Feasibility Study

Value Chain **:** Yard Long Beans

Country **:** Suriname

Author **:** Jenna Wijngaarde

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Content

Acronyms and abbreviations

ASFA	Associatie van Surinaamse Fabrikanten (Manufacturing association Suriname)
BOG	Bureau of Public health
CBI	Centre for promotion of imports from developing countries
CROSQ	CARICOM Regional Organisation for Standards and Quality
FAO	Food and Agriculture Organization
MoA	Ministry of Agriculture
NVWA	Nederlandse Voedsel- en Warenautoriteit (Dutch Food Authority)
PTB	Physikalisch- Technische Bundesanstalt (German National Metrology Institute)
QI	Quality Infrastructure
SMEs	Small and Medium Enterprises
SSB	Suriname Standaarden bureau
VEAPS	Vereniging van Exporteurs van Agrarische Producten in Suriname

1. Introduction

1.1 Context of the CALIDENA Project

The CARICOM Regional Organisation for Standards and Quality (CROSQ) was established in February 2002 with the primary objective to establish and harmonise standards; to enhance the efficiency and improve quality in the production of goods and services in the Community; to protect the consumer and the environment and to improve trade within the Community and with other states.

CROSQ is collaborating with the International Technical Co-operation Section of the German National Metrology Institute - Physikalisch- Technische Bundesanstalt (PTB) and is currently implementing a PTB funded project entitled, Establishment of A Demand-Oriented and Regionally Harmonized and Quality Infrastructure Project in the Caribbean, ("RQ1-4-Project). The Project seeks to improve the range of available services offered by regional quality infrastructure organisations and enhance the capacity of these organizations to offer these services.

About the CALIDENA methodology

One of the key components of the RQI-4-Project is the CALIDENA process. The CALIDENA methodology is a demand driven approach which assesses and diagnoses quality infrastructure issues at each level in a value chain, with the aim of increasing competitiveness in the chain. Value chains must satisfy set criterion such as real opportunities for export, experience and advances in chaining, diverse quality services, participation of SMEs in the chain, conscious need to improve the chain and motivation of stakeholders to dedicate time and resources. The process is conducted in three stages – a feasibility stage which assesses eligibility of the value chain to participate in the process; a diagnostic stage which takes the form of a workshop and involves identifying and promoting concrete actions that would improve quality services in a value chain; and finally an implementation stage where the actions identified in the diagnostic stage are implemented.

1.2 Objectives

General Objectives

The objective of this study is to provide information to ascertain whether the Value Chain under consideration satisfies the requirements for participation in a CALIDENA process. Additionally it aims to sensitise stakeholders as well as document the QI services which are required and made use of by the Value Chain.

Specific Objectives

This feasibility study will provide baseline information on the status and performance of the national quality infrastructure and it will identify areas of improvement as it relates to the yard long beans value chain and the buyer requirements.

1.3 Research Methodology and Process

The present research is partly based on literature research, internet research and on interviews with chain actors (input providers, producers, processors, middlemen and customers), chain influencers (Ministry of Agriculture and Ministry of Health) and chain supporters (Bureau of Standards, National Metrology Institute, Inspection department of Ministry of Agriculture and Health).

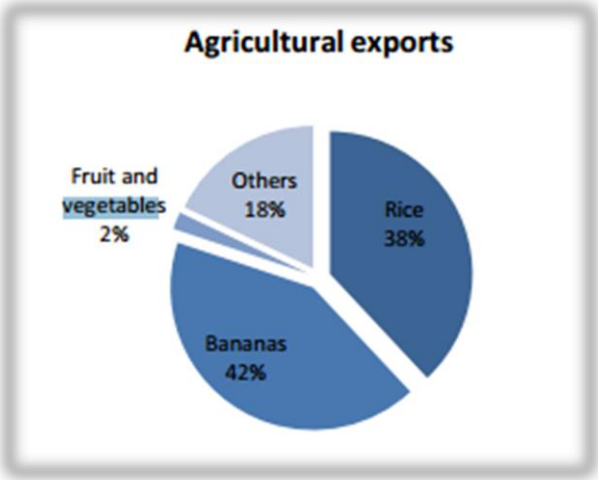
One of the first activities was to contact the Chamber of Commerce and the Ministry of Agriculture to try to get an updated list of chain actors and supporters. Registration of importers, exporters and food processors is compulsory by law but registration of primary producers is not. Furthermore VEAPS and the Bureau of Standards (SSB) were asked to provide contact names of (key) stakeholders.

A questionnaire (*see appendix 3*) was used to gather information or verify available information when contacting stakeholders.

Information relevant to the subject of this study was gathered from websites such as CBI, NVWA, FAO, Ministry of Agriculture of Barbados, Codex Alimentarius and CROSQ.

2. Economic Analysis of the Value Chain

2.1 Contribution to GDP and Other Relevant Economic Data



Source: Report Agricultural Sector Support in Suriname, 2013

Suriname with a total land area of 163,820 km^2, is located on the north-eastern coast of South America and bordered by Guyana, Brazil and French Guiana and the Atlantic Ocean in the North. The estimated population is about 532,000 and approximately 15% of the working population is employed in the agricultural sector. The agriculture sector provides approximately 8.9 % to the Suriname's gross domestic product (GDP).

Fruit and vegetables have a 2% share of the total agricultural export. Unfortunately, the registered export value [USD] of yard long beans is not reliable and therefore the share of yard long beans cannot be calculated.
In 2010 the University of Wageningen and the Ministry of Agriculture of Suriname conducted a survey. Based on what farmers could recollect as well as some assumptions they were able to calculate the production costs and yield of yard long beans. The average production costs and yield per hectare was respectively USD 11,810 and 5,300 kg. Farmers received on average USD 3.50 per kg which made yard long beans profitable enough to grow.

The statistics of the Ministry of Agriculture show that the production of vegetables in general but specifically yard long beans declined the past few years. In the period 2008-2012 the area planted has decreased by 25% and the total production has decreased by 21%. On balance, the productivity per hectare increased minimally.

