

PROJECT #594

20 July 2011

Multi- Stakeholder Platform

Contribution to Value Chain
Development

The Honey & Beeswax, Milk & Milk Products,
Pineapple and Edible Oil & Oilseeds
Value Chains in Ethiopia

Synthesis Report

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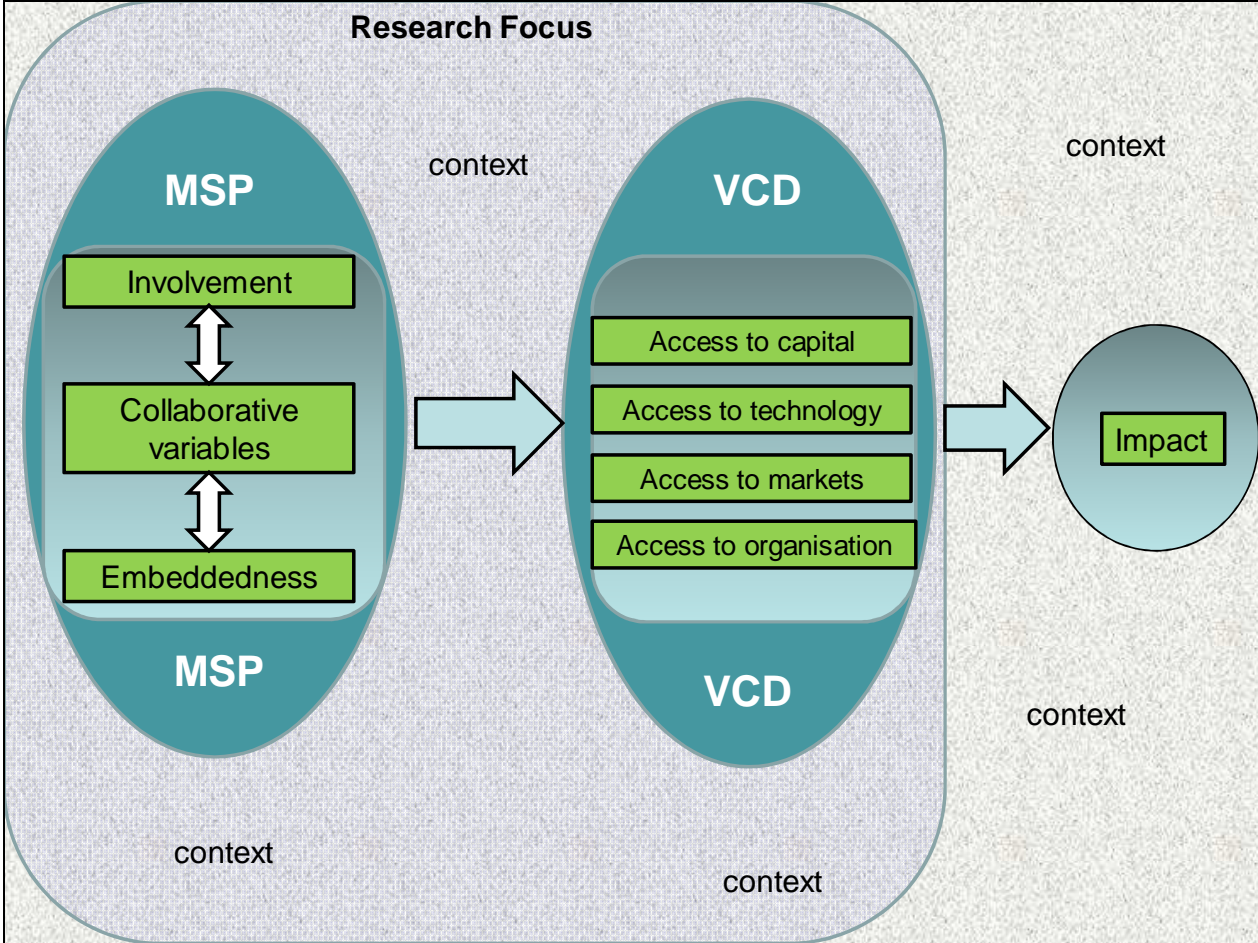
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Appendix 1: Theoretical model



Appendix 2: Roles of various stakeholders

Source: (based on) Hans Posthumus Consultancy, 2008

In general we distinguish four types of stakeholders:

1) Chain actors

Chain actors are the prime stakeholders who, at some point in the chain, own the product that is being created. They commonly buy a semi-finished product from chain actors upstream, add a certain value to it, and sell the enhanced product to buyers downstream. In the research farmers, producer firms, cooperatives, processing firms, collectors, traders, exporters etc. are included.

2) Chain supporters

Chain supporters are those that are outside the chain. They supply goods or services to the chain actors, often they are distinguished as either financial providers (e.g. banks providing loans) or non-financial service providers (e.g. accountants or transporters). In the research consultants, BDS providers, quality and standard institutes, microfinance, banks, funds (IMF), and agricultural research centers (not only temporary, but years of input, extension services, seed inputs etc.) are included.

3) Chain influencers

Chain influencers are those that influence the performance of the sub sector, its actors and their supporters. They influence the entire sub sector (and beyond) without performing an actor or supporters role: influencers (such as the ministry of commerce) determine (partly) the factors (such as investment climate). In the research business representative associations, Ministries, Chamber of Commerce, media, government implementing agencies (e.g. Cooperative Bureau, BoFED etc.) are included.

4) Chain facilitators

A temporary (catalyst) role by an organisation (often a donor funded project) to “grease” the chain machinery, either between the actors at the various levels or between the actors and their supporters, with objective to improve the performance of the entire chain and its actors (also commercially). Often NGOs with donor funding that finance a diversity of capacity building activities. In the research SNV BOAM, NGOs, University, and multilateral agencies (UN, WB) are included.

CODING FOR EXCEL

1=chain actor, 2 = chain supporter, 3 = chain influencer, 4 = chain facilitator

Appendix 3: Interviewees per stakeholder group in the four value chains

Stakeholder Group	Dairy	Honey	Pineapple	Oilseeds
<i>Chain actors</i>	8 Input supplier, dairy farmer, dairy cooperatives, dairy processors, milk collection centre, retailer	8 Input supplier, beekeepers, cooperative union, processing companies, beekeeping association	5 Cooperative, input supplier, private processor, wholesaler, private exporter	7 Input supplier, exporters, cooperative unions, processing companies
<i>Chain supporters</i>	5 MFI, consultants, training institute, Technical Auditors	5 MFI, consultants (Quality and Safety Standards), NGO involved in extension training, BDS provider.	3 Bank, research centre, BDS provider	3 Agricultural Research Centre, local capacity builder/BDS provider
<i>Chain influencers</i>	3 Ministry, feed and dairy association	3 Ministry, beekeeping association, Chamber of Commerce.	4 Investment Agency, Ministry, Enterprises Development Agency, Cooperative Promotion Bureau	6 Ministries, government implementing agencies, consumer protection association, business associations.
<i>Chain facilitators</i>	2 NGOs	2 NGOs	1 NGO	2 NGO & MSP forum (Office for Public Private Partnership on Oilseeds (PPPO))

Appendix 4: List of Interviewees

General

- June 9 & 10, 2010 **Orientation visit**¹: Mr. Marc Steen, National Portfolio Coordinator and Head Value Chain Development, Mr. Piet Visser, learning coordinator for VCD and Lead Advisor pineapple chain and Mr. Mugessie Fikri, Monitoring & Evaluation and Documentation, SNV Ethiopia, Addis Ababa
- August 12, 2010 **Discussion Group**²: SNV Ethiopia staff: presentation research and discussion with Mr. Piet Visser, learning coordinator for VCD and Lead Advisor pineapple chain, Mr. Carlo Kuepers, Lead Advisor honey chain & Senior Advisor Market Linkages & Value Chain Development, Mr. Mugessie Fikri, Monitoring and Evaluation, Mr. Yohannes Agonafir, Lead Advisor oil seeds chain, Mrs. Mahlet Yohannes, Lead Advisor dairy chain, Nicholas Nyathi, program coordinator PSNP Plus program, Meskerem Shifera, BDS Development and Elenie Abraham, junior advisor, oil seeds and VCF
- September 9, 2010 **Short progress discussion** with SNV staff: Mr. Piet Visser, learning coordinator for VCD and Lead Advisor pineapple chain, Mr. Juergen Greiling, Senior Advisor Agroprocessing, Mr. Mugessie Fikri, Monitoring and Evaluation, Mr. Yohannes Agonafir, Lead Advisor oil seeds chain, and Meskerem Shifera, BDS Development
- November 8, 2010 **Clarification** meeting and feedback from Mr. Piet Visser, learning coordinator for VCD and Lead Advisor pineapple chain

Honey Value Chain

- August 13, 2010 **19th Coordination Group Meeting** of Honey Value Chain

Interviews

Mr. Nuru Adgaba, Apiculture Researcher, Holeta Bee Research Center (HBRC), August 20, 2010

¹ By Mr. Jeroen van Wijk (MSM) at SNV head office (Addis Ababa).

