



Hygiene integration in agricultural value chains

Study for hygiene cost and incentive integration in milk cooperatives and local market AVC nodes in Burundi

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Abbreviations

AVC node	: Agriculture Value Chain node
EKN	: Kingdom Embassy of the Netherlands
FGD	: Focus Group Discussion
IFAD	: International Fund for Agriculture Development
KII	: Key informant Interview
L	: Litre
PRODEFI	: Project for Value Chain development
PRODEMA	: Project of Agriculture Market Development
PPE	: Personal protection Equipment
SSI	: Semi structured Interview

Executive summary

The study on costs and incentives for AVC nodes was undertaken in 10 AVEC nodes, 5 milk cooperatives and 5 local retail markets based in 5 provinces of Burundi: Bubanza, Bujumbura, Gitega, Makamba and Muyinga

The study objectives are of two folds as follow:

Objective 1: Assess, characterise, and document the costs of integrating and not integrating hygiene in milk cooperatives and local retail markets

Objective 2; Assess, characterise, and document incentives for triggering AVC actors Assess, characterise, and document incentives for triggering AVC actors (policy makers, Business owners/Managers, Employees, Market traders, Consumers and Service providers) to integrate and practice hygiene in milk cooperatives and local retail markets

Methodology

To perform the study, consultants made use of qualitative and quantitative methodologies. The field research included an introduction of the research team in the communities sampled for this study to avoid long and complicated process of getting authorisation to collect data in the communities of Burundi which may delay getting the expected results.

The primary data collection was organised as follows

1. A focused group discussion (FGD) with key informants to generate costs of the integrating hygiene in each cooperative and market.
2. Semi-structured interview (SSI) with key informants to assess and characterise the incentives in each cooperative and market.
3. Key informant interviews (KIIs) with consumers in each cooperative and market to assess and characterise the incentives.
4. A FGD with Service providers Water, sanitation, and waste collection service providers to assess and characterise incentives for hygiene integration in AVCs.
5. A FGD with key policy makers to assess and characterise incentives for hygiene integration in AVCs.
 - For the milk cooperatives, assessment was addressed to the business manager, employees, consumers, or customers -In total 5 interviews)
 - In local retail Market, the survey was addressed to the business manager, market traders, employees and consumers/customers-in total 11 interviews for each retail market
 - At province level, interviews were addressed to the service providers, water, and sanitation as well as waste collection service providers (5) and policy makers (5)
 - For the incentives assessment:
 - a. The SSIs and KIIs was undertaken in each of the clients by the assessment/interview team. The number of respondents in each of the methodologies is summarised in table below.
 - b. An assessment was done at the province level to assess the incentives for policy makers to invest in hygiene integration in the 5 provinces and also for service providers. In each province, FGD sessions were held for policy makers and service providers.

Costs of hygiene integration in the 5 Milk cooperatives

The study showed an existence of basic infrastructures in milk cooperatives with basic hygiene facilities installed with support of partners especially PRODEFI funded by IFAD and PRODEMA World bank funded projects. In 4 out of 5 cooperatives, toilets, running water, handwashing and taps were installed and water tanks to keep water after water cuts that are observed in all the nodes. For one of them, there is no basic hygiene infrastructure installed due to lack of partner involved. Most of costs to be incurred by the nodes are the solid waste management installations well as operation and maintenance and functioning costs. But for the one without basic installation, all the costs have to be supported by the node.

Costs of hygiene integration in the 5 markets

All the 5 markets analysed are characterised by lack of basic hygiene installation including water, toilets, handwashing and waste disposal and management sites. 4 of the 5 markets need to be provided markets buildings and installation of toilets, hand washing stations, food handling and washing stations as well as water and waste management sites while one of the 5 markets is built and has all hygiene facilities installed but not well managed. The 4 communes will have to support all the costs of missing hygiene installation as well as operation and maintenance as well as functioning costs.

Key incentives for policy makers,

Incentives for policy makers to elaborate hygiene regulations and policies include Complying with regional bodies and international policies established by Organisations Burundi has adhered to is one trigger for government to put in place or adapt policy

Fulfilling Government obligation to assuring the citizens security with regards the protection against being contaminated by diseases

The likelihood of some product to be sensitive to poor hygiene and to harm the public health if they don't run under specific policies, for example milk, cooked food, drink, and meat, this is the best trigger to put in place policies.

The likelihood and risk of epidemic outbreaks: the government is to urge preventive and mitigation measures to avoid contamination and limit impact of diseases on people's life.

Key incentives for business owners and managers,

Key incentives for business managers are to keep their business running and save money, as well as maintaining credibility among clients and avoiding being at risk of paying fines

Key incentives for employees

Key incentives for employees are to safeguard their job security an

Key incentives for market vendors

Key incentives for vendors are to keep business running and saving money by avoiding business to be closed by local authority

Key incentives for consumers

No incentives of customers as most of them are moved by lower price than hygiene and security of the product.

Key incentives for service providers in markets

Service providers are interested by saving life to the population only, service providers and policy makers using appropriate tools for each group of respondents

1 Introduction

1.1 Background and rationale

SNV is implementing a PADANE Project to support Agriculture development for Nutrition and entrepreneurship under the funding from Kingdom Embassy of Netherlands (EKN).

The project aims at improving farmers household living conditions, those of youth and market actors through increasing incomes, improving nutrition quality and resilience to climate changes

The specific objective is to contribute increase local production through the facilitation access to agriculture incentives, organisation of producers and he facilitation of the establishment of conservation and transformation infrastructures and facilitate the commercialisation of products

To achieve this objective, some of the project components comprise

- The development of inclusive value chains and finance
- Development of youth employment opportunities

Agriculture Value Chains (AVCs), with their intensive interactions and exchanges between communities and regions are a potential spreader of public health diseases including Covid-19 and can be severely impacted by such diseases. SNV is implementing a Project to enable agricultural value chains actors to integrate hygiene in their daily operations in AVC nodes. To gain greater insights on hygiene integration in AVCs, SNV wants to identify, characterise, and document the incentives and costs for integrating hygiene in AVCs. The nodes to be studied are: (1) Milk cooperatives and (2) Local retail markets where agricultural inputs and products are sold.

1.2 Assignment study objectives

The study has two objectives:

- Assess, characterise, and document the costs of integrating and not integrating hygiene in milk cooperatives and local retail markets
- Assess, characterise, and document incentives for triggering AVC actors Assess, characterise, and document incentives for triggering AVC actors (policy makers, Business owners/Managers, employees, market traders, consumers, and service providers) to integrate and practice hygiene in milk cooperatives and local retail markets

1.3 Materials and methods

The study used quantitative and qualitative research methods prescribed in the tor as follow

- A focused group discussion (FGD) with key informants to generate costs of the integrating hygiene in in each cooperative and market.
- Semi-structured interview (SSI) with key informants to assess and characterise the incentives in in each cooperative and market.
- Key informant interviews (KIIs) with consumers in each cooperative and market to assess and characterise the incentives.
- A FGD with Service providers Water, sanitation, and waste collection service providers to assess and characterise incentives for hygiene integration in AVCs.
- A FGD with key policy makers to assess and characterise incentives for hygiene integration in AVCs.

1.4 Overview of the approach and methodology

1.4.1 Sampling

The study selected 10 AVC clients to be studied, including 5 Milk Cooperatives and 5 Local Retail markets in 5 provinces indicated in the table below.

Province	Milk cooperative	Retail market
1. Bubanza	1. Kivyuka	1. Kivyuka
2. Bujumbura	2. Ijenda	2. Nyabiraba
3. Gitega	3. Bugendana	3. Bugendana
4. Makamba	4. Makamba	4. Muyange
5. Muyinga	5. Muyinga	5. Murama

1.4.2 Inception meeting with SNV

A process of consultation was undertaken between SNV Team and Consultants to refine the research methodology, questions, and tools according to the local context and the SNV and agree on the fine timetable as well as logistic arrangements.

A final research proposal was then completed before the establishment of an agreement between SNV and RBU 2000+ which oversaw recruiting consultants and supervise the research process

1.4.3 Data collection tools

Data collection tools were designed for various actors and type of information

A standardised quantitative questionnaire to collect costs for the value chains nodes at both milk cooperatives and retail markets. The questionnaire was administered to the business owners, the node employees, and traders at the retail market nodes

A structured qualitative guideline to collect incentives for the value chains node at both milk cooperatives and retail markets. The guideline was addressed to all of the respondents including owners, employees, traders and costumers

A semi structured guideline to collect data from service providers at communal level, these include water, hygiene, and sanitation public or private services as well as the waste collection and toilets management companies

A semi structured guideline to collect data from policy makers at provincial level, these include provincial administration authorities, representatives of technical ministries playing key responsibilities in food security and hygiene promotion (Ministry of Health, Ministry of water and Energy, Ministry of Commerce, Ministry of Agriculture and Environment and Ministry of Home affairs, communal development, and public security.

1.5 Field research methods

The field research phase included an introduction of the research team in the communities sampled for this study to avoid long and complicated process of getting authorisation to collect data in the communities of Burundi which may delay obtaining the expected results.

The respondents consent verbally to respond to questions in order not to force responding or participating in the study.

The primary data collection was organised as s follows

1. A focused group discussion (FGD) with key informants to generate costs of the integrating hygiene in each cooperative and market.
2. Semi-structured interview (SSI) with key informants to assess and characterise the incentives in in each cooperative and market.
3. Key informant interviews (KIIs) with consumers in each cooperative and market to assess and characterise the incentives.
4. A FGD with Service providers water, sanitation, and waste collection service providers to assess and characterise incentives for hygiene integration in AVCs.

5. A FGD with key policy makers to assess and characterise incentives for hygiene integration in AVCs.
- For the milk cooperatives, assessment was addressed to the business manager, employees, consumers, or customers -In total 5 interviews)
 - In local retail Market, the survey was addressed to the business manager, market traders, employees and consumers/customers-in total 11 interviews for each retail market
 - At province level, interviews were addressed to the service providers, water, and sanitation as well as waste collection service providers (5) and policy makers (5)
 - For the incentives assessment:
 - c. The SSIs and KIIs was undertaken in each of the clients by the assessment/interview team. The number of respondents in each of the methodologies is summarised in table below.
 - d. An assessment was done at the province level to assess the incentives for policy makers to invest in hygiene integration in the 5 provinces and for service providers. In each province, FGD sessions were held for policy makers and service providers.

Table 1. The breakdown of respondents per node and methods used

Client	Respondents	Qty of pax/client session	Method
Milk Cooperatives	Business manager	1	SSI
	Employees	3	SSI
	Consumers/Customers	2	KII
Local retail markets	Business manager	1	SSI
	Market traders	5	SSI
	Employees	3	SSI
	Consumers/Customers	2	KII
Province	Service providers water, sanitation, and waste collection service providers	5	FGD
	Policy makers	5	FGD
Total respondents		32	

1.6 Summary of tasks carried out by the consultants

The assessment was carried out according to the proposed methodology in the research proposal.

1.6.1 The presentation of consultant team to the local authority

As planned, the consultant team was to be presented at local authority prior to the start of field research. This was an opportunity to present the team consultants and hygiene to the local and provincial authorities as well as getting agreement to work with the community according to the national law and local regulations. The study organisation and planning as well people involved were discussed before invitations were raised to the selected targets. The presentation was facilitated by the partners organisation counterpart in the commune or in the province

1.6.2 The contextualisation of the data collection tools

Prior to the data collection the consultant team reviewed the questionnaires and guidelines and proceeded to their contextualisation, each stakeholder category was assigned an individual questionnaire/guide

1.6.3 The primary data collection / Interviews:

The primary data collection was undertaken according to the work plan below. The consultant carried out all interviews with individuals and focus groups. The interviews were conducted on the site of the node. 2 days were booked for each of the nodes to organise interviews with stakeholders by assessing costs and incentives.

1. Milk cooperative nodes

At the milk cooperative nodes, interviews were organised with one business owner, 3 employees, one milk collector in the field and one consumer.

In total 6 interviews were done at each milk cooperative node as follow

Client	Respondents	Qty/ node	Total
Milk cooperatives	Business manager	1	SSI
	Employees	3	SSI
	Consumers/Customers	2	KII

2. Retail market nodes

At the retail market nodes semi-structured interviews were organised with one business owner, 3 employees, 5 traders and 2 consumers, i.e., 11 interviews for each one of the retail markets visited

Client	Function	Qty /node	Total
Local retail markets	Business manager	1	5
	Employees	3	15
	Traders	5	25
	Consumers	2	10

3. Service providers

The selection of services providers was made prior to the assessment, then invitations were sent to get their approval to attend the focus group session. Key service providers met at every commune/province are the hygiene focal point, the communal veterinary, one representative of communal water regie, one representative of local administration and one representative of environment protection office.

4. Policy makers

The policy makers are representatives of key ministries concerned with hygiene issues, such as Health and HIV/Aids ministry, Agriculture, Environment and Livestock, Burundian Office for the Environment protection, Water and Energy ministry, Commerce and industry, home affairs, communal development, and public security ministry. Invitations were sent to the representatives of the ministries at the provincial level.

5. Observations

During the assessment photos and video for the nodes were taken for the node and the environment to visualise the hygiene context of each node.

6. Desk review

During the assessment and the data analysis, the consultants had to search for key documents and policies related to hygiene and agriculture value chains to check over national and international standards, norms, and rules regarding hygiene. These helped review data on basic costings and quantities of infrastructures required for various nodes.

7. Data analysis

Quick data review

The data analysis phase was carried out since the first day of data collection. After the daily data collection, the consultants had to review the data collection sheets to check the consistency of responses with the content of questionnaires.

After the close out of the assessment of each node, the team had to sit down and check over any data missing and decide corrective measures accordingly while planning for the next node to visit.

Well-structured data analysis

In addition, a special session of compiling the results of all the data collection sheets was made after the data collection phase to help capture diverse perceptions and to organise findings before report writing. The consultants used the triangulation of the results of different interviews with different stakeholder groups to compare different ideas and perceptions of clients and desk information

Data analysis matrix

To prepare for data analysis process, data analysis matrix was elaborated both for costs and incentives assessment. These allowed the compilation of key findings, elaborate a structured analysis of keys assessment results to help frame the study report

1.7 Challenges realised during the study

1.7.1 Key challenges realised

Lack of knowledge on norms and costs of hygiene components in the node: In most of the cases of milk cooperatives, the owners received infrastructures ready to use, as 4 out of 5 were built by IFAD through the PRODEFI project before the cooperatives start activities.

During the visit nobody was knowledgeable on the costs of infrastructures.

In addition, most of the users are not aware of who is responsible to replace or repair broken facilities

Unavailability of respondents: This was critical for the hygiene service providers and policy makers. Although the invitation was sent ahead of time, some of the services providers and policy makers did not attend the focus group sessions claiming to be busy with more important agendas and some of them were replaced by their collaborators

Lack of fuels: The country is undergoing short of fuels in all the provinces, this caused stress to the team consultants and limited for a small extent the mobility of the team while undertaking field data collection.

2 Findings

2.1 Costs of integrating hygiene in the milk cooperatives

2.1.1 Kivyuka milk node

In Bubanza province, specifically in Kivyuka milk cooperative, the following types of costs of integrating hygiene have been assessed with the business manager and employees. Hygiene costs are described as follow:

1. Installation costs

Cost for the installation of functional toilets: they were incurred by PRODEFI Project funded by IFAD prior the commencement of node activities. 2 toilets were installed and are still functioning. Their cost is approximately 4,500,000 BIF. When looking the total number of employees and clients who visit the node every day, the total needs are 3 toilets, 2 for staff and one for clients. The total costs required of one additional toilet is 2,250,000 BIF.

Costs for hand washing station were incurred by PRODEFI, there are 3 washing stations installed but their cost could not be known.

Costs of a water tank: There is one water tank of 10,000 litres for water conservation as there is no permanent running water. It is estimated that running water is available only 10 days per month, this implies to keep water to be used during 20 days during water cuts. To avoid water shortage in the node, a total of 2 tanks are required to keep enough water for hygiene purposes in the node. This requires an additional cost of 250,000 BIF for the tank to be installed.

2. Functioning cost

Cost of washing facilities (tap water and soap): These costs are supported by the cooperative itself. There were 3 water taps before covid, but there are 5 taps including the one installed at the entrance of the node. Every day, the node uses 5 soaps (1 for the tap installed at the gate and 4 others at the 4 taps located in the compound). The cost before COVID 19 was estimated to 2,826,000 for 3 facilities. Considering the size of business and the number of people using hygiene facilities, 5 hand washing stations are required meaning 2 additional handwashing on an estimate cost of 3,252,000 BIF.

Cost of food products handling and transportation equipment: The costs of milk handling and transportation equipment were supported by PRODEFI project before the cooperative started its activities. They are composed of 25 jugs of various sizes available at the node used to collect milk and 35 jugs of small size (10 litres) used by farmers to transport milk up-to the node. Considering the volume of business, in total 75 milk jugs are required, meaning 15 additional jugs(10l) whose cost is estimated to 405,000BIF.

Costs of faecal waste management: The faecal waste management pit was built when PRODEFI installed the whole building used by the cooperative, but its cost is not known. Its size is sufficient with regards to number of users. The cost of implementation of faecal waste management is estimated locally to 60,000 BIF, and the total is 95,000 BIF including 35,000 BIF of labour.

Costs of solid waste management facilities: The node currently spreads solid waste in the environment, there is a need to install a well-organised solid waste management site based on the volume of business, its cost is estimated to 125,000 BIF including labour fees.

Cost of installation of grey water management facilities: grey water facilities are not available though there is a requirement to install them as the node produces grey water while washing milk handling equipment. One (1) grey water management facility is required at the cost of 70,000 BIF.

3. Costs of operation and management

Toilet: These costs are supported by the node itself. Regarding the number of employees and visitors, the operation of toilets costs 50,000 BIF per month

Tap water and soap: These costs are supported by the node. Before Covid, the node was using 10 soaps for hand washing and cleaning, to better integrate hygiene in the node, it is required to use 20 soap per month, the total cost is estimated to 20,000 BIF per month.

Cleaning of surfaces: These costs are supported by the node itself. The quantity of the required is the same before covid and currently. Per month, 2 jerrycans of cleaning products are used with costs of 45,000 BIF each. To integrate hygiene, it is required to use at least 3 jerrycans per month in the node, the total cost is 130,000 BIF.

Collection and disposal of solid waste: The costs are supported by the node itself. The waste collection and disposal are made by daily workers on a basis 5,000 BIF a day. This cost remained the same before and during Covid-19. To improve hygiene, 2 days waste collection and disposal day workers will be required per week, this means 20,000 BIF, with a total of 80,000 BIF per month (4 weeks)

Sewerage: Currently this doesn't exist in the node, but it is required to sewer at least once per week at the cost of 5,000 BIF.

Stormwater drainage: The stormwater drainage was built by PRODEFI project during the construction of the building. Its cost is included in the total cost of the structure. Only maintenance is needed and will be assured by hygiene staff.

Wearing masks: The node incurs these costs. Before covid, there were no masks used but currently the node uses an estimate of 15masks per month which cost 15,000 BIF, but the total number of masks required is 30 masks per month, the total cost is 30,000 BIF for hygiene personal and employees involving in milk preparation every month.

4. Regulations Costs

Building capacity of regulators: This is not applicable as there is no cost charged to build capacities to regulators.

Monitoring hygiene: Monitoring hygiene is done by authorities in charge of hygiene but there is no fee charged to the node.

Enforcing hygiene: Before Covid and currently the node has 2 employees in charge of monitoring hygiene costing 40,000 BIF each per month (80,000 BIF in total). The two are enough to perform all hygiene activities

5. Health costs

Average number of absentees per month due to illnesses related hygiene diseases: There were no absentees occurred and no costs associated with these aspects
Average numbers of infections /Hospitalisations /Diseased per month: There were not infections occurred.

Cost of infections/Hospitalisations /Diseased per month: There were no cost as there were no infections occurred. In case there are diseases, the node has obligation to support employee's health care costs.

6. Commercial prices, costs, and revenue

Estimated number of customers served per day (estimate visitations per month), estimated quantity, price and quantity handled: Quantity of milk handled in the cooperative is about 800 to 1000 litres a day, the cooperative is functioning 6 days a week, this is approximately 19.200 litres per month. One litre of milk costs 700 BIF, the total costs of milk is 13,440,000 BIF per month.

- For quantity sold, there are in average 60 customers/clients served per market day by the cooperative and the large quantity is transported to Bujumbura; one litre is sold for 800 BIF, this is a total of 15,360,000 BIF/month.
- Estimated number workers per day/ month (workers, traders, transporters/drivers): The node employs 10 staff, one in charge of the whole management of the node, two in charge of milk collection at the node, two in charge of hygiene, one responsible for the pastry and one responsible for the cheese production. The remaining staff oversee milk testing and collection at the farms in the colins. The total costs of personnel are about 400,000 BIF per month.
- There are no external subsidy external & other earnings that supports hygiene,
- And the Total net income/revenue per month is estimated at 800,000 per month in average

2.1.2 Ijenda milk node

In Bujumbura Rural province, specifically in Ijenda milk cooperative, the following types of costs of integrating hygiene have been assessed:

1. Installation costs

In Ijenda, the milk cooperative had started working but faced challenges due to the relocation from the formal place it was operating in. The cooperative had to move all equipment, as it works in a small piece where only pastries are stored. In the current state, wash facilities are not in place, but a tap water for cleaning materials, one toilet of low quality were installed to serve customers and staff.

Costs of toilet installation was incurred by business owner, approximately 1,500,000 BIF. There is still one employee who's working as a milk vendor. When looking to the total number of visitors (at least 25 milk consumers per day) there is a need of 2 toilets one for employee and another for clients, the total costs of required toilets is 3,000,000 BIF including labour fees including the formal one.

Costs for handwashing station: Note that a handwashing station was not available. People use the same tap that is used for cleaning materials. One handwashing station is required as well as appropriate washing station for materials. These will cost 581,000 BIF to install (including labour costs).

2. Functioning cost

Cost of washing facilities (tap water and soap): These costs are supported by the cooperative itself. There is 1 water tap before covid and. For each day, the node uses 2 soaps (1 for the hand washing bucket installed at the gate and 1 for the tap installed inside for washing the materials) every day. The node works 6 days a week. The total use of soap per month is estimated to 24 bars of soap, at a cost of 24,000 BIF.

Cost of Food products handling and transportation equipment: The costs of milk handling and transportation equipment were supported by the cooperative before it starts its activities. Given the small size of business, there are only 2 jugs (20 litres), used to collect milk and 2 used for milk transportation, farmers use small jerrycans (5ltrs) in plastics. There is a need to have at least 10 jugs of small size (10 litres) to be used by farmers to transport milk up-to the node. Considering the prospect of the owner, 5 big milk handling and transportation jugs (20 litres each) are required with a total cost of 400,000 BIF (one big jug cost of 50l capacity costs 80,000 BIF) and 10 small sized jerrycans for farmer's use that costs 350,000 BIF. The total cost of milk handling and transportation will be raised to 750,000 BIF

Costs of faecal waste management: As the node is under development, the faecal waste management pit is to be installed. Its cost estimate is 320,000 BIF including labour.

Costs of solid waste management facilities: As it's under development, the node currently does not have a liquid waste management facility. Considering the size of business, 1 liquid waste management is required with the estimate cost of 95,000 BIF.

Cost of installation of grey water management facilities: This type of facility is not available, and it is to be installed at a cost of 80,000 BIF.

3. Costs of operation and management

Toilet: Even if the node is under development, these costs are supported by the node itself. Regarding the number of visitors and 1 employee, cost of toilet management is estimated at 25,000 BIF per month.

Tap water and soap: These costs are supported by the node. The node has 1 tap water and soap which cost 5,000BIF per month. To integrate hygiene in the node, it is required to use 2 tap water (one for washing equipment and another for handwashing) and 10 soap per month. The cost of soaps is estimated to 10,000 BIF per month.

Cleaning of surfaces: These costs are supported by the node itself. The quantity of the required is the same before covid and currently. Per month, 1 small jerry can of cleaning products which costs 20 500 BIF each is used, but to better integrate hygiene it is required to use at least 2 jerry cans per month, which cost 41,000 BIF monthly.

Collection and disposal of solid waste: The costs are supported by the node itself. Solid waste is collected by labour paid per round trip. The related cost is 6,000 BIF per round, to ensure cleansing of the node, 2 round trips will be required per month the total cost will be 12,000 BIF

Sewerage: Currently this doesn't exist in the node, but it is required to sewer once a month, the cost is 8,000 BIF per month.

Stormwater drainage: there is no stormwater drainage. If the sewerage is constructed, the hygiene requirement is the maintenance assured by node employee.

Wearing masks: The node incurs these costs. As it has one employee, during covid-19 the node uses an estimate of 1 renewable mask per week which costs 4,000 BIF per week, but it requires 16 masks per month for the personal, at a total of 16,000 BIF per month

4. Regulations costs

Building capacity of regulators: This is not applicable as there is no cost charged to build capacities to regulators.

Monitoring hygiene: Monitoring hygiene is done by authorities in charge of hygiene but there are no fees charged to the node.

Enforcing hygiene: Before Covid and currently the node has 1 employee in charge of milk vendor, and monitoring hygiene with the cost of 35,000 BIF per month. There is a need of one employee in charge of hygiene only because one can't perform all activities

5. Health costs

Average number of absentees per month due to illnesses related hygiene diseases: There were no absentees occurred and no costs associated with these aspects

Average numbers of infections /Hospitalisations /Diseased per month: There were not infections occurred.

Cost of infections/Hospitalisations /Diseased per month: There were no cost as there were no infections occurred. In case there are diseases, the node has obligation to support employee's health care costs.