Table 1. Annual production of yard long beans in the period 2008 – 2012

Description	2008	2009	2010	2011	2012
Production (ha)	105	83	89	78	79
Harvest (ton)	1,749	1,196	1,611	1,228	1,386

Source: Ministry of Agriculture (LVV) statistics

The local price for yard long beans increased during the past five years.

Table 2. Price of yard long beans in the period 2008 – 2012

Description	2008	2009	2010	2011	2012
Price per kg in USD	1.84	2.41	3.22	2.96	3.42

Source: Ministry of Agriculture (LVV) statistics

2.2 Export Situation and Potential

The export quantity in 2013 was 48% higher than in 2011. The information about the export value of yard long beans is unfortunately not reliable. There is no explanation for the lower volume of exports in 2012.

Table 3. Annual export quantity yard long beans, period 2011 – 2013

Description	**2011**	**2012**	**2013**
Volume (kg)	4,264	724	6,294

Source: Ministry of Agriculture (LVV) statistics

The trade data are not subdivided into different types of beans. Yard long beans is one of the *Vigna species* and therefore the import statistics of this group of products is selected for the purpose of this report. The Netherlands imported more fresh beans than processed beans. The import quantity and value of fresh produce increased over the years by respectively 46% and 21%. The import quantity of processed beans decreased by 2% and the import value increased by 4%.

Table 4. The Dutch annual total import quantity and value of beans (fresh & processed), period 2010-2013

Type of product	**Year**	**Import value**	**Import quantity**
		1 000 euro	**in kg**
Beans "Vigna spp., Phaseolus ...[1]	**2010**	71,065	53,883,677
	2011	69,626	49,679,192
	2012	74,568	57,615,327
	2013	86,537	78,505,785
Beans "Vigna spp., Phaseolus ...[2]	**2010**	11,021	13,575,291
	2011	10,774	13,600,885
	2012	12,322	16,168,988
	2013	11,505	13,266,597

Source: http://statline.cbs.nl/, 2015

[1] Beans "Vigna spp., Phaseolus spp.", Shelled or unshelled, fresh or chilled.
[2] Beans "Vigna spp., Phaseolus spp.", Shelled or unshelled and uncooked or cooked in water, frozen.

Quite a number of Surinamese exporters believe that Thailand and the Dominican Republic are their main competitors for fresh yard long beans. Two "native" importers Bud Holland and Nature's Pride get their fresh yard long beans from these two countries. The following table confirms that the Dominican Republic exports much more to the Netherlands compared to Suriname but on the other hand Suriname exports relatively more compared to Thailand.
In recent years, the export of beans from Thailand decreased dramatically. This is probably due to the presence of pesticide residues in samples, exceeding EU MRLs.

Table 5. The Dutch annual import quantity and value of beans (fresh & processed) by country, period 2010-2013

Country	Type of product	Year	Import value	Import quantity
			1 000 euro	in kg
Dominican Republic	**Beans "Vigna spp., Phaseolus .. *Shelled or unshelled, fresh or chilled.***	**2010**	185	168,473
		2011	451	440,900
		2012	369	314,518
		2013	421	313,125
	Beans "Vigna spp., Phaseolus ... *Shelled or unshelled and uncooked or cooked in water, frozen.*	**2010**	.	
		2011	.	
		2012	.	
		2013	.	
Suriname	**Beans "Vigna spp., Phaseolus .. *Shelled or unshelled, fresh or chilled.***	**2010**	98	45,356
		2011	99	40,943
		2012	177	60,079
		2013	99	34,023
	Beans "Vigna spp., Phaseolus ... *Shelled or unshelled and uncooked or cooked in water, frozen.*	**2010**	.	
		2011	.	
		2012	.	
		2013	0	182
Thailand	**Beans "Vigna spp., Phaseolus ...** *Shelled or unshelled, fresh or chilled.*	**2010**	89	19,057
		2011	48	9,337
		2012	39	8,767
		2013	14	3,219
	Beans "Vigna spp., Phaseolus .. *Shelled or unshelled and uncooked or cooked in water, frozen.*	**2010**	1	150
		2011	.	
		2012	32	5,190
		2013	.	

Source: http://statline.cbs.nl/, 2015

2.3 Involvement of SMEs in Value Chain

Based on the World Bank's definition[3] of an SME, the Surinamese yard long beans sector consist mainly of *microenterprises*. A few input providers (importing firms) can be categorized as *small enterprises* (importers) who sell their products to small agro shops all over the country.
The production of yard long beans in Suriname generally takes place on small scale family farms. The primary producers are mainly smallholder farmers who sell their products to middlemen and exporters. There are only a few *small enterprises* in the primary production and processing industry.

2.4 Stakeholder involvement

There are various small cooperatives and agricultural foundations all over the country. The majority of the members are primary producers of horticultural products who meet regularly to address sector related issues and to identify areas to support their members. The is one large cooperative, 'Cooperatie Kwatta', with approximately 300 members. This cooperative buys inputs in bulk and sells these at a relatively cheaper price.

VEAPS is one of the export associations of agricultural products. The current members are all exporters of horticulture products. This association aims to support the export e.g. by sharing target market information, assisting exporters who want to certify their company.

A platform which includes all key chain stakeholders does not exist as such. There exists a certain level of distrust among the chain actors. This could be one of the reasons of low stakeholder involvement.

2.5 Relationship between various subsectors within the Value Chain

With a few exceptions, the relation between producers and input providers as well as between exporters and smallholder farmers is a Buyer-Seller relationship. Buyers have limited security of supply. Some exporters have made verbal agreements with producers/ middlemen about size, grade or variety.

[3] Currently the SME Department of the World Bank works with the following definitions: microenterprise to 10 employees, total assets of up to $10,000 and total annual sales of up to $100,000; small enterprise up to 50 employees, total assets and total sales of up to $3 million; medium enterprise – up to 300 employees, total assets and total sales of up to $15 million

In most cases smallholder farmers cannot influence the price of yard long beans. The middlemen collects whatever the producer is selling and the producer gets paid if the middleman has managed to sell his produce.

Exporters are in a position to negotiate with the middlemen because they are buying larger quantities.