² By Ms. Sarah Drost (MSM) & Mr. Fenta Mandefro Abate (Addis Ababa University) at SNV head office (Addis Ababa) (continuing for all interviews).

Mr. Wubshet Adugna, Manager, Apinec Agro-Industry PLC, August 18, 2010

Mr. Endale Ardu, Manager, Bench Maji Cooperative Union, August 13, 2010

Mr. Tesfaye Befekadu, general manager, Harbu Microfinance Institute, August 26, 2010

Mr. Zewdie Bekele, project coordinator, Ratson (Ethiopian NGO, also involved in extension services), August 26, 2010

Mr. Haile Giorgis Demissie, Managing Director, Beza Mar Agro Industry, president of the Ethiopian Apiculture Board (EAB) and Coordination Group Leader in the honey value chain Coordination Group August 23, 2010

Mr. Juergen Greiling, Senior Advisor Agroprocessing, Lead Advisor (partial) honey value chain, SNV Ethiopia, August 20, 2010

Mr. Ayalew Kassaye, technical auditor contracted by SNV Ethiopia and vice-president of the Ethiopia Beekeepers Association (EBA), August 17, 2010

Mr. Carlo Kuepers, Senior Advisor Market Linkages & Value Chain Development, Lead Advisor honey value chain, SNV Ethiopia, August 20, 2010

Mrs. Menbere and Mrs. Tsegaye Mendaye, beekeepers, Addis Ketama Beekeepers Association (field visit), August 23, 2010

Mr. Daniel G/Meskel, Managing Director, Comel PLC, August 16, 2010

Mr. Ghirma Moges, Managing Director/private consultant Quality and Safety Standards, Chemtest Consulting, Interviewed for his role in the honey and oil seeds value chain, August 16, 2010

Mr. Abu Negesso, chairperson, and Mr. Tilahun, Abebe vice chairperson of the East Shoa Beekeepers Association (ESBA), August 18, 2010

Mr. Befekadu Refera, Program Coordinator, Melca Mahiber (Ethiopian NGO), August 19, 2010

Mr. Gezahegn Tadesse, Senior Apiculturist and Livestock Expert of the Ministry of Agriculture and Rural Development (MoARD) & president of the Ethiopia Beekeepers Association (EBA), August 17, 2010

Mrs. Rahel Tamrat, Managing Director, Rahi PLC, August 23, 2010

Mr. Tamiru Wubie, Research and Advocacy Specialist, Ethiopian Chamber of Commerce Sectoral Association (ECCSA). Interviewed for all value chains under study (oil seeds, pineapple, dairy and honey). For honey in his former position in the Addis Ababa Chamber of Commerce Sectoral Association (AACCSA), August 19, 2010

Mr. Afework Yohannes and Mr. Michael Yohannes, Managing Director, Consulting Management Business Creation and Development Services (BCaD) and Coordination Group Facilitators in the honey, oil seeds & pineapple Coordination Group, August 25, 2010

Milk and Milk Products (MMP) Value Chain

August 24, 2010

19th Coordination Group Meeting MMP Value Chain

Interviews

Mr. Ayalew Abebaw, Manager, Ayalew Abebaw Milk Collection Centre, September 3, 2010

Mr. Dagnachew Admassu, Head Production Division, Lame Dairy PLC (Shola enterprise) (field visit), September 2, 2010

Mr. Shimelis Admassu, Assistant Professor Food Process Engineering and Biotechnology, Addis Ababa University & Mr. Abebe Tessema, Dairy Technologist, Technical Auditors contracted by SNV BOAM Ethiopia, September 8, 2010

Mr. Wassihun Asfaw, Loan Officer, AGGAR Microfinance Institute, August 31, 2010

Mr. Colonel Kassahun Bekele, owner private Dairy Farm, ex-chairman of Adaa Liben Milk Cooperative and

Coordination Group Leader in the dairy value chain
Coordination Group meetings 3-15, September 6, 2010

Mr. Dendena Chemed, Head of the Agro-Processing
Industry Development Department and Mr. Zergaw
Zelege, team coordinator of that same Department of the
Ministry of Industry and Trade (MOTI), August 30, 2010

Mr. Desalegn Gebremedhin, Coordinator Dairy
Technology Training and Consultancy Service, Ethiopian
Meat and Dairy Technology Institute (EMDTI),
September 3, 2010

Mr. Sorsa Debela Gelalcha, General Manager, Facilitating
Farmers' Access to Remunerative Markets (FFARM) PLC
and Coordination Group Chain Facilitator in the MMP
Coordination Group, September 1, 2010

Mr. Melaku Berihun, General Manager, Sebeta Agro
Industry PLC (Mama), September 1, 2010

Mr. Yirdaw W/Semayat, Executive Director, Ethiopian
Animal Feed Industry Association (EAFIA), September 2,
2010

Mr. Marc Steen, National Portfolio Coordinator and Head
Value Chain Development, SNV BOAM Ethiopia, Addis
Ababa, September 7, 2010

Mr. Fekadesilasie Tadesse, chairman, Secretary of Hebret
Dairy Cooperative and owner of his own Dairy Farm,
August 31, 2010

Mr. Hailu Tadesse, Manager, and Mr. Tadesse Katema,
accountant of the Selale Dairy Cooperative Union, August
24, 2010

Mr. Zewde Tefera, Owner, Zewde Tefera Importer
(Ferafamco), September 6, 2010

Mr. Beral Berhane Tewelde, Owner, Beral Milk ,
September 7, 2010

Mr. Asfaw Tolessa, Business Resource Development
Manager, Land O'Lakes, August 30, 2010

Mrs. Hirut Yohannes, Manager, Tsega Family Dairy
Farm and Rut & Hirut's Dairy Farm, owner of two dairy

collection centres and Coordination Group Leader in the dairy value chain Coordination Group meetings 16-19 (field visit), August 27, 2010

Mrs. Mahlet Yohannes, Medior Advisor Value Chain Development and Market Linkages & Lead Advisor Milk and Milk Products Value Chain, SNV BOAM Ethiopia, Addis Ababa, September 8, 2010

Additional insights from Mrs. Meskerem Shifera, BDS Development, SNV BOAM Ethiopia, Addis Ababa

Oil Seeds Value Chain

- September 28, 2010 **19th Coordination Group Meeting OS VC**
- March 15 and 22, 2011 **Clarification** meeting with Mr. Yohannes Agonafir, Lead Advisor oil seeds chain
- March 23, 2011 **Clarification** interview with a representative of processors association (anonymous)
- March 23, 2011 **Clarification** interview with a representative of a private company (anonymous)

Interviews

Mr. Yohannes Agonafir, Lead Oilseed Value Chain Advisor, SNV BOAM Ethiopia, November 5, 2010

Mr. Dereje Chanie, Program Coordinator, Public Private Partnership on Oilseeds, November 5, 2010

Mr. Dendena Chemedda, Head of the Agro-Processing Industry Development Department and Mr. Zergaw Zeleke, Team Coordinator of the Agro-Processing Industry Development Department, the Ministry of Industry and Trade (MOTI), August 30, 2010