6. Commercial prices, costs, and revenue

Estimated number of customers served per day (*estimate visitations per month*), estimated quantity, price and quantity handled: Quantity of milk handled in the cooperative is about 55 litres a day, the cooperative is functioning 7 days a week, this is approximately 385 litres per month. There are consumers/clients served by the cooperative and the small quantity consumed on the place and the remaining is transported to Bujumbura. One litres milk is sold 900 BIF at the node, the total costs of milk is 346,000 BIF per month

Estimated number workers per day/ month (*workers, traders, transporters/drivers*): as said above, the node is under development, it employs 1 staff, in charge of the whole management of the node, in charge of hygiene, and responsible for the pastry. The total costs of personnel are about 35,000 per month.

- There are no external subsidy & other earnings that supports hygiene,
- And the Total net income/revenue per month is estimated at 167,000 per month.

2.1.3 Bugendana milk node

In Gitega province, specifically in Bugendana milk cooperative, the following types of costs of integrating hygiene in the node have been assessed:

1. Installation costs:

Cost for the installation of functional toilets were incurred by PRODEFI Project on IFAD funded. There are 3 toilets installed and are still functioning. Their cost is approximately 6,500,000 BIF, the node has 7 employees. Considering the total number of employees and clients who visit the node every day, the total toilet required are 3 toilets, 2 for staff and 1 for clients, these toilets are functioning, there is no additional toilet needed.

Water tank: Water installation was made by PRODEFI project and one water tank of 10,000 litres was installed for water conservation as there is frequent running water cuts. To keep enough water needs all day during month is provided, there is a need to install one additional water tank of the same capacity as the previous one which costs 250,000 BIF.

Cost of washing facilities (*tap water and soap*): Costs related to the installation of tap water were supported by PRODEFI Project. Costs related to soaps are supported by the cooperative itself, 2 water taps existed before covid and currently. Every day, the node uses 3 soaps (1 for the tap installed at the gate and 2 others taps located in the compound). The cost before Covid-19 and currently was estimated at 1,080,000 for 2 facilities. Considering the size of business and the number of people using hygiene facilities, 2 additional hand washing stations are required to be used by visitors and casual field workers, their cost is estimated to 2,130,000 BIF including labour fees.

2. Functioning coast

Cost of Food products handling and transportation equipment: The costs of milk handling and transportation equipment were supported by PRODEFI project before the cooperative starts its activities. They are composed of 15 jugs in inox of various sizes (10l, and 20l), they are used to collect milk and one container in inox (10,000 litres) for milk conservation.

Other 24 jugs of small size are used by farmers to transport milk up-to the node. Considering the volume of business and the number of farmers(clients) continue to increase, 47 milk handling and transportation jugs with different sizes are required meaning additional 8 jugs costing approximately 216,000 BIF (One jug cost 27,000BIF)

Costs of faecal waste management: The faecal waste management pit was built when PRODEFI installed the whole building used by the cooperative, but its cost is not actually known by users, this one is enough with regards to number of users. The cost of implementation of faecal waste management is estimated locally to 60,000 BIF with 35,000 BIF of labour fees per month.

Costs of solid waste management facilities: The node currently has 1 solid waste management facility which existed before covid-19. It was installed by the cooperative itself on a cost estimate of 125,000 BIF. Currently 2 solid waste management pits are required considering the volume of business, their total cost is estimated to 250,000 BIF.

Cost of installation of grey water management facilities: These facilities are not available but are required to be installed. One grey water management facility is required at the cost of 70,000 BIF.

3. Costs of operation and management

Toilet: These costs are supported by the node itself. Regarding the number of employees and visitors, the management of toilets total cost of is estimated to 65,000 BIF per month.

Tap water and soap: These costs are supported by the node. Before Covid and, the node uses 15 soaps for internal tap water and at the entrance with a cost of 15,000BIF per month. To better integrate hygiene in the node, it is required to use 2 additional tap water and 20 soap per month, the total cost is estimated to 20,000 BIF per month.

Cleaning of surfaces: These costs are supported by the node itself. The quantity of the required cleaning means is the same before covid and currently, 3 jerrycans of cleaning products used every month for 45,000 BIF cost each. To better integrate hygiene, it is required to use at least 4 jerrycans per month given the growing business volume. The total cost will then be of 180,000 BIF

Collection and disposal of solid waste: The costs are supported by the node itself. It has one waste collection and disposal pit which costed 12,000 BIF, the costs remained the same before and during covid-19 for one time collection. Two waste management are required to comply hygiene in the node, the costs will increase to 24,000 BIF with labour fees

Sewerage: Currently this doesn't exist in the node, but it is required to sewer one time with the cost of 12,000 BIF of labour fees.

Stormwater drainage: The stormwater drainage was built by PRODEFI project during the construction of the building. Its cost is included in the total cost of the structure. What is needed is the maintenance that is assured by hygiene staff.

Wearing masks: The node incurs these costs. Before Covid-19, there were no masks needed, currently the node uses an estimate 30 facial masks per month which cost 30,000 BIF, there are masks used during milk preparation and conservation. Hence, it requires 45 masks per month for at total 45,000 BIF cost for hygiene personal and employees involving in milk preparation and conservation.

4. Regulations costs

Building capacity of regulators: This is not applicable as there is no cost charged to build capacities to regulators.

Monitoring hygiene: Monitoring hygiene is done by authorities in charge of hygiene but there are no fees charged to the node.

Enforcing hygiene: Before Covid and currently the node has 1 employee in charge of monitoring hygiene with the cost of 35,000 per month. Two employees are required to perform all hygiene activities with a total cost of 70,000 BIF.

5. Health costs

Average number of absentees per month due to illnesses related hygiene diseases: There were no absentees occurred and no costs associated with these aspects

Average numbers of infections /Hospitalisations /Diseased per month: There were not infections occurred.

Cost of infections/Hospitalisations /Diseased per month: There were no cost as there were no infections occurred. In case there are diseases, the node has obligation to support employees.

6. Commercial prices, costs, and revenue

Estimated number of customers served per day (estimate visitations per month), estimated quantity, price and quantity handled: Quantity of milk handled in the cooperative is estimated at 600 litres a day, the cooperative is functioning 6 days a week, this is approximately 14,400 litres per month. There are 18 customers/clients served by the cooperative and the large quantity is transported to Bujumbura. One litres of milk costs 800 BIF, the total costs of milk is 11,520,000 BIF per month representing the revenue received by the node in each month.

Estimated number workers per day/ month (workers, traders, transporters/drivers): The node employs 7 staff, one in charge of the whole management of the node, four responsible of milk collection at the node, one in charge of hygiene, one responsible for the node security. The remaining oversee milk testing and collection at the farms in the colins. The total costs of personnel are about 360,000 BIF per month.

- Subsidies: There are no external Subsidy & other earnings that supports hygiene,
- And the Total net income/revenue per month is estimated at 1,200,000 per month depending on the season (rain season is more productive)

2.1.4 Makamba

In Makamba province, Amata_ Makamba milk cooperative, this node is not actually functioning, and activities are supposed to start by May 2022. It has already 1 employee in charge of the node security.

1. Installation costs

Cost for the installation of functional toilets: they were incurred by PRODEMA Project funded by the World Bank prior the commencement of node activities. 2 toilets were installed and are still functioning. Their cost is approximately 4,500,000 BIF. Given that it didn't start activities, there are no plans for additional toilets

Costs for hand washing station were incurred by PRODEFI, there are 3 washing stations installed but their cost could not be known.

Costs of a water tank: *There is one water tank* of 10,000 litres for water conservation as there is no running water. 2 water tanks will be needed at a cost of 500,000 BIF.

The node will connect to a running water source located at around 500 metres, the cost of pipes and labour is estimated to be 3,000,000 BIF

2. Functioning cost

Cost of washing facilities (tap water and soap):

Today there is no cost incurred as the node has not started working

Cost of Food products handling and transportation equipment: The costs of milk handling and transportation equipment were supported by PRODEMA project before the cooperative starts its activities. They are composed of 25 jugs in inox of various sizes available at the node used to collect milk. Because the node has not started operations, the existing materials are maintained

Costs of faecal waste management: The faecal waste management pit was built when PRODEMA installed the whole building used by the cooperative, the cost of implementation of

faecal waste management is estimated locally to 60,000 BIF, and the total is 95,000 BIF including 35,000 BIF of labour.

Costs of solid waste management facilities: The node currently spreads solid waste in the environment, there is a need to install a well-organised solid waste management site which costs 125,000 BIF including labour fees.

Cost of installation of grey water management facilities: grey water facilities are not available though there is a requirement to install them as the node produces grey water while washing milk handling equipment. One (1) grey water management facility is required at the cost of 70,000 BIF.

3. Costs of operation and management

Toilet: These costs are supported by the node itself. Given that only one employee is in place, the operation of toilets costs 50,000 BIF per month

Tap water and soap: These costs are supported by the node, it is required to use 5 soap per month, the total cost is estimated to 5,000 BIF per month.

Cleaning of surfaces: These costs are supported by the node itself. The quantity of the required is the same before covid and currently. Per month, 1 jerrycans of cleaning products are used with costs of 45,000 BIF every month.

Collection and disposal of solid waste: The costs are supported by the node itself. The waste collection and disposal will be made by daily workers on a basis 5,000 BIF a day. It will require to have 4 days for waste collection, which will cost 20,000 BIF

Sewerage: Currently this doesn't exist in the node, but it is required to sewer at least once per week at the cost of 5,000 BIF.

Stormwater drainage: The stormwater drainage was built by PRODEMA project during the construction of the building. Its cost is included in the total cost of the structure. Only maintenance is needed and will be assured by hygiene staff.

Wearing masks: As the node is yet to start working, there is no cost incurred

1. Regulations Costs
2. Health costs: Non applicable
3. Commercial prices, costs, and revenue: Non applicable

2.1.5 Muyinga

In Muyinga province, Mukoni milk cooperative, the following types of costs of integrating hygiene have been assessed:

1. Installation costs

Cost for the installation of functional toilets were incurred by PRODEFI project funded by IFAD. There is 1 toilet installed inside and 3 urinal stations outside and all are functioning. Their cost is approximately 2,700,000 BIF. The node has 8 employees. Considering the total number of employees and clients who visit the node every day, the total toilet required are 2 toilets (then 1 additional internal toilet) These existing toilet are not sufficient.

Water tank: At Mukoni milk cooperative the running water installation was assured by Prodefi project, there is no permanent running water. To keep water to be used all day during month one water tank (10,000 litres) was installed by PRODEFI on a cost of 250,000 BIF. Given the problem of water provision in the locality, 2 tanks are required to keep enough water for the hygiene purposes in the node, this will be an additional cost of 250,000 BIF.

2. Functioning coast

Cost of washing facilities (tap water and soap): Costs related to tap water and soaps were supported by the node itself. There are 2 water taps before covid and currently at the gate and inside the node. The cost before Covid-19 and currently was estimated at 1,650,000 for 2 facilities. Considering the size of business and the number of people using hygiene facilities, 1 additional hand washing station for equipment and material washing is required with an estimate cost of 580,000 BIF including labour fees.

Cost of Food products handling and transportation equipment: The costs of milk handling and transportation equipment were supported by the node itself. They are composed of 7 jugs of various sizes used to collect milk and one big jug (5,000 litres) for milk conservation. Then 9 jugs of small size are used by farmers for milk transportation up-to the node. Considering the volume of business and as the number of farmers continue to increase, there is a need of 10 additional jugs for milk handling and transportation. This will be a total of 10 jugs at a cost of 270,000 BIF.

Costs of faecal waste management: The faecal waste management is installed with node infrastructure, but its cost is not known because it was incorporated before the cooperative starts working.

Costs of solid waste management facilities: The node currently has 1 solid waste management facility that existed before covid-19. It was installed by node itself with an estimated cost of 75,000 BIF. Currently 2 solid waste management are required considering the volume of business, the total cost of additional one is estimated to 75,000 BIF

Cost of installation of grey water management facilities: These facilities are not available, but one is required at an estimate cost of 64,000 BIF.

3. Costs of operation and management

Toilet: These costs are supported by the node itself. Given the number of employees and visitors, the management of toilets cost is estimated to 45,000 BIF per month.

Tap water and soap: These costs are supported by the node. Before Covid and, the node uses 10 soaps (8 solid soap and 2 liquid soap) for internal handwashing facility and tap water at the entrance with a cost of 15,000 BIF per month. To integrate better hygiene in the node, it is required to use 1 additional tap water and 15 soap per month (10 solid and 5 liquid soap). The cost of soaps is estimated to 35,000 BIF per month.

Cleaning of surfaces: These costs are supported by the node itself. The cleaning is made by the personnel of the node. The quantity of the required cleaning product is 20 litres per month with a cost of 26,000 BIF per week, but to better integrate hygiene it is required to use at least 40 litres cleaning product per month given the size of node. The cost of 40 l cleaning products is 52,000 BIF.

Collection and disposal of solid waste: The costs are supported by the node itself. The solid waste collection and disposal is performed by a daily worker paid one round 14,000 BIF once a month. This cost remained the same before and during Covid-19. Given the size of node, 2 round trips solid waste collection are required per month with a cost of 28,000 BIF

Sewerage: Currently this doesn't exist in the node, but it is required to sewer/clean 1 time per month and the cost of 10,000 BIF of labour fees.

Stormwater drainage: The stormwater drainage was built during the construction of the building. Its cost is included in the total cost of the structure.

Wearing masks: The node incurs these costs. But only employees involving in milk preparation and conservation are wearing masks. 4 renewable masks are used per week. The cost is 4000 BIF a week, meaning 16,000 BIF per month. Given their necessity 24 masks per month are required, their total cost is estimated at 24,000BIF

4. Regulations costs

Building capacity of regulators: This is not applicable as there is no cost charged to build capacities to regulators.

Monitoring hygiene: Monitoring hygiene is done by authorities in charge of hygiene but there are no fees charged to the node.

Enforcing hygiene: Before Covid and currently the node has 1 employee in charge of monitoring hygiene with the 25,000 BIF salary each per month. The two employees are required to perform all hygiene activities with a total cost of 50,000 BIF.

5. Health costs

Average number of absentees per month due to illnesses related hygiene diseases: There were no absentees occurred and no costs associated with these aspects

Average numbers of infections /Hospitalisations /Diseased per month: There were not infections occurred.

Cost of infections/Hospitalisations /Diseased per month: There were no cost as there were no infections occurred. In case there are diseases, the node has obligation to support employee's health care costs.

6. Commercial prices, costs, and revenue

Estimated number of customers served per day (estimate visitations per month), estimated quantity, price and quantity handled: Quantity of milk handled in the cooperative is estimated to 400 litres a day, the cooperative is functioning 6 days a week, this is approximately 9,600 l per month. There are 21 customers/clients served by the cooperative. One litre of milk costs 700 BIF, the total costs of milk is 6720,000 BIF per month. For quantity sold, one-litre costs 800 BIF, this is a total of 10,500,000 BIF/month.

Estimated number workers per day/ month (workers, traders, transporters/drivers): The node employs 6 staff, one in charge of the whole management of the node, four responsible of milk collection at the node, one in charge of hygiene and security. The total cost of personnel is about 280,000 BIF per month.

- External subsidy: There are not Subsidy external & other earnings that supports hygiene,
- And the Total net income/revenue per month is estimated at 2,100,000 per month depending on the season (rain season is more productive)

Table 3. Summary table of costs of integrating hygiene in the milk cooperatives

Cost	KIVYUKA				JENDA				BUGENDANA			
	Existing Quantity units	Additional quantity required	Cost per unit required	Total Cost for required	Existing Quantity units	Additional quantity required	Cost per unit required	Total Cost for required	Existing Quantity units	Additional quantity required	Cost per unit required	Total Cost for required
Costs of installation of												
Functional toilets	2	1	225000	225000	0	2	150000	300000	3	0	0	0
Hand washing facilities (tap water and soap)	2	0	0	0	0	1	581000	581000	2	0	0	0
Food products handling and transportation equipment	60	15	27000	405000	0	5	80 000	400000	39	8	27000	216000
Solid waste management facilities	1	1	125000	125000	0	1	320000	320000	1	2	125000	250000
Grey water management facilities	0	1	70000	70000	0	1	80000	80000	1	0	70000	70000
Costs of operation and management/month for:												
Toilets	0	2	50000	50000	0	1	25000	25000	1	1	65000	65000
Soap	15	5	1000	5000	4	10	1 000	10000	15	5	1000	5000
Cleaning of surfaces	6 cleaning sessions per week	6	1 jerrican 45000	45000	At least 2 cleaning sessions per week	12 with 2 jerrican per month	20 500	41000	6 cleaning sessions per week	6	1 jerrican 45000	45 000

Collection and disposal of solid waste	1collection per week	2	5000	10000	1collectio n per week					1collectio n per week	2	12000	24000
						1	6000	6000					
Sewerage	0 cleaning sessions	1	5000	5000	0 cleaning sessions					0 cleaning sessions	1	12000	12000
						1	8000	8000					
Stormwater drainage (if no sewers are present)	0	0	0	0	0	0	0	0	0	0	0	0	0
Wearing masks	15 masks supplied	15	1000	15000							15	1000	15000
					1	4	1000	4000	30				
Regulations costs	Regulation s costs	0	0	0	0	0	0	0	0	0	0	0	0
Building capacity of regulators	0	0	0	0	0	0	0	0	0	0	0	0	0
Monitoring hygiene	0	0	0	0	0	0	0	0	0	0	0	0	0
Enforcing hygiene	0 month	1month* 2 (30days)	40000	80000							2	35000	70000
					0	1	40000	40000	0				
Health costs	0	0	0	0	0	0	0	0	0	0	0	0	0
Cost of infections/Hospitalisatio ns /Diseased per month	0	0	0	0	0	0	0	0	0	0	0	0	0

Cost	MAKAMBA				MUYINGA			
	Existing Quantity units	Additional quantity required	Cost per unit required	Total Cost for required	Existing Quantity units	Additional quantity required	Cost per unit required	Total Cost for required
Costs of installation of								
Functional toilets	N/A	N/A	N/A	N/A	1	1	2300000	2300000
Hand washing facilities (tap water and soap)	N/A	N/A	N/A	N/A	1	2	250000	500000
Food products handling and transportation equipment	N/A	N/A	N/A	N/A	16	10	27000	270000
Solid waste management facilities	N/A	N/A	N/A	N/A	1	1	75000	75000
Grey water management facilities	N/A	N/A	N/A	N/A	0	1	64000	64000
Costs of operation and management/month for:								
Toilets	N/A	N/A	N/A	N/A	0	1	45000	45000
Tap water and soap	N/A	N/A	N/A	N/A	10	10 5	1000 5000	35000
Cleaning of surfaces	N/A	N/A	N/A	N/A	3 cleaning session	24 sessions/month	52 000	52 000
Collection and disposal of solid waste	N/A	N/A	N/A	N/A	1 collection per month	2 times per month	10000	20000
Sewerage	N/A	N/A	N/A	N/A	0 cleaning session	1 cleaning per month	10000	10000
Stormwater drainage (if no sewers are present)								
Wearing masks	N/A	N/A	N/A	N/A	4 masks per month	12	1000	12000

Regulations costs	N/A	N/A	N/A	N/A	0	0	0	0
Building capacity of regulators	N/A	N/A	N/A	N/A	0	0	0	0
Monitoring hygiene	N/A	N/A	N/A	N/A	0	0	0	0
Enforcing hygiene	N/A	N/A	N/A	N/A	1 month	1 person	50000	50000
Health costs	N/A	N/A	N/A	N/A	0	0	0	0
Cost of infections/Hospitalisations /Diseased per month	N/A	N/A	N/A	N/A	0	0	0	0

2.1.6 Conclusions on costs of integrating hygiene in the milk cooperatives

Costs assessment in milk cooperative nodes revealed that most of cooperatives benefited from infrastructures built by development partners, mainly IFAD through PRODEFI project whose objective was to develop value chain activities in many sectors.

3 of 5 nodes assessed were provided with infrastructures composed buildings (of offices, production hall and hygiene installation). The project also provided materials and equipment for milk handling and transport. All the required costs were supported by the project.

The costs supported by the 3 nodes consist of operations costs only, additional costs to introduce are the maintenance costs of existing facilities and the setting up of missing facilities, especially waste management facilities

Due to frequent running water cut in the node, it is envisioned to install water tanks to keep water available when running water is not provided in the pipes, the study advised to put one additional water tank as all the nodes were equipped with one tank each.

One milk cooperative of Makamba was built by PROODEMA project funded by the World Bank, the appropriate hygiene facilities were installed and material and equipment for milk handling and transportation were provided, the costs were supported by the project.

This cooperative was not connected to running water, it will cost it to connect to one functional source of water, the cost is high.

Again, the cooperative is advised to set up a water tank to ensure water can be provided I tank even when no running water is available

One milk cooperative didn't get support from any partner, the initiators struggled to put everything in place, renting the workplace, buying basic equipment and materials for milk handling and transportation, all the costs are supported by the owners.

This cooperative is not working well, it faces challenges of finding appropriate location to work in with required hygiene facilities as well as materials and equipment for milk handling and transportation, everything is to be put in place to make it function.

The study showed that no major changes occurred because of Covid-19, all the milk cooperative continued working without interruption, but Covid-19 make them introduce a hand washing bucket with water and soap at the gate of the node for people to wash hand before accessing the node. Covid-19 made it introduce the use of facial masks people were not used to. *Individual milk node costs related to hygiene integration are summarised in the table 1 of the report*

2.2 Costs of integrating hygiene in local retail markets

2.2.1 Kivyuka retail market

In Province of Bubanza, Kivyuka local retail market the costs of integrating hygiene have been evaluated in collaboration with the business owners, employees, and traders

1. Installation costs

Cost for the installation of functional toilets: There are only 4 toilets built by the traders (restaurant, bar, and meats vendors) for their clients. The market doesn't have public toilet. According to chief of market, 4,000 persons (market users) do business on market day. The market is open for 2 days a week, Wednesdays, and Sundays. To meet hygiene standards 12 toilets are required in this market 6 toilets for males and 6 toilets for females. The cost is estimated to 19,501,000 BIF including labour fees.

Costs of water tank: In Kivyuka retail market, there is no permanent running water; To better integrate hygiene, 2 water tanks of 10,000 litres are required to keep required water quantity available all day during day of market, their cost is estimated at 500,000 BIF

Costs of hand washing stations: There is no public handwashing and food washing stations. Based on the total number of people using the market and the size of market, 3 handwashing stations are required to comply with hygiene. 1 handwashing costs 490,000 BIF, and total cost is estimated to 1,470,000 BIF including labour fees.

2. Functioning cost

Costs of faecal waste management: The faecal waste management is not present; it is to be built at a cost of 135,000 BIF.

Costs of solid waste management facilities: The market doesn't have solid waste management facility, 2 solid waste management pits are required and are to be built considering the volume of business, one costs 125,000 BIF and the total cost is estimated to 250,000 BIF

Cost of installation of grey water management facilities: As the market is not covered/doesn't have infrastructure, there is no grey water facility.

3. Costs of operation and management

Toilet: The cost of operation and management of toilets to be built is calculated based on the total market users, approximately 4,000. This will require 4 employees in charge of hygiene. Each employee is paid 40,000 BIF per month locally, this is 160,000 BIF for all the 4 employees every month.

Tap water and soap: To integrate hygiene in the market, it is required to have tap water and soap at the gate of toilet. The standards require 2 tap waters (one for males and another for females). The cost of tap water in Kivyuka is estimated to 245,000 BIF for one tap (paid once), the total cost for 2 tap water is 490,000 BIF. At least 4 soaps used per day market (6 times per month) which is estimated to 24,000 BIF per month. The total cost for tap water and soap is estimated at 514,000 BIF.

Cleaning of surfaces: This operation will require 3 employees working daily after the market day at a rate of 5,000 for each of them (15,000 BIF for 3 employees). Given that the market opens twice a week, they will work 8 days a month, the total cost is 120,000 BIF a month.

Collection and disposal of solid waste: To integrate hygiene, solid waste collection should be performed once by the end of market day. Solid waste disposal may be emptied by collectors once a month. The associated cost is estimated to 12,000 BIF per round, for the total 8 rounds per month this will cost 96,000 BIF per month.

Sewerage: Not applicable, as there is no infrastructure

4. Regulations Costs

Building capacity of regulators: This is not applicable as there is no cost charged to build capacities to regulators.

Monitoring hygiene: Monitoring hygiene is done by authorities in charge of hygiene but there are no fees charged to the node.

2.2.2 Nyabiraba retail market

In Nyabiraba retail market the costs of integrating hygiene have been evaluated in collaboration with the business owners, employees, and traders:

1. Installation costs

Cost for the installation of functional toilets: There are no functional toilets built in this market. According to chief of market, the market hosts around 3,000 clients including traders, costumers, and consumers every market day, twice a week, Fridays, and Sundays. With this given number of market users 10 local toilets are required to comply hygiene standards. These include 5 toilets for males and 5 toilets for females. Their cost is estimated to 17,500,000 BIF including labour fees.

Cost of water tanks: As there is no permanent running water, to integrate hygiene, 2 water tanks of 10,000 litres are required to keep required water quantity available permanently, their cost is estimated to 500,000 BIF

Costs of handwashing stations: As there no handwashing station., 2 handwashing stations are required to comply with hygiene standards based on the number of market users. 1 handwashing costs 490,000 BIF, and total cost is estimated to 980,000 BIF including labour fees.

2. Functioning cost

Costs of faecal waste management: The faecal waste management is no present, it is to be built. Its cost is estimated to 135,000 BIF include labour fees.

Costs of solid waste management facilities: Currently the market doesn't have solid waste management facility. Considering the number of market users, 1 solid waste management is required, its costs is 1,950,000 BIF.

Cost of installation of grey water management facilities: The market is covered at the slaughterhouse; this requires a grey water facility. The cost of installation of grey water is 200,000 BIF.