Chain actors are mainly prepared to cooperate for the purpose of solving problems. They are not structured to build internal capacity to deal with value chain constraints. Some cases of cooperation initiatives are:

- Some input providers work together with farmers to help them solve issues (such as pests and diseases). They also train farmers and set up test plots to support the farmers.
- Some growers of yard long beans exchange bean seeds because (certified) quality seeds are scarce.
- One of the exporters for example organises food safety training courses for his out-growers and provides them with inputs (e.g. less toxic pesticides) to have some guarantee that the products he buys are safe.
- VEAPS organised a number of food safety training courses for members and non-members of their association.
- The University of Suriname does research on yard long beans focusing on e.g. organic farming.

3. Markets and Buyer Requirements

3.1 Domestic

Yard long beans is one of the few vegetables that is regularly consumed by all layers of the Surinamese population. The quality and logistic requirements are presented in the following table.

Table 6. . Quality and logistic standards for yard long beans, Domestic market

Quality standards	**Description**
Product specifications	There are no written specifications regarding the Surinamese variety.
Globalgap/GAP	GAP is not compulsory.
MRL test (lab document)	MRL tests are not required .
Buyer manual	No specific buyer manuals.
Logistic standards	**Description**
Type of packing	There are no strict specifications for packaging material.
Labelling	No labelling requirements.
Traceability	No traceability system in place.
Cold storage (temperature)	There are no strict specifications regarding storage temperature for yard long beans prior to their delivery

Source: farmers , exporters and customers, 2014

3.2 Regional

A few years ago an in-depth market research was conducted on behalf of the Ministry of Agriculture of Suriname to assess the potential of exporting both fruits and vegetables to Barbados. Yard long beans is one of the popular vegetables on the island; it is imported[4] in relatively small quantities.

Surinamese exporters would like to export to Barbados but there are a number of hurdles[5] the Surinamese government has to overcome before exporting is possible. Suriname needs to conduct a Pest risk assessment and present this to the Ministry of Agriculture of Barbados. A trade protocol needs to be signed between the Ministries of Agriculture of Barbados and Suriname.
At present there are limited transportation facilities between Suriname and Barbados.

[4] https://barbadosunderground.files.wordpress.com/2012/06/vegetables-imports-2007-2011.pdf
[5] Pest risk assessment, sign protocol and (air) transport capacity

The general quality and logistic requirements for vegetables are presented in the following table.

Table 7. Quality and logistic standards for vegetables, Barbados

Quality standards	**Description**
Product specifications	There are no written specifications. As a rule, the CODEX standard or EU Marketing standards apply to imported products
Globalgap/GAP	GAP certification is sufficient (via BAS/ NAMDEVCO).
MRL test (lab document)	MRL tests are not required from suppliers. Before products are exported to Barbados an MRL analysis must be made according to the PRA and the trade protocol.
Buyer manual	No specific buyer manuals.
Logistic standards	**Description**
Type of packing	There are no strict specifications. The packing must guarantee good protection of the products. Sturdy, waterproof carton is preferred.
Labelling	Labelling is done by the buyer
Traceability	There is a list of certified growers (GAP) and every grower has a unique number via BAS/BADMC
Cold storage (temperature)	There are no strict specifications regarding storage temperature for unpacked goods prior to their delivery at the supermarket.

Source: Market research study, 2009 & website Ministry of Agriculture of Barbados, 2014

3.3 International

Many years ago Suriname was one of the leading exporters of tropical vegetables and of yard long beans in particular to the Netherlands. Over the past few years Suriname lost market share to the Dominican Republic and Thailand due to, amongst other things, high air freight charges and not supplying the preferred variety (Thai variety KB).

The EU market for (yard long) beans demands compliance with certain quality criteria. These concern, apart from technical product requirements and various environmental and social criteria (such as CSR), in the first place aspects of health and food safety. Specific points of attention are general hygiene (protection against pathogens, contamination) in all phases of the chain from producer to consumer; compliance with EU MRL standards and the traceability of a product to its source in case a problem emerges at any point in the chain.

Suriname yard long beans is well known for its specific taste according to experts and that is why it is preferred by the ethnic market in the Netherlands. The table below presents an overview of a selection of quality and logistic standards for this product for ethnic importers in the Netherlands.

Table 8. Quality and logistic standards for yard long beans, ethnic market in The Netherlands

Quality standards	**Description**
Product specifications	At present there are only limited specifications. Some importers visit their supplier every now and then to make arrangements[6] with regard to quality, assortment, colour, weight etc. There are no written specifications.
GlobalGAP/GAP	For the majority of the importers GlobalGAP nor GAP is compulsory
MRL test (lab document)	MRL tests are required by the Dutch Food authority (NVWA). As soon as the products arrive in the Netherlands samples are taken for MRL analysis.
Buyer manual	No specific buyer manuals.
Logistic standards	**Description**
Type of packing	There are no strict specifications. The packing must guarantee good protection of the products. Sturdy, waterproof carton is preferred.
Labelling / Traceability	The Ministry of Agriculture has issued unique codes for Exporters and producers. The label must at least show the following information: name of the product, name/ code of the exporter, name/code of the producer.
Cold storage (temperature)	There are no strict specifications regarding storage temperature for unpacked goods prior to their delivery at the Importer. Some exporters have cold storage facilities.

Source: Market research study, 2009 and exporters, 2014

The quality and logistic requirements stipulated by one of the Dutch importer, BUD Holland, are presented in the following table.

Table 9. Quality and logistic standards for yard long beans, local Dutch market (non-ethnic)

Quality standards	**Description**
Product specifications	No strict specifications, Thai variety, fresh, 100% pest and disease free.
GlobalGAP/GAP	GlobalGAP certified is preferred.
MRL test (lab document)	To comply with EU MRL guidelines.
Buyer manual	No buyer manual.
Logistic standards	**Description**
Type of packing	4 kg per box.
Labelling / Traceability	No strict specifications.
Cold storage (temperature)	No strict specifications.