Mr. Abreham Dagne, Operation manager, Addis Mojo Edible Oil Complex S.C, October 21, 2010

Mr. Lemma Gebeyehu, Private Consultant/ SNV BOAM Local Capacity Builder, October 18, 2010

Mr. Tefera Geletu, Training Officer, Oromia Cooperation Promotion Bureau, October 18, 2010

Mr. Elias Geneti, Managing Director, Agro prom International PLC, and CG leader, OS VC, October 22, 2010

Mr. Kassa Getu, General Manager, ERA Agrolink PLC, October 22, 2010

Dr. Girma G/Medhin, Managing Director, EDGE Consult, and CG facilitator, OS VC, October 25, 2010

Mr. Kedir Neffo, General Manager, Oromia Seed Enterprise, November 4, 2010

Mr. Kebede Seifu, General Manager, Didea Farmers' Cooperative Union, September 28, 2010

Mrs. Addisalem Shitaye, Owner, Addisalem Trading, October 20, 2010

Mr. Gezahegn Tadesse, Senior Apiculturist and Livestock Expert of the Ministry of Agriculture and Rural Development (MoA) & President of the Ethiopia Beekeepers Association (EBA), August 17, 2010

Mr. Mulugeta Tegegn, Secretary, Addis Ababa Oil Millers' Association, October 20, 2010

Mr. Endale Tekalign, Food Safety Expert, Ethiopian Consumers' Protection Association, October 19, 2010

Dr. Bulcha Woyessa, Highland Oil Crops Coordinator Holleta Agricultural Research Centre, October 22, 2010

Mr. Tamiru Wubie, Research and Advocacy Specialist, Ethiopian Chamber of Commerce Sectoral Association (ECCSA), August 19, 2010

Mr. Mohammed Yousuf, General Manager, Raya Wakena Farmers' Cooperative Union, September 28, 2010

Note:

MOTI, MoA and ECCSA were interviewed for all value chains under study (oilseeds, pineapple, dairy and honey)

Pineapple Value Chain

November 9, 2010

14th Coordination Group Meeting Pineapple Value Chain

November 12, 2010

Field visit with Mr. Dejene Indeshaw, Agronomist, Chucko Woreda Agricultural Office. The visit included Ganbela nursery site (capacity: 43,000 pineapple seedlings), a private pineapple farm in Didiche and the Safa Cooperative office, together with Mr. Melese Mekuria

Interviews

Mr. Adissu Amona, Credit Officer, Development Bank of Ethiopia, November 10, 2010

Mr. Solomon Assefa, Technologist, Micro and Small Enterprises Development Agency and Focal Person for SNV BOAM Ethiopia, and Mr. Haile Getachew, Generalist, (Micro and Small) Enterprises Development Agency ((MS)EDA), November 10, 2010

Mr. Dendena Chemed, Head of the Agro-Processing Industry Development Department and Mr. Zergaw Zeleke, team coordinator of that same Department of the Ministry of Industry and Trade (MOTI), August 30, 2010

Mr. Henok Debessay, Species Diversification, Extension Marketing & Department Head, Mekelle Institute of Technology, Tissue Culture Laboratory, November 9, 2010

Mr. Mengistu Kebede, General Manager, Ethiopian Fruit and Vegetable Marketing Share Company (ETFRUIT), November 17, 2010

Mr. Berkanu Asfaw Klegbeza, Cooperative Promotion Monitoring and Evaluation Officer, Cooperative Promotion Bureau, November 9, 2010

Mr. Melese Mekuria, Treasurer (previously Chairman), Safa Cooperative, November 9, 2010

Mr. Yilma Nadew, Vice Manager, Dibabesh PLC, and Coordination Group Leader in the pineapple value chain Coordination Group meetings 8-14, November 9, 2010

Mr. Wondyifraw Tefera, Director, Jimma Agricultural Research Centre (JARC), November 12, 2010

Mrs. Rutha Tsegai, Manager, Ecological Products of Ethiopia (ECOPIA) PLC, November 16, 2010

Mr. Piet Visser, Learning Coordinator for VCD and Value Chain Advisor Pineapple Coordination Group Meetings, SNV BOAM Ethiopia, November 18, 2010

Mr. Timerge Yirga, Investment Land Delivery Expert, SNNPRS Investment Agency, November 10, 2010

Mr. Afework Yohannes and Mr. Michael Yohannes, Managing Director, Consulting Management Business Creation and Development Services (BCaD) and Coordination Group Facilitators in the pineapple, honey and oil seeds Coordination Group, August 25, 2010

Appendix 5: Questionnaire

Context

Multi-stakeholder platforms (MSPs) are increasingly recognized by researchers and practitioners as promising mechanisms for stimulating economies in developing countries. The so-called chain platforms can help to bring actors, operating directly or indirectly in the chain, together and realise common objectives through dialogue and cooperation. However, systematic research on their effectiveness and impact is scarce. Therefore, SNV BOAM Ethiopia and the Maastricht School of Management (MSM) / Partnerships Resource Centre (PRC) have embarked on a collaborative effort to evaluate a number of MSPs in which SNV BOAM Ethiopia is involved. MSM carries the responsibility for the research and final report.

SNV³ is a non-profit, international development organisation, with extensive hands-on experience in their value chain approach. MSM's Sustainable Development Center⁴ stands for expertise on sustainable economic development in emerging markets. MSM is partner in the Partnerships Resource Centre⁵, an open centre where academics, practitioners and students can create, retrieve and share knowledge on cross sector partnerships for sustainable development.

Interview objectives

This questionnaire serves to structure a series of interviews that will be conducted with actors in a selection of value chain Coordination Groups (CGs) in Ethiopia. Selected are CGs in four chains: honey & beeswax, dairy, oil seeds, and pineapple. The interview results will serve as the main input for an evaluation report that is due for 1st of February 2011. The results will be presented and discussed during a workshop in spring 2011.

About the questionnaire

The interview consists of three parts. Section A focuses on the (meetings of the) Coordination Group itself. Section B concentrates on the institutional changes brought about by the CG, whereas the last section C asks about your overall opinion of the CG.

Contact:

For questions and additional information please contact
Ms. Sarah Drost, MSc.
Sustainable Development Center
Maastricht School of Management

³ SNV BOAM Ethiopia: www.SNV_BOAMworld.org/en/countries/ethiopia/Pages/default.aspx

⁴ MSM - SDC: www.msm.nl/1/1/uk/research/sustainable_development_center/

⁵ PRC: www.erim.eur.nl/ERIM/Research/Centres/SCOPE/Partnerships_Resource_Centre/About

Email: drost@msm.nl

Identification

Name interviewee(s):

Organisation:

Position:

Location:

Interviewer:

Date of interview:

Place of interview:

What are the main activities of your organisation in this value chain?

A Coordination Group (CG)

A1. General introduction

1. What is the main problem in the apiculture/dairy/fruit/oil seeds sector, according to you?

A2. Engagement

2. In what way are you/is your organisation engaged in the CG? (describe activities and roles: e.g., Facilitator, Leader, advisor, member of committee/working group)

3. Since when are you involved in the CG meetings? (reasons for prolonged stay or exit)

4. What motivated your organisation to join the CG? (e.g. daily allowance, influence, networking opportunities?)

5. Do you feel all relevant stakeholders are represented in the CG? Why?

6. How would you evaluate the level of commitment of CG members?

A. Low

B. Modest

C. High

Please explain

A3. CG Governance

7. Do you feel all CG members have an equal say during the CG meetings?

A. Yes

B. No. Who are the dominant members?)

8. Do you feel that all members benefit equally of the CG interventions? (win-win situation or not?)

A. Yes

B. No. Who gains most?).

9. Are you generally satisfied with the way the CG meetings are being governed?

A. No

B. Yes, but only modestly

C. Yes, significantly

Please explain. What should change?

[Honey]

H.1 What is your opinion about the Ethiopian Apiculture Board (EAB) and its regional chapters?

[Dairy]

D.1 What is your opinion about the Ethiopian Milk and Milk Products Association (EMPPA)?