3. Costs of operation and management

Toilet: The costs of operation and management for the toilets are estimated based on the number of market users estimated to 3000 users. 10 toilets are required according to the standards. The operation and maintenance will be performed by 4 employees in charge of hygiene. Their cost is estimated to 45,000 BIF per each, the total for 4 employees is 180,000 BIF per month

Tap water and soap: To integrate hygiene in the market, it is required to have tap water and soap at the gate of toilet. 2 taps water are required (one for males and another for females). The cost of tap water in the market is then estimated to 490,000 BIF. At least 4 soaps used per day market (8 days per month) which is estimated to 24,000 BIF per month. The total cost for tap water and soap is estimated to 514,000 BIF.

Cleaning of surfaces: This operation will require 3 employees working daily after the market day at the rate of 5,000 for each of them. Given that the market is opened twice a week, they will work 8 days a month, the total cost is 120,000 BIF every month.

Collection and disposal of solid waste: To integrate hygiene, solid waste collection should be performed once by the end of market day. Solid waste disposal is emptied by collectors once market day. The cost is estimated to 12,000 BIF per day, for 8 days per month, it will be 96,000 per month.

Sewerage: Not applicable, as there is no infrastructure

4. Regulations costs

Building capacity of regulators: This is not applicable as there is no cost charged to build capacities to regulators.

Monitoring hygiene: Monitoring hygiene is done by authorities in charge of hygiene but there are no fees charged to the node.

2.2.3 Bugendana retail market

In Bugendana retail market, the costs of integrating hygiene have been evaluated in collaboration with the business owners, employees, and traders:

1. Installation costs

Cost for the installation of functional toilets: 12 Toilets are already installed by the communal budget in 2012 but are no more functioning, they need maintenance and water availability

Costs of water tanks: The market is equipped with running water installation but not well functioning, the water source or pipes may have collapsed., one water tank of 10,000 litres capacity was installed to keep water permanently water to run market operations as running water is available only sometimes. One additional water tank is required to meet user's needs, it 250,000 BIF. To provide water, 5 people may be needed for fetching water from the source during the time water will not be available in pipes, each of the 5 employees will cost 40,000 per month, the total cost will be 200,000 BIF per month, this will bring the total cost on 250,000 BIF in which 40,000 will be paid monthly and 250,000 BIF paid once

Costs of hand washing stations. The retail market was equipped with 4 handwashing stations and 4 food washing stations, but water is no more well running. These hand and food washing stations will use water from the two tanks as there is no permanent water, taps need to be replaced, the total cost is estimated to 1 200,000 BIF for 80 taps.

2. Functioning cost

Costs of faecal waste management: The faecal waste management is present. The cost of faecal waste management is estimated at 35,000 BIF including labour fees.

Costs of solid waste management facilities: The market has solid waste management facilities. There is a need for maintenance and empty solid waste at least once a week given the volume of business in the market. The cost associated with this action is 120,000 per month.

Cost of installation of grey water management facilities: grey water was installed by communal budget since 2012, it needs maintenance on a cost of 50,000 BIF per month

3. Costs of operation and management

Toilet: The costs of operation and management are estimated based on the number of market users. 2 employees in charge of hygiene in toilet are required, one unit cost is estimated to 50,000 BIF per month, the total cost is 100,000 BIF per month

Tap water and soap: To better integrate hygiene in the market, tap water was installed at the gate of toilet, the cost of soap is estimated to 32,000 BIF for 4 soaps used per day market during 8 days per month.

Cleaning of surfaces: Given the number of users, the market needs to be cleaned after the market day, 3 employees will be required for that activity, with a cost of 5,000 BIF per day per employee, this will be 120,000 BIF per month, based on 8 days of work per month per employee

Collection and disposal of solid waste: To integrate hygiene, solid waste should be collected once by the end of market day. Solid waste disposal pits are emptied by 4 collectors, the total cost is estimated to 160,000 BIF based on 5,000 BIF per employee per day for 8 days per month)

Sewerage: This is present and still functioning

4. Regulations costs

Building capacity of regulators: This is not applicable as there is no cost charged to build capacities to regulators.

Monitoring hygiene: Monitoring hygiene is done by authorities in charge of hygiene but there are no fees charged to the node.

2.2.4 Muyange

In Muyange, retail market; the costs of integrating hygiene have been evaluated in collaboration with the business owners but also in collaboration with local administrative (zone chief):

1. Installation costs

Cost for the installation of functional toilets: There is no toilet installed in this market but. there are some individual toilets built by traders (restaurant, bars). According to market manager the market hosts approximately 3500 users by day of market. The market opens 2 days per week, Mondays, and Fridays. With this given number of users 12 local toilets are required to comply with hygiene regulations, these include 6 toilets for males and 6 toilets for females. The total cost of toilets is estimated to 19,501,000 BIF including labour fees.

Cost of installation of handwashing stations: In Muyange retail market, there is permanent running water 100 meters away from the market though no water tap is installed. To integrate hygiene, based on the design of market and its size, it's required to install 4 handwashing stations, one costs 490,000 BIF, and total cost is estimated to 1,960,000 BIF including labour fees.

2. Functioning costs

Costs of faecal waste management: The faecal waste management station is not available at the market; it is to be built to comply with hygiene regulations. The installation cost of faecal waste management is estimated to 135,000 BIF including labour fees.

Costs of solid waste management facilities: The market doesn't have solid waste management facility. With regards the number of market users, 2 solid waste management are required, one costs 1,950,000 BIF, the total cost is estimated at 3,900,000 BIF.

Cost of installation of grey water management facilities: Not applicable as there is no infrastructure.

3. Costs of operation and management

Toilet: The costs of operation and management of toilets to be built is estimated based on the number of market users, the maintenance requires 4 employees in charge of hygiene in toilet and handwashing stations, their cost is estimated to 40,000 BIF per person and the total costs are 160,000 BIF per month.

Tap water and soap: To integrate hygiene in the market, it is required to have tap water and soap at the gate of toilet. 2 water taps are required (one for male and another for female). The cost of water tap in Muyange is estimated to 300,000 BIF, 600,000 BIF for 2 taps, paid once. A least 4 soaps used per market day, for 8 days per month, the cost is 24,000 BIF per month. The total cost for water taps and soap is estimated at 624,000 BIF.

Cleaning of surfaces: Given the number of users, the market needs to be cleaned after the market, 3 employees will be required for that activity, with a cost of 5,000 BIF per day per employee, this will be 120,000 BIF per month, based on 8 working days per month per employee.

Collection and disposal of solid waste: To integrate hygiene, solid waste collection should be done once per day by the end of market day. Solid waste disposal pits are emptied by collectors once a day. The associated cost is estimated to 12,000 BIF per day which cost 96,000 per month.

Sewerage: Not applicable, as there is no infrastructure

4. Regulations Costs

Building capacity of regulators: This is not applicable as there is no cost charged to build capacities to regulators.

Monitoring hygiene: Monitoring hygiene is done by authorities in charge of hygiene but there are no fees charged to the node.

2.2.5 Murama retail market

In Province of Muyinga, Murama retail market the costs of integrating hygiene have been evaluated in collaboration with the business owners and local administration.

1. Installation costs

Cost for the installation of functional toilets: There are no public toilets but only 3 individual toilets built by traders (restaurant, bar, and meats vendors). These don't have capacity to support all the user's needs. According to market manager, 2,500 people use the market every market day, the market is open two days a week, Thursdays, and Sundays. Based on the number of users, 8 local toilets are required in this market to comply with hygiene regulations, these include 4 toilets for males and 4 toilets for females. The cost of the construction is estimated to 14,200,000 BIF including labour fees.

Costs of water tanks: In Murama retail market, source of water is at 1 km from market and there is no permanent running water. To integrate hygiene, 2 water tanks of 10,000 litres are required to keep required water during day of market and the cost is estimated at 500,000 BIF

Cost of hand washing station: In Murama retail market, there is on handwashing station. Based on the total number of clients and the size of market, 2 handwashing stations are required to comply hygiene, one costs 490,000 BIF, and total cost is estimated to 980,000 BIF including labour fees.

2. Functioning coast

Costs of faecal waste management: The faecal waste management is not available at the market; there is a need to build it. its cost is estimated to 115,000 BIF including labour fees.

Costs of solid waste management facilities: The market doesn't have solid waste management facility. With regards the number of market users, 1 solid waste management ais required, its cost is 1,650,000 BIF.

Cost of installation of grey water management facilities: As the market is not covered/doesn't have infrastructure, there is no grey water facility.

3. Costs of operation and management:

Toilet: The cost of operation and management for toilets to build is estimated based on the number of market clients. The number of market users is estimated to be 2500 people per day by market day, 2 employees will oversee hygiene in toilet. The cost of and hygiene is estimated to 55,000 BIF per employee, the total cost 110,000 BIF per month

Tap water and soap: To integrate hygiene in the market, it is required to have tap water and soap at the gate of toilet. 2 taps water are required (one for males and another for females). The cost of tap water in Murama is estimated to 300,000 BIF, 600,000 BIF for 2 taps (paid once). At least 4 soaps are used per day market which is estimated to 24,000 BIF per month. The total cost for tap water and soap is then estimated at 624,000 BIF.

Cleaning of surfaces: Given the number of users, the market needs to be cleaned after the market, 3 employees will be required for that activity, with a cost of 5,000 BIF per day per employee, this will be 120,000 BIF per month, based on 8 working days per month per employee.

Collection and disposal of solid waste: To integrate hygiene, solid waste collection should be performed once by the end of market day. Solid waste disposal is emptied by collectors once per day. The associated cost is estimated to 12,000 BIF per day, 96,000 BIF for 8 days

Sewerage: Not applicable, as there is no infrastructure

4. Regulations Costs

Building capacity of regulators: This is not applicable as there is no cost charged to build capacities to regulators.

Monitoring hygiene: Monitoring hygiene is done by authorities in charge of hygiene but there are no fees charged to the node.

Table 4. Summary table of costs of integrating hygiene in the local markets

Cost	KIVYUKA				NYABIRABA				BUGENDANA			
	Existing Quantity units	Additional quantity required	Cost per unit required	Total Cost for required	Existing Quantity units	Additional quantity required	Cost per unit required	Total Cost for required	Existing Quantity units	Additional quantity required	Cost per unit required	Total Cost for required
Costs of installation of												
Functional toilets	0	12	19501000	19501000	0	10	17500000	17500000	8	0	0	0
Hand washing facilities (tap water and soap)	0	3	490000	1470000	0	2	490000	980000	2	0	0	0
Solid waste management facilities	0	1	135000	135000	0	1	195000	195000	1	0	0	0
Grey water management facilities	N/A	N/A	N/A	N/A	0	1	56000	56000	1	0	0	0
Costs of operation and management/month for:												
Toilets	0 employee	4 employees	40000	160000	0	4	45000	180000	0	2	50000	100000
Soaps	0	Estimate 24 per month	1000	24000	0	Estimate 24 per month	1000	24000	0	Estimate 24 per month	1000	24000
Cleaning of surfaces	2 volunteers	3	120000	120000	3 volunteers	3	120000	120000	3	3	120000	120000
Collection and disposal of solid waste	1	8	12000	96000	1	8	12000	96000	1	8	12000	96000
Tangs	0	2	250000	500000	0	2	250000	500000	0	2	250000	500000

Cost	MUYANGE				MURAMA			
	Existing Quantity units	Additional quantity required	Cost per unity required	Total Cost for required	Existing Quantity units	Additional quantity required	Cost per unity required	Total Cost for required
Costs of installation of								
Functional toilets	0	12	19501000	19501000	0	8	14200000	14200000
Hand washing facilities (tap water and soap)	0	4	490000	1960000	0	2	490 000	980 000
Solid waste management facilities	0	2	1 950 000	3900000	0	1	1 650 000	1 650 000
Costs of operation and management/month for:								
Toilets	0	4 employees	40000	160000	0	2employees	55000	110 000
Soap	0	Estimate 24 soaps/month	1000	24000	0	Estimate 24 soaps/month	1000	24000
Cleaning of surfaces	2 cleaners /Volunteers	3employees	120000	120000	0	2 employees	60000	60000
Collection and disposal of solid waste	1 official collection per month	8	12000	96000	2	8	12000	96000
Tap water	0	2	245000	245000	0	2	245000	245000
Tangs	0	2	250 000	500000	0	2	250 000	500000
Faecal waste management	0	1	115 000	115000	0	1	115 000	115000

2.2.6 Conclusions on costs of integrating hygiene in the local markets

The cost assessment for local retail markets showed a poor hygiene conditions markets operate in, 4 out of 5 local markets assessed don't have public toilets, they don't have handwashing stations, they are not connected to running water and they don't have waste collection and management systems while the remaining one, the Bugendana market was provided with appropriate hygiene infrastructures and facilities, but they don't function due to poor management and maintenance.

Costs for this first group of 4 markets are to a maximal level: costs of market building and all the required installations of hygiene facilities: toilets, hand washing stations, food handling and cleaning stations, connection to running water and operation costs while the Bugendana retail market (*2nd group*) needs to support the maintenance costs to make hygiene facilities function again including running water and install a second water tank to prevent frequent water cuts

As shown in table 2 above, the costs for local retail markets are quite high but there is low motivation of the holders to establish hygiene facilities, they are rather interested by collecting taxes without investing in hygiene

Few facilities existing in the market are the trader's owned ones but there are not in a good state and quality. Most of them established basic facilities to avoid being fined by local authority

2.3 Incentives for integrating hygiene in milk cooperatives

2.3.1 Business managers

Question/Parameter	Responses for Milk cooperatives				
	Kivyuka	Ijenda	Bugendana	Makamba	Muyinga
1. Can you name some diseases you can get from contaminated food?	Dysenteric, cholera, covid-19, parasites	Cholera, intestinal worms, diarrhoea	Yes, food poisoning and cholera	cholera	Amebiasis, diarrhoea, food intoxication
2. Are you aware of hygiene regulations at your workplace e.g., provision of toilets, handwashing station, waste disposal, personal protective equipment (PPE)?	we are aware of that. First cleanliness of working environment, provision of toilet PPE, and handwashing station	Yes, we are aware of them such as keeping the place clean, having wash facilities and water available all the time, washing hand before eating and when coming from toilets,	Yes, we are aware of hygiene regulations such as provision of toilet, provision of toilets, handwashing station, waste disposal, personal protective equipment (PPE) and we are ensuring that these are regulated in our cooperative	yes, handwashing and existence of toilet	We are sensitive to the hygiene regulations, its why we do our possible to make cleanliness all over the node location and ensure facilities and equipment meet the required hygiene standards
3. Do local authorities make site visits to monitor compliance with these regulations? If yes, what are the consequences for non-compliance? Do authorities ask you to pay a bribe to pass these checks?	No, the authority does not monitor the hygiene at the node	No, we rarely see them at the node. We do our best to comply with hygiene regulations even if no consequences relate to non-compliance to them	Yes, during Covid-19, the consequence of non-compliance is to pay fines, or bribe and then after you try to follow	No, they don't visit us	Sometimes they make visits on the site. We are aware that by non-complying with regulation we were at risk of being fined

4. Does your business have rules around hygiene at the workplace e.g., personal hygiene, safe waste disposal, PPE, etc.? If yes, what motivated you to put these rules in place? Are you concerned about the effect of worker health on your food products?	Yes, we have hygiene regulations at workplace. We ensure personal hygiene, PPE, For the milk not to be contaminated and cause health problems to consumers. We are concerned also with staff health.	We have rules regarding cleanliness of the workplace, equipment to handle milk, using washing products like soap and other sanitisers. We are concerned by staff and client's health	Yes. Each employee must follow the rules (personal hygiene, putting PPE) for one reason, to protect themselves and protecting milk and the consumers.	Yes, washing hand before, putting PPE if we have it, because we need to protect milk and consumers	Although they are not written, all the personnel are aware that we have ensure hygiene in the node. We are concerned about people's health and that of staff. It's why our employees are protected by wearing boots and gloves
5. Do you provide your employees toilets, handwashing stations, or PPE? If yes, what motivates you to do so? If not, why not?	Yes. employee's toilets exist, tap handwashing water exist, but Protective equipment is rare. With the motivation of protecting our staff and clients	Yes, we have one toilet for staff and one handwashing tap water to make safe our product and ensuring hygiene in the node	Yes, we have 3 toilets, 2 tap handwashing water but also PPE for equipment cleaners to avoid contaminating employees and clients	Yes, to protect client and our lives	Yes, the health of our staff is essential as that of our client
6. Would you be interested in improving these services? If yes, what would enable you do this? If not, why not?	Yes, we are interested improving hygiene, but if we don't have water, it is difficult to meet the hygiene standards. We need also liquid waste disposal facility	We are interested in improving hygiene, it's why we struggle to find the best place to relocate in. We are ready to move once the facility will be ready	Yes, we are interested to improve hygiene services by having sufficient PPE, products for cleaning equipment and materials. We have our budget that is used for hygiene improvement	Yes, but the problem is our financial issue to buy materials	We consider we did enough unless some equipment breaks
7. Do you have to show compliance with hygiene regulations to apply for credit/financial	No, there is no requirement to comply hygiene regulations to apply for credit	No, we do need to show compliance with hygiene rules but also, there is no financial	No there is no hygiene requirement about applying credit	No	No

support from investors?		support in our node			
8. In your opinion, does your revenue depend on the appearance and apparent safety of your food products and facility/stall?	Yes, our revenue depends on milk safety, Our client appreciate the way we treat milk. Cleanliness of facility also motivate the client	We assume that having good hygiene standards is key to improving revenue in business like this one as clients are more demanding about hygiene	Yes. Because all our client/consumers/and farmers come here because of the hygiene that has our node Farmers do not prefer to consume milk in the pastry because of poor hygiene	No, it depends on how client appreciate our node and they look lower price	Yes, at higher level
9. Do you have concerns about the costs of improved hygiene and if so, what are these?	Yes. We have concerns about cost of hygiene. Such as cost of cleaning products, materials in inox cost are high and we don't have them in required quantity, some farmers are using plastics to bring milk. Equipment maintenance is also costly	Yes, there are concerns related to the hygiene costs, it's why the commune itself is not able to improve hygiene standards, we need to have support of the Government	Yes, we have concerns about cost of products for cleansing of surfaces, milk tangs, but also, we have concerns about water which is interrupted sometimes. We have concerns about cost of protective equipment for milk collectors, PPE for farmers.	yes, the costs are related to materials maintenance and to buy personal hygiene equipment	Yes, to renew all the equipment will cost us high, we need to plan it ahead
10. Do you lobby policy makers for lower hygiene regulations	No, we don't need to lobby for lowering policy regulations, we are convinced the regulations protect us and our business as our clients	No	No, we are for hygiene promotion not lowering regulations, because we sell a very hygiene sensitive product	No	No

2.3.2 Employees

Question/Parameter	Responses for Milk cooperatives				
	Kiviyuka	Ijenda	Bugendana	Makamba	Muyinga
1. Can you name some diseases you can get from contaminated food?	Amebiasis, cholera and food poisoning	Cholera, dysentery	Food poisoning and diarrhoeal	Diarrheal disease, cholera, and typhoid	Food poisoning
2. Does your workplace have rules around hygiene e.g., personal hygiene, safe waste disposal, PPE, etc.? If yes, do you know if these are based on government regulations or if they are imposed by the business owners?	Yes, business owner imposes to make sure that milk is not contaminated . handwashing station and protective equipment and putting personal hygiene	We have basic rules such as cleaning the space, cleaning appliances, and having toilets facilities	Yes, personal hygiene, safe waste disposal, PPE These are closely controlled and monitored by the business owner	No, we don't have rules but during covid authority pushed to put the handwashing buckets in front of every business in the market	Yes, personal hygiene, safe waste disposal and these are imposed by the business owner to not contaminate milk
3. Do employees strictly follow these rules?	Yes, as the business owner obliges to keep in mind the hygiene in the cooperative	Yes	Yes, if we have products/equipment	During covid, yes, they have tried but actually no follow-up	Yes, as the business owner obliges to keep in mind the hygiene in the cooperative
4. What are the consequences for non-compliance?	Lack of job due to bad quotation, contamination of milk	If they don't follow, they may be fired	If not follow, you can be punished (bad quotation and losing job)	There were no consequences as the authority knew that we don't have elementary equipment/tap water/toilet/waste disposal etc.	If not followed, you can be punished (bad quotation and losing job)

5. Would you be more or less likely to comply with these rules if you were paid a higher salary? If not, what would make you more compliant with these rules?	No, I would put in place hygiene if all necessary equipment were available as well as water. We need training/refresher on how we must hygiene in our routine work.	No, we are more concerned about providing security to clients	All personnel have to comply with rules in our milk cooperative, we are concerned by maintaining hygiene standards	No, but if the authority put in place clear rules of hygiene, for example we have personal in charge of hygiene in the market, we can comply it. But if we don't have necessary support, we don't care about hygiene we do the minimum	No, compliance to rules in our milk cooperative is everyone's obligation because milk can be contaminated by bacteria, even if sometimes we experience short cut of cleaning products, we try to work hard to improve hygiene
6. Do employees at your workplace have to pass health and safety checks?	No	No	No	No	No
7. Do you have access to a tap with running water, a toilet or handwashing station at your workplace?	Yes, taps with running water exist but with load-shedding /interruption	Yes	Yes	No	Yes, a toilet and handwashing station
8. What motivates you to practice hygiene? A. food safety concerns B. compliance with regulations/fear of losing your job C. habit D. Other (please specify)	Food safety concerns, and fear of taxation (business owner can be frustrated)	Personal safety and being appreciated by clients	Milk safety concerns, and compliance with regulations/fear of losing job	Personal hygiene	Milk safety concerns, and Compliance with regulations/fear of losing job
9. What are some barriers to practicing hygiene? A. Lack of taps/soap/toilets/PPE B. not convenient for me to use C. not concerned about hygiene in my work. D. Other (please specify)	Lack of taps with permanent running water	The site we work in is not appropriate, the landowner is not making effort to install all the facilities	Short-cut in hygiene tools and products / Lack of soap/PPE	Lack of taps/soap/toilets/PPE	Lack of soap/PPE

2.3.3 Customers

Question/Parameter	Responses for Milk cooperatives				
	Kivyuka	Ijenda	Bugendana	Makamba	Muyinga
1. Which factors affect your decision to buy food from a particular vendor?	they have toilet but also price is affordable	The factor is that I'm assured that the milk they have is not contaminated and they have good hygiene considering their materials	Factors to lead in decision to buy food 1) Clean lines of the site and the environment, 2) cleanliness of its appearance and cleanliness of materials	Lower price and hygiene	Good hygiene and the vendor are located near home
2. Can you name some diseases you can get from contaminated food?	Cholera and amebiasis	Yes, poisoning, and dysenteric	Intestinal worms, diarrhoea, Covid-19	diarrhoea and poisoning	cholera and amebiasis
3. Do you think food can get contaminated in unclean market settings or from poor vendor hygiene?	Yes. poor vendor hygiene with unclean materials and hands can contaminate food	food and especially this milk can get contaminated when there is no hygiene	Yes, all together can lead to food contamination but poor vendor hygiene is most critical,	yes, they can lead to food contamination	Yes, the unclean vendor is an origin of parasites
4. Do you consider cleanliness of the vendor and the stall before you buy food from them?	Yes, I consider cleanliness vendor because actually they are many infectious diseases and fear to be contaminated	Yes. I prefer cleanliness vendor because when consuming I'm confident that milk is not contaminated	Yes, cleanliness is one of the factors leading in buying food	Yes, as the milk is very sensitive to bacteria, I consider cleanliness of vendor	Yes, but also the lower price because of we are poor
5. Do you consider freshness and cleanliness of food before you buy it?	Yes, because no fresh and no clean food can be contaminated	Yes, of course because milk is sensible for bacteria and as you see I have children with me, and they are also sensible for milk. I fear disease from milk	Not really, sometimes we don't know if food is clean	No, it is not easy to know if they are fresh and clean	Yes, in order to not be contaminated

6. Would you pay more for food if you knew it was safe from contamination	Yes, but the problem is that it's difficult to know if they are safe because lack of testing	Yes. Because fear of disease from milk. The problem you don't know if it is contaminate d or not	Yes, of course if I have money I can pay more for safe food, but now I buy cheaper food	Yes, if I have money	Yes, but the fact that money is rare, we go anywhere there is milk
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2.3.4 Conclusions on key incentives for integrating hygiene in the milk cooperatives

The study on costs and incentives of integrating hygiene into agriculture value chains shows evidence of incentives to integrating hygiene in the milk AVC nodes. The results of the study revealed the evidence of sensitivity of milk AVC to hygiene.

Milk product is a high-risk to cause health problems if it has not well treated and requires more attention with regards hygiene.

Key incentives for integrating hygiene into milk AVC nodes include

- Fear of close-out of the business and loss of job for employees
- Fear of losing image of the node and the owners due to bad consequences to customers
- Fear of losing customers due to poor quality of products
- Fear of spending money for fines

There is a slight difference according to groups of actors though some triggers are similar. For business managers, key riggers are fear of close-out due to losing customers or non-compliance to regulations and fear to paying fines.