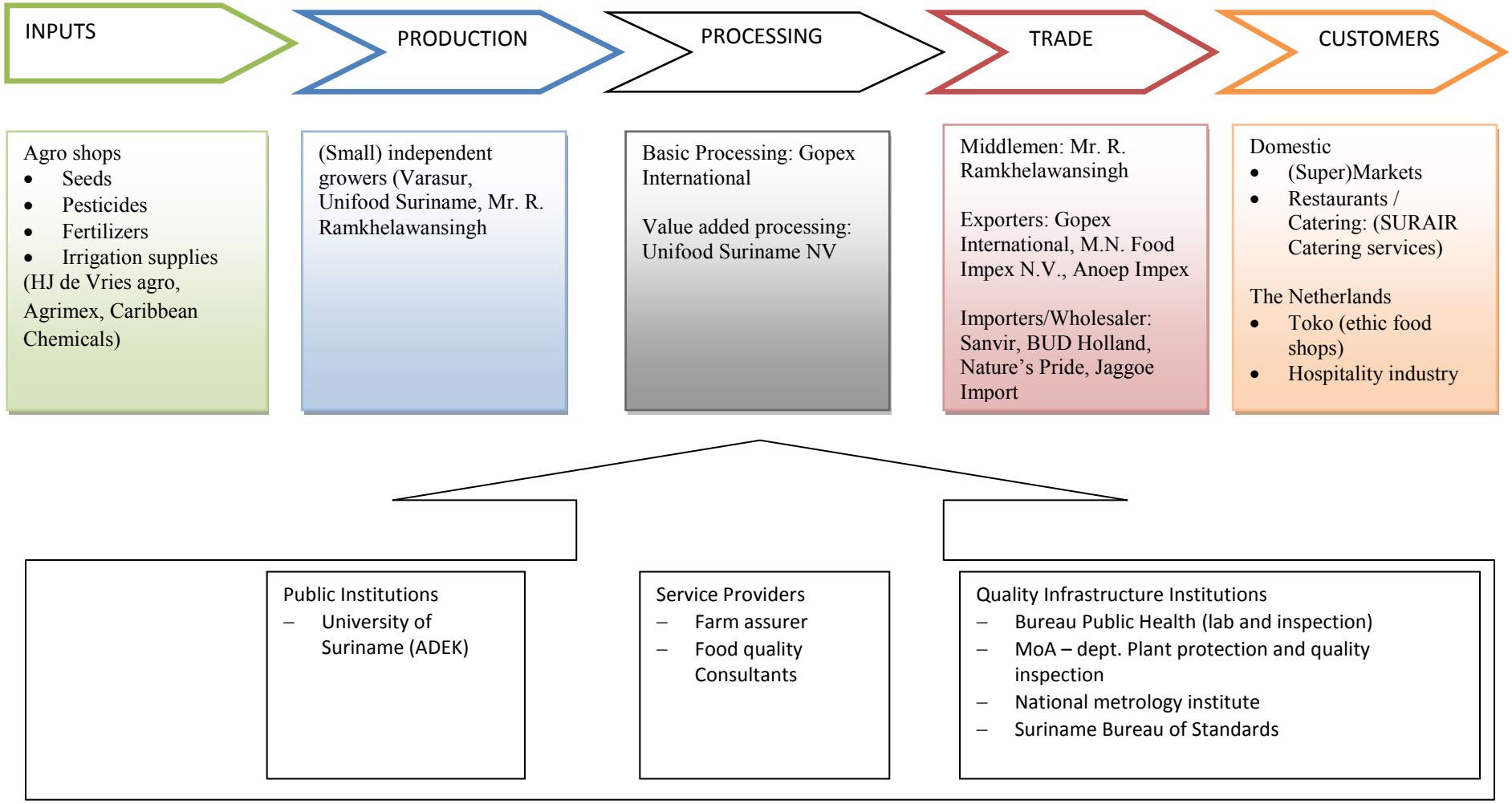
Source: BUD Holland, 2014 and R. Sanchit et al., 2013

[6] One exporter gave the following specification: one size 70-80 cm, without dots, no long pointed ends, no soft or melted beans and maximum 2 day old harvested product.

4. Value Chain Mapping

4.1 Value Chain Map

The chain actors are:



CHAIN ACTORS

To get a clear picture of the current situation in Suriname on the yard long beans value chain, the sector was mapped. In order to make a proper analysis of the main quality related issues in the value chain, all actors in and around the Surinamese yard long beans chain are described below.

Suppliers

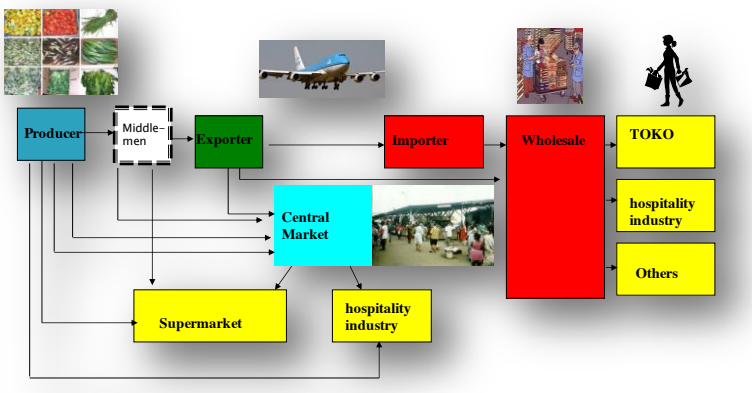
There are a few large companies who import supplies (seeds, pesticides, fertilizers, machines, etc.) for the agricultural sector. These companies sell their products mainly to small agro shops all over the country. Companies specialized in the production of seedlings, pest control, application of fertilizers and harvesting are practically non-existent.

Producers

In general most vegetable farms operate on a small scale; the plot size varies from 0.08 to 2 ha.
The production and in particular the harvesting stage is labour intensive. The owners are mostly part-time farmers who are not specialized in one type of agricultural product but grow a relatively large number of different crops. The vast majority of the farmers do not keep crop records. Some do, but the data is either incomplete or not reliable.
The harvest is collected in crates, boxes and/or wheelbarrows. Quite a number of farmers expose their produce to high temperature after harvest and the produce is not stored properly. Transport to customers does not take place under proper hygienic and temperature conditions.