D.2 What is your opinion about the Dairy Business Hub Model established in meeting 16?

[Oil seeds]

O.1 What is your opinion about the Ethiopian Pulses, Oil seeds, and Spices Processors Exporters Association (EPOSPEA)?

B Issues addressed by the CG

10. Did you exchange contact information with other CG members? Has this lead to concrete actions/funding/other opportunities in your field of activities?

B1. Access to services

11. Do you require specific information, technology or organisational services, for example to meet quality standards, to increase productivity, or to improve your management skills?

A. No

B. Yes, but only modestly

C. Yes, significantly

Please explain what type of services.

12. Have you been able to acquire sufficient service support?

A. No

B. Yes, but only modestly

C. Yes, significantly

Please explain by whom and in what form?

13. Did the CG improve the availability of these services to you?

A. No or almost not

B. Yes but only modestly

C. Yes, significantly

Please explain.

B2. Access to capital/credit

14. How difficult is it for you to acquire a loan/credit/budget for making investments in your organisation (e.g. through financial institute or through B2B relations).

A. Not difficult

B. Sometimes difficult

C. Very difficult

Please explain.

15. Did the CG influence your opportunities to obtain a loan, credit, or additional budget?

A. No or almost not

B. Yes but only modestly

C. Yes, significantly

Please explain.

B3. Access to markets

(a) Prices

15. How would you evaluate prices paid to the producers in the last 3 years (stability, highness, pre-harvest price set)?

16. Did the CG influence prices (stability and level) paid to farmers?

A. No or almost not

B. Yes but only modestly

C. Yes, significantly

Please explain.

(b) Buyer / producer commitment

17. Do buyers commit themselves to producers to buy their produce in advance of the production cycle (provided that quality conditions are met)?

A. No

B. Yes

Please explain.

18. In case of a contractual arrangement, do you think producers perform well in responding to buyer's requirements in terms of: delivery, punctuality of delivery, quality, and flexibility?

A. No or almost not

B. Yes but only modestly

C. Yes, significantly

Please explain.

19. Do producers have alternative market opportunities? Which ones?

If yes, what are the benefits of these alternatives for producers?

20. Did the CG contribute to improvement of contractual arrangements between producers and buyers?

A. No or almost not

B. Yes but only modestly

C. Yes, significantly

Please explain.

B4. Access to organisation

21. Are you a member of a professional organisation/platform? If yes, which?

22. Did the CG contribute to the formation of this professional organisation?

A. No or almost not

B. Yes but only modestly

C. Yes, significantly

Please explain.

23. Did the CG contribute to your access to your professional organisation?

A. No or almost not

- B. Yes but only modestly
- C. Yes, significantly

Please explain.

B5. Institutional environment (legal, government policy)

24. Which are the (three) main legal/policy constraints that you have to cope with in the supply chain?

25. Did the CG contribute to solve these constraints?

- A. No or almost not
- B. Yes but only modestly
- C. Yes, significantly

Please explain.

C. Future and overall opinion of the CG

26. In your opinion, has the CG, overall, been a success?

- A. No or almost not
- B. Yes but only modestly
- C. Yes, significantly

Please explain (which are the main successes, failures, weaknesses, strengths)?

27. How could the CG play a bigger role for you? (i.e. really addressing their issue?/partnerships possibilities).

28. Do you feel that CG is recognized as an important governance mechanism by the stakeholders in this value chain?

- A. No or almost not
- B. Yes but only modestly
- C. Yes, significantly

Please explain

29. Future scenario: What are, in your opinion, the future prospects of the CG after the BOAM programme has finished?

30. What would be necessary, apart from the CG, to tackle the problems in your sector?

Thank you for your time and collaboration.

Appendix 6: Social network analysis

A social network analysis was executed with the program UCINET 6.303 which is a comprehensive program for the analysis of social networks and other proximity data. The program contains dozens of network analytic routines (e.g. centrality measures, dyadic cohesion measures, positional analysis algorithms, clique finders, etc.). A social network analysis allows for linking micro and macro levels, and an integration between qualitative, quantitative and graphical data. In this research, the social network analysis is mainly used to verify the qualitative data.

In the MSP research, the network analysis enabled the researchers to gain insight on:

- The main (core) organisations, stakeholder groups and sectors participating and brokering in the MSPs (betweenness centrality);
- The proportion and types of organisations in the three societal sectors: public and private sector and civil society;
- Visitor patterns (core visitor, regular visitor, irregular visitor, at random visitor);
- The proportion of visitors that left the MSP series early (exits);

The centrality analysis helps us to understand the overall social structure of the MSP networks. Those organizations having the highest scores on betweenness centralities (the highest number of ties) in the network are the most central players in the MSP networks (Kilduff & Tsai, 2003). Moreover, more connections often mean that individuals are exposed to more diverse information. The more connected actors in the network are, the higher the likelihood that they are able to mobilize their resources and to bring diverse and multiple perspectives to solve problems. The number and kinds of ties actors have determine the range of opportunities, influence and power they have (Hanneman & Riddle 2005). “Actors who have more ties have greater opportunities because they have choices. This autonomy makes them less dependent on any specific other actor, and hence more powerful” (Hanneman & Riddle 2005: 61).

Apart from a measure to identify the most central actors, betweenness centrality is a measure for the degree that actors connect two other actors that do not have a direct link themselves⁶. If actors cannot reach each other, or cannot be reached by another actor, learning, support or influence between the two is restrained (Hanneman & Riddle 2005). Therefore, the higher the number of network players that have a high betweenness centrality, the more horizontal the network. Information can be diffused through multiple paths, through network ‘brokers’ that are in between other network players. The more network brokers there are, the more likely that actors have alternative ways of connection to other actors and can by-pass a given (dominant) actor (Hanneman & Riddle 2005). With smaller numbers of players with a high centrality, the network becomes more hierarchical as fewer players control intermediary information diffusion.

⁶ In our study it refers to the following illustrative situation: actor A is present at CG meeting 1 and actor B at meeting 2. If attending both meetings, actor C connects A with B. The hypothesis is that C is able to facilitate a flow of information from A to B and vice versa.

Course ratio

To analyse the course ratio of the four CG participation databases four categories of visiting frequency of organisations have been determined (core visitor, regular visitor, irregular visitor, random visitor) as well as four categories of entry and exit behaviour of the organisations (present & stay, present & exit, entry & stay, and entry and exit). The descriptive statistics of both categories are calculated for each CG participation database and displayed in *Table 1*. A legend is attached.

Table 1. Comparative descriptive statistics (course ratio) for all four value chain CG meetings and legend