For employees, key trigger to practicing hygiene is fear of getting bad quotation and fear of losing job

For consumers, they are factors leading the decision to buy food, especially cleanliness of the sites and appearance and apparent safety of foo as well as the cheaper price

2.4 Incentive for integrating hygiene in local retail markets

2.4.1 Business managers

Question/Parameter	Responses for Local markets				
	Kivyuka	Nyabiraba	Bugendana	Muyange	Murama
1. Can you name some diseases you can get from contaminated food?	Cholera, dysentery, amebiasis	Cholera, dysentery	Cholera, dysentery	Yes, cholera, parasites, amebiasis	Amebiasis and other intestinal worms
2. Are you aware of hygiene regulations at your workplace e.g., provision of toilets, handwashing station, waste disposal, personal	Yes, such as having functioning toilets, hand washing station and having cleanliness in the compound as	hygiene regulations require to food and drink sellers to ensure there are	We have rules provided by the government and some standards of hygiene.	Yes, we are aware of that, but nothing is regulated. People in market do their best to	Yes, we know that we have to keep the market clean, having

protective equipment (PPE)?	well as that of body and clothes	properly handled though the washing of food and equipment, having a toilets and hand washing bucket		respect hygiene for their own,	hand washing stations in place, having clean toilets and waste collection facilities
3. Do local authorities make site visits to monitor compliance with these regulations? If yes, what are the consequences for non-compliance? Do authorities ask you to pay a bribe to pass these checks?	Yes, they visit all the public places to ensure hygiene regulations are followed. By non-compliance to hygiene regulations many traders have to pay fines to force them comply with all the requirements	They do some visits to check over the compliance to the hygiene rules. In case of non-compliance traders are warned to comply and later they are fined	They do, we have provincial and communal services in charge of hygiene all to monitor the hygiene situation	During covid-19, there was strong control over hygiene compliance but now people and authorities consider that Covid-19 is over, there is no visits to monitor hygiene. The consequences are only to the local traders, but the commune cannot pay fine.	Yes, they come once a month, they sensitise traders to comply with hygiene regulations especially about hand washing station and restaurants have to build their own latrines for clients
4. Does your business have rules around hygiene at the workplace e.g., personal hygiene, safe waste disposal, PPE, etc.? If yes, what motivated you to put these rules in place? Are you concerned about the effect of worker health on your food products?	No. at the market we don't have rules but each person do the best. And we are concerned about worker health even the client in market.	Yes, our staff has toilet at the communal office and all the material is in place. National policy requests all employees to make available hygiene for all staff	No written rules but we sensitise people to keep the market clean and the traders to have toilets and hand washing buckets, water, and soap	No. at the market we don't have rules but each person do the best. And we are concerned about worker health even the client in market.	Our staff don't have hygiene facilities, they use those put in place by traders
5. Do you provide your employees toilets, handwashing stations, or PPE? If yes, what motivates you to do so? If not, why not?	There are no hygiene facilities for staff in the market, but private toilets and hand washing are available and can	At the office we have all facilities functioning but, in the market, employees	At the office we have all facilities functioning but, in the market, our	No, they are not available. For personal hygiene handling solid wastes, we have provided	No, we don't have toilets and hand washing

	be used by our staff	use the private facilities put in place by traders	employees use the private facilities put in place by traders	them with boots to protect them stay in contact with waste	
6. Would you be interested in improving these services? If yes, what would enable you do this? If not, why not?	Yes, we need support from the government to improve water supply	We are interested although we face many challenges. We expect to improve it with the new market to be built	Yes, we need support from the government to improve water supply	Yes. We are interested to improve hygiene service. For this, we should have solid waste disposal, tap handwashing water, toilet for Men and Women And the sensitisation of market clients. The commune perceives taxes from the market, its responsibility is to seek for donors or credit to put in place all the required hygiene facilities	Yes, today we need support to improve hygiene, we have asked the commune to help us to find partners who would be willing to help
7. Do you have to show compliance with hygiene regulations to apply for credit/financial support from investors?	No	No	No	No, it is not required to show compliance with hygiene. The market is a public infrastructure, we are all called to pay attention for hygiene	No
8. In your opinion, does your revenue depend on the appearance and apparent safety of your food products and facility/stall?	No, independently to hygiene improvement we have people coming and doing business in the market,	No	No	No, independently of good appearance and hygiene, people continue doing their business,	It does, some clients prefer not to come when the market is dirty

	revenue doesn't change			but pay much attention for what they eat and where they stay	
9. Do you have concerns about the costs of improved hygiene and if so, what are these?	We have concerns over people's health, epidemic are the main triggers to improve hygiene	Yes, the costs of hygiene are high. Having all the facilities in place in the market is costly and the market has to be built, fenced, covered and have enough running water. The maintenance and management costs are also high	No	Yes, we have concerns about cost of toilet installation, handwashing station, solid waste disposal, materials for market cleansing, employee to monitor hygiene, and cost of waste management	Yes, the high costs of hygiene are the first reason of not having enough hygiene facilities
10. Do you lobby policy makers for lower hygiene regulations	No, the policy is good to protect people's health	No	No	Yes, during covid we tried to lobby authority (civil protection police) to reduce regulations as we don't have water	No

2.4.2 Employees

Question/Parameter	Responses for Local markets				
	Kivyuka	Nyabiraba	Bugenda na	Muyange	Murama
1. Can you name some diseases you can get from contaminated food?	Diarrhoeal disease and cholera	Cholera, dysentery	Diarrhoea, dysentery, and cholera	Diarrhoea, cholera, and typhoid	Cholera, dysentery, amebiasis, kwashiorkor

2. Does your workplace have rules around hygiene e.g., personal hygiene, safe waste disposal, PPE, etc.? If yes, do you know if these are based on government regulations or if they are imposed by the business owners?	No, because we don't have for example waste disposal. Solid waste are thrown and exposed all around the market and the authority are aware.	No, but during covid yes, we used to wash hands using buckets contained water and soap at trader's expense.	We don't have written rules, but we are called for market cleaning after the market day	No, personal are seems not concerned by hygiene as we don't have water and toilet	No, we don't know the rules, but we use our basic knowledge to improve hygiene
3. Do employees strictly follow these rules?	No, there is no obligation to follow them, but we do it for our own safety	Personnel was much concerned during covid-19, today they have reduced attention to hygiene	Not only some employees use hygiene correctly	For employees yes, we tried to comply hygiene rules, but market client, no	Only cleaner has to, other don't follow
4. What are the consequences for non-compliance?	No consequences as the authority is aware that we don't have rules but during covid, there were fines involved for those who didn't have tap for hand washing. Today the traders don't care so much to have water and soap in buckets	No consequences as the authority is aware that we don't have rules but during covid, there were fines involved for those who didn't have tap for hand washing. Today the traders don't care so much to have water and soap in buckets	If non-compliance, no consequence follows	There were no consequences of not following rules but during covid was full of consequences such as close-out of business.	There were no consequences
5. Would you be more or less likely to comply with these rules if you were paid a higher salary? If not, what would make you more compliant with these rules?	If the administrative authority gives us what is necessary (water, and toilet), we can comply hygiene	As long as the commune doesn't put regulations on the workplace and give necessary, we don't care about hygiene. They should construct toilet, waste disposal, tap handwashing water and engage employees in	No, it's not a matter of salary but availability of facilities	No, I would more comply with hygiene rules and sensitise all markets client if market has toilets/ water/soap/ and tap handwashing water	Yes, if they are made known

charge of
hygiene

6. Do employees at your workplace have to pass health and safety checks?	No	No	No	No	No
7. Do you have access to a tap with running water, a toilet or handwashing station at your workplace?	No	No	No, they are not functioning	No	No
8. What motivates you to practice hygiene? A. food safety concerns B. compliance with regulations/fear of losing your job C. habit D. Other (please specify)	Personal hygiene	As personnel our motivation is personal security and public health concerns	Food safety, people's health	Food safety concerns and personal safety	Concerns over people's safety
9. What are some barriers to practicing hygiene? A. Lack of taps/soap/toilets/PPE B. not convenient for me to use C. not concerned about hygiene in my work. D. Other (please specify)	Lack of taps/soap/toilets/PPE	Lack of taps/soap/toilets/PPE But also lack of basket/ solid waste management dump But also ignorance of population	Water availability , accountability of communal authority	Lack of taps/soap/toilets/PPE And market clients are not concerned about hygiene	Lack of tools, lack of basic facilities

2.4.3 Market traders

Question/Parameter	Responses for Local markets				
	Kivvyuka	Nyabiraba	Bugendana	Muyange	Murama
1. Can you name some diseases you can get from contaminated food?	Yes. Cholera, amebiasis, dysenteric	Intestinal parasites and cholera	Yes, Cholera, intestinal parasites	Amebiasis and food poisoning	Cholera, food poisoning
2. Are you aware of hygiene regulations at your workplace e.g., personal hygiene, safe waste disposal, personal protective equipment etc.?	Yes. Here we pay attention on the personal hygiene and safe waste disposal for foods protection and health of our client	Yes, we are aware of personal hygiene, waste disposal and provision of toilet but for PPE we don't have budget for it.	Yes. We are aware of provision of toilets and handwashing station	Yes, we are aware of hygiene regulations such as: personal hygiene, toilet, and handwashing with soap	Yes, we are aware of hygiene regulations such as: personal hygiene, toilet, and handwashing with soap
3. Do local authorities make site visits to monitor compliance with these regulations? If yes, what are the consequences for non-compliance? Do authorities ask you to pay a bribe to pass these checks?	Yes, sometimes they visit us. In case of non-compliance the authority tax us at least 10000 BIF	Yes, they visit us sometimes to see if the hygiene is integrated in foods consumption. The non-compliance can lead to tax payment. During covid, we paid bribe.	Yes, as the authority know the problem of lack of water, sometimes they are looking if clients washing hand before bar/restaurant entrance. But this effect during Covid-19 and they ask to pay a bribe to pass these checks.	Yes, for us they visit to inspect uncooked meat before consumption	Yes, during covid they visit us to see how we manage disease by ensuring that buckets, water, and soap are available. Actually no.
4. Have you ever applied for credit/financial support for your business? If so, did you have to pass a health and safety check?	No	No	No	No	No

5. In your opinion, do your sales depend on the appearance and apparent safety of your food products and facility/stall?	No, our sales are not depending on the appearance because here most people are looking first the price and at the second level safety	Yes, our client appreciated it and prefer the restaurant which have toilet and water	Yes, our client appreciated it and prefer the restaurant which have toilet and water	No, it depends on how you take care of client and their appreciation	It's the appreciation of the clients but apparent safety of our foods and cleanness of tools motivates clients to come here
6. Do you have access to a tap with running water, toilet, or handwashing station in the market?	Yes, but they are few depending on the client that we have	Yes. We have handwashing bucket with water at the entry, we have toilet	Yes. We have handwashing bucket with water at the entry, we have toilet	No, we don't have incentives for hygiene At least water in bucket without soap	Yes, toilet and handwashing buckets water
7. What motivates you to practice hygiene? A. food safety concerns B. compliance with regulations C. fear of losing customers D. habit E. Other (please specify)	Food safety concerns	Food safety concerns and fear of losing customers.	Food safety concerns and fear of losing customers.	Food safety concerns	Food safety concerns And not to have bad judgment of our client/not to lose consumers
8. What are some barriers to practicing hygiene? A. Lack of taps/ soap/toilets/PPE/waste collection B. not concerned about hygiene in my work C. Too expensive/inconvenient to practice hygiene behaviours D. Other (please specify)	Lack of running water taps/toilets/ hand washing and PPE as well as waste disposal sites.	Lack of toilets, cleaning materials and waste disposal	Lack of water and clean toilets	Lack of soap and waste collection, and PPE during food preparation and service, Poor maintenance of materials	Lack of running water taps/toilets/ hand washing and PPE as well as waste disposal sites.

2.4.4 Consumers/customers

Question/Parameter	Responses for Local markets				
	Kivuyuka	Nyabiraba	Bugendana	Muyange	Murama

1. Which factors affect your decision to buy food from a particular vendor?	The factor is the cheap price and how we are received as clients	The main factor is the good environment(open), but also the diversity of products and finally they try to ensure hygiene in they foods	Availability and all category of foods in each time but also good hygiene	food is fresh and they have toilet and water	The main factor is first the affordable price, and we eat fresh food here but also, we eat what we want (diversity of food) As time is limited, I'm obliged to eat near my place
2. Can you name some diseases you can get from contaminated food?	Yes, cholera	Yes. Food poisoning	Cholera, amebiasis	intestinal worms, diarrhoea	Cholera is the main, second is the food poisoning
3. Do you think food can get contaminated in unclean market settings or from poor vendor hygiene?	Yes. Food can get contaminated with unclean hands when there is poor hygiene of personal	Yes. Food can get contaminated with unclean environment and poor hygiene of vendor. They should clean hands when giving services but also clean materials they are using	Yes, with unclean materials, hands, and cooking equipment	Yes, of course if the vendor has not water, clean materials	Yes, they can be contaminated with unclean vendor. As you see flies from liquid waste are there.
4. Do you consider cleanliness of the vendor and the stall before you buy food from them?	Yes, but the price is the factor that can be considered too	Yes. I consider cleanliness environment but the quality of foods	Yes, I prefer cleanliness environment before buy food	Yes, but before I'm looking of price	Yes. For not to be contaminated
5. Do you consider freshness and cleanliness of food before you buy it?	Yes, fresh food is the best because is somehow exempted of bacteria	Yes, I consider fresh food because no-fresh are the source of poisoning and they may have poor hygiene, bad conservation etc	Yes, but here is not easy to know if it was safe	Yes, but if consider price before, and second the how vendor receive client (good marketing)	Yes, those fresh are mostly likely exempted from virus/bacteria

6. Would you pay more for food if you knew it was safe from contamination	Yes. But also because of financial issue price is most important	Yes. If I can afford the price, I will Because first is the price and second you don't know if it is contaminated or not	Yes, the issue is to find money and to know if it is safe before to buy it	Yes, but good foods have high price	Yes, if I knew that, I can even not consume and look at the good hygiene vendor
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2.4.5 Service providers

Question/Parameter	Responses for Local markets				
	Kivuyuka	Nyabiraba	Bugendana	Muyange	Murama
1. Can you name some diseases you can get from contaminated food?	Intestinal worms, Cholera, amebiasis, dysentery are the main diseases caused by contaminated food and water	Cholera, amebiasis, dysentery are the main diseases related to food and water contamination	Cholera, amebiasis, dysentery are the main diseases related to food and water contamination	Cholera, amebiasis, dysentery are the main diseases related to food and water contamination	Food poisoning, Cholera, intestinal worms, diarrhoea are the main health risks associated with poor hygiene and food contamination
2. What is the cost of installing and providing infrastructures in food markets?					
Toilets	20000000	22000000	18000000	21000000	18000000
Hand washing	400000	700000	450000	500000	400000
Tap:	20000	25000	25000	25000	20000
Waste bin	300000	350000	300000	350000	300000
Drainage infrastructures	NA	NA	NA	NA	NA
3. What is the cost to maintain:					
Toilet	600000	500000	500000	700000	500000
Hand washing	100000	120000	120000	150000	100000
Waste collection	120000	120000	120000	150000	100000
Tap	20000	30000	30000	50000	30000
soap	24000	24000	24000	25000	20000

Face mask	20000	20000	20000	25000	20000
Gloves	50000	70000	45000	40000	50000
4. Do businesses pay for the use of water supply, toilets, or waste collection services?	No, when water and toilets and waste collection are provided, businesses don't pay for the services. But as the services are not provided businesses pay for water and waste related to their own business	No, the services are free when provided by Government, individual traders take in charge the costs related to hygiene facilities for their business	When functioning water and toilet supply is free as well as waste collection, no fees was charged to individual business unless businesses provide themselves toilets and water buckets	Businesses don't pay for water and toilet provision as well as waste collection, but food business are required to pay for individual toilets and water supply to ensure cleanliness of the business as no public facilities are available	In Mukoni, no water or service is provided but waste collection is taken in charge by the commune of Muyinga
5. Can you recover O&M costs/make a profit by providing these services in local markets	If individuals were to provide operational and maintenance costs services in local market, it would be hard to recover the costs as market users don't pay. Because water and toilet facilities are not installed, service providers don't prefer to engage in the hygiene service provision	Depending on the contract signed between the communal authority and the service provider, operation and maintenance costs in the markets could be recovered but with support of local administration	Because the market is built and facilities were installed, individual service provider can recover the costs, but the commune should first repair water and toilets related installation	If the commune takes the decision to cede market hygiene operation and maintenance to private sector, the latter would be able to recover the costs, but the commune prefers to keep the service for it to avoid paying money to service provider	In rural area the service providers would not want to risk in operation and maintenance of hygiene, they would not recover the costs as there is no functional facility installed
6. Are there local or national regulations around providing water, sanitation, and waste collection in food markets?	Yes, national, and international regulations exist around water, sanitation, and waste collection in general and some specifications	Yes, national, and international regulations exist around water, sanitation, and waste collection in general and some specifications	Yes, national, and international regulations exist around water, sanitation, and waste collection in general and some specifications	Yes, national, and international regulations exist around water, sanitation, and waste collection in general and some specifications	Yes, national, and international regulations exist around water, sanitation, and waste collection in general and some specifications

are related to food markets are related to food markets are related to food markets are related to food markets are related to food markets

2.4.6 Conclusions on incentive for integrating hygiene in local markets

The study on costs and incentives of integrating hygiene into agriculture value chains shows evidence of incentives to integrating hygiene in the markets. The results of the study revealed the predominance of food product in the markets.

Retail markets gather a large number of populations around two objectives: 1) selling and 2) buying.

Whereas many people gather together, there is likelihood to contact diseases.

Retail markets operate in a poor hygiene condition, key challenges are inappropriate locations: the large majority of markets visited don't have clean water, no waste collection and management system, poor latrines, non-functional hand washing system.

Key incentives of integrating hygiene in the retail markets include:

Prevent against potential epidemic diseases: In most of the country regions people have experience of cholera and dysentery outbreaks and all these diseases are connected with poor hygiene conditions.

Covid-19 is a recent example that triggered the Government and local administration to impose hygiene-based measures to prevent contamination of population.

Key triggers for market traders/vendors to improving hygiene include:

- Fear of close-out of the business due to non-compliance to hygiene regulations
- Fear of losing image of the node and the owners due to bad consequences to customers
- Fear of losing customers due to poor quality of products
- Fear of spending money for fines

2.5 Incentives for integrating hygiene for policy makers in the provinces

Question/Parameter	Responses for provinces				
	Muyinga	Gitega	Makamba	Bujumbura rural	Bubanza
1. Is there pressure from international donors to introduce policies on hygiene in the agriculture value chain?	Many pressures are connected with the Burundi engagement in various international bodies and organisations, such as World Health Organisation, East African community and COMESA. Burundi is then lied with all the policies that these organisations put in place. Burundi has ratified all the policies and then is to adapt and update its policy accordingly and ensure they are followed.	Pressure from international and donors with regard the hygiene policy elaboration are the most important. The country is to comply with east African regulations with regards to the policy of free circulation of goods and persons, there is policies and rules that Burundi has not put in place especially the quality of products to be sold in the region	As Burundi is engaged in various international bodies and organisations, such as World Health Organisation, East African community and COMESA, Burundi has to comply with the policies promoted by organisations. Burundi has ratified all the policies and then is to adapt and update its policy accordingly and ensure they are followed. Given the high connection of hygiene and health, there is pressure for Burundi to comply with the policy to reduce its vulnerability to diseases and to not be a source of problems of other countries	Many pressures are connected with the Burundi engagement in various international bodies and organisations, such as World Health Organisation, East African community and COMESA. Burundi is then lied with all the policies these organisations put in place. Burundi has ratified all the policies and then is to adapt and update its policy accordingly and ensure they are followed.	The government is encouraging local organisations to invest in agriculture value chains, this will foster Burundi economy and alleviate poverty. The government is the one to put in place policy and standards to ensure the value chains meet norms to be safe from contamination.
2. Do you face pressure from the public to introduce policies on hygiene in the agriculture value chain, for better	There is increasing pressure of local communities and civil society to claim for good hygiene conditions More claims are sound in urban settings and in most public places such as	There is pressure from the public especially in the urban centres (Bujumbura, Gitega and Ngozi) with a high concentration of population where people claim for better services and regulations regarding water provision, waste collection and	Local communities don't make pressure on the government but some civil society organisations based in the country put pressure on the government to improve its policy with regards the health and hygiene to	There is increasing pressure of local communities and civil society to claim for good hygiene conditions More claims are sound in urban settings and in most public	Increasing pressure from local organisation are recorded with regards the alignment of national laws on international standards in all the sectors including food

<p>nutrition and health outcomes?</p>	<p>schools, health centres and markets. Civil society organisations contribute by calling government to put in place regulations especially when epidemics break</p>	<p>management, and especially the used water and solid waste. Public is also very demanding with regards food hygiene and all the sanitation services. Civil society are particularly regarding about hygiene outcomes, there are private, groups of sector-based organisations working in the food security, health, and WASH sectors</p>	<p>prevent epidemics. As Makamba population has close connection with Tanzania citizen, they are some local laws local population make pressure to put in place to facilitate the smooth circulation of goods across the common border or restrict movement in case of potential risks of contamination.</p>	<p>places such as schools, health centres and markets. Civil society organisations contribute by calling government to put in place regulations especially when epidemics break</p>	<p>security. Investors in the sector of agriculture value chains are particularly interested in adding value to their products though the compliance to international commerce standards with regards hygiene regulations</p>
<p>3. Are you advised by public health departments to introduce hygiene in the agriculture value chain to improve health outcomes?</p>	<p>Yes, public health is one public service leading in hygiene promotion at national level, it advises to put in place policies on hygiene, however the agriculture and environment ministry in charge of value chain sector has the responsibility to elaborate policies and procedures related to hygiene improvement in the sector.</p>	<p>The public health department is the one in charge of leading the hygiene sector development and gets all other ministries involved. The public health ministry has decentralised services in the provinces and communes where agents are based to advise individuals and groups of people about hygiene. Food value chain are particularly targeted by the ministry agents for their sensitisation and information services to improve hygiene</p>	<p>Public health department is one public service leading in hygiene promotion at national level, it advises to put in place policies on hygiene, health ministry collaborates with office for environment protection to elaborate policies and procedures related to hygiene improvement in the sector</p>	<p>Yes, public health is one public service leading in hygiene promotion at national level, it advises to put in place policies on hygiene, however the agriculture and environment ministry in charge of value chain sector has the responsibility to elaborate policies and procedures related to hygiene improvement in the sector.</p>	<p>Health department has put in place an office of hygiene and nutrition whose role is to advise on basic hygiene policies and rules to improve people awareness of the hygiene and ways to improve it</p>

4. Is there pressure from political groups to improve hygiene?	Pressure from political groups is not high as most of them are based outside the country but these are active during pandemics outbreaks. However, they have high incidence on the policy improvement as their voice is heard all around the road and use channels that reach a high number audience	Today, no political groups available to put pressure on the Government in the hygiene sector except in case of epidemics where political groups make pressure to government to implement mitigation measure to prevent the population's life	There is pressure from political groups, but these are more active during epidemic outbreaks.	Pressure from political groups is not high as most of them are based outside the country but these are active during pandemics outbreaks. However, they have high incidence on the policy improvement as their voice is heard all around the road and use channels that reach a high number audience	Pressure for political groups is low, political groups make pressure during epidemics to call the government take appropriate measures to protect citizens and avoid deaths
5. Are any groups lobbying to resist greater requirements for hygiene and what are their reasons?	No but industries are almost to ask for lowering requirements on the policy of polluter-payer which obliges industries to pay more when according to the level of pollution they are to cause to environment	Industries are quite reluctant to the policy of polluter-payers which apply additional taxes to industries consuming most energy and water as well as those using polluting technologies	Traders and investors are not satisfied with greater requirements for hygiene because the regulations make pressure on their revenue as they have to invest money in infrastructures	No but industries are almost to ask for lowering requirements on the policy of polluter-payer which obliges industries to pay more when according to the level of pollution they are to cause to environment	Few groups lobby to resist greater requirements for hygiene, they are mostly because hygiene is costly, many groups fear of spending much money while they don't expect high return from their investments
6. In your opinion, are there other factors that would trigger policymakers to formulate policies on hygiene integration?	1) Compliance to international, regional bodies and organisations Burundi has adhered to is one trigger for government to put in place or adapt policy,	Burundi adhered to the international standards and policies in many sectors, then the government is required to follow all the policies related to all the sectors including hygiene. There are plenty of evaluation processes including in hygiene which recommend improvements in policy. The government has to comply with	Key triggers for policy makers are: 1) Keeping country's credibility among, regional bodies and organisations Burundi has adhered to is one trigger for government to put in place or adapt policy. 2) Fulfilling policy's obligation of government vis-a-vis the	1) Compliance to international, regional bodies and organisations Burundi has adhered to is one trigger for government to put in place or adapt policy, 2) - Responding to the	For political reasons, policy makers want maintain constituencies through the protection of population, policy makers are taken accountable for any problem connected

	2) - Responding to the needs of population with regards its security and good health is also a big trigger for the government to fulfil its obligation vis-a-vis the citizens; 3) -Complying with regional policy (COMESA, EAC, SADC) with regards the smooth circulation of population and goods	all the recommendations especially those related to public health. During epidemic outbreaks the government is to urge preventive and mitigation measures to avoid contamination and limit impact of diseases on people's life. This is also a trigger for government to put in place some policies regarding hygiene.	citizens with regards security.	needs of population with regards its security and good health is also a big trigger for the government to fulfil its obligation vis-a-vis the citizens;	with the lack of policies
7. Are you personally motivated to improve hygiene in the agriculture value chain? If so, what would trigger you to improve hygiene?	Food is a sensitive product policy makers have to be care of to avoid contamination to keep safety of citizen, specific regulations are to be established to prevent people's contamination	Some products are more sensitive to poor hygiene because these may harm the public health if they don't run under specific policies, for example milk, cooked food, drink, and meat, this is the best trigger to put in place policies	Food is a sensitive product policy makers have to be care of to avoid contamination to keep safety of citizen, specific regulations are to be established to prevent people's contamination	Food is a sensitive product policy makers have to be care of to avoid contamination to keep safety of citizen, specific regulations are to be established to prevent people's contamination	Food is a sensitive product policy makers have to be care of to avoid contamination to keep safety of citizen, specific regulations are to be established to prevent people's contamination

2.5.1 Conclusion on incentives for integrating hygiene for policy makers across the 5 provinces

The study on cost and incentive on integrating hygiene in the AVEC node showed that there is evidence of incentives for integration hygiene for policy makers; in fact, policy protects citizens, it protects national economy and finances, it exposes accountability and legitimacy of authorities and protects image of a country vis-à-vis the peer countries and international bodies

Burundi is characterised by poor policy with regards to hygiene despite its engagement in various international and regional bodies. To date only the WASH national plan is the only policy to tackle hygiene issues outside the household.