Processors

In Suriname, a limited number of companies process yard long beans by washing, cutting and wrapping them. Those who process yard long beans sell their produce on the local market.
At present, there is a company planning to introduce blanched frozen yard long beans in the market soon.



Trade

The domestic market is dominated by middlemen who buy the yard long beans from farmers. The majority of the producers sell their produce in bundles, crates or bags to the middlemen who collect the produce. These traders don't use product specifications as such; their transport facilities are inadequate and they do not have a traceability system in place.

These middlemen do not have a real packing facility. Some of them have e.g. a tent at the back of their house where they wash , grade, repack the purchased products. The majority delivers the produce directly to their customers.

There are about 7 middlemen specialized in yard long beans who sell their goods to exporters, restaurants, hotels, supermarkets and at wholesale markets such as the Central Market in Paramaribo, but other wholesale markets in residential areas also play an important role.

Most exporters do have a packing facility (some better equipped than others) where they wash, grade, pack and label yard long beans. The Surinamese exporters sell the yard long beans to the importers or directly to wholesalers in the Netherlands.

Customers

A substantial part of the produce is sold on the domestic market while a small portion is exported, mainly to the Netherlands.

The Surinamese consumers have several options to buy yard long beans. This varies from shopping at roadside stalls, to buying at markets and many supermarkets.

As indicated above, only a small portion of the produce is exported. Suriname has a long tradition in the export of vegetables in general to the Netherlands. The produce is mainly sold in ethnic supermarkets (Toko's), to the hospitality industry and on markets.

CHAIN INFLUENCERS AND CHAIN SUPPORTERS

The Chain influencers are:

- Ministry of Agriculture
- Ministry of Health
- SSB
- Educational infrastructure: NATIN, ADEK, PTC
- Research and development institutes: CELOS

The Chain supporters are:

- **Sector associations**
  - VEAPS- Export association
  - ASFA- Suriname Manufacturers Association

- **Quality services**
  - Accreditation bodies: Dutch accreditation council (RVA)
  - Inspection bodies
    - Phytosanitary department, Ministry of Agriculture
    - Food safety inspection depart, Bureau of Public health (BOG)
  - Certification bodies such as Det norske veritas and Control Union are stationed in the Netherlands. Their auditors travel to Suriname a few times a year to audit agro-food companies.
  - Metrology
    - Testing laboratories: Bureau of Public health (BOG)
    - Calibration laboratories: National metrology institute (IJkwezen)

4.2 Value Chain Descriptor Table

Table 10. Value chain Descriptor

Value Chain		Description of Activities	Relative Market Share or Other Pertinent Information	Remarks
Generic	**Industry specific**			
Inputs	1. HJ de Vries agro 2. Agrimex 3. Caribbean Chemicals	1. Importer of pesticides, seeds, fertilizers and other agricultural inputs such as sprayers, irrigation supplies 2. Importer of agro inputs pesticides, seeds, fertilizers 3. Importer of agro inputs pesticides, seeds, fertilizers	1. One of the first importers of agro inputs 2. – 3. A relatively new importer	1. They are working on importing less toxic chemicals .
Production	1. Varasur 2. Unifood Suriname 3. Farmer Mr. R. Ramkhelawansingh	1. Producing seedlings, Production of yard long beans, harvest and packing for export 2. Producing seedlings, Production of yard long beans, harvest 3. Producing seedlings, Production of yard long beans, harvest and packing for export 4. Producing seedlings, Production of yard long beans and harvest	1. This company grows between 1,5-2 ha yard long beans. 2. This company will grow 2 ha year round. 3. This farmer grows 4 ha of yard long beans year round.	1. Works also with out-growers 2. Will start soon with production 3. Works also with out-growers
Basic Processing	1. Gopex International	1. Basic processing for domestic market	1. Capacity unknown	1. Stopped for a short period – equipment not functioning properly
Value Added Processing	1. Unifood Suriname	1. washing, cutting, blanching, packing and freezing.	1. The capacity is 10 to 15 ton/day but expected to process 40 ton/ month in the beginning.	1. Will start soon, equipment is not functioning properly

Table 10. (continued) Value chain Descriptor

Value Chain		Description of Activities	Relative Market Share or Other Pertinent Information	Remarks
Generic	**Industry specific**			
Trade	1. Middeleman Mr. R. Ramkhelawansingh 2. Exporter Gopex international 3. MN.Food Impex 4. Anoep impex 5. Importer and Wholesaler, Sanvir in the Netherlands 6. Importer and Wholesaler, BUD HOLLAND in the Netherlands	1. buys from other farmers and sells to a number of exporters 2. prepares produce for export 3. prepares produce for export 4. prepares produce for export 5. imports and sells to amongst others supermarkets, restaurants 6. imports and sells to amongst others supermarkets, restaurants	1. About 35 out-growers each with a production area of 1-2 ha. He sells his produce to 7 exporters and on the local market. 2. 2 clients in the Netherlands and they sell to domestic catering services	1. Does not speak Dutch properly. Exporters claim that the products he supplies are of good quality 2. ISO 22000 certified
Customers	Domestic 1. SurAir Catering Services	Domestic 1. Washes and cuts vegetables; prepares meal for airlines	1. There is only one catering company in the country who prepares meals for airlines	1. ISO 22000 certified
Service Providers	1. Ministry of Agriculture 2. Ministry of Health 3. Ministry of Trade 4. Suriname Standaarden Bureau 5. University of Suriname, ADEK 6. Farm assurer, J. Wijngaarde	1. Drafting legislation and assessing compliance with legislation, phytosanitary certificate, research 2. Drafting legislation and assessing compliance with legislation, laboratory test 3. Draft legislation and assess compliance with legislation 4. Drafting legislation and adopting standards 5. Research focussing on e.g.. organic farming 6. Coaching producers to implement GLOBALGAP standards and register farmers in GLOBALGAP database		1. Insufficient (qualified) food inspectors. 2. Only a limited number of pesticides can be tested. 3. They only calibrate scales for the food industry, no other equipment. 4. No inspection, accreditation and certification services currently