category frequency of meeting visits	type of organisation					present & stay				present & exit				entry & stay				entry & exit				
	type	Dairy	Honey	Oil Seeds	Pineapple	Dairy	Honey	Oil Seeds	Pineapple	Dairy	Honey	Oil Seeds	Pineapple	Dairy	Honey	Oil Seeds	Pineapple	Dairy	Honey	Oil Seeds	Pineapple	
core visitor	Private sector	0,8	0,0	0,0	0,0	0,8	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	Government	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	Education	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	Civil Society	0,8	0,0	1,0	0,0	0,8	0,0	1,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	Unknown	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
total core visitors		1,6	0,0	1,0	0,0	1,6	0,0	1,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
regular visitors	Private sector	0,0	2,4	0,0	2,5	0,0	1,6	0,0	2,5	0,0	0,0	0,0	0,0	0,0	0,8	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	Government	0,0	0,8	2,0	0,0	0,0	0,8	2,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	Education	0,0	0,8	0,0	1,3	0,0	0,8	0,0	1,3	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	Civil Society	0,0	0,8	0,0	0,0	0,0	0,8	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	Unknown	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
total regular visitors		0,0	4,7	2,0	3,8	0,0	3,9	2,0	3,8	0,0	0,0	0,0	0,0	0,0	0,8	0,0	0,0	0,0	0,0	0,0	0,0	0,0
irregular visitors	Private sector	36,0	24,4	30,7	22,5	4,8	0,8	2,0	3,8	7,2	3,1	5,9	2,5	12,0	13,4	14,9	12,5	12,0	7,1	7,9	3,8	
	Government	8,0	8,7	6,9	13,8	3,2	0,8	2,0	5,0	1,6	3,1	2,0	2,5	1,6	4,7	2,0	2,5	1,6	0,0	1,0	3,8	
	Education	4,0	3,9	2,0	6,3	0,8	0,0	0,0	2,5	0,0	0,8	0,0	2,5	1,6	1,6	1,0	1,3	1,6	1,6	1,0	0,0	
	Civil Society	3,2	4,7	5,0	5,0	0,0	0,8	0,0	1,3	0,0	0,0	2,0	0,0	3,2	3,1	2,0	2,5	0,0	0,8	1,0	1,3	
	Unknown	0,8	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,8	0,0	0,0	0,0	
total irregular visitors		52,0	41,7	44,6	47,5	8,8	2,4	4,0	12,5	8,8	7,1	9,9	7,5	18,4	22,8	19,8	18,8	16,0	9,4	10,9	8,8	
at random visitors	Private sector	20,8	29,1	29,7	33,8	0,0	0,0	0,0	0,0	1,6	3,1	3,0	6,3	7,2	7,9	0,0	2,5	12,0	18,1	26,7	25,0	
	Government	10,4	9,4	8,9	11,3	0,0	0,0	0,0	0,0	2,4	0,8	2,0	3,8	2,4	0,8	1,0	3,8	5,6	7,9	5,9	3,8	
	Education	4,0	0,8	5,0	2,5	0,0	0,0	0,0	0,0	0,0	0,8	0,0	1,3	0,8	0,0	0,0	0,0	3,2	0,0	5,0	1,3	
	Civil Society	1,6	12,6	8,9	1,3	0,0	0,0	0,0	0,0	0,0	1,6	1,0	1,3	1,6	0,8	1,0	0,0	0,0	10,2	6,9	0,0	
	Unknown	9,6	1,6	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	2,4	0,0	0,0	0,0	7,2	1,6	0,0	0,0	
total at random visitors		46,4	53,5	52,5	48,8	0,0	0,0	0,0	0,0	4,0	6,3	5,9	12,5	14,4	9,4	2,0	6,3	28,0	37,8	44,6	30,0	
total private sector		57,6	55,9	60,4	58,8	5,6	2,4	2,0	6,3	8,8	6,3	8,9	8,8	19,2	22,0	14,9	15,0	24,0	25,2	34,7	28,8	
total government		18,4	18,9	17,8	25,0	3,2	1,6	4,0	5,0	4,0	3,9	4,0	6,3	4,0	5,5	3,0	6,3	7,2	7,9	6,9	7,5	
total education		8,0	5,5	6,9	10,0	0,8	0,8	0,0	3,8	0,0	1,6	0,0	3,8	2,4	1,6	1,0	1,3	4,8	1,6	5,9	1,3	
total civil society		5,6	18,1	14,9	6,3	0,8	1,6	1,0	1,3	0,0	1,6	3,0	1,3	4,8	3,9	3,0	2,5	0,0	11,0	7,9	1,3	
total unknown		10,4	1,6	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	2,4	0,0	0,0	0,0	8,0	1,6	0,0	0,0	
total all categories		100,0	100,0	100,0	100,0	10,4	6,3	6,9	16,3	12,8	13,4	15,8	20,0	32,8	33,1	21,8	25,0	44,0	47,2	55,4	38,8	

Legend (honey & dairy)

Visitor Category
Present & stay = present at CG1 and/or CG2 AND CG17 and/or CG18
Present & exit = present at CG1 and/or CG2; last visit at CG16 or earlier
Entry and stay = first visit at CG3 or later; present at CG17 and/or CG18
Entry and exit = first visit at CG3 or later; last visit at CG16 or earlier
Visitor Frequency
Core visitor = present at all meetings (18)
Regular visitor = present at 15, 16 or 17 meetings
Irregular visitor = present at at least three meetings with maximum presence of 14 meetings
At random visitor = present at 0, 1, or 2 meetings

Legend (oilseeds)

Visitor Category
Present & stay = present at CG1 and/or CG2 AND CG16 and/or CG17
Present & exit = present at CG1 and/or CG2; last visit at CG15 or earlier
Entry and stay = first visit at CG3 or later; present at CG16 and/or CG17
Entry and exit = first visit at CG3 or later; last visit at CG15 or earlier
Visitor Frequency
Core visitor = present at all meetings (17)
Regular visitor = present at 14, 15 or 16 meetings
Irregular visitor = present at at least three meetings with maximum presence of 13 meetings
At random visitor = present at 0, 1, or 2 meetings

Legend (pineapple)

Visitor Category
Present & stay = present at CG1 and/or CG2 AND CG12 and/or CG13
Present & exit = present at CG1 and/or CG2; last visit at CG11 or earlier
Entry and stay = first visit at CG3 or later; present at CG12 and/or CG13
Entry and exit = first visit at CG3 or later; last visit at CG11 or earlier
Visitor Frequency
Core visitor = present at all meetings (13)
Regular visitor = present at 11 or 12 meetings
Irregular visitor = present at at least three meetings with maximum presence of 10 meetings
At random visitor = present at 0, 1, or 2 meetings

Betweenness centrality

In the social network analysis, betweenness centrality was among others used to identify the most central players in the network. As stated before, those organizations having the highest scores on betweenness centralities in the network are the most central players in the MSP networks. In *tables 2-14 below*, the top-10 central network players of each CG are presented. Their organisational type (private sector, public sector, civil society, or education), subtype (i.e. processor, producer, financial institute, business association, implementing agency etc.) and their stakeholder role (actor, supporter, influencer and facilitator) in the value chains were taken into account.

HONEY

Table 2 Top-10 central players in the honey CG

Organisation	Normalised Betweenness Centrality	Type of Organisation	Subtype	Stakeholder role within VC
(110) SNV BOAM	3.600	Civil Society	NGO / NGO network	Facilitator
(48) Ethiopian Beekeepers Association (EBA)	3.479	Private sector	Business representative body / Association	Influencer
(24) Beza Mar Agro Industry (Chain Leader)	3.181	Private sector	Processor / Processing firm	Actor
(63) Holeta Bee Research Center (HBRC)	2.596	Education	Research institute	Actor
(3) Addis Ababa Chamber of Commerce and Sectoral Association (AACCSA)	2.569	Private sector	Business representative body / Association	Influencer
(43) East Shoa Beekeepers Association (ESBA)	2.182	Private sector	Business representative body / Association	Actor
(113) SOS Sahel Ethiopia	2.097	Civil Society	NGO / NGO network	Facilitator
(19) BCaD (Chain Facilitators)	1.767	Private sector	Business development service provider	Supporter
(79) Ministry of Agriculture and Rural Development (MoA)	1.494	Government	National government / Ministry	Influencer
(30) Comel PLC	1.404	Private sector	Processor / Processing firm	Actor

Table 3 Central players in honey CG with betweenness centrality > 2

Name	Normalised Betweenness Centrality	Type of Organisation	Subtype	Stakeholder role within VC
(110) SNV BOAM	3.600	Civil Society	NGO / NGO network	Facilitator
(48) Ethiopian Beekeepers Association (EBA)	3.479	Private sector	Business representative body / Association	Influencer
(24) Beza Mar Agro Industry (Chain Leader)	3.181	Private sector	Processor / Processing firm	Actor
(63) Holeta Bee Research Center (HBRC)	2.596	Education	Research institute	Actor
(3) Addis Ababa Chamber of Commerce and Sectoral Association (AACCSA)	2.569	Private sector	Business representative body / Association	Influencer
(43) East Shoa Beekeepers Association (ESBA)	2.182	Private sector	Business representative body / Association	Actor
(113) SOS Sahel Ethiopia	2.097	Civil Society	NGO / NGO network	Facilitator