Key challenges are the potential overlap of various institutions in charge of hygiene policing: in fact a number of department ministries are involved in hygiene including health ministry considered as leading ministry for hygiene and health, ministry of agriculture and environment in charge of value chain activities promotion, external relation ministry for exchanges with international institutions, water and energy ministry in charge of water distribution systems, home affairs and public security ministry in charge of public security and communal development, commerce and industry ministry in charge of production and commerce of goods.

- Poor connection between actors involved in hygiene sector leading to inconsistency and weak implementation of basic policy
- Poor community awareness of hygiene policy due to weak communication systems and weakness of institutions in charge
- Weak communication between actors leading to overlap in policies
- Poor accountability of local authorities in the management of communal facilities

Key tigers for Government to respond and implement measures to increase hygiene

Prevent against diseases and potential epidemic outbreaks

Comply with international and regional hygiene policies to facilitate smooth circulation of persons and goods all over the region

Preventing contamination from neighbouring countries

Responding to public claims with regards hygiene improvement

3 Recommendations

3.1 Costs of integrating hygiene in:

3.1.1 Milk cooperatives

- Milk node shall invest in hygiene by planning budget for running and operation as well as functioning hygiene facilities.
- Plan for budget to install a second water tank (10,000 l capacity) to back-up water as running water is not permanent.
- For big costs, envision to apply for credit to invest in hygiene facilities. Ensure infrastructures are built and well-maintained including installation of water, where it is not installed, attention is brought to waste management facilities
- Provide appropriate equipment to the node and all the stakeholders involved, farmers, milk collectors, and transporters by providing materials in inox

3.1.2 Local markets

- Make available budget required to comply with hygiene regulations
- Ensure required hygiene facilities are built according to the required standards, especially public toilets, and hand washing stations as well as food handling and washing stations
- Ensure the good maintenance of infrastructures and facilities, where possible hire a private company to perform the task
- Establish waste management sites and manage them appropriately
- Water availability is key, ensure running water is available in required quantity
- Beware of water scarcity and interruption and put in place water tanks accordingly

3.2 Incentives for triggering hygiene integration for:

3.2.1 Policy makers

- Establishing clear responsibilities of actors involved in hygiene policy making
- Improve communication among actors involved in hygiene policy making process
- Ensure rules and regulations are workplace are clear enough to avoid ambiguity
- Ensure community consultation while elaborating policies

3.2.2 Business managers

- Be aware of one's responsibility with regards to risks to food contamination
- Ensure rules at workplace are provided to employees and other actors
- Ensure appropriate equipment are provided to improve hygiene in the nodes
- Provide trainings of all the stakeholders involved in the markets (traders, population, and employees)
- Recruit hygiene staff and ensure they are effective
- Ensure the good maintenance of infrastructures and facilities, where possible hire a private company to perform the task
- Providing training on hygiene to farmers, milk collectors and other employees involved in the process of production, transportation, and sales of milk
- Provide clear and written hygiene rules and regulations at workplace with regards to the milk handling and ensure all the staff follow and implement them
- Installed hygiene infrastructures for employees and consumers in retail market
- Express the need in hygiene materials and equipment to the local partners/donors in the line of improving hygiene integration as there is financial issue in the nodes
- Ensure that the required quantity of equipment is provided to milk collectors, and farmers

3.2.3 Market traders

- Make available budget required to comply with hygiene regulations
- Ensure all the hygiene facilities are installed in the node
- Be aware of one's responsibility with regards to risks to food contamination
- Ensure rules at workplace are provided to employees and other actors
- Ensure appropriate equipment are provided to improve hygiene in the nodes

- Provide trainings of all the stakeholders involved in the nodes
- Recruit hygiene staff and ensure they are effective

3.2.4 Employees

- Ensure customers are served with good products
- Follow rules and regulations set at workplace
- Ensure cleansing of materials and the settings to avoid contamination of milk and staff
- Ensure the best use of equipment and materials
- Sensitise local community on hygiene principles
- Ensure best use and management of hygiene facilities in the nodes

3.2.5 Consumers/Customers

- Beware of their freedom to choose best quality product and use it
- Improving individual knowledge of hygiene
- Be ready to claim for rights with regards to hygiene

3.2.6 Service providers

- Advise to the node's owners on appropriate equipment with regards the type of business
- Provide training on hygiene to all actors including communal authorities
- Provide clear hygiene rules and regulations at all the stakeholders involved in the AVC nodes
- Lobby to donors for building the required hygiene infrastructures especially in markets node

Annexes

Annex 1: List of those Interviewed

N°	NAME	FUNCTION	TEL N°
1. BUBANZA			
RETAIL MARKET KIVYUKA			
1	NAHIMANA Georges	CES MUSIGATI	69079911
2	MBONIMPA Cyprien	Market chief	69487052
3	NDIKUMANA Jérôme	Tax collector	68577121
4	NAHIMANA Laurent	Tax collector	79619970
5	BIZIMANA Gabriel	Market trader	71968139
6	NZISABIRA Anastasie	Market trader	62979152
7	RUVUGO Tite	Market trader	69568780
8	Minani Pascal	Market trader	69994124
9	BARIKURE Pierre	Market trader	68948681
10	NINDAMUTSA Anita	Consumer	-
11	NTAHIRAJA Antoine	Consumer	-
MILK COOPERATIVE KIVYUKA			
12	BARENGAYABO Phocas	Business Owner	68340975
13	BIRAHINDUKA Odette	Chief operation	69612776
14	NDUWAYEZU Célapie	Cleaner	67408920
15	NSHIMIRIMANA Fabiola	In charge of pastry	69617472
16	NUDWIMANA Martin	Milk collector	69221942
17	NAHIMANA Eric	Customer	6899201
SERVICE PROVIDERS BUBANZA			

18	NAHIMANA Georges	Communal hygiene person	69079911
19	NDEREYIMANA Simplicie	Communal water service	68838360
20	NIZIRAZANA Laidi	Communal veterinary	69222644
POLICY MAKERS BUBANZA			
21	NDAYIZEYE David	Economic counsellor	79375367
22	NDORICIMPA Joseph	Water service	61211029
23	NSABIMANA Adelin	Hygiene service	69075273
24	MANIRAKIZA Ibrahim	Market administration	68058419
25	HABARUGIRA Hussein	Environment officer	79974102
2. BUJUMBURA			
RETAIL MARKET NYABIRABA			
1	NSABIMANA Eric	CES Commune Nyabiraba	71663556
2	NIJIMBERE Toussaint	Chief-market	68612089
3	NDAYISENGA Elias	Tax collector	-
4	IRANGABIYE Liliane	Tax collector	68731089
5	NDIKUMANA Joseph	Cleaner	68774001
6	HATUNGIMANA Egide	Market trader/Vendor	68555452
7	NIBONA Martin	Market trader/Vendor	-
8	MANARIYO Josephine	Market trader/Vendor	-
9	KARIBURYO Pie	Market trader/Vendor	-
10	MASAHANI Charles	Consumer	-
11	NSHIMIRIMANA Marthe	Consumer	-
MILK COOPERATIVE IJENDA			

12	NDAYISABA Clovis	Business manager	71525402
13	KANGOYE Ancille	Employee	72334109
14	SINDIMWO Pascal	Employee	68002582
15	BARAMPERANYE Jean	Costumer	77226382
16	NDIKUBWAYO Claude	Customer	68395612
SERVICE PROVIDERS BUJUMBURA			
18	NININHAZWE Marcel	Communal hygiene	61759023
19	HARAKANDI Prosper	Communal water service	68894038
20	MANIRAKISA William	Communal veterinary	69654102
POLICY MAKERS BUJUMBURA			
21	NDENGAKURIYO Diomède	Economic counsellor	69000951
22	HAKIZIMANA Eugène	Hygiene officer	69133235
23	NDIHOKUBWAYO Maximilien	Environment officer	69507438
24	NDIKUMANA Vincent	Water Service Bujumbura	79961240
3. GITEGA			
RETAIL MARKET BUGENDANA			
1	SIBOMANA Samuel	CTD Commune Bugendana	69522270
2	KWIZERA Patrick	Chief Market	69890335
3	Gahungu Pascal	Tax collector	68912747
4	Misago Josephnine	Market trader/Vendor	ISS79466857
5	BANKIBIGWIRA Grégoire	Market cleaner	-
6	MANIRAMBONA Bonaventure	Market trader/Vendor	68292955
7	NIYONZIMA Boniface	Market trader/Vendor	-

8	BANYANKIMBONA Venantie	Market trader/Vendor	-
9	SABUKWIGURA Jacques	Market trader/Vendor	-
10	BASAKWINSHI Nestor	Consumer	62721019
11	MANIRAMBONA Alfred	Consumer	61200457
II	MILK COOPERATIVE BUGENDANA		
12	BUHEMBE Renilde	Business Manager	69036793
13	SAMBIRA Spès	Chief operation	79002191
14	NSHIMIRIMANA Gérard	Milk Handler	68421348
15	IRAKOZE Christophe	Hygiene person	62505162
16	MASAMVYA Odette	Milk collector	67049712
17	RUHEZAGIRA Jean	Consumer	-
III	SERVICE PROVIDERS GITEGA		
17	NDIKUMANA Renovat	Vétérinary	61828840
18	MANIRAKIZA Fabrice	Communal Hygiene person	79992557
19	MISIGARO Joseph	Communal Water service	79460257
IV	POLICY MAKERS GITEGA		
20	BURIKUKIYE Charles	Water Service	79902471
21	HICUBURUNDI Charles	Health officer	79938901
22	BIZIMANA ABEL	CETAG Chief (cleaning service)	79921305
23	NZOHABONAYO Dieudonné	Commerce officer	79877066
24	NIJIMBERE Francine	AVC promotion service	71214629
25	HARERIMANA Jean Paul	Hygiene service	79291144

4. MAKAMBA			
IMUYANGE RETAIL MARKET			
1	HAKIZIMANA PIERRE	BUSINESS OWNER	69771620
2	MAVUGUVUGU GABRIEL	BUSINESS OWNER	68044330
3	NDAYISHIMIYE GILBERT	EMPLOYEE	69070742
4	NZIGAMASABO ALPHONSE	EMPLOYEE	79865423
5	HAKIZIMANA FERDINAND	MARKET VENDOR	69192142
6	NYANDWI JUVENT	MARKET VENDOR	79254061
7	BIZIMANA Emmanuel	MARKET VENDOR	61203353
8	NTAGAHORAHO Albéric	MATKET VENDOR	68453287
9	KARIKERA François	MARKET VENDOR	68527534
10	NIYONGABIRE DORINE	CONSUMER	68959680
11	HAKIZIMANA THARCISSE	CONSUMER	68959680
II	MILK COOPERATIVE MAKAMBA		
12	NIYOMWUNGERE JEAN CLAUDE	BUSINESS OWNER	68334480
13	NAHAYO JOSEPH	EMPLOYEE	61543234
14	NDIKUMWENAYO JOSEPHINE	EMPLOYEE	68765498
15	KABURA BARTHAZAR	EMPLOYEE	69430944
III	SERVICE PROVIDER MAKAMBA		
16	NDUWIMANA Chantal	WASH Service	67173688
17	NYANDWI Juvent	Ingenieur	78254406
IV	POLICY MAKERS MAKAMBA		
18	NIBARUTA DANIEL	Health and Hygiene	79950820
19	NISHIMWE LEONARD	Development Counselor	69759562

20	NGENZIMINWE DIOMEDE	Provincial water service	69064197
5. MUYINGA			
RETAIL MARKET OF MURAMA			
1	MINANI Joseph	CEO representative	62438014
2	MUGISHA Abdul	Chief-market	69270257
4	NDUWIMANA Pierre	Market cleaner	69185383
5	DEMOKRASI Melchior	Market trader/Vendor	62201815
6	SABIMANA Evariste	Market trader/Vendor	-
7	NIYIBARUTA Gilbert	Market trader/Vendor	67538561
8	NIYONZIMA Valérie	Market trader/Vendor	-
9	HAFISA Ibrahim	Market trader/Vendor	68950681
10	NDAKAZI Alexis	Consumer	-
11	ARAKAZA Marie	Consumer	-
II	MILK COOPERATIVE MUYINGA		
12	GAHUNGU Venant	Business Manager	69115572
13	NDAYISENGA Eric	Chief operation	68481602
14	NSABANDI Candide	Milk Handler	61155876
15	BIKORIMANA Olivier	Hygiene person	69700261
16	MANIRAKIZA Adelaide	Milk collector	-
17	RUHEZAGIRA Jean	Consumer	-
III	SERVICE PROVIDERS MUYINGA		
18	NDIRAHISHA Amissa	Toilet management	79997198
19	MANIRAMBONA Lazac	Waste collection service	69122154
20	MANIRAKIZA AZAIZI	Communal veterinary	71784499

IV	POLICY MAKERS MUYINGA		
21	KAYUMBA Laurent	Development Counselor Muyinga	68265252
22	NDABARUSHIMANA Jean Claude	Agriculture service	79980054
23	NIBIZI Anastase	Vétérinary Service Muyinga	69441421
24	CISHAHAYO Mertus	Water service Muyinga	79255353
25	NDAYIKEZA Cyrille	Health service	69437042
26	NDABUNGANIYE Georges	Provincial Water Service	79151311

Annex 2: Number of Nodes and Days for Cost Assessment

NODES	SITE	Province	TASK		DAYS FOF ASSESSMENT	COST
			Cost	Incentives		
1	Kivyuka Market	Bubanza	4 SSI	9 SSI and 2 KII	2	
2	Kivyuka Milk cooperative	Bubanza	3 SSI	4 SSI and 2 KII	1	
3	Nyabiraba Market	Bujumbura	4 SSI	9SSI and 2KII	2	
4	Ijenda Milk cooperative	Bujumbura	3 SSI	4SSI and 2KII	1	
5	Bugendana Market	Gitega	4 SSI	9SSI and 2KII	2	
6	Gugendana Milk cooperative	Gitega	3 SSI	4SSI and 2KII	1	
7	Muyange Market (Nyanza-lac)	Makamba	4 SSI	9SSI and 2KII	2	
8	Makamba Milk	Makamba	3 SSI	4SSI and 2KII	1	
9	Murama Market	Muyinga	4 SSI	9SSI and 2KII	2	
10	Muyinga Milk cooperative	Muyinga	3 SSI	4SSI and 2KII	1	

Annex 3: Categories of respondents, phone number and method used for incentives study per each unit

1. LIST OF INREVIEWED BUSINESS OWNERS

N°	NAME	FUNCTION	TEL N°	METHOD
RETAIL MARKET KIVYUKA				
1	NAHIMANA Georges	CES MUSIGATI	69079911	ISS
MILK COOPERATIVE KIVYUKA				
2	BARENGAYABO Phocas	Business Owner	68340975	ISS
RETAIL MARKET NYABIRABA				
3	NSABIMANA Eric	CES Commune Nyabiraba	71663556	ISS
MILK COOPERATIVE IJENDA				
4	NDAYISABA Clovis	Business manager	71525402	ISS
RETAIL MARKET BUGENDANA				
5	SIBOMANA Samuel	CTD Commune Bugendana	69522270	ISS
MILK COOPERATIVE BUGENDANA				
6	BUHEMBE Renilde	Business Manager	69036793	ISS
MUYANGE RETAIL MARKET				
7	HAKIZIMANA PIERRE	BUSINNESS OWNER	69771620	ISS
MILK COOPERATIVE MAKAMBA				
8	NIYOMWUNGERE JEAN CLAUDE	BUSINESS OWNER	68334480	ISS
RETAIL MARKET OF MURAMA				

9	MINANI Joseph	CEO representative	62438014	ISS
MILK COOPERATIVE MUYINGA				
10	GAHUNGU Venant	Business Manager	69115572	ISS

2. LIST OF EMPLOYEES INTERVIEWED

N°	NAME	FUNCTION	TEL N°	METHOD
RETAIL MARKET KIVYUKA				
1	MBONIMPA Cyprien	Market chief	69487052	ISS
2	NDIKUMANA Jérôme	Tax collector	68577121	ISS
3	NAHIMANA Laurent	Tax collector	79619970	ISS
MILK COOPERATIVE KIVYUKA				
4	BIRAHINDUKA Odette	Chief operation	69612776	ISS
5	NDUWAYEZU Célapie	Cleaner	67408920	ISS
6	NSHIMIRIMANA Fabiola	In charge of pastry	69617472	ISS
7	NUDWIMANA Martin	Milk collector	69221942	ISS
RETAIL MARKET NYABIRABA				
8	NIJIMBERE Toussaint	Chief-market	68612089	ISS
9	NDAYISENGA Elias	Tax collector	-	ISS
10	IRANGABIYE Liliane	Tax collector	68731089	ISS
11	NDIKUMANA Joseph	Cleaner	68774001	ISS
MILK COOPERATIVE IJENDA				
12	NDAYISABA Clovis	Business manager	71525402	ISS
13	KANGOYE Ancille	Employee	72334109	ISS

14	SINDIMWO Pascal	Employee	68002582	ISS
RETAIL MARKET BUGENDANA				
15	KWIZERA Patrick	Chief Market	69890335	ISS
16	Gahungu Pascal	Tax collector	68912747	ISS
MILK COOPERATIVE BUGENDANA				
17	SAMBIRA Spès	Chief operation	79002191	ISS
18	NSHIMIRIMANA Gérard	Milk Handler	68421348	ISS
19	IRAKOZE Christophe	Hygiene person	62505162	ISS
20	MASAMVYA Odette	Milk collector	67049712	ISS
MUYANGE RETAIL MARKET				
21	NDAYISHIMIYE GILBERT	EMPLOYEE	69070742	ISS
22	NZIGAMASABO ALPHONSE	EMPLOYEE	79865423	ISS
MILK COOPERATIVE MAKAMBA				
23	NAHAYO JOSEPH	EMPLOYEE	61543234	ISS
24	NDIKUMWENAYO JOSEPHINE	EMPLOYEE	68765498	ISS
25	KABURA BARTHAZAR	EMPLOYEE	69430944	ISS
RETAIL MARKET OF MURAMA				
26	MUGISHA Abdul	Chief-market	69270257	ISS
27	NDUWIMANA Pierre	Market cleaner	69185383	ISS
28	DEMOKRASI Melchior	Market trader/Vendor	62201815	ISS
MILK COOPERATIVE MUYINGA				

29	NDAYISENGA Eric	Chief operation	68481602	ISS
30	NSABANDI Candide	Milk Handler	61155876	ISS
31	BIKORIMANA Olivier	Hygiene person	69700261	ISS
32	MANIRAKIZA Adelaide	Milk collector	-	ISS

3. LIST OF MARKET VENDORS INTERVIEWED

N°	NAME	FUNCTION	TEL N°	METHOD
RETAIL MARKET KIVYUKA				
1	BIZIMANA Gabriel	Market trader	71968139	ISS
2	NZISABIRA Anastasie	Market trader	62979152	ISS
3	RUVUGO Tite	Market trader	69568780	ISS
4	Minani Pascal	Market trader	69994124	ISS
5	BARIKURE Pierre	Market trader	68948681	ISS
RETAIL MARKET NYABIRABA				
6	HATUNGIMANA Egide	Market trader/Vendor	68555452	ISS
7	NIBONA Martin	Market trader/Vendor	-	ISS
8	MANARIYO Josephine	Market trader/Vendor	-	ISS
9	KARIBURYO Pie	Market trader/Vendor	-	ISS
RETAIL MARKET BUGENDANA				
10	Misago Josephnine	Market trader/Vendor	ISS79466857	ISS
11	BANKIBIGWIRA Grégoire	Market cleaner	-	ISS
12	MANIRAMBONA Bonaventure	Market trader/Vendor	68292955	ISS
13	NIYONZIMA Boniface	Market trader/Vendor	-	ISS

14	BANYANKIMBONA Venantie	Market trader/Vendor	-	ISS
15	SABUKWIGURA Jacques	Market trader/Vendor	-	ISS
MUYANGE RETAIL MARKET				
16	HAKIZIMANA FERDINAND	MARKET VENDOR	69192142	ISS
17	NYANDWI JUVENT	MARKET VENDOR	79254061	ISS
18	BIZIMANA Emmanuel	MARKET VENDOR	61203353	ISS
19	NTAGAHORAHU Albéric	MATKET VENDOR	68453287	ISS
20	KARIKERA François	MARKET VENDOR	68527534	ISS
RETAIL MARKET OF MURAMA				
21	DEMOKRASI Melchior	Market trader/Vendor	62201815	ISS
22	SABIMANA Evariste	Market trader/Vendor	-	ISS
23	NIYIBARUTA Gilbert	Market trader/Vendor	67538561	ISS
24	NIYONZIMA Valérie	Market trader/Vendor	-	ISS
25	HAFISA Ibrahim	Market trader/Vendor	68950681	ISS

4. LIST OF CONSUMERS/CUSTOMERS INTERVIEWED

N°	NAME	FUNCTION	TEL N°	METHOD
RETAIL MARKET KIVYUKA				
1	NINDAMUTSA Anita	Consumer	-	KII
2	NTAHIRAJA Antoine	Consumer	-	KII
MILK COOPERATIVE KIVYUKA				
3	NAHIMANA Eric	Customer	6899201	KII

RETAIL MARKET NYABIRABA				
4	MASAHANI Charles	Consumer	-	KII
5	NSHIMIRIMANA Marthe	Consumer	-	KII
MILK COOPERATIVE IJENDA				
6	BARAMPERANYE Jean	Costumer	77226382	ISS
7	NDIKUBWAYO Claude	Customer	68395612	KII
RETAIL MARKET BUGENDANA				
8	BASAKWINSHI Nestor	Consumer	62721019	KII
9	MANIRAMBONA Alfred	Consumer	61200457	KII
MILK COOPERATIVE BUGENDANA				
10	RUHEZAGIRA Jean	Consumer	-	KII
MUYANGE RETAIL MARKET				
11	NIYONGABIRE DORINE	CONSUMER	68959680	KII
12	HAKIZIMANA THARCISSE	CONSUMER	68959680	KII
RETAIL MARKET OF MURAMA				
13	NDAKAZI Alexis	Consumer	-	KII
14	ARAKAZA Marie	Consumer	-	KII
MILK COOPERATIVE MUYINGA				
15	RUHEZAGIRA Jean	Consumer	-	KII

5. LIST OF SERVICE PROVIDERS INTERVIEWED

N°	NAME	FUNCTION	TEL N°	METHOD
SERVICE PROVIDERS BUBANZA				
1	NAHIMANA Georges	Communal hygiene person	69079911	FGD
2	NDEREYIMANA Simplicite	Communal water service	68838360	FGD

3	NIZIRAZANA Laidi	Communal veterinary	69222644	FGD
SERVICE PROVIDERS BUJUMBURA				
4	NININHAZWE Marcel	Communal hygiene	61759023	FGD
5	HARAKANDI Prosper	Communal water service	68894038	FGD
6	MANIRAKIZA William	Communal veterinary	69654102	FGD
SERVICE PROVIDERS GITEGA				
7	NDIKUMANA Renovat	Veterinary	61828840	FGD
8	MANIRAKIZA Fabrice	Communal Hygiene person	79992557	FGD
9	MISIGARO Joseph	Communal Water service	79460257	FGD
SERVICE PROVIDER MAKAMBA				
10	NDUWIMANA Chantal	WASH Service	67173688	FGD
11	NYANDWI Juvent	Ingenieur	78254406	FGD
POLICY MAKERS MAKAMBA				
12	NIBARUTA DANIEL	Health and Hygiene	79950820	FGD
13	NISHIMWE LEONARD	Development Counselor	69759562	FGD
14	NGENZIMINWE DIOMEDE	Provincial water service	69064197	FGD
SERVICE PROVIDERS MUYINGA				
15	NDIRAHISHA Amissa	Toilet management	79997198	FGD
16	MANIRAMBONA Lazac	Waste collection service	69122154	FGD
17	MANIRAKIZA AZAIZI	Communal veterinary	71784499	FGD

6. LIST OF POLICY MAKERS INTERVIEWED

N°	NAME	FUNCTION	TEL N°	METHOD
POLICY MAKERS BUBANZA				

1	NDAYIZEYE David	Economic counselor	79375367	FGD
2	NDORICIMPA Joseph	Water service	61211029	FGD
3	NSABIMANA Adelin	Hygiene service	69075273	FGD
4	MANIRAKIZA Ibrahim	Market administration	68058419	FGD
5	HABARUGIRA Hussein	Environment officer	79974102	FGD
POLICY MAKERS BUJUMBURA				
6	NDENGAKURIYO Diomède	Economic counselor	69000951	FGD
7	HAKIZIMANA Eugène	Hygiene officer	69133235	FGD
8	NDIHOKUBWAYO Maximilien	Environment officer	69507438	FGD
9	NDIKUMANA Vincent	Water Service Bujumbura	79961240	FGD
POLICY MAKERS GITEGA				
10	BURIKUKIYE Charles	Water Service	79902471	FGD
11	HICUBURUNDI Charles	Health officer	79938901	FGD
12	BIZIMANA ABEL	CETAG Chief (cleaning service)	79921305	FGD
13	NZOHABONAYO Dieudonné	Commerce officer	79877066	FGD
14	NIJIMBERE Francine	AVC promotion service	71214629	FGD
15	HARERIMANA Jean Paul	Hygiene service	79291144	FGD
POLICY MAKERS MAKAMBA				
16	NIBARUTA DANIEL	Health and Hygiene	79950820	FGD
17	NISHIMWE LEONARD	Development Counselor	69759562	FGD