5. Analysis of Quality Infrastructure Related to Value Chain

5.1 Quality Infrastructure and Conformity Assessment

Table 11. Quality infrastructure responsibility and product/services matrix

QI institution	Role/ function	Products and services
Metrology		
Ministry of Health, BOG, testing laboratory	This laboratory is government owned and tests the quality of food and water. It is the national public health reference laboratory.	This laboratory performs basic microbial and chemical testing of agro-food and water.
Ministry of Trade, calibration laboratory IJkwezen	In charge of coordination in the field of standardization, testing and certification and issuance of certificates.	Inspection and repair of weighing and measuring instruments. In the agro-food sector they only inspect and calibrate scales of food processors.
Inspection		
Ministry of Health, BOG, Food safety inspection	Food safety inspection department inspects and monitors all establishments and companies where food is prepared, processed, sold, stored and transported with the focus on food quality.	Inspection of food producers
Ministry of Health, BOG, Environmental inspection	Environmental inspection department inspects and monitors all establishments and companies where food is prepared, processed, sold, stored and transported with the focus on hygiene.	Inspection of food producers
Ministry of Agriculture, Phytosanitary department	The Plant Quarantine Department focuses on inspection of produce	Inspection of produce and issuing phytosanitary certificates
Surinaams Standaarden Bureau (SSB)	SSB is authorized to enforce technical regulations	
Technical regulations and standards		
Surinaams Standaarden Bureau (SSB)	SSB is focused on establishing, adopting, maintaining and promoting the use of standards and technical regulations	This institute prepares Systems standards, Product standards and Codes of practices.
Ministry of Agriculture (MoA)	MoA is charge of drafting and enforcing legislation.	Legislative products such as laws and regulations
Ministry of Health (MoH)	MoH is charge of drafting and enforcing legislation.	Legislative products such as laws and regulations
Accreditation		
Surinaams Standaarden Bureau (SSB)	SSB is authorised to nominate laboratories and other testing facilities for accreditation	Issuing certificates to laboratories and testing facilities
Certification		
Surinaams Standaarden Bureau (SSB)	SSB is authorised to certify companies	Issuing certificates to companies

5.2 Inventory of Standards & Technical Regulations

Table 12. Inventory of standards and technical regulations

Category	Suriname	The Netherlands	Barbados
Technical regulation (mandatory)	Food Act, 1911	REGULATION (EC) 178/2002: General Food Law	Plant Pest and Disease (Import Control) Act 1995-18
	Plant Protection Act, 1965	REGULATION (EC) 882/2004, verification of compliance with feed and food law, animal health and animal welfare rules.	Plant Pest and Disease Eradication Act 1985
	Pesticide Act,2005	REGULATION (EC) 852/2004: general hygiene rules for all feed and food products	
	Act on Standards (S.B. 2004 no. 121)	REGULATION (EC) 1881/2006: Setting maximum levels for certain contaminants in foodstuff	
	State Order on Pesticides, S.B. 2005 no. 21	REGULATION (EC) NO 396/2005: on maximum residue levels of pesticides in or on food and feed of plant and animal origin	
	Decree IJkwezen (E – 40) S.B. 1983 no 17 [Weights and Measures]	REGULATION (EC) No 2073/2005: on microbiological criteria for foodstuff	Plant Pest and Disease (Import Control) Order 1997
	Food Decree 1940 (food establishments)	REGULATION (EU) No 1169/2011: on the provision of food information to consumers	Plant Pest and Disease (Import Control) Regulations 1997
	SSB 003:2013 General requirements for the labelling of pre-packaged goods	DIRECTIVE 2002/63/EC establishing Community methods of sampling for the official control of pesticide residues in and on products of plant and animal origin	
		DIRECTIVE 2000/29/EC: on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community	
		DIRECTIVE 89/108/EEC specific requirements for quick-frozen foodstuffs for human consumption	
Company/industry standards (voluntary)	Good agriculture practices (MoA)	GLOBALGAP	Good agriculture practices (GAP)
	SSB 008:2014 Code of Conduct - organic agriculture and horticulture	HACCP*	
	CRS 14: 2010 Good management practices for MSMEs (regional standard)	FSSC2200*	
	CRCP 5: 2010 – Food Hygiene (regional standard)	CSR*	

** These are also common buyer requirements(www.cbi.eu)*

6. Quality Infrastructure as it Relates to the Value Chain & Buyer Requirements

The yard long beans sector faces various product and quality related issues. An Overview of the product and quality bottlenecks within the yard long beans sector is presented below:

* *Law, regulations and standards*. The current food related legislation of Suriname is outdated. The national food law from 1911 did not take food safety aspects or any international agreements into account.

  There are insufficient technical regulations to regulate the production and processing of yard long beans. Although the Codex list of MRL's is used by the authorities, it is not officially adopted.

  Suriname doesn't have national standards for fresh and quick frozen yard long beans.

* *Conformity assessment*. There are insufficient (qualified) food inspectors for both the primary production and the processing industry. The inspection bodies are not equipped to perform their tasks.

  The national testing and calibration laboratories are not equipped to provide all necessary services such as testing the quality of input material (e.g. pesticides, seeds and fertilizers), testing the produce for all relevant pesticide residues and calibrating thermometers.

  The National testing laboratory is ISO 9001 certified and they are implementing the ISO 17025 requirements. The only calibration laboratory in the country, the National Metrology Institute, is not accredited.

  There are no internationally recognised certification, inspection and accreditation bodies in Suriname.

* *Product quality*. Farmers are faced with inferior quality inputs such as pesticides, seeds and fertilizers which results in poor product quality and a low yield per hectare.

  The information on some pesticide labels is incomplete or incorrect. This could result in issues such as inadequate control of pest and diseases as well as food safety issues due to exceeding maximum residue levels.

  The vast majority of farmers do not work according to the GlobalGAP nor the LocalGAP standards. Farmers do not implement post harvest management practices such as adequate packaging, transporting and storing of produce. The storage temperatures of the produce are high, which limits their storage life.

Produce is collected in crates, boxes and/or wheelbarrows and often transported in open vehicles to customers.