Table 4 Central players in honey CG with betweenness centrality > 3

Name	Normalised Betweenness Centrality	Type of Organisation	Subtype	Stakeholder role within VC
(110) SNV BOAM	3.600	Civil Society	NGO / NGO network	Facilitator
(48) Ethiopian Beekeepers Association (EBA)	3.479	Private sector	Business representative body / Association	Influencer
(24) Beza Mar Agro Industry (Chain Leader)	3.181	Private sector	Processor / Processing firm	Actor

DAIRY

Table 5 Top-10 central players in the dairy CG

Name	Normalised Betweenness Centrality	Type of Organisation	Subtype	Stakeholder role within VC
(105) Selale Dairy Farmers' Cooperative Union	3.113	Private sector	Business representative body / Cooperative	Actor
(111) SNV BOAM	3.113	Civil society	NGO / NGO	Facilitator

			network	
(79) International Livestock Research Institute (ILRI)	2.394	Education	Research institute	Supporter
(12) Adama (Town) Woman Entrepreneurs Association (AWEA)	2.197	Private sector	Business representative body / Association	Influencer
(62) Family Milk	2.031	Private sector	Processor / Processing firm	Actor
(88) Ministry of Trade and Industry (MOTI)	1.747	Government	National government / Ministry	Influencer
(3) Addis Ababa Chamber of Commerce and Sectoral Association (AACCSA)	1.733	Private sector	Business representative body / Association	Influencer
(35) Bureau of Finance and Economic Development (BoFED) (Oromia)	1.630	Government	Regional / Local government	Influencer
(47) Debre Zeit Dairy Enterprise/Farm	1.534	Private sector	Producer / Producing firm	Actor
(110) Silenat Milk Association	1.472	Private sector	Business representative body / association	Influencer

Table 6 Central players in dairy CG with betweenness centrality > 2

Name	Normalised Betweenness Centrality	Type of Organisation	Subtype	Stakeholder role within VC
(105) Selale Dairy Farmers' Cooperative Union	3.113	Private sector	Business representative body / Cooperative	Actor
(111) SNV BOAM	3.113	Civil society	NGO / NGO network	Facilitator
(79) International Livestock Research Institute (ILRI)	2.394	Education	Research institute	Supporter
(12) Adama (Town) Woman Entrepreneurs Association (AWEA)	2.197	Private sector	Business representative body / Association	Influencer
(62) Family Milk	2.031	Private sector	Processor / Processing firm	Actor

Table 7 Central players in dairy CG with betweenness centrality > 3

Name	Normalised Betweenness Centrality	Type of Organisation	Subtype	Stakeholder role within VC
(105) Selale Dairy Farmers' Cooperative Union	3.113	Private sector	Business representative body / Cooperative	Actor

(111) SNV BOAM	3.113	Civil society	NGO / NGO network	Facilitator
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PINEAPPLE

Table 8 Top-10 central players in the pineapple CG

Name	Normalised Betweenness Centrality	Type of Organisation	Subtype	Stakeholder role within VC
(64) Southern Agricultural Research Institute (SARI)	3.715	Education	Research institute	Supporter
(15) BoFED, SNNPR	3.651	Government	Regional / Local government	Influencer
(75) SNV BOAM	3.555	Civil society	NGO / NGO network	Facilitator
(78) Tesso Farmers' Cooperative	2.946	Private sector	Business representative body / Cooperative	Actor
(9) BCaD (Chain Facilitators)	2.601	Private sector	Business development service provider	Supporter
(46) International Livestock Research Institute (ILRI)	2.084	Education	Research institute	Supporter
(31) Ethiopian Fruit & Vegetable Marketing Share Company (ETFRUIT)	2.034	Private sector	Wholesaler	Actor
(71) SNNPRS Cooperative Promotion Bureau	1.872	Government	Regional / Local government	Influencer
(58) Ministry of Trade and Industry (MOTI)	1.752	Government	National government / Ministry	Influencer
(73) SNNPRS Micro & Small Enterprises Development Agency (MSEDA)	1.499	Government	Regional / Local government	Influencer

Table 9 Central players in pineapple CG with betweenness centrality > 2

Name	Normalised Betweenness Centrality	Type of Organisation	Subtype	Stakeholder role within VC
(64) Southern Agricultural Research Institute (SARI)	3.715	Education	Research institute	Supporter
(15) BoFED, SNNPR	3.651	Government	Regional / Local government	Influencer
(75) SNV BOAM	3.555	Civil society	NGO / NGO network	Facilitator
(78) Tesso Farmers' Cooperative	2.946	Private sector	Business representative body /	Actor

			Cooperative	
(9) BCaD (Chain Facilitators)	2.601	Private sector	Business development service provider	Supporter
(46) International Livestock Research Institute (ILRI)	2.084	Education	Research institute	Supporter
(31) Ethiopian Fruit & Vegetable Marketing Share Company (ETFRUIT)	2.034	Private sector	Wholesaler	Actor

Table 10 Central players in pineapple CG with betweenness centrality 3

Name	Normalised Betweenness Centrality	Type of Organisation	Subtype	Stakeholder role within VC
(64) SARI	3.715	Education	Research institute	Supporter
(15) BoFED, SNNPR	3.651	Government	Regional / Local government	Influencer
(75) SNV BOAM	3.555	Civil society	NGO / NGO network	Facilitator

OILSEEDS

Table 11 Top-10 central players in the oilseeds CG

Name	Normalised Betweenness Centrality	Type of Organisation	Subtype	Stakeholder role within VC
(96) SNV BOAM	4.626	Civil society	NGO / NGO network	Facilitator
(89) Quality Standard Authority of Ethiopia (QSAE)	4.453	Government	Implementing agency	Supporter
(74) Ministry of Trade and Industry (MOTI)	3.994	Government	National government / Ministry	Influencer
(6) Addis Ababa Oil Processing Mill Owners Association	2.744	Private sector	Business representative body / Association	Influencer
(79) Oromia Cooperative Promotion Commission (OCPC)	2.652	Government	Regional / Local government	Influencer
(48) FFARM Organic PLC	2.589	Private sector	Consultant / Consultancy	Supporter
(34) Didea Farmers' Cooperative Union	2.581	Private sector	Business representative body / Cooperative	Actor
(23) BCaD (Chain Facilitators)	2.505	Private sector	Consultant / Consultancy	Supporter
(5) Addis Ababa	2.484	Government	Chamber of	Influencer

Chamber of Commerce Sectoral Association (AACCSA)			commerce	
(15) Agro Prom. International PLC (Chain Leader)	2.409	Private sector	Commercial enterprise	Actor

Table 12 Central players in oil seeds CG with betweenness centrality > 2

Name	Normalised Betweenness Centrality	Type of Organisation	Subtype	Stakeholder role within VC
(96) SNV BOAM	4.626	Civil society	NGO / NGO network	Facilitator
(89) Quality Standard Authority of Ethiopia (QSAE)	4.453	Government	Implementing agency	Supporter
(74) Ministry of Trade and Industry (MOTI)	3.994	Government	National government / Ministry	Influencer
(6) Addis Ababa Oil Processing Mill Owners Association	2.744	Private sector	Business representative body / Association	Influencer
(79) Oromia Cooperative Promotion Commission (OCPC)	2.652	Government	Regional / Local government	Influencer
(48) FFARM Organic PLC	2.589	Private sector	Consultant / Consultancy	Supporter
(34) Didea Farmers' Cooperative Union	2.581	Private sector	Business representative body / Cooperative	Actor
(23) BCaD (Chain Facilitators)	2.505	Private sector	Consultant / Consultancy	Supporter
(5) Addis Ababa Chamber of Commerce Sectoral Association (AACCSA)	2.484	Government	Chamber of commerce	Influencer
(15) Agro Prom. International PLC (Chain Leader)	2.409	Private sector	Commercial enterprise	Actor

Table 13 Central players in oilseeds CG with betweenness centrality > 3

Name	Normalised Betweenness Centrality	Type of Organisation	Subtype	Stakeholder role within VC
(96) SNV BOAM	4.626	Civil society	NGO / NGO network	Facilitator
(89) Quality Standard Authority of Ethiopia (QSAE)	4.453	Government	Implementing agency	Supporter
(74) Ministry of Trade and Industry (MOTI)	3.994	Government	National government / Ministry	Influencer

Table 14 Central players in oilseeds CG with betweenness centrality > 4

Name	Normalised Betweenness Centrality	Type of Organisation	Subtype	Stakeholder role within VC
(96) SNV BOAM	4.626	Civil society	NGO / NGO network	Facilitator
(89) Quality Standard Authority of Ethiopia (QSAE)	4.453	Government	Implementing agency	Supporter

Stakeholder involvement

In the network analyses on course ratio the findings on stakeholder involvement were verified. In Table 15 below, the visitor frequency per sector is presented. In Table 16 the total of exits from the four CG's is demonstrated.