18	NGENZIMINWE DIOMEDE	Provincial water service	69064197	FGD
POLICY MAKERS MUYINGA				
19	KAYUMBA Laurent	Development Counselor Muyinga	68265252	FGD
20	NDABARUSHIMANA Jean Claude	Agriculture service	79980054	FGD
21	NIBIZI Anastase	Vétérinary Service Muyinga	69441421	FGD
22	CISHAHAYO Mertus	Water service Muyinga	79255353	FGD
23	NDAYIKEZA Cyrille	Health service	69437042	FGD
24	NDABUNGANIYE Georges	Provincial Water Service	79151311	FGD

Annex 4: Detailed Costing Table for all the Nodes

I. COSTS FOR MILK COOPERATIVE

Cost	KIVYUKA				JENDA				BUGENDANA			
	Existing Quantity units	Additional quantity required	Cost per unit required	Total Cost for required	Existing Quantity units	Additional quantity required	Cost per unit required	Total Cost for required	Existing Quantity units	Additional quantity required	Cost per unit required	Total Cost for required
Costs of installation of												
Functional toilets	2	1	225000	225000	0	2	150000	300000	3	0	0	0
Hand washing facilities (tap water and soap)	2	0	0	0	0	1	581000	581000	2	0	0	0
Food products handling and transportation equipment	60	15	27000	405000	0	5	80 000	400000	39	8	27000	216000
Solid waste management facilities	1	1	125000	125000	0	1	320000	320000	1	2	125000	250000
Grey water management facilities	0	1	70000	70000	0	1	80000	80000	1	0	70000	70000
Costs of operation and management/month for:												
Toilets	0	2	50000	50000	0	1	25000	25000	1	1	65000	65000
Soap	15	5	1000	5000	4	10	1 000	10000	15	5	1000	5000
Cleaning of surfaces	6 cleaning sessions per week	6	1 jerrican 45000	45000	At least 2 cleaning sessions per week	12 with 2 jerrican per month	20 500	41000	6 cleaning sessions per week	6	1 jerrican 45000	45 000

Collection and disposal of solid waste	1collection per week	2	5000	10000	1collectio n per week	1	6000	6000	1collectio n per week	2	12000	24000
Sewerage	0 cleaning sessions	1	5000	5000	0 cleaning sessions	1	8000	8000	0 cleaning sessions	1	12000	12000
Stormwater drainage (if no sewers are present)	0	0	0	0	0	0	0	0	0	0	0	0
Wearing masks	15 masks supplied	15	1000	15000	1	4	1000	4000	30	15	1000	15000
Regulations costs	Regulation s costs	0	0	0	0	0	0	0	0	0	0	0
Building capacity of regulators	0	0	0	0	0	0	0	0	0	0	0	0
Monitoring hygiene	0	0	0	0	0	0	0	0	0	0	0	0
Enforcing hygiene	0 month	1month* 2 (30days)	40000	80000	0	1	40000	40000	0	2	35000	70000
Health costs	0	0	0	0	0	0	0	0	0	0	0	0
Cost of infections/Hospitalisatio ns /Diseased per month	0	0	0	0	0	0	0	0	0	0	0	0

Cost	MAKAMBA				MUYINGA			
	Existing Quantity units	Additional quantity required	Cost per unity required	Total Cost for required	Existing Quantity units	Additional quantity required	Cost per unity required	Total Cost for required
Costs of installation of								
Functional toilets	N/A	N/A	N/A	N/A	1	1	2300000	2300000
Hand washing facilities (tap water and soap)	N/A	N/A	N/A	N/A	1	2	250000	500000
Food products handling and transportation equipment	N/A	N/A	N/A	N/A	16	10	27000	270000
Solid waste management facilities	N/A	N/A	N/A	N/A	1	1	75000	75000
Grey water management facilities	N/A	N/A	N/A	N/A	0	1	64000	64000
Costs of operation and management/month for:								
Toilets	N/A	N/A	N/A	N/A	0	1	45000	45000
Tap water and soap	N/A	N/A	N/A	N/A	10	10 5	1000 5000	35000
Cleaning of surfaces	N/A	N/A	N/A	N/A	3cleaning session	24 sessions/month	52 000	52 000
Collection and disposal of solid waste	N/A	N/A	N/A	N/A	1 collection per month	2 times per month	10000	20000
Sewerage	N/A	N/A	N/A	N/A	0 cleaning session	1 cleaning per month	10000	10000
Stormwater drainage (if no sewers are present)								
Wearing masks	N/A	N/A	N/A	N/A	4 masks per month	12	1000	12000
Regulations costs	N/A	N/A	N/A	N/A	0	0	0	0
Building capacity of regulators	N/A	N/A	N/A	N/A	0	0	0	0
Monitoring hygiene	N/A	N/A	N/A	N/A	0	0	0	0
Enforcing hygiene	N/A	N/A	N/A	N/A	1 month	1 person	50000	50000
Health costs	N/A	N/A	N/A	N/A	0	0	0	0

Cost of infections/Hospitalisations /Diseased per month	N/A	N/A	N/A	N/A	0	0	0	0
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II. COSTS FOR RETAIL MARKET

1. Cost	KIVYUKA				NYABIRABA				BUGENDANA			
	Existing Quantity units	Additional quantity required	Cost per unit required	Total Cost for required	Existing Quantity units	Additional quantity required	Cost per unit required	Total Cost for required	Existing Quantity units	Additional quantity required	Cost per unit required	Total Cost for required
Costs of installation of												
Functional toilets	0	12	1950100	1950100	0	10	1750000	1750000	8	0	0	0
Hand washing facilities (tap water and soap)	0	3	490000	1470000	0	2	490000	980000	2	0	0	0
Solid waste management facilities	0	1	135000	135000	0	1	195000	195000	1	0	0	0
Grey water management facilities	N/A	N/A	N/A	N/A	0	1	56000	56000	1	0	0	0
Costs of operation and management/month for:												
Toilets	0 employee	4 employees	40000	160000	0	4	45000	180000	0	2	50000	100000
Soaps	0	Estimate 24 per month	1000	24000	0	Estimate 24 per month	1000	24000	0	Estimate 24 per month	1000	24000

Cleaning of surfaces	2 volunteer s	3	120000	120000	3 volunteer s	3	120000	120000	3	3	120000	120000
Collection and disposal of solid waste	1	8	12000	96000	1	8	12000	96000	1	8	12000	96000
Tanks	0	2	250000	500000	0	2	250000	500000	0	2	250000	500000

Cost	MUYANGE				MURAMA			
	Existing Quantity units	Additional quantity required	Cost per unity required	Total Cost for required	Existing Quantity units	Additional quantity required	Cost per unity required	Total Cost for required
Costs of installation of								
Functional toilets	0	12	19501000	19501000	0	8	14200000	14200000
Hand washing facilities (tap water and soap)	0	4	490000	1960000	0	2	490 000	980 000
Solid waste management facilities	0	2	1 950 000	3900000	0	1	1 650 000	1 650 000
Costs of operation and management/month for:								
Toilets	0	4 employees	40000	160000	0	2employees	55000	110 000
Soap	0	Estimate 24 soaps/month	1000	24000	0	Estimate 24 soaps/month	1000	24000
Cleaning of surfaces	2 cleaners /Volunteers	3employees	120000	120000	0	2 employees	60000	60000
Collection and disposal of solid waste	1 official collection per month	8	12000	96000	2	8	12000	96000

Tap water	0	2	245000	245000	0	2	245000	245000
Tangs	0	2	250 000	500000	0	2	250 000	500000
Faecal waste management	0	1	115 000	115000	0	1	115 000	115000

Annex 5: Filled Analytical Framework for analysis of incentives findings

1. Business managers

Milk cooperatives

Question/Parameter	Responses for Milk cooperatives				
	Kivyuka	Ijenda	Bugendana	Makamba	Muyinga
1. Can you name some diseases you can get from contaminated food?	Dysenteric, cholera, covid-19, parasites	Cholera, intestinal worms, diarrhoea	Yes, food poisoning and cholera	cholera	Amebiasis, diarrhoea, food intoxication
2. Are you aware of hygiene regulations at your workplace e.g., provision of toilets, handwashing station, waste disposal, personal protective equipment (PPE)?	we are aware of that. First cleanliness of working environment, provision of toilet PPE, and handwashing station	Yes, we are aware of them such as keeping the place clean, having wash facilities and water available all the time, washing hand before eating and when coming from toilets,	Yes, we are aware of hygiene regulations such as provision of toilet, provision of toilets, handwashing station, waste disposal, personal protective equipment (PPE) and we are ensuring that these are regulated in our cooperative	yes, handwashing and existence of toilet	We are sensitive to the hygiene regulations, its why we do our possible to make cleanliness all over the node location and ensure facilities and equipment meet the required hygiene standards

<p>3. Do local authorities make site visits to monitor compliance with these regulations? If yes, what are the consequences for non-compliance? Do authorities ask you to pay a bribe to pass these checks?</p>	<p>No, the authority does not monitor the hygiene at the node</p>	<p>No, we rarely see them at the node. We do our best to comply with hygiene regulations even if no consequences are connected with non-compliance to them</p>	<p>Yes, during Covid-19, the consequences of non-compliance are to pay fines, or bribe and then after you try to follow</p>	<p>No, they don't visit us</p>	<p>Sometimes they make visits on the site. We are aware that by non-complying with regulation we were at risk of being fined</p>
<p>4. Does your business have rules around hygiene at the workplace e.g., personal hygiene, safe waste disposal, PPE, etc.? If yes, what motivated you to put these rules in place? Are you concerned about the effect of worker health on your food products?</p>	<p>Yes, we have hygiene regulations at workplace. We ensure personal hygiene, PPE, For the milk not to be contaminated and cause health problems to consumers. We are concerned also with staff health.</p>	<p>We have rules regarding cleanliness of the workplace, equipment to handle milk, using washing products like soap and other sanitisers. We are concerned by staff and client's health</p>	<p>Yes. Each employee must follow the rules (personal hygiene, putting PPE) for one reason, to protect themselves and protecting milk and the consumers.</p>	<p>Yes, washing hand before, putting PPE if we have it, because we need to protect milk and consumers</p>	<p>Although they are not written, all the personnel are aware that we have ensure hygiene in the node. We are concerned about people's health and that of staff. It's why our employees are protected by wearing boots and gloves</p>

<p>5. Do you provide your employees toilets, handwashing stations, or PPE? If yes, what motivates you to do so? If not, why not?</p>	<p>Yes. employee's toilets exist, tap handwashing water exist, but Protective equipment is rare. With the motivation of protecting our staff and clients</p>	<p>Yes, we have one toilet for staff and one handwashing tap water to make safe our product and ensuring hygiene in the node</p>	<p>Yes, we have 3 toilets, 2 tap handwashing water but also PPE for equipment cleaners to avoid contaminating employees and clients</p>	<p>Yes, to protect client and our lives</p>	<p>Yes, the health of our staff is essential as that of our client</p>
<p>6. Would you be interested in improving these services? If yes, what would enable you do this? If not, why not?</p>	<p>Yes, we are interested improving hygiene, but as long as we don't have water, it is difficult to meet the hygiene standards. We need also liquid waste disposal facility</p>	<p>We are interested in improving hygiene, it's why we struggle to find the best place to relocate in. We are ready to move once the facility will be ready</p>	<p>Yes, we are interested to improve hygiene services by having sufficient PPE, products for cleaning equipment and materials. We have our budget that is used for hygiene improvement</p>	<p>Yes, but the problem is our financial issue to buy materials</p>	<p>We consider we did enough unless some equipment breaks</p>
<p>7. Do you have to show compliance with hygiene regulations to apply for credit/financial support from investors?</p>	<p>No, there is no requirement to comply hygiene regulations to apply for credit</p>	<p>No, we do need to show compliance with hygiene rules but also, there is no financial support in our node</p>	<p>No there is no hygiene requirement about applying credit</p>	<p>No</p>	<p>No</p>

<p>8. In your opinion, does your revenue depend on the appearance and apparent safety of your food products and facility/stall?</p>	<p>Yes, our revenue depends on milk safety, our client appreciate the way we treat milk. Cleanliness of facility also motivate the client</p>	<p>We assume that having good hygiene standards is key to improving revenue in business like this one as clients are more demanding about hygiene</p>	<p>Yes. Because all our client/consumers/and farmers come here because of the hygiene that has our node Farmers do not prefer to consume milk in the pastry because of poor hygiene</p>	<p>No, it depends on how client appreciate our node and they look lower price</p>	<p>Yes, at higher level</p>
<p>9. Do you have concerns about the costs of improved hygiene and if so, what are these?</p>	<p>Yes. We have concerns about cost of hygiene. Such as cost of cleaning products, materials in inox cost are high and we don't have them in required quantity, some farmers are using plastics to bring milk. Equipment maintenance is also costly</p>	<p>Yes, there are concerns related to the hygiene costs, it's why the commune itself is not able to improve hygiene standards, we need to have support of the Government</p>	<p>Yes, we have concerns about cost of products for cleansing of surfaces, milk tangs, but also, we have concerns about water which is interrupted sometimes. We have concerns about cost of protective equipment for milk collectors, PPE for farmers.</p>	<p>yes, the costs are related to materials maintenance and to buy personal hygiene equipment</p>	<p>Yes, to renew all the equipment will cost us high, we need to plan it ahead</p>

<p>10. Do you lobby policy makers for lower hygiene regulations</p>	<p>No, we don't need to lobby for lowering policy regulations, we are convinced the regulations protect us and our business as our clients</p>	<p>No</p>	<p>No, we are for hygiene promotion not lowering regulations, because we sell a very hygiene sensitive product</p>	<p>No</p>	<p>No</p>
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Retail market managers

Question/Parameter	Responses for Local markets				
	Kiviyuka	Nyabiraba	Bugenda	Muyange	Murama
1. Can you name some diseases you can get from contaminated food?	Cholera, dysentery, amebiasis	Cholera, dysentery	Cholera, dysentery	Yes, cholera, parasites, amebiasis	Amebiasis and other intestinal worms
2. Are you aware of hygiene regulations at your workplace e.g., provision of toilets, handwashing station, waste disposal, personal protective equipment (PPE)?	Yes, such as having functioning toilets, hand washing station and having cleanliness in the compound as well as that of body and clothes	hygiene regulations require to food and drink sellers to ensure there are properly handled though the washing of food and equipment, having a toilets and hand washing bucket	We have rules provided by the government and some standards of hygiene.	Yes, we are aware of that, but nothing is regulated. People in market do their best to respect hygiene for their own,	Yes, we know that we have to keep the market clean, having hand washing stations in place, having clean toilets and waste collection facilities
3. Do local authorities make site visits to monitor compliance with these regulations? If yes, what are the consequences for non-compliance? Do authorities ask you to pay a bribe to pass these checks?	Yes, they visit all the public places to ensure hygiene regulations are followed. By non-compliance to hygiene regulations many traders have to pay fines to force them comply with all the requirements	They do some visits to check over the compliance to the hygiene rules. In case of non-compliance traders are warned to comply and later they are fined	They do, we have provincial and communal services in charge of hygiene all to monitor the hygiene situation	During covid-19, there was strong control over hygiene compliance but now people and authorities consider that Covid-19 is over, there is no visits to monitor hygiene. The consequences are only to the local traders, but the commune cannot pay fine.	Yes, they come once a month, they sensitise traders to comply with hygiene regulations especially about hand washing station and restaurants have to build their own latrines for clients
4. Does your business have rules around hygiene at the workplace e.g., personal hygiene, safe waste disposal,	No. at the market we don't have rules but each personal do the best. And we are	Yes, our staff has toilet at the communal office and all the	No written rules but we sensitise people to keep the	No. at the market we don't have rules but each personal do	Our staff don't have hygiene facilities, they use

PPE, etc.? If yes, what motivated you to put these rules in place? Are you concerned about the effect of worker health on your food products?	concerned about worker health even the client in market.	material is in place. National policy requests all employees to make available hygiene for all staff	market clean and the traders to have toilets and hand washing buckets, water, and soap	the best. And we are concerned about worker health even the client in market.	those put in place by traders
5. Do you provide your employees toilets, handwashing stations, or PPE? If yes, what motivates you to do so? If not, why not?	There are no hygiene facilities for staff in the market, but private toilets and hand washing are available and can be used by our staff	At the office we have all facilities functioning but, in the market, employees use the private facilities put in place by traders	At the office we have all facilities functioning but, in the market, our employees use the private facilities put in place by traders	No, they are not available For personal hygiene handling solid wastes, we have provided them with boots to protect them stay in contact with waste	No, we don't have toilets and hand washing
6. Would you be interested in improving these services? If yes, what would enable you do this? If not, why not?	Yes, we need support from the government to improve water supply	We are interested although we face many challenges. We expect to improve it with the new market to be built	Yes, we need support from the government to improve water supply	Yes. We are interested to improve hygiene service. For this, we should have solid waste disposal, tap handwashing water, toilet for Men and Women And the sensitisation of market clients. The commune perceives taxes from the market, its responsibility is to seek for donors or credit to put in place all the required hygiene facilities	Yes, today we need support to improve hygiene, we have asked the commune to help us to find partners who would be willing to help
7. Do you have to show compliance with hygiene regulations to apply for credit/financial	No	No	No	No, it is not required to show compliance with hygiene. The	No

support from investors?				market is a public infrastructure, we are all called to pay attention for hygiene	
8. In your opinion, does your revenue depend on the appearance and apparent safety of your food products and facility/stall?	No, independently to hygiene improvement we have people coming and doing business in the market, revenue doesn't change	No	No	No, independently of good appearance and hygiene, people continue doing their business, but pay much attention for what they eat and where they stay	It does, some clients prefer not to come when the market is dirty
9. Do you have concerns about the costs of improved hygiene and if so, what are these?	We have concerns over people's health, epidemic are the main triggers to improve hygiene	Yes, the costs of hygiene are high. Having all the facilities in place in the market is costly and the market has to be built, fenced, covered and have enough running water. The maintenance and management costs are also high	No	Yes, we have concerns about cost of toilet installation, handwashing station, solid waste disposal, materials for market cleansing, employee to monitor hygiene, and cost of waste management	Yes, the high costs of hygiene are the first reason of not having enough hygiene facilities
10. Do you lobby policy makers for lower hygiene regulations	No, the policy is good to protect people's health	No	No	Yes, during covid we tried to lobby authority (civil protection police) to reduce regulations as we don't have water	No

ANALYSIS

Similarities	Differences	General conclusion
All respondents know diseases that can contaminated from food	No difference	Diseases from contaminated food are known by respondents
Respondents are aware of hygiene regulations at workplace	In the milk cooperatives, hygiene is regulated compared to local market in which there were no hygiene regulations (for ex. No provision of toilet, no handwashing, no waste disposal)	In general, respondents know how to keep hygiene in their workplace to not contaminating foods and consumers, but the issues were related to unavailability of toilets, handwashing, waste disposal especially in retail market.
During covid, local authorities make visit to monitor hygiene	In milk cooperatives, local authorities don't visit compared to retail market	Local authorities make visit during covid as it was regulated by government in the country especially in the market where people are enclosing(contact)
The availability of rules around hygiene is influenced by having water, toilet etc., respondents are motivated to put rules in place in order to not disseminate diseases among consumers	In milk cooperatives, they have rules around hygiene as most of all have toilet, waste disposal and are encouraging personal hygiene during workdays. Compared to retails market which business doesn't have rules around hygiene	As conclusion, where business have rules around hygiene, motivation is related to do not contaminating products, all people consuming but also the worker health and to increase clients/consumers/revenue in the node.
In milk cooperatives, toilets, handwashing stations are available even if there is shortage/interruption of water. For the reason of products protection, and consumers adherence	toilets and handwashing stations are available for employees for milk cooperatives and some retail market where they have been built by donors (e.g., IFAD)	In general, toilets and handwashing station are provided to employees in case the node have been supported by NGOs such milk cooperatives. In retails markets, where infrastructure is available but not functioning (for ex. Bugendana market) other markets, they don't have toilet or handwashing
All respondents are interested to improve hygiene services. To enable this, the opinion was to have water in permanence in the node.	For milk cooperatives hygiene infrastructures are built, but in the retails markets, there were no infrastructures	In conclusion, respondents are interested to improve hygiene services. This is influenced by having hygiene infrastructures
Respondents don't have to show compliance with hygiene rules to apply for credit	No difference	In conclusion, respondents explain that they do not need to comply with hygiene rules to apply financial support

In milk cooperatives, respondents explain the opinion that revenue depend on the appearance of milk and facilities	For retails market, respondent's opinion is that their revenue was not dependent on appearance of their products	Revenue depends on the appearance of products and facilities for milk cooperatives and depend on how clients/consumers are welcomed in the node for retails markets.
All the nodes have concerns about the costs of improving hygiene as costs of Equipment and materials have increased	The difference is that in milk cooperatives, the concerns are related to costs of maintenance and for retail market, the concerns are related to installation of hygiene facilities	In Conclusion, respondents have concerns of costs of improving hygiene with regards maintenance of hygiene requirement, construction of hygiene infrastructures
For all, there were no lobby policy makers for lower hygiene regulations	No difference	In conclusion, respondents explain that they don't lobby policy makers for lower hygiene regulations

2. EMPLOYEES

Milk Cooperatives

Question/Parameter	Responses for Milk cooperatives				
	Kiviyuka	Ijenda	Bugendana	Makamba	Muyinga
1. Can you name some diseases you can get from contaminated food?	Amebiasis, cholera and food poisoning	Cholera, dysentery	Food poisoning and diarrheal	Diarrheal disease, cholera, and typhoid	Food poisoning
2. Does your workplace have rules around hygiene e.g., personal hygiene, safe waste disposal, PPE, etc.? If yes, do you know if these are based on government regulations or if they are imposed by the business owners?	Yes, business owner imposes to make sure that milk is not contaminated . handwashing station and protective equipment and putting personal hygiene	We have basic rules such as cleaning the space, cleaning appliances, and having toilets facilities	Yes, personal hygiene, safe waste disposal, PPE These are closely controlled and monitored by the business owner	No, we don't have rules but during covid authority pushed to put the handwashing buckets in front of every business in the market	Yes, personal hygiene, safe waste disposal and these are imposed by the business owner to not contaminate milk
3. Do employees strictly follow these rules?	Yes, as the business owner obliges to keep in mind the hygiene in the cooperative	Yes	Yes, as long as we have products/equipment	During covid, yes, they have tried but actually no follow-up	Yes, as the business owner obliges to keep in mind the hygiene in the cooperative

4. What are the consequences for non-compliance?	Lack of job due to bad quotation, contamination of milk	If they don't follow, they may be fired	If not follow, you can be punished (bad quotation and losing job)	There were no consequences as the authority knew that we don't have elementary equipment/tap water/toilet/waste disposal etc.	If not followed, you can be punished (bad quotation and losing job)
5. Would you be more or less likely to comply with these rules if you were paid a higher salary? If not, what would make you more compliant with these rules?	No, I would put in place hygiene if all necessary equipment were available as well as water. We need training/refresher on how we must hygiene in our routine work.	No, we are more concerned about providing security to clients	All personnel have to comply with rules in our milk cooperative, we are concerned by maintaining hygiene standards	No, but if the authority put in place clear rules of hygiene, for example we have personal in charge of hygiene in the market, we can comply it. But as long as we don't have necessary support, we don't care about hygiene we do the minimum	No, compliance to rules in our milk cooperative is everyone's obligation because milk can be contaminated by bacteria, even if sometimes we experience short cut of cleaning products, we try to work hard to improve hygiene
6. Do employees at your workplace have to pass health and safety checks?	No	No	No	No	No
7. Do you have access to a tap with running water, a toilet or handwashing station at your workplace?	Yes, taps with running water exist but with load-shedding/interruption	Yes	Yes	No	Yes, a toilet and handwashing station
8. What motivates you to practice hygiene? A. food safety concerns B. compliance with regulations/fear of losing your job	Food safety concerns, and fear of taxation (business owner can be frustrated)	Personal safety and being appreciated by clients	Milk safety concerns, and compliance with regulations/fear of losing job	Personal hygiene	Milk safety concerns, and Compliance with regulations/fear of losing job

C. habit D. Other (please specify)					
9. What are some barriers to practicing hygiene? A. Lack of taps/ soap/toilets/PPE B. not convenient for me to use C. not concerned about hygiene in my work. D. Other (please specify)	Lack of tabs with permanent running water	The site we work in is not appropriate, the landowner is not making effort to install all the facilities	Short-cut in hygiene tools and products / Lack of soap/PPE	Lack of taps/soap/toilets/PPE	Lack of soap/PPE