Some exporters use packaging material of an unsuitable quality for export.

* *Trade*. To ensure that exported products meet the requirements of the target markets, chain actors and service providers in general and especially producers and processors must know the product and quality standards, specifications and requirements for export. Unfortunately, there is insufficient knowledge of requirements of foreign markets.

Farmers sell their produce in bundles to middlemen and exporters instead of using the SI unit, kilogram.

All exporters but not all farmers have an unique code and middlemen do not keep records of produce bought/sold. That is one of reasons why the traceability system is not functioning properly.

Opportunities for development

The sector will benefit from a national specification for yard long beans. Therefore the first step is the drafting and adoption of a specification for this product.

Secondly drafting a GAP manual for producers of yard long beans which concerns main issues of good practices (water quality, record keeping, calibrating equipment, etc.), hygiene (of persons, equipment, and general environment) and hygienic production procedures. Such a GAP manual also contains procedures for tracking and tracing, enabling recall of the product in case of calamities.

A Q Mark Numbering System should be developed for those who comply with the yard long beans GAP standards.

7. Interaction and Impact Analysis

Table 13. Interaction matrix

	Benefits/ opportunities	Costs/ risks
Chain Actors	– Less time spent on inspection of out-growers. – Standards for inputs resulting in less or no inferior quality agro inputs. – Yard long beans that comply with export standards. – Improved QI services. – Guidelines to improve the quality of products.	– Time needed to participate in the workshop – Compliance with quality requirements may demand a considerable financial investment – Setting up quality management systems in firms is a labour-intensive process – Setting up quality management systems requires a major shift in attitude among management as well as labourers, and major operational adaptations.
Quality Infrastructure	– Insight into the potential demand for analysis: parameters as well as quantities. – Expansion of relevant standards (at the request of the market). – Steps to organize the Metrology Department. Revenue generation from calibration services and analytical testing. – Get accreditation for the National laboratory. Generate revenue from analytical tests for the region.	– Time needed to participate in the workshop. – Not always able to participate due to staff shortages. – Not always able to participate due to lack of funds. – Information / knowledge provision comes with a price tag.

The chain actors and stakeholders will get a clear picture of the regional and international quality requirements. The chain actors will be informed about the services the QI currently offers.

The quality service providers will get a better view of the services the yard long beans sector requires.

Yard long beans producers will be trained to implement GAP standards. During the training, yard long beans farmers will learn what the meaning of the GAP is, how they have to implement it, why they need to implement the GAP standards and what they will gain by implementing it. The training will emphasize that it is for their own interest and the interest of the country that good agriculture practices are implemented in the sector.

Operational management in the yard long beans sector will improve as a result of the existence of specifications for the yard long beans, as well as the GAP manual and the certification of farmers who comply with the GAP standards. This is an important precondition for the subsequent sector-wide implementation of quality management systems.

As a last step, selected producers of yard long beans will then be coached to get full-fledged GlobalGAP certification. The accomplishment will be - so to speak- the crown on the work.

Expected results will only be achieved if all stakeholders are aware of the importance of product quality, hygiene standards and quality management procedures.

8. Conclusions and Recommendations

The vegetable sector in general and more specifically the yard long beans sector in Suriname is at present not in line with international requirements. This has a negative impact on the export and thus on the national economy.

There are value chain stakeholders and Quality Infrastructure representatives who are sufficiently committed to contribute to this project. We need to get more stakeholders on board but based on experience in other agriculture subsectors (rice, fish) this should not be a problem.

Major challenges

Complying with (international) standards is still in its infancy in this sector but there are stakeholders who understand the importance of standards. This project should be seen as a pilot to start the implementation of standards within the vegetable sector in general and more specifically in the yard long beans sector. Once these standards are generally applied it will have a spin-off effect on other sectors.

Major risks

Should the prices of inputs rise and the price of yard beans falls, or if substitute products are cheaper in the importing country, both producers and processors will be losing money, and become reluctant to spend money on e.g. improving the facilities to comply with requirements. This may cause them to drop out of the project.

There are some risks that might threaten the successful implementation of this project:

- Business economic risks: prohibitive costs of required adaptations and costs of certification (including travel and accommodation costs of the auditor/registrar) and annual audits to maintain the certification.
- Institutional risks: medium-sized companies may lack an adequate structure to ensure training, communication and documentation at the level needed.
- Attitudinal risks: quality management systems rely on continued support by management. Lack of motivation, lack of perseverance, lack of discipline may jeopardize the achievement and maintenance of a QMS.

Key success factors of the further process

Financial means should be made available by the hosting institution to organise the workshop and implement actions proposed during the workshop. Another key to success is ongoing awareness-raising activities not merely those who will be participating in this project but all other stakeholders in the Suriname yard long beans sector.

An important precondition for success is that standards and guidelines, once developed and endorsed by the SSB, are accepted by the VEAPS and that this organization actively promotes them among its members and even among non-members.

Other relevant information as related to the way forward

Suriname started the process of modernizing its agricultural public services which includes updated legislation, improved inspection and laboratory services, etc. This will ensure that consumers are better protected against illness and food contamination while at the same time the country's exports will meet international requirements.

Implication of continuation of the process

This process could be the start of a series of improvements for the vegetable sector in general and the yard long beans sector in particular. It will raise awareness amongst the stakeholders and will improve the quality of the product for the domestic market as well as the regional and export market.

Continuation of this process should result in an increased level of competition of Surinamese companies exporting to EU and CARICOM markets.

Implication of closure of this process

The EU smoked fish export ban can serve as an example for the vegetable sector in general and the yard long beans sector in particular. If there are no ongoing efforts, such as implementing the CALIDENA method, to improve the services offered by QI on the one hand and compliance with international quality requirements on the other hand - it will eventually lead to an export stop to the EU. The CALIDENA method is another way to draw stakeholder's attention to the hurdles Suriname has to overcome, in order to export to the region.

9. Appendices

Appendix A.1 References

1. IADB/FAO (2013) Agricultural_Health_and_Food_Safety_System_Analysis_(SU-L1033)
2. Q point & Capricorn Projekt (2009) Marktstudie Surinaamse/ Tropische groente en fruit op de Nederlandse markt
3. Q point & Capricorn Projekt (2009) Marktstudie Surinaamse/ Tropische groente en fruit op de CARICOM markt
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5. Bhugoea Shalini and Maniram Sandhya, 2013 Vergelijking van de performance van kouseband (Vigna sesquipedalis) geteeld op zand –en kleigrond
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9. MOA (2011). White paper Agrarische gezondheid en voedselveiligheid Ministerie van Landbouw, Veeteelt en Visserij
10. Hemwatie Goeptar (2012) Voedselveiligheid in de primaire productie, survey naar de status van de huidige productiemethoden van groenteboeren in het district Saramacca gebaseerd op GlobalGAP stadaarden
11. Derlagen, C., Barreiro-Hurlé, J. and Shik, O. (2013). Agricultural Sector Support in Suriname, IDB/FAO, Rome, Italy.

Websites

- Nature's Pride -Import/ export fresh fruits and vegetables-www.naturespride.nl
- Sanvir groenten Amsterdam -Import fruit and vegetables- http://sanvirgroentenamsterdam.nl/
- www.cbi.eu
- http://www.vwa.nl/
- http://www.agriculture.gov.bb/agri/
- http://www.fruitandvegetablefacts.com/
- https://crosq.org/
- http://www.codexalimentarius.org/
- www.fao.org
- http://www.visitsurinameonline.com/nl/business

Appendix A.2 Information sources

organization/ company	Description of activities	Address	Contact person	Website
Ministry of Agriculture, planning	Developing technical regulations, applied research,	Letitia Vriesdelaan no. 8 – 10, Paramaribo	Mr. R. Nojodimedjo, Head of Planning Department	http://gov.sr/ministerie-van-lvv.aspx
Ministry of Agriculture Plant quarantine and quality inspection	Quality Inspection, issuing phytosanitairy certificates	Kankantriestraat 9, Paramaribo	Mr. R. Debie, Head of plant health and quality inspection	http://gov.sr/ministerie-van-lvv.aspx
Ministry of Health Food inspection	Food safety Inspection	Rode Kruislaan 22, Paramaribo	Mrs. Lieveld, Head of Food Inspection Directorate	http://www.bogsur.sr/
Ministry of Health National Laboratory	Laboratory analysis	Rode Kruislaan 22, Paramaribo	Mr. M. Wongsokarijo, Acting manager	http://www.bogsur.sr/
Ministry of Trade, National metrology department	Calibrating and repairing scales	Industrieweg Zuid, Paramaribo	Mr. Talea, Head of metrology department	http://gov.sr/ministerie-van-hi.aspx
Suriname Bureau of Standards	Developing & adopting standards, certification and accreditation	Leysweg 10, Paramaribo	Mr. Marvin Towikromo, Standard Officer	http://www.ssb.sr
Suriname Chamber of Commerce	Registering companies in the Commercial Register, representating the interests of regional trade and industry	Prof. W.J.A. Kernkampweg 37, Paramaribo	Mrs. J. Kristono	
Association of Exporters of Agricultural Products Suriname	Promoting the interest of exporters	Jessurunweg 14, Wanica	Mr. R. Sanchit, Secretary	
Farmer/Middleman	Growing and trading yard long beans	Welgedacht A, 161, Wanica	Mr. R. Ramhkelawansingh, Owner	
Varasur/ Gopex International	Growing, processing and exporting yard long beans	Catharina Sophia km 58.5, Calcutta, Saramacca	Mr. B. Gopal, Managing Director	www.gopex-internationalnv.com.
Unifood Suriname NV	Growing, processing and exporting yard long beans	Catharina Sophia, Calcutta, Saramacca	Mr. U. Taus, Managing Director	http://www.unifoodsuriname.com
Anoep Impex	Exporting yard long beans	Pandit Manuratweg 65, Commewijne	Ms. W. Chowhari, Export Officer	
MN Food Impex	Exporting yard long beans	Mopentiboweg 115, Santo Boma, Wanica	Mr. R. Nanda, Manager	

organization/ company	Description of activities	Address	Contact person	Website
CBI	Supporting producers / exporters to get a foothold on the EU market	Prinses Beatrixlaan 2,2595 AL, The Hague, The Netherlands	Mr. Piet Schotel, Expert	www.cbi.eu
Bud Holland	Importing of fresh fruit and vegetables	Transportweg 67, 2676 LM Maasdijk, PO Box 411 The Netherlands	Mr. Peter Hobert, Director	www.bud.nl
Surair Catering Services	Preparing meals for airlines	J.A. Pengel Internationaal Luchthaven, Para	Mr. Jose. P. Soesman, Operations Manager	http://www.slm.firm.sr/nl/content/2/about-us/8/surair-catering-services
HJ de Vries agro	Importing agricultural of inputs	Indira Gandhiweg km 9, Wanica	Ms. Hemwatie Goeptar, Supervisor	http://www.hjgroup.sr
Jaggoe Import	Importing fruit and vegetables	van ´t Hoffstraat 45-47, 2665 JL Bleiswijk, Nederland	Mr. A Jaggoe[7], Manager	http://www.jaggoeimport.nl
Agrimex	Importing agricultural of inputs	Hoogestraat 33, Paramaribo,	Mr. R. Griffith, Sales Officer	
Caribbean Chemicals	Importing agricultural of inputs	Kristalstraat 1, Paramaribo	Mr. S. Sewradj, Operations manager	

[7] No direct contact with this potential customer. Information received via another stakeholder

Appendix A.3 List of questions

Chain actors:

- What requirements do your suppliers of yard long beans have to meet?
- What certification, laboratory tests, etc do you require from your suppliers?
- How do you assess compliance with such requirements on the part of suppliers ?
- Who are your clients?
- Problems observed in the chain?
- Proposals for solving the problems?
- What are the risk/cost and benefit/ opportunity of participation in this project?

Chain supporters and influencers:

- What services do you offer to the yard long beans sector?
- What are the risk/cost and benefit/ opportunity of participation in this project?