Table 15 Type of visitor proportion per sector (%)

Sector	Core visitors	Regular visitors	Irregular visitors	At random visitors
Dairy	1,6	0,0	52,0	46,0
Pineapple	0,0	3,8	47,5	48,8
Honey	0,0	4,7	41,7	53,5
Oil seeds	1,0	2,0	44,6	52,5

Table 16 Total of exits⁷

Sector	%
Dairy	56,8
Pineapple	58,8
Honey	60,2
Oil seeds	71,2

The social network analysis shows that:

- There is irregular attendance of organisations in all four CG meetings (Table 15). In all four CG's, the proportion of core visitors (present at all meetings) and regular visitors (present at 15, 16 or 17 meetings in the dairy and honey CGs, present at 14, 15 or 16 meetings in the oilseeds CG and present at 11 or 12 meetings in the pineapple CG) is modest. In the pineapple and honey CG, there are no core visitors (present at respectively all 13 and 18 meetings). In the oilseeds CG, only SNV BOAM is a genuine core visitor (present at all 17 meetings). In the dairy CG SNV BOAM and the Selale Dairy Cooperative Union are core visitors (present at all 18 meetings);
- There is high rotation of organisations in all four CG meetings (Table 16). In all four value chain CGs, the total number of exits is higher than 50 percent. With 71.2 percent (Table 16), the oilseeds sector scores highest on the percentage of exits (present & exit + entry & exit);
- In the honey CG, the percentage of regular visitors is highest (4.7 percent) compared to the three other CGs (Table 15). This difference is probably related to the emphasis that the honey CG put on the existence of a strong, highly committed nucleus group of attendants;
- In the dairy CG, the percentage of irregular visitors (present at least at three meetings with a maximum presence of 14 meetings) is highest (52 percent)

⁷ Total exits = present & exit + entry & exit (see also *course ratio*)

compared to the three other CGs (*Table 15*); This corresponds to some extent with the fact that with 31 %, the dairy CG had the highest score on a low level of commitment;

- In the honey and oilseeds CG, the percentage of at random visitors (present at 0, 1, or 2 meetings) is highest (53.5 and 52.5 percent respectively) (*Table 15*). This confirms the statements by interviewees particularly in these CGs about rotation of organisations and participants.

CG governance & leadership

In the social network analysis, betweenness centrality was among others used to identify the most central players in the network. As stated before, those organizations having the highest scores on betweenness centralities in the network are the most central players in the MSP networks. Above, the top-10 central network players of each CG are presented in tables. Their organisational type (private sector, public sector, civil society, or education), subtype (i.e. processor, producer, financial institute, business association, implementing agency etc.) and their stakeholder role (actor, supporter, influencer and facilitator) in the value chains were taken into account. The following regarding CG governance was confirmed in the top-10 lists of central players in the social network analysis (*tables 2-14*):

- SNV BOAM is a central network player in every CG. This corresponds with their leading role as an initiator of the whole program and each value chain CG; their involvement in agenda setting and selection of stakeholders, and their final decision in financial affairs;
- The honey and oilseeds Chain Leaders are visible as central actors in the honey and oilseeds CG's, whereas the pineapple and dairy Chain Leaders are not. This corresponds with the fact that there was no constant leadership in the pineapple and dairy CG;
- The Chain Facilitators are visible in every CG except for dairy. This is related to the fact that the dairy Facilitator took over the facilitating role only from meeting 14. The changing Facilitator roles could explain the reserved appreciation of dairy facilitation;
- In the first nine meetings (till January 2008), about 25-35 participants can be observed in each meeting (*participation databases*), corresponding with the invitation policy of the first BOAM coordinator. After meeting nine, often over 50 participants -including several members of the same organisation- can be observed, especially in the honey CG (even 76 participants in meeting 15) (*participation databases*). This corresponds with the invitation policy of the value chain Lead Advisors headed by the second BOAM coordinator.

To identify and compare the genuine 'information brokers' –who are in between other network players and control information diffusion- in each network, only those organisations with a normalized betweenness centrality higher than 2, 3 or 4 were taken into account in this part of the analysis⁸. In the *tables 2-14* displayed above, the central players with a betweenness centrality higher than 2, 3 and 4 are presented. In

⁸ The cut-points 2, 3 and 4 are arbitrary

Table 17 below the absolute and relative numbers (corrected for number of organisations in the database) of organisations with a betweenness centrality higher than 2, 3, or 4 are displayed per CG database. In the comparison of the four platforms, only relative percentages (taking into consideration the size of the networks) are relevant.

Table 17: Betweenness centrality databases

Database	nr of organisations in database	Organisations with normalised betw. Centrality >2		Organisations with normalised betw. Centrality >3		Organisations with normalised betw. Centrality >4	
		absolute number	relative number	absolute number	relative number	absolute number	relative number
Dairy	125	5	4,00	2	1,60	0	0,00
Honey	127	7	5,51	3	2,36	0	0,00
oil seeds	101	10	9,90	3	2,97	2	1,98
Pineapple	80	7	8,75	3	3,75	0	0,00

Regarding ‘information brokerage’, the network analysis confirms and complements that (tables 2-14):

- SNV BOAM plays the role of information broker in each value chain CG, confirming their dominant position as MSPs initiator;
- Measuring a betweenness centrality higher than 2, both the honey and oil seeds CG Chain Leaders play the role of information broker, confirming their dominant and active position in the networks;
- Measuring a betweenness centrality higher than 3 only the honey CG Chain Leader plays the role of information broker, confirming the most dominant and active position of the honey CG Leader in the network;
- Differences in the absolute and relative numbers of ‘information brokers’ are not spectacular, nevertheless, we can derive that the oilseeds network is relatively more horizontal than the dairy network as relatively more participants control information diffusion (Table 17);
- Measuring a betweenness centrality higher than 2 and 3, the dairy CG is most hierarchal compared to the other CG’s; respectively 4 and 1.6 percent of all participants control information (and possibly resource) diffusion (Table 17);
- Measuring a betweenness centrality higher than 2, the oilseeds CG is most horizontal compared to the other CG’s; information is diffused through ten identified information brokers, almost 10 percent of all participating organisations (Table 17);
- Measuring a betweenness centrality higher than 3, the pineapple CG is most horizontal compared to the other CG’s; information is diffused through three information brokers (Table 17).

Embeddedness

The social network analyses on sector representation and central network players generally support the findings on embeddedness (derived from tables 1-14). In Table 18 and 19 respectively the sector representation in the four value chain CGs and the

central network players in each value chain CG distinct per societal sector are represented. Finally, in *Table 20*, the central network players per stakeholder role in the value chain are displayed.