RETAIL MARKETS

Question/Parameter	Responses for Local markets				
	Kiviyuka	Nyabiraba	Bugendana	Muyange	Murama
1. Can you name some diseases you can get from contaminated food?	Diarrheal disease and cholera	Cholera, dysentery	Diarrhoea, dysentery, and cholera	Diarrhoea, cholera, and typhoid	Cholera, dysentery, amebiasis, kwashiorkor
2. Does your workplace have rules around hygiene e.g., personal hygiene, safe waste disposal, PPE, etc.? If yes, do you know if these are based on government regulations or if they are imposed by the business owners?	No, because we don't have for example waste disposal. Solid waste are thrown and exposed all around the market and the authority are aware.	No, but during covid yes, we used to wash hands using buckets contained water and soap at trader's expense.	We don't have written rules, but we are called for market cleaning after the market day	No, personal are seems not concerned by hygiene as we don't have water and toilet	No, we don't know the rules, but we use our basic knowledge to improve hygiene
3. Do employees strictly follow these rules?	No, there is no obligation to follow them, but we do it for our own safety	Personnel was much concerned during covid-19, today they have reduced	No, only some employees use hygiene correctly	For employees yes, we tried to comply hygiene rules, but market client, no	Only cleaner has to, other don't follow

		attention to hygiene			
4. What are the consequences for non-compliance?	No consequences as the authority is aware that we don't have rules but during covid, there were fines involved for those who didn't have tap for hand washing. Today the traders don't care so much to have water and soap in buckets	No consequences as the authority is aware that we don't have rules but during covid, there were fines involved for those who didn't have tap for hand washing. Today the traders don't care so much to have water and soap in buckets	If non-compliance, no consequence follows	There were no consequences of not following rules but during covid was full of consequences such as fines or close-out of business.	There were no consequences
5. Would you be more or less likely to comply with these rules if you were paid a higher salary? If not, what would make you more compliant with these rules?	If the administrative authority gives us what is necessary (water, and toilet), we can comply hygiene	As long as the commune doesn't put regulations on the workplace and give necessary, we don't care about hygiene. They should construct toilet, waste disposal, tap handwashing water and engage employees in charge of hygiene	No, it's not a matter of salary but availability of facilities	No, I would more comply with hygiene rules and sensitise all markets client if market has toilets/ water/soap/ and tap handwashing water	Yes, if they are made known
6. Do employees at your workplace have to pass health and safety checks?	No	No	No	No	No
7. Do you have access to a tap with running water, a toilet or handwashing	No	No	No, they are not functioning	No	No

station at your workplace?					
8. What motivates you to practice hygiene? A. food safety concerns B. compliance with regulations/fear of losing your job C. habit D. Other (please specify)	Personal hygiene	As personnel our motivation is personal security and public health concerns	Food safety, people's health	Food safety concerns and personal safety	Concerns over people's safety
9. What are some barriers to practicing hygiene? A. Lack of taps/soap/toilets/PPE B. not convenient for me to use C. not concerned about hygiene in my work. D. Other (please specify)	Lack of taps/soap/toilets/PPE	Lack of taps/soap/toilets/PPE But also lack of basket/solid waste management dump But also ignorance of population	Water availability, accountability of communal authority	Lack of taps/soap/toilets/PPE And market clients are not concerned about hygiene	Lack of tools, lack of basic facilities

ANALYSIS EMPLOYEES

Similarities	Differences	General conclusion
All respondents can name diseases from contaminated foods	No difference	In general, respondents know diseases that can be transmitted with contaminated food
In milk cooperatives, there are rules around hygiene which are imposed by business owner	the difference for retail market, they do not have rules around hygiene	In conclusion, only milk cooperatives have rules around hygiene imposed by the business owner

Employees follow rules	No difference	In conclusion when rules and regulations are put in place and the business manager follow-up on rules implementation, employees follow them. Key reason for complying with regulations is fear of losing job but also to not contaminate products
The consequences of non-compliance with regulations for employees are bad quotation (employees sometimes do not pass to next grade of salary)	For retail market, there is no consequences of non-compliance to regulations as rules and regulations at workplace is imposed	In general, consequences for non-compliance of hygiene rules are observed in the milk cooperatives only but also to employees when there are rules and regulations at workplace.
Respondents explain that they do not need to be paid a higher salary in order to comply hygiene	Some employees see availability of materials and rules as key challenges for them to complying with hygiene rules	In conclusion, respondents explain that having equipment and good maintenance of hygiene are the most important instead of having paid much in order to comply hygiene
Employees don't have to pass health and safety checks	No difference	In conclusion, employees don't have to pass health and safety checks in the workplace
In the milk cooperatives, employees access water, toilet, and handwashing station	For retails market, there no toilet tap water or handwashing water except in Bugendana even they don't function	In conclusion, toilet, tap with running water or handwashing station are available only in the milk cooperatives but running water is not permanent
When practicing hygiene, respondents are motivated by food safety and people's safety	Others find people's health and personal hygiene as motivations to practicing hygiene	Food safety concerns and people' s safety are most factors which motivates respondents to practice hygiene
Barriers to practicing hygiene in all nodes according to respondents are included lack of taps with running water and soap	The difference for retails market, the barriers include also lack of toilets and not be sensitive of hygiene in the workplace	In conclusion, some barriers to practicing hygiene include lack of running water in permanence, lack of soap in regular time and maintenance of toilet in milk cooperatives nodes. In addition to these in the retails market they miss toilets

3. CONSUMERS MILK COOPERATIVES

Question/Parameter	Responses for Milk cooperatives				
	Kivyuka	Ijenda	Bugendana	Makamba	Muyinga

1. Which factors affect your decision to buy food from a particular vendor?	they have toilet but also price is affordable	The factor is that I'm assured that the milk they have is not contaminated and they have good hygiene considering their materials	Factors to lead in decision to buy food 1) Clean lines of the site and the environment, 2) cleanliness of its appearance and cleanliness of materials	Lower price and hygiene	Good hygiene and the vendor is located near home
2. Can you name some diseases you can get from contaminated food?	Cholera and amebiasis	Yes, poisoning, and dysenteric	Intestinal worms, diarrhoea, Covid-19	diarrhoea and poisoning	cholera and amebiasis
3. Do you think food can get contaminated in unclean market settings or from poor vendor hygiene?	Yes. poor vendor hygiene with unclean materials and hands can contaminate food	food and especially this milk can get contaminated when there is no hygiene	Yes, all together can lead to food contamination, but poor vendor hygiene is most critical,	yes, they can lead to food contamination	Yes, the unclean vendor is an origin of parasites
4. Do you consider cleanliness of the vendor and the stall before you buy food from them?	Yes, I consider cleanliness vendor because actually they are many infectious diseases and fear to be contaminated	Yes. I prefer cleanliness vendor because when consuming I'm confident that milk is not contaminated	Yes, cleanliness is one of the factors leading in buying food	Yes, as the milk is very sensitive to bacteria, I consider cleanliness of vendor	Yes, but also the lower price because of we are poor
5. Do you consider freshness and cleanliness of food before you buy it?	Yes, because no fresh and no clean food can be contaminated	Yes, of course because milk is sensible for bacteria and as you see I have children with me, and they are also sensible for milk. I fear disease from milk	Not really, sometimes we don't know if food is clean	No, it is not easy to know if they are fresh and clean	Yes, in order to not be contaminated

6. Would you pay more for food if you knew it was safe from contamination	Yes, but the problem is that it's difficult to know if they are safe because lack of testing	Yes. Because fear of disease from milk. The problem you don't know if it is contaminated or not	Yes, of course if I have money I can pay more for safe food, but now I buy cheaper food	Yes, if I have money	Yes, but the fact that money is rare, we go anywhere there is milk
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RETAIL MARKETS

Question/Parameter	Responses for Local markets				
	Kivyuka	Nyabiraba	Bugendana	Muyange	Murama
1. Which factors affect your decision to buy food from a particular vendor?	The factor is the cheap price and how we are received as clients	The main factor is the good environment(open), but also the diversity of products and finally they try to ensure hygiene in they foods	Availability and all category of foods in each time but also good hygiene	food are fresh and they have toilet and water	The main factor is first the affordable price, and we eat fresh food here but also, we eat what we want (diversity of food) As time is limited, I'm obliged to eat near my place
2. Can you name some diseases you can get from contaminated food?	Yes, cholera	Yes. Food poisoning	Cholera, amebiasis	intestinal worms, diarrhoea	Cholera is the main, second is the food poisoning
3. Do you think food can get contaminated in unclean market settings or from poor vendor hygiene?	Yes. Food can get contaminated with unclean hands when there is poor hygiene of personal	Yes. Food can get contaminated with unclean environment and poor hygiene of vendor. They should clean hands when giving services but also clean materials they are using	Yes, with unclean materials, hands, and cooking equipment	Yes, of course if the vendor has not water, clean materials	Yes, they can be contaminated with unclean vendor. As you see flies from liquid waste are there.
4. Do you consider cleanliness of the vendor and the stall before you buy food from them?	Yes, but the price is the factor that can be considered too	Yes. I consider cleanliness environment but the quality of foods	Yes, I prefer cleanliness environment before buy food	Yes, but before I'm looking of price	Yes. For not to be contaminated

5. Do you consider freshness and cleanliness of food before you buy it?	Yes, fresh food is the best because is somehow exempted of bacteria	Yes, I consider fresh food because no-fresh are the source of poisoning and they may have poor hygiene, bad conservation etc...	Yes, but here is not easy to know if it was safe	Yes, but if consider price before, and second the how vendor receive client (good marketing)	Yes, those fresh are mostly likely exempted from virus/bacteria
6. Would you pay more for food if you knew it was safe from contamination	Yes. But also because of financial issue price is most important	Yes. If I can afford the price, I will Because first is the price and second you don't know if it is contaminated or not	Yes, the issue is to find money and to know if it is safe before to buy it	Yes, but good foods have high price	Yes, if I knew that, I can even not consume and look at the good hygiene vendor

ANALYSIS CUSTOMERS

MARKET TRADERS/VENDORS

Question/Parameter	Responses for Local markets					Similarities	Differences	General conclusion
	Kivuyuka	Nyabiraba	Bugendana	Muyange	Murama			
1. Can you name some diseases you can get from contaminated food?	Yes. Cholera, amebiasis, dysentery	Intestinal parasites and cholera	Yes, Cholera, intestinal parasites	Amebiasis and food poisoning	Cholera, food poisoning	Market vendors can name diseases from contaminated food	No difference	Market vendors are aware of diseases people get from contaminated food
2. Are you aware of hygiene regulations at your workplace e.g., personal hygiene, safe waste disposal, personal protective equipment etc.?	Yes. Here we pay attention on the personal hygiene and safe waste disposal for foods protection and health of our client	Yes, we are aware of personal hygiene, waste disposal and provision of toilet but for PPE we don't have budget for it.	Yes. We are aware of provision of toilets and handwashing station	Yes, we are aware of hygiene regulations such as personal hygiene, toilet, and handwashing with soap	Yes, we are aware of hygiene regulations such as: personal hygiene, toilet, and handwashing with soap	Market vendors are of hygiene regulations at their workplace especially personal hygiene	No difference	In conclusion, market vendors are aware of hygiene. Most of all express they interest on personal hygiene waste disposal, but the challenge is lack of budget to put in place hygiene facilities

<p>3. Do local authorities make site visits to monitor compliance with these regulations? If yes, what are the consequences for non-compliance? Do authorities ask you to pay a bribe to pass these checks?</p>	<p>Yes. sometimes they visit us in case of non-compliance the authority tax us at least 10000 BIF</p>	<p>Yes, they visit us sometimes to see if the hygiene is integrated in foods consumption . The non-compliance can lead to tax payment. During covid, we paid bribe.</p>	<p>Yes, as the authority know the problem of lack of water, sometimes they are looking if clients washing hand before bar/restaurant entrance. But this effect during Covid-19 and they ask to pay a bribe to pass these checks.</p>	<p>Yes, for us they visit to inspect uncooked meat before consumption</p>	<p>Yes, during covid they visit us to see how we manage disease by ensuring that buckets, water, and soap are available . Actually no.</p>	<p>Local authorities make visit to monitor hygiene during Covid-19 but also in case there is a suspected disease</p>	<p>The difference for some market vendor especially for meat vendor, authorities inspect/monitor meat regularly. In case for non-compliance, some vendor paid a bribe to pass checks</p>	<p>In general, market vendors acknowledge that authorities monitor hygiene in the node before and after covid-19. Food vendors especially restaurants and meat are visited on a regular basis by local authority.</p>
<p>4. Have you ever applied for credit/financial support for your business? If so, did you have to pass a health and safety check?</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>Market vendors didn't need to comply hygiene before they apply for credit</p>	<p>No difference</p>	<p>In conclusion, market vendors don't have to comply hygiene regulations before they apply for credit.</p>

<p>5. In your opinion, do your sales depend on the appearance and apparent safety of your food products and facility/stall?</p>	<p>No, our sales are not depending on the appearance because here most people are looking first the price and at the second level safety</p>	<p>Yes, our client appreciated it and prefer the restaurant which have toilet and water</p>	<p>Yes, our client appreciated it and prefer the restaurant which have toilet and water</p>	<p>No, it depends on how you take care of client and their appreciation</p>	<p>It's the appreciation of the clients but apparent safety of our foods, and cleanliness of tools motivate them to come here</p>	<p>Some market vendors agree that sales are dependent on the apparent safety of food products</p>	<p>The difference for others, they sales are dependent on how customer's appreciation, cheap price, and availability of hygiene infrastructures</p>	<p>The sales of market vendors especially restaurants depend on the availability of hygiene facilities, the apparent safety of food product</p>
<p>6. Do you have access to a tap with running water, toilet, or handwashing station in the market?</p>	<p>Yes, but they are few depending on the client that we have</p>	<p>Yes. We have handwashing bucket with water at the entry, we have toilet</p>	<p>Yes. We have handwashing bucket with water at the entry, we have toilet</p>	<p>No, we don't have incentives for hygiene. At least water in bucket/without soap</p>	<p>Yes, toilet and handwashing buckets water</p>	<p>Market vendors have access to tap water (not in permanent), toilet</p>	<p>Some market vendor has handwashing buckets water without soap</p>	<p>In conclusion, it's not all market vendors who have toilet, handwashing buckets water and soap. But food restaurants gave to be provided with hygiene required facilities (toilets and handwashing stations)</p>

<p>7. What motivates you to practice hygiene? A. food safety concerns B. compliance with regulations C. fear of losing customers D. habit E. Other (please specify)</p>	<p>Food safety concerns</p>	<p>Food safety concerns and fear of losing customers.</p>	<p>Food safety concerns and fear of losing customers.</p>	<p>Food safety concerns and fear of paying fines</p>	<p>Our motivation is Food safety concern and not to lose consumers</p>	<p>Food safety concerns and fear of losing customers are motivations for market vendors to practice hygiene</p>	<p>Some nodes have both motivations while others have only one of the two motivations mentioned. One cited fear of paying fines as a motivation to practice hygiene</p>	<p>Food safety concerns, fear of losing customers and fear of paying fines are the key motivations for market vendors to practice hygiene</p>
<p>8. What are some barriers to practicing hygiene? A. Lack of taps/toilets/PPE/waste collection B. not concerned about hygiene in my work C. Too expensive/inconvenient to practice hygiene behaviours D. Other (please specify)</p>	<p>Lack of running water taps/toilets/hand washing and PPE as well as waste disposal sites.</p>	<p>Lack of toilets, cleaning materials and waste disposal</p>	<p>Lack of water and clean toilets</p>	<p>Lack of soap and waste collection, and PPE during food preparation and service, Poor maintenance of materials</p>	<p>Lack of running water taps/toilets/hand washing and PPE as well as waste disposal sites.</p>	<p>Market vendors have barriers such as lack of running water, soap waste collection</p>	<p>maintenance of materials and equipment is an additional barrier to practicing hygiene for some market vendors</p>	<p>Lack of basic hygiene facilities and materials are the main barriers for market traders to practicing hygiene. For example, lack of running water, soap waste collection</p>

4. SERVICE PROVIDERS

Question/Parameter	Responses for Local markets					Similarities	Differences	General conclusion
	KivyuKa	Nyabiraba	Bugendana	Muyange	Murama			
1. Can you name some diseases you can get from contaminated food?	Intestinal worms, Cholera, amebiasis, dysentery are the main diseases caused by contaminated food and water	Cholera, amebiasis, dysentery are the main diseases related to food and water contamination	Cholera, amebiasis, dysentery are the main diseases related to food and water contamination	Cholera, amebiasis, dysentery are the main diseases related to food and water contamination	Food poisoning, Cholera, intestinal worms, diarrhoea are the main health risks associated with poor hygiene and food contamination	Cholera is one disease all the service providers cited followed by amebiasis and dysentery cited by 4 out of 5.	Diarrhoea and food poisoning are cited by one service provider	Service providers are aware of most diseases caused by food contamination
2. What is the cost of installing and providing infrastructures in food markets?								
Toilets	20000000	22000000	18000000	21000000	18000000	Similarities for Bugendana and Muinga	There is difference of costs	
Hand washing	400000	700000	450000	500000	400000	Similarities for KivyuKa and Muyinga	Some differences (400.000 and 700.000)	
Tap:	20000	25000	25000	25000	20000	Similarities for Nyabiraba, Bugendana and	No big differences	

						Makamba		
Waste bin	300000	350000	300000	350000	300000	3 have similar costs and 2 others have similar costs	No big differences	
Drainage infrastructures	NA	NA	NA	NA	NA			
3. What is the cost to maintain:								
Toilet	600000	500000	500000	700000	500000	3 have similar costs	There is no big differences	
Hand washing	100000	120000	120000	150000	100000			
Waste collection	120000	120000	120000	150000	100000			
Tap	20000	30000	30000	50000	30000			
soap	24000	24000	24000	25000	20000			
Face mask	20000	20000	20000	25000	20000			
Gloves	50000	70000	45000	40000	50000			
4. Do businesses pay for the use of water supply, toilets, or waste collection services?	No, when water and toilets and waste collection are provided, businesses don't pay for the services. But as the services are not provided businesses pay for water and waste related to their own business	No, the services are free when provided by Government, individual traders take in charge the costs related to hygiene facilities for their business	When functioning water and toilet supply is free as well as waste collection, no fees was charged to individual businesses unless businesses provide themselves toilets and	Businesses don't pay for water and toilet provision as well as waste collection, but food businesses are required to pay for individual toilets and water supply to ensure cleanliness of	In Mukoni, no water or service is provided but waste collection is taken in charge by the commune of Muyinga	Similarities is that in many cases water supply and toilets are not paid by businesses	Differences are when no running water and toilets are built, businesses have to pay themselves for water and toilets	The case is that in local retail markets only Bugenda had water supply system and toilets provided but collapsed. In all cases businesses have to pay people to seek for

			water buckets	the businesses as no public facilities are available				water for businesses
5. Can you recover O&M costs/make a profit by providing these services in local markets	If individuals were to provide operational and maintenance costs services in local market, it would be hard to recover the costs as market users don't pay. Because water and toilet facilities are not installed, service providers don't prefer to engage in the hygiene service provision	Depending on the contract signed between the communal authority and the service provider, operation and maintenance costs in the markets could be recovered but with the support of local administration	Because the market is built and facilities were installed, individual service provider can recover the costs, but the commune should first repair water and toilets related installation	If the commune takes the decision to cede market hygiene operation and maintenance to private sector, the latter would be able to recover the costs, but the commune prefers to keep the service for it to avoid paying money to service provider	In rural area the service providers would not want to risk in operation and maintenance of hygiene, they would not recover the costs as there is no functional facility installed	No similarities, there are specific modalities to fulfil	Recovering O&M costs is dependent to various factors	In general service providers are new and have not started managing big hygiene activities, therefore they are still hesitant to accept if they recover costs
6. Are there local or national regulations around providing water, sanitation, and waste collection in	Yes, national, and international regulations exist around water, sanitation, and waste	Yes, national, and international regulations exist around water, sanitation, and waste	Yes, national, and international regulations exist around water, sanitation, and	Yes, national, and international regulations exist around water, sanitation, and	Yes, national, and international regulations exist around water, sanitation, and waste	All the service providers affirm that national and international regulations	No difference	

food markets?	collection in general and some specifications are related to food markets	collection in general and some specifications are related to food markets	waste collection in general and some specifications are related to food markets	waste collection in general and some specifications are related to food markets	collection in general and some specifications are related to food markets	around providing water, sanitation in food markets		
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POLICY MAKERS

Question/Parameter	Responses for provinces				
	Muyinga	Gitega	Makamba	Bujumbura rural	Bubanza
1. Is there pressure from international donors to introduce policies on hygiene in the agriculture value chain?	<p>Many pressures are connected with the Burundi engagement in various international bodies and organisations, such as World Health Organisation, East African community and COMESA. Burundi is then lied with all the policies that these organisations put in place. Burundi has ratified all the policies and then is to adapt and update its policy accordingly and ensure they are followed.</p>	<p>Pressure from international and donors with regard the hygiene policy elaboration are the most important. The country is to comply with east African regulations with regards to the policy of free circulation of goods and persons, there is policies and rules that Burundi has not put in place especially the quality of products to be sold in the region</p>	<p>As Burundi is engaged in various international bodies and organisations, such as World Health Organisation, East African community and COMESA, Burundi has to comply with the policies promoted by organisations. Burundi has ratified all the policies and then is to adapt and update its policy accordingly and ensure they are followed. Given the high connection of hygiene and health, there is pressure for Burundi to comply with</p>	<p>Many pressures are connected with the Burundi engagement in various international bodies and organisations, such as World Health Organisation, East African community and COMESA. Burundi is then lied with all the policies these organisations put in place. Burundi has ratified all the policies and then is to adapt and update its policy accordingly and ensure they are followed.</p>	<p>The government is encouraging local organisations to invest in agriculture value chains, this will foster Burundi economy and alleviate poverty. The government is the one to put in place policy and standards to ensure the value chains meet norms to be safe from contamination.</p>

			the policy to reduce its vulnerability to diseases and to not be a source of problems of other countries		
2. Do you face pressure from the public to introduce policies on hygiene in the agriculture value chain, for better nutrition and health outcomes?	There is increasing pressure of local communities and civil society to claim for good hygiene conditions. More claims are sound in urban settings and in most public places such as schools, health centres and markets. Civil society organisations contribute by calling government to put in place regulations especially when epidemics break	There are pressure from the public especially in the urban centres (Bujumbura, Gitega and Ngozi) with a high concentration of population where people claim for better services and regulations regarding water provision, waste collection and management, and especially the used water and solid waste. Public is also very demanding with regards food hygiene and all the sanitation services. Civil societies are particularly regarding about hygiene outcomes, there are private, groups of sector-based organisations working in the food security, health, and WASH sectors	Local communities don't make pressure on the government, but some civil society organisations based in the country put pressure on the government to improve its policy with regards the health and hygiene to prevent epidemics. As Makamba population has close connection with Tanzania citizen, they are some local laws local population make pressure to put in place to facilitate the smooth circulation of goods across the common border or restrict movement in case of potential risks of contamination.	There is increasing pressure of local communities and civil society to claim for good hygiene conditions. More claims are sound in urban settings and in most public places such as schools, health centres and markets. Civil society organisations contribute by calling government to put in place regulations especially when epidemics break	Increasing pressure from local organisation are recorded with regards the alignment of national laws on international standards in all the sectors including food security. Investors in the sector of agriculture value chains are particularly interested in adding value to their products though the compliance to international commerce standards with regards hygiene regulations

<p>3. Are you advised by public health departments to introduce hygiene in the agriculture value chain to improve health outcomes?</p>	<p>Yes, public health is one public service leading in hygiene promotion at national level, it advises to put in place policies on hygiene, however the agriculture and environment ministry in charge of value chain sector has the responsibility to elaborate policies and procedures related to hygiene improvement in the sector.</p>	<p>The public health department is the one in charge of leading the hygiene sector development and gets all other ministries involved. The public health ministry has decentralised services in the provinces and communes where agents are based to advise individuals and groups of people about hygiene. Food value chain are particularly targeted by the ministry agents for their sensitisation and information services to improve hygiene</p>	<p>Public health department is one public service leading in hygiene promotion at national level, it advises to put in place policies on hygiene, health ministry collaborates with office for environment protection to elaborate policies and procedures related to hygiene improvement in the sector</p>	<p>Yes, public health is one public service leading in hygiene promotion at national level, it advises to put in place policies on hygiene, however the agriculture and environment ministry in charge of value chain sector has the responsibility to elaborate policies and procedures related to hygiene improvement in the sector.</p>	<p>Health department has put in place an office of hygiene and nutrition whose role is to advise on basic hygiene policies and rules to improve people awareness of the hygiene and ways to improve it</p>
<p>4. Is there pressure from political groups to improve hygiene?</p>	<p>Pressure from political groups is not high as most of them are based outside the country but these are active during pandemics outbreaks. However, they have high incidence on the policy improvement as their voice is heard all around the</p>	<p>Today, no political groups available to put pressure on the Government in the hygiene sector except in case of epidemics where political groups make pressure to government to implement mitigation measure to prevent the population's life</p>	<p>There is pressure from political groups, but these are more active during epidemic outbreaks.</p>	<p>Pressure from political groups is not high as most of them are based outside the country but these are active during pandemics outbreaks. However, they have high incidence on the policy improvement as their voice is heard all around the</p>	<p>Pressure for political groups is low, political groups make pressure during epidemics to call the government take appropriate measures to protect citizens and avoid deaths</p>

	road and use channels that reach a high number audience			road and use channels that reach a high number audience	
5. Are any groups lobbying to resist greater requirements for hygiene and what are their reasons?	No but industries are almost to ask for lowering requirements on the policy of polluter-payer which obliges industries to pay more when according to the level of pollution they are to cause to environment	Industries are quite reluctant to the policy of polluter-payers which apply additional taxes to industries consuming most energy and water as well as those using polluting technologies	Traders and investors are not satisfied with greater requirements for hygiene because the regulations make pressure on their revenue as they have to invest money in infrastructures	No but industries are almost to ask for lowering requirements on the policy of polluter-payer which obliges industries to pay more when according to the level of pollution they are to cause to environment	Few groups lobby to resist greater requirements for hygiene, they are mostly because hygiene is costly, many groups fear of spending much money while they don't expect high return from their investments
6. In your opinion, are there other factors that would trigger policymakers to formulate policies on hygiene integration?	1) Compliance to international, regional bodies and organisations Burundi has adhered to is one trigger for government to put in place or adapt policy, 2) - Responding to the needs of population with regards its security and good health is also a big trigger for the government	Burundi adhered to the international standards and policies in many sectors, then the government is required to follow all the policies related to all the sectors including hygiene. There are plenty of evaluation processes including in hygiene which recommend improvements in policy. The government has to comply with all the recommendations especially those related to public health. During epidemic	Key triggers for policy makers are: 1) Keeping country's credibility among, regional bodies and organisations Burundi has adhered to is one trigger for government to put in place or adapt policy. 2) Fulfilling policy's obligation of government vis-a-vis the citizens with regards security.	1) Compliance to international, regional bodies and organisations Burundi has adhered to is one trigger for government to put in place or adapt policy, 2) - Responding to the needs of population with regards its security and good health is also a big trigger for the government to fulfil its obligation	For political reasons, policy makers want maintain constituencies through the protection of population, policy makers are taken accountable for any problem connected with the lack of policies

	to fulfil its obligation vis-a-vis the citizens; 3) - Complying with regional policy (COMESA, EAC, SADC) with regards the smooth circulation of population and goods	outbreaks the government is to urge preventive and mitigation measures to avoid contamination and limit impact of diseases on people's life. This is also a trigger for government to put in place some policies regarding hygiene.		vis-a-vis the citizens;	
7. Are you personally motivated to improve hygiene in the agriculture value chain? If so, what would trigger you to improve hygiene?	Food is a sensitive product policy makers have to be care of to avoid contamination to keep safety of citizen, specific regulations are to be established to prevent people's contamination	Some products are more sensitive to poor hygiene because these may harm the public health if they don't run under specific policies, for example milk, cooked food, drink, and meat, this is the best trigger to put in place policies	Food is a sensitive product policy makers have to be care of to avoid contamination to keep safety of citizen, specific regulations are to be established to prevent people's contamination	Food is a sensitive product policy makers have to be care of to avoid contamination to keep safety of citizen, specific regulations are to be established to prevent people's contamination	Food is a sensitive product policy makers have to be care of to avoid contamination to keep safety of citizen, specific regulations are to be established to prevent people's contamination

ANALYSIS POLICY MAKERS

Similarities	Differences	General conclusion
Yes, there is pressure from international organisations Burundi adhered to	There is an obligation for a country to elaborate policy to avoid being threat to neighbouring country	There are many reasons for the country to elaborate
Pressure from public is evident but depending on groups involved	Specific pressure from the neighbored regions to Tanzania public is sound to claim taking into account health and hygiene situation in the neighbouring countries the population is to connect with in various sectors	There is pressure from the public though it is not high to get the Government commit to elaborate new policies. Pressure is more on the implementation of policy

All actors acknowledge the role of public health department to provide guidance and advice to introduce hygiene policy in Food security	There is a close collaboration between public health department and other ministries in their line of decision making with regards hygiene promotion especially the Ministry of Agriculture and Environment, the Ministry of commerce and industries	There is high competition among ministries involved in hygiene promotion. There is no national policy but only a national hygiene strategy which establishes norms and standards but
Pressure from political groups even not high but exists	No difference	Pressure of political groups with regards hygiene policy elaboration is most sound during outbreaks of epidemics
Actors acknowledge some groups to lobby for lower hygiene regulations	No difference	Many groups including traders, industries for economic reason, in fact hygiene regulation is costly and could contrary the financial plans of investors and traders
		1) Compliance to international, regional bodies and organisations Burundi has adhered to is one trigger for government to put in place or adapt policy ; 2) - Responding to the needs of population with regards its security and good health is also a big trigger for the government to fulfil its obligation vis-a-vis the citizens; 3) - Economic purpose is one trigger for government to put in place policy to meet the required international commerce standards with regard to hygiene of goods in order to compete with other countries' products in the regions (COMESA, EAC, SADC)
Food is a sensitive product and need hygiene careers to avoid its contamination	No difference	

Annex 6. Hygiene Integration costs assessments in AVC nodes

	Who incurs the cost?	Quantity before covid	Total cost before covid (BIF)	Quantity currently	Total cost currently (BIF)	Quantity of what is required	Total cost of what is required (BIF)
Costs of installation of							
1. Functional toilets							
2. Hand washing facilities (tap water and soap)							

3. Food products handling and transportation equipment							
4. Faecal waste management facilities							
5. Solid waste management facilities							
6. Grey water management facilities							
Costs of operation and management/month for:							
1. Toilets							
2. Tap water and soap							
3. Cleaning of surfaces							
4. Collection and disposal of solid waste							
5. Sewerage							
6. Stormwater drainage (if no sewers are present)							
7. Wearing masks							
Regulations costs							
1. Building capacity of regulators							
2. Monitoring hygiene							
3. Enforcing hygiene							
Health costs							
1. Average number of absentees per month due to illnesses related hygiene diseases							
2. Average numbers of infections /Hospitalisations /Diseased per month							
3. Cost of infections/Hospitalisations /Diseased per month							
Commercial prices, costs, and revenue							
1. Estimated number of customers served per day (estimate visitations per month)							
2. Estimated number workers per day/ month (workers, traders, transporters/drivers)							
3. Estimated price/unit quantity							
4. Quantity handled e.g.; amount sold (<i>per month</i>)							
5. Total Cost of doing business (BIF <i>per</i>							

<i>month</i>)- including hygiene							
6. Total sales (BIF <i>per month</i>)							
7. Subsidy external & other earnings that supports hygiene,							
8. Total net income/revenue per month							

N/B. Below are the suggested quantity units to be used for the estimations.

Cost	Quantity units
Costs of installation of	
Functional toilets	No.
Hand washing facilities (tap water and soap)	No.
Food products handling and transportation equipment	No.
Solid waste management facilities	No.
Grey water management facilities	No
Costs of operation and management/month for:	
Toilets	No.
Tap water and soap	No
Cleaning of surfaces	No. of cleaning sessions per week?
Collection and disposal of solid waste	No. of collections per week?
Sewerage	No of cleaning sessions
Stormwater drainage (if no sewers are present)	
Wearing masks	No of masks supplied
Regulations costs	Regulations costs
Building capacity of regulators	No. of trainings
Monitoring hygiene	No of days
Enforcing hygiene	No of days
Health costs	Health costs
Cost of infections/Hospitalisations /Diseased per month	No.

Annex 7: Incentive assessment tool- Policy makers

(Target: Depts of Trade, Agric, Livestock, Sub County Admin, Business community Reps, Public health, Dept coop, Water, Works etc

A) GENERAL INSTRUCTIONS

1. The activity can be done to individual persons and using the methodology indicated
2. Briefly explain about the study and why the interview with the Key Informant is important
3. Take video clips, audio recording and photographs

B) PREAMBLE QUESTIONS

1. What are the activities that you are engaged in at the department etc.? (Probe the relevant aspects for each stakeholder)

Name of person	Department and contacts	Roles

2. In your view what is the current status of hygiene integration at the node (*Probe on level of facilities, adherence etc.*)?

5 Very Good **4** Good **3** Average **2** Not good **1** Very bad

Name the node(s).....

Explain.....

.....

3. What have been the efforts towards hygiene integration at the Node. Who has supported the efforts- from policy perspective, hygiene infrastructure etc.....

.....

4. What have been the challenges to hygiene integration and adherence at the node?

.....

5. What are the opportunities to hygiene integration and adherence at the node? from policy perspective, hygiene infrastructure etc

.....

C) INCENTIVE ASSESSMENT

Stakeholder and key question	Potential incentives	Methodology (data collection and analysis)
<i>National policymakers: Which incentives trigger policymakers to formulate policies on integrating hygiene in AVC?</i>	Pressure from donors, political pressure, interest in improving health outcomes	Semi-structured interviews; thematic analysis

Questions/topic guide	Answers Yes or No and the explanations (use Notebooks for extra notes)

1. Is there pressure from international donors to introduce policies on hygiene in the agriculture value chain?	
2. Do you face pressure from the public to introduce policies on hygiene in the agriculture value chain, for better nutrition and health outcomes?	
3. Are you advised by public health departments to introduce hygiene in the agriculture value chain to improve health outcomes?	
4. Is there pressure from political groups to improve hygiene?	
5. Are any groups lobbying to resist greater requirements for hygiene and what are their reasons?	
6. In your opinion, what can trigger policymakers to formulate policies on hygiene integration?	
7. What Can trigger you to improve hygiene in the agriculture value chain?	

Annex 8: Incentive assessment tool- Business owners

(Target: business owners who own the nodes or the units)

D) GENERAL INSTRUCTIONS

4. The activity can be done to individual persons and using the methodology indicated
5. Briefly explain about the study and why the interview with the Key Informant is important
6. Take video clips, audio recording and photographs

E) PREAMBLE QUESTIONS

6. Name/type of node.....

7. What are the activities that you are engaged, what is the volume of business etc.? Discuss volumes of business, employment, other trends before and after Covid-19 (*Probe the relevant aspects for each stakeholder*).

.....
.....
.....
.....

8. In your view what is the current status of hygiene integration at the node (Probe on level of facilities, adherence etc)?

5 Very Good **4** Good **3** Average **2** Not good **1** Very bad

Explain.....
.....
.....
.....

9. What have been the efforts towards hygiene integration at the Node. Who has supported the efforts

.....
.....

.....

 10. What have been the challenges to hygiene integration and adherence at the node? Does lack of it affect you (explain)

.....

 11. What are the opportunities to hygiene integration and adherence at the node?

F) INCENTIVE ASSESSMENT

Stakeholder and key question	Potential incentives	Methodology (data collection and analysis)
<i>Business owners: Which factors would incentivise AVC actors to integrate hygiene?</i>	Compliance with regulation, improved revenue, WASH service availability	Semi-structured interviews; thematic analysis

Questions/topic guide	Answers-where applicable – Yes or No and the explanations (use Notebooks for extra notes)
1. Can you name some diseases you can get from contaminated food?	
2. Are you aware of hygiene regulations at your workplace e.g., provision of toilets, handwashing station, waste disposal, personal protective equipment (PPE)?	
3. Do local authorities make site visits to monitor compliance with these regulations? If yes, what are the consequences for non-compliance? Do authorities ask you to pay a bribe to pass these checks?	
4. Does your business have rules around hygiene at the workplace e.g., personal hygiene, safe waste disposal, PPE, etc.? If yes, what motivated you to put these rules in place? Are you concerned about the effect of worker health on your food products	
5. Would you be interested in improving these services? If yes, what would enable you do this? If not, why not?	
6. What would convince you to improve the hygiene services in your premise? 7.	
8. Do you have to show compliance with hygiene regulations to apply for credit/financial support from investors?	

9. Do you provide your employees toilets, handwashing stations, or PPE? If yes, what motivates you to do so? If not, why not?	
10. In your opinion, does your revenue depend on the appearance and apparent safety of your food products and facility/stall?	
11. Do you have concerns about the costs of improved hygiene and if so, what are these?	
12. Do you lobby policy makers for lower hygiene regulations	

Annex 9: Incentive assessment tool- Service providers

(Target: Water, sanitation, and waste collection service providers:)

G) GENERAL INSTRUCTIONS

7. The activity can be done to individual persons and using the methodology indicated
8. Briefly explain about the study and why the interview with the Key Informant is important
9. Take video clips, audio recording and photographs

H) PREAMBLE QUESTIONS

12. Name/ type of node.....

13. What services do you provide the node and its users, volume of business, year of experience, who do you serve in particular, what is the frequency of service/visiting the node, how many hours are you at the node offering the service per day? *(Discuss all these for before and after Covid-19)*

.....

14. In your view what is the current status of hygiene integration at the node (Probe continuously)

5. Very Good **4** Good **3** Average **2** Not good **1** Very bad

Explain.....

15. What have been the efforts towards hygiene integration at the Node. Who has supported the efforts

.....

16. What have been the challenges to hygiene integration and adherence at the node?

.....

17. What are the opportunities to hygiene integration and adherence at the node?

.....

.....

.....

1) INCENTIVE ASSESSMENT

Stakeholder and key question	Potential incentives	Methodology (data collection and analysis)
<i>Water, sanitation, and waste collection service providers: What would incentivise you to provide running piped water, toilets, and waste collection services in local markets?</i>	Environmental and health safety	Semi-structured interviews; thematic analysis

Questions/topic guide	Answers Yes or No and the explanations (use Notebooks for extra notes)
1. Can you name some diseases you can get from contaminated food?	
2. What is the cost of installing and providing taps, toilets, handwashing stations, soap and sanitisers, gloves, face masks, waste bins, drainage infrastructure in food markets?	
3. What is the cost to maintain taps, toilets, handwashing stations, soap and sanitisers, gloves, face masks, waste/recycling bins and collection?	
4. Do businesses make profit when providing water supply, toilets, or waste collection services?	
5. Can you recover O&M costs/make a profit by providing these services in local markets?	
6. Are there local or national regulations around providing water, sanitation, and waste collection in food markets?	

Annex 10: Incentive assessment tool- Traders

(Target: Traders in the markets)

J) GENERAL INSTRUCTIONS

- 10. The activity can be done to individual persons and using the methodology indicated
- 11. Briefly explain about the study and why the interview with the Key Informant is important
- 12. Take video clips, audio recording and photographs

K) PREAMBLE QUESTIONS

18. What products are you involved in, how many hours do you trade, source of materials, volume of business? - (relate these for before and after Covid-19)

.....

19. In your view what is the current status of hygiene integration at the node (Probe on level of facilities, adherence etc)?

5 Very Good **4** Good **3** Average **2** Not good **1** Very bad
 Explain

.....

20. What have been the efforts towards hygiene integration at the Node. Who has supported the efforts?

.....

21. What have been the challenges to hygiene integration and adherence at the node?

.....

22. What are the opportunities to hygiene integration and adherence at the node?

.....

L) INCENTIVE ASSESSMENT

Stakeholder and key question	Potential incentives	Methodology (data collection and analysis)
<i>Market traders/vendors:</i> Which factors would incentivise AVC actors to integrate hygiene?	Compliance with regulation, improved sales, WASH service availability	Semi-structured interviews; thematic analysis

Questions/topic guide	Answers Yes or No and the explanations (use Notebooks for extra notes)
1. Can you name some diseases you can get from contaminated food?	
2. Are you aware of hygiene regulations at your workplace e.g., personal hygiene, safe waste disposal, personal protective equipment etc.?	
3. Do local authorities make site visits to monitor compliance with these regulations? If yes, what are the consequences for non-compliance? Do authorities ask you to pay a bribe to pass these checks?	
4. Have you ever applied for credit/financial support for your business? If so, did you have to pass a health and safety check?	
5. What factor/event can trigger you to improve your level of hygiene?	
6. In your opinion, do your sales depend on the appearance and apparent safety of your food products and facility/stall?	
7. Do you have access to a tap with running water, toilet, or handwashing station in the market?	
8. What motivates you to practice hygiene? A. food safety concerns B. compliance with regulations C. fear of losing customers D. habit E. Other (please specify)	
9. What are some barriers to practicing hygiene? A. Lack of taps/ soap/toilets/PPE/waste collection B. not concerned about hygiene in my work C. Too expensive/inconvenient to practice hygiene behaviours D. Other (please specify)	

Annex 11: Incentive assessment tool -Employees

(Target: employees working inside the nodes-including transporters employed by the node)

M) GENERAL INSTRUCTIONS

- a) The activity can be done to individual persons and using the methodology indicated
- b) Briefly explain about the study and why the interview with the Key Informant is important
- c) Take video clips, audio recording and photographs

N) PREAMBLE QUESTIONS

23. Name/type _____ of _____ node

.....

24. What job are you involved in at the node, years of experience, experience in hygiene issues etc.? (Probe the relevant aspects for each stakeholder, for milk transporters ask the volume of business and the frequency they visit the node). Ask for before and after Covid-19

.....

2. In your view what is the current status of hygiene integration at the node (*Probe on level of facilities, adherence etc*)?

5. Very Good **4** Good **3** Average **2** Not good **1** Very bad

Explain.....

.....

25. What have been the efforts towards hygiene integration at the Node. Who has supported the efforts?

.....

26. What have been the challenges to hygiene integration and adherence at the node?

.....

27. What are the opportunities to hygiene integration and adherence at the node?

.....

O) INCENTIVE ASSESSMENT

Stakeholder and key question	Potential incentives	Methodology (data collection and analysis)
<i>Employees: Which factors would incentivise AVC actors to practice hygiene?</i>	Compliance with workplace rules, improved salary benefits, WASH service availability	Semi-structured interviews; thematic analysis

Questions/topic guide	Answers Yes or No (where applicable) and the explanations (use Notebooks for extra notes)
1. Name some diseases you can get from contaminated food?	
2. Does your workplace have rules around hygiene e.g., personal hygiene, safe waste disposal, PPE, etc.? If yes, do you know if these are based on government regulations or if they are imposed by the business owners?	
3. Do employees strictly follow these rules?	
4. What are the consequences for non-compliance?	
5. What factor/event can trigger you to improve your level of hygiene?	
6. Would you be more or less likely to comply with these rules if you were paid a higher salary? If not, what would make you more compliant with these rules?	
7. Do employees at your workplace have to pass health and safety checks?	
8. Do you have access to a tap with running water, a toilet or handwashing station at your workplace?	
9. What motivates you to practice hygiene? A. food safety concerns B. compliance with regulations/fear of losing your job C. habit D. Other (please specify)	
10. What are some barriers to practicing hygiene? A. Lack of taps/ soap/toilets/PPE B. not convenient for me to use C. not concerned about hygiene in my work. D. Other (please specify)	

Annex 12: Incentive assessment tool: Customers/ Consumers

(Target: Consumers/customers who buy products from the node)

P) GENERAL INSTRUCTIONS

13. The activity can be done to individual persons and using the methodology indicated
14. Briefly explain about the study and why the interview with the Key Informant is important
15. Take video clips, audio recording and photographs

Q) PREAMBLE QUESTIONS

28. Name/type _____ of _____ node

.....

29. What products do you buy, where do you travel from (Km and place), what is the frequency of purchase/visiting the node, how many hours are you at the node?

.....

30. In your view what is the current status of hygiene integration at the node (*Probe on level of facilities, adherence etc*)?

5. Very Good **4** Good **3** Average **2** Not good **1** Very bad

Explain.....

.....

31. What have been the efforts towards hygiene integration at the Node. Who has supported the efforts?

.....

32. What have been the challenges to hygiene integration and adherence at the node?

.....

33. What are the opportunities to hygiene integration and adherence at the node?

.....

R) INCENTIVE ASSESSMENT

Stakeholder and key question	Potential incentives	Methodology (data collection and analysis)
<i>Consumers</i> : Which factors influence consumers' decisions on food purchase?	Food safety and nutrition	Surveys; Thematic analysis and descriptive statistics

Questions/topic guide	Answers Yes or No and the explanations (use Notebooks for extra notes)
1. Which factors inform your decision to buy food from a particular vendor?	
2. Name some diseases you can get from contaminated food?	
3. Do you think food can get contaminated in unclean market settings or from poor vendor hygiene?	
4. Do you consider cleanliness of the vendor and the stall before you buy food from them?	
5. Do you consider freshness and cleanliness of food before you buy it?	
6. Would you pay more for food if you knew it was safe from contamination?	
7. Which one of these factors influences most your decision when buying a food product (Price, cleanliness of the product, packaging of the product)	

Annex 13: ToR

Location: Burundi

Theme: Hygiene integration in Agricultural value chains

Date: Nov 2021

1. Background & Rationale

Agriculture Value Chains (AVCs), with their intensive interactions and exchanges between communities and regions are a potential spreader of public health diseases including Covid 19 and can be severely impacted by such diseases. SNV is implementing a Project to enable agricultural value chains actors to integrate hygiene in their daily operations in AVC nodes. To gain greater insights on hygiene integration in AVCs, SNV wants to identify, characterise, and document the incentives and costs for integrating hygiene in AVCs. The nodes to be studied are: (1) Milk cooperatives and (2) Local retail markets where agricultural inputs and products are sold. The research will be undertaken through a consultancy managed by the SNV team.

2. Case study objectives

The specific objectives of the study are:

1. Assess, characterise, and document the costs of integrating and not integrating hygiene in milk cooperatives and local retail markets
2. Assess, characterise, and document incentives for triggering AVC actors Assess, characterise, and document incentives for triggering AVC actors (policy makers, Business owners/Managers, Employees, Market traders, Consumers and Service providers) to integrate and practice hygiene in milk cooperatives and local retail markets.

3. Frameworks for undertaking the studies.

Objective	Tool & questions	Target group
1. Assess, characterise, and document the costs of integrating and not hygiene in in the 5 milk cooperatives and 5 markets	Costs assessment framework (annex 1) for an FGD with key staff in the AVC node to estimate the costs	Business owners/managers and a few relevant staff
2. Assess, characterise, and document incentives for triggering relevant actors to integrate and practice hygiene in the 5 milk cooperatives and 5 markets	Incentives assessment framework (annex 2) for key informant interviews (KIIs) with key informant to assess and characterise the incentives.	1. Business owners/Managers 2. Employees 3. Market traders 4. Consumers 5. Service providers 6. Policy makers

3. Scope & limitations

- *Selected high risk nodes: the 5 milk cooperatives and 5 markets*
- *Geographical location: Padane Project provinces*

4. Methodology

a. Study methods

1. A focussed group discussion (FGD) with key informants to generate costs of the integrating hygiene in in each cooperative and market.
2. Semi-structured interview (SSI) with key informants to assess and characterise the incentives in in each cooperative and market.
3. Key informant interviews (KIIs) with consumers in each cooperative and market to assess and characterise the incentives.
4. An FGD with Service providers Water, sanitation, and waste collection service providers to assess and characterise incentives for hygiene integration in AVCs.
5. An FGD with key policy makers to assess and characterise incentives for hygiene integration in AVCs.

For the FGDs, a meeting will be facilitated by the 2 staff from the consultants. An FGD will have a minimum of 7 participants and a maximum of 9 participants. One staff will ask the questions and facilitate the session and the other will record the answers. All the FGDs sessions will be recoded, pictures of the participants in the session taken and the participants will sign/put a thumb print on the participants form. The FGD session outputs will not be accepted if it is not accompanied by the session picture, session recording and the signed participants form.

For the SSIs and KIIs, the respondents will be interviewed individually. The difference is that for the KIIs, most of the questions will be closed ended while for the SSIs, most of the questions will be open ended.

b. Sampling

The AVC clients to be studied are: 5 Milk Cooperatives, 5 Local Retail markets in 5 provinces indicated in the table below.

Province	Milk cooperative	Retail market
6. Bubanza	6. Kivyuka	6. Kivyuka
7. Bujumbura	7. Ijenda	7. Nyabiraba
8. Gitega	8. Bugendana	8. Bugendana
9. Makamba	9. Makamba	9. Muyange
10. Muyinga	10. Muyinga	10. Murama

- For costs assessment in the nodes, an assessment team (2 staff) will assess and characterise the Costs in each firm. The costs assessment will be done in a day in each firm. The table below shows the number of assessments to be done and the number of days.

Client	Qty	Estimated days	Total no. Of days
Milk Cooperatives	5	1	5
Local Retail Markets	5	1	5
Total			10 days

- For the incentives assessment:
 - The SSIs and KIIs will be undertaken in each of the clients by the assessment/interview team. The number of respondents in each of the methodologies is summarised in table below.
 - An assessment will also be done at the province level to assess the incentives for policy makers to invest in hygiene integration in the 5 provinces and also for service providers. In each province, FGD sessions will be held for policy makers and service providers.

Client	Respondents	Qty of ppts/client session	Method	Estimated days/client
Milk Cooperatives	Business manager	1	SSI	1
	Employees	3	SSI	
	Consumers/Customers	2	KII	
Local Retail Markets	Business manager	1	SSI	2
	Market traders	5	SSI	
	Employees	3	SSI	
	Consumers/Customers	2	KII	
Province	Service providers Water, sanitation, and waste collection service providers	7	FGD	1/2
	Policy makers	7	FGD	1/2
Total respondents		31		4 days

In summary the total assessments to be made and number of days are as indicated in the table below:

Client	Assessment	Qty	Estimated days	Total no. Of days
Milk Cooperatives	Costs assessment	5	1	5
	Incentives assessment	5	1	5
Local Retail Markets	Costs assessment	5	1	5
	Incentives assessment	5	2	10
Provinces	Incentives assessment	5	1	5
Total		18		30 days

5. Study deliverables

Case study report documenting:

1. Costs of integrating hygiene in the milk cooperatives and local retail markets
2. Incentives for triggering AVC actors to integrate and practice hygiene in milk cooperatives and local retail markets.

6. Research management

7. Timetable

Tasks	Time
Procurement of consultant	Early Nov. 2021
Inception meeting with consultants (introductory discussions)	2nd week of Nov 2021
Training of enumerators and testing of the tools	3rd week of Nov 2021
Set-up and running of Focus group discussions (incl. Training of enumerators when relevant)	4th week of Nov 2021
Data analysis	1st week of Jan 2022
Finalisation and handing of final reports	Friday Jan 21 2022

8. Requirements/qualifications researcher(s)

- Individual or a consultancy company
- WASH and AGRIC experts
- MSC level and above
- Experience in a similar assignment
- Good in written English
- Familiar with the local context

Annexes

Annex 1. Hygiene Integration costs assessments in AVC nodes

	Who incurs the cost?	Quantity before covid	Total cost before covid (Kshs)	Quantity currently	Total cost currently (Kshs)	Quantity of what is required	Total cost of what is required
Costs of installation of							
7. Functional toilets							
8. Hand washing facilities (tap water and soap)							
9. Food products handling and transportation equipment							
10. Faecal waste management facilities							
11. Solid waste management facilities							

12. Grey water management facilities							
Costs of operation and management/month for:							
8. Toilets							
9. Tap water and soap							
10. Cleaning of surfaces							
11. Collection and disposal of solid waste							
12. Sewerage							
13. Stormwater drainage (if no sewers are present)							
14. Wearing masks							
Regulations costs							
4. Building capacity of regulators							
5. Monitoring hygiene							
6. Enforcing hygiene							
Health costs							
4. Average number of absentees per month due to illnesses related hygiene diseases							
5. Average numