG emissions will be implemented. Reductions will be measured and give input for answering the overarching research questions of this project. In a first step, priority value chains will be defined and identified for GHG emission reduction related to FLW. Then the pilots will be chosen and prepared, meaning choosing relevant cases, chains, and related interventions, structuring the pilot consortia and further stakeholders around the pilots. 2.2 Collect baseline data Baseline data for 4 pilots will be collected and analyzed regarding current FLW and related GHG emissions. 2.3 Run pilots The chosen interventions per pilot will be implemented with the pilot partners. Data will be collected on the related FLW reduction and be translated into GHG emission reduction.

Start date: Jul 2017 **End date:** Dec 2018

Activity leader: WUR - Wageningen University and Research Centre Timmerman, Toine <toine.timmermans@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: n/a Start July 2017

Deliverables in this activity:

- D1946: 1 article for broader public regarding model on FLW and related GHG emissions
- D1878: 1 scientific article regarding baseline data

A637 - WP3: Analysis of pilot data

Description: The collected data of the individual pilots will be analyzed regarding: - Emission mitigation benefits - Technical and organizational feasibility - Opportunities for scaling up - Lessons learned

Start date: Jul 2018 **End date:** Mar 2019

Activity leader: WUR - Wageningen University and Research Centre Timmerman, Toine <toine.timmermans@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: n/a Start July 2017

Deliverables in this activity:

- D1878: 1 scientific article regarding baseline data
- D1872: 1 scientific article regarding developed model on FLW and GHG emissions
- D2220: 2 scientific articles regarding analysis of pilot data
- D2221: Paper regarding pilot results
- D2222: Presentation of findings in pilots to broader audience on international conference
- D2223: 1 article for broader public regarding pilots and pilot results

A727 - WP4: Business models

Description: Finally, the mitigation potential of individual interventions and strategies as well as of combined approaches as in the pilot setting will depend significantly on whether sound business models for implementation can be developed. In this WP, we will make a cost-benefit analysis of individual interventions, pilots, and possible scaling up and develop sound business models out of this.

Start date: Jan 2019 **End date:** Jun 2019

Activity leader: WUR - Wageningen University and Research Centre Timmerman, Toine <toine.timmermans@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: n/a Start 2019

Deliverables in this activity:

- D2224: 1 scientific article regarding business models
- D2227: 1 article for broader public regarding business models
- D2228: Presentation of findings on business models to broader audience on international conference

A728 - WP5: Anchoring the CCAFS FLW program in the global movement for a reduction of FLW

Description: We will continue to build the network around FLW with strong connections to leading organizations in the global FLW movement. Rockefeller Foundation/ YieldWise, APEC, IFPRI, African Union, WBG and Champions 12.3 were identified as the most important players to set up cooperations with a part od this work will also be the attendance of, presentation during and organization of side events and workshops at relevant international events around this topic. Considered 2017 events to date: 1st All-Africa Post Harvest Congress, topic "Reducing Food Losses and Waste: Sustainable Solutions for Africa", Kenya ASEAN conference LET'S GET TO WORK - Building a food-secure future, Vietnam APEC work on Food waste at Retail and Consumer Levels, expert consultation, Taiwan, and Capacity Building Workshop, Vietnam 9th Meeting of the COMCEC Agriculture Working Group, topic «Reducing Food Waste in the OIC Member Countries », Turkey This WP will also encompass general dissemination and communication activities.

Start date: Aug 2016 **End date:** Jun 2019

Activity leader: WUR - Wageningen University and Research Centre Timmerman, Toine <toine.timmermans@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: 2016 progress as described under communications outcomes. Presenations given during 3 events and side event organized during CFS 43.

Deliverables in this activity:

<Not defined>

A729 - WP6: Project management

Description: The project management will ensure the smooth running of the project and the quality of the results. It encompasses financial and administrative management, stakeholder management, team management and quality management.

Start date: Aug 2017 **End date:** Jun 2019

Activity leader: WUR - Wageningen University and Research Centre Timmerman, Toine <toine.timmermans@wur.nl>
Status: On-going

Overall activity or progress made during this cycle: Main activity was progressing towards setting up workplan 2017 - 2019, which was succesfully done as integrated in MARLO system in January 2017.

Deliverables in this activity:

<Not defined>

7. Leverages

No leverages added