Table 18. Sector representation in the four value chain CGs in percentages (%)

Sector	Private sector	Public sector	Education	Civil society	Unknown
Dairy	57,6	18,4	8,0	5,6	10,4
Honey	55,9	18,9	5,5	18,1	1,6
Oilseeds	60,4	17,8	6,9	14,9	0,0
Pineapple	58,8	25,0	10,0	6,2	0,0

Table 19. Central network players in each value chain CG per societal sector

	Honey	Dairy	Pineapple	Oilseeds
Private	6	6	3	5
Public	1	2	4	4
Civil Society	2	1	1	1
Education	1	1	2	0
Total	10	10	10	10

Table 20 Central network players per stakeholder role in the value chain

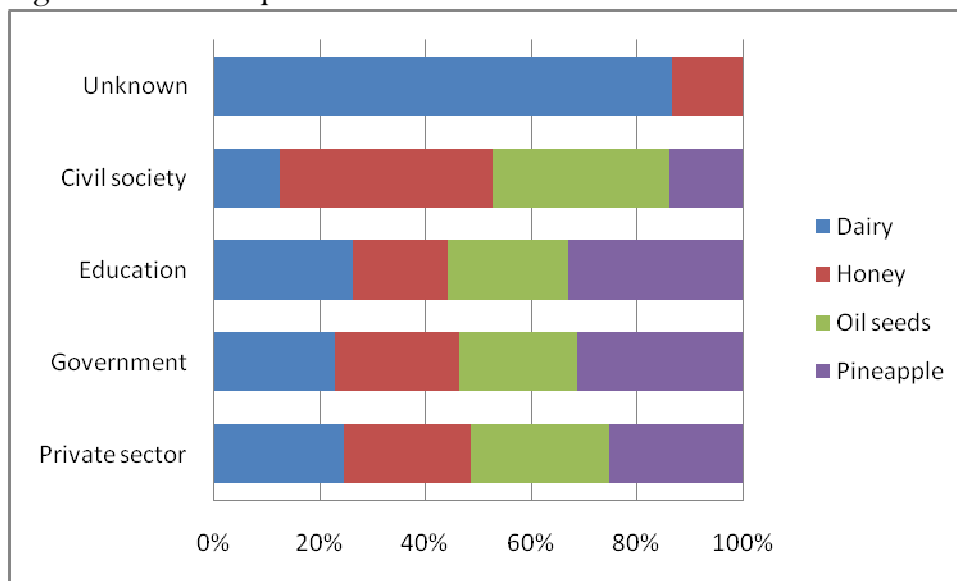
	Honey	Dairy	Pineapple	Oilseeds
Actor	4	3	2	2
Supporter	1	1	3	3
Influencer	3	5	4	4
Facilitator	2	1	2	1
Total	10	10	10	10

From the network analysis, the following was confirmed:

- SNV BOAM's private sector approach is evident; the majority of the participants in the value chain CGs represent private sector organisations (*Table 18*). In the honey, dairy and oilseeds CG, more than half of the central network players are representatives of the private sector (*Table 19*);
- All stakeholders' roles in the value chains are represented in the lists of central network players of the four CG's (*Table 20*). This indicates that value chain roles (chain actors, -supporters, -influencers and -facilitators) of the whole chain approach are represented in the networks;
- With 25 percent, the public sector is relatively higher represented in the pineapple CG compared to the other value chains CGs (*Table 18* and *Figure 1 below*). More important, the pineapple CG has a relative greater share of central players representing public agencies than private sector agencies (*Table 19*). This confirms SNV BOAM's suspicion of a relative overrepresentation of the public sector in the pineapple CG;

- The Ethiopia Beekeepers Association (EBA) as well as the Ministry of Agriculture are among the central network players in the honey CG. This confirms embeddedness in the public sector and associations in this CG (*tables 2-4*);
- Financial organisations (i.e. banks, MFIs) are absent as central network players in every CG (*tables 2-14*);
- The two main dairy processing companies are absent as central network players in the dairy network, confirming their initial reluctance to involve in the dairy CG (*tables 5-7*);
- The only central player in all four CG's is SNV BOAM. Chain Facilitators from BCaD are central players in the honey, pineapple and oilseeds CG's. The AACCSA is a central player in the honey, dairy and oil seeds CG's. MOTI is central player in the dairy, pineapple and oilseeds CG's. The International Livestock Research Institute is central player in the pineapple and dairy CG, likewise BoFED (*tables 2-14*). This corresponds to great extent with the interview data.
- The civil society sector is mainly involved in the honey CG and oilseeds CG (*Figure 1*) which could be for instance related to the embeddedness of the Apiculture Board in civil society;
- Educational organisations (research institutes, universities etc.) represent a greater share in the pineapple CG (*Figure 1*).

Figure 1: Sector representation in the four value chain CGs



Appendix 7: Overview perceived changes in the institutional environment

Honey

Table 1. Perceived changes in the institutional environment, in % and number of interviewees

	-	%	+/-	%	+	%	Total
4.1 Access to knowledge and technology							
Training in beekeeping	0	0	1	9	10	91	11
Farmer awareness on quality	0	0	4	36	7	64	11
Availability of new beehives	2	20	3	30	5	50	10
Availability of new bee colonies	4	44	4	44	1	12	9
Reduction in adulteration	4	50	1	13	3	37	8
Shift mainstream to specialty honey	7	78	1	11	1	11	9
4.2 Access to capital							
Willingness banks/MFI's to finance	9	90	1	10	0	0	10
4.3 Access to markets							
Shift domestic to export honey	0	0	2	18	9	82	11
Increased prices paid by buyers	3	27	5	46	3	27	11
4.3 Access to organisation							
Access to organisation	5	45	1	10	5	45	11

- No effect of CG

-/+ Limited positive effect of CG

+ Considerable positive effect of CG

Dairy

Table 2. Perceived changes in the institutional environment, in percentage and number of interviewees

	-	%	+/-	%	+	%	Total
4.1 Access to knowledge and technology							
Availability of new animal breeds	5	63	3	37	0	0	8
Farmer awareness on quality	1	12	2	25	5	63	8
Availability of quality animal feed	1	12	3	38	4	50	8
Training in dairy management	1	12	2	25	5	63	8
Reduction in animal diseases and death	6	76	1	12	1	12	8
Artificial insemination	7	88	0	0	1	12	8
Diversification of dairy products	1	12	5	63	2	25	8
4.2 Access to capital							

Willingness banks/MFI's to finance	3	38	3	38	2	25	8
4.3 Access to markets							
Increased prices paid by buyers	6	86	1	14	0	0	7
Advance payments	7	88	1	12	0	0	8
4.3 Access to organisation							
Access to organisation	4	37	0	0	7	63	11

- No effect of CG -/+ Limited positive effect of CG + Considerable positive effect of CG

Oilseeds

Table 3. Perceived changes in the institutional environment, in % and number of interviewees

	-	%	+/-	%	+	%	Total
4.1 Access to knowledge and technology							
Training in good agricultural & manufacturing practices	0	0	11	92	1	8	12
Farmers' awareness on quality	2	22	4	45	3	33	9
Oil millers' awareness on quality	6	75	2	25	0	0	8
Availability of improved seeds	0	0	13	100	0	0	13
Availability of new technology	4	40	6	60	0	0	10
Reduction in adulteration (oilseeds and edible oil)	7	64	4	36	0	0	11
4.2 Access to capital							
Willingness of banks/MFI's to finance	11	76	3	24	0	0	14
4.3 Access to markets							
Increased prices paid by buyers	9	69	3	23	1	8	13
Advance payment	8	73	3	27	0	0	11
4.3 Access to organisation							
Access to new organisation	11	85	2	15	0	0	13

- No effect of CG -/+ Limited positive effect of CG + Considerable positive effect of CG

Pineapple

Table 4. Perceived changes in the institutional environment, in percentage and number of interviewees

	-	%	+/-	%	+	%	Total
4.1 Access to knowledge and technology							
Training on pineapple farming	0	0	2	25	6	75	8

Farmer awareness on quality	0	0	3	38	5	62	8
Availability of Smooth Cayenne/MD2 variety	0	0	5	62	3	38	8
Shift from Red Spanish to Smooth Cayenne	0	0	3	38	5	62	8
TC culture instead of conventional	0	0	1	13	7	87	8

4.2 Access to capital	-	%	+/-	%	+	%	Total
Willingness banks/MFI's to finance	6	75	2	25	0	0	8

4.3 Access to markets	-	%	+/-	%	+	%	Total
Increased prices paid by buyers	7	87	1	13	0	0	8
Advanced payments	7	87	1	13	0	0	8

4.3 Access to organisation	-	%	+/-	%	+	%	Total
Access to organisation	8	100	0	0	0	0	8

- No effect of CG

-/+ Limited positive effect of CG

+ Considerable positive effect of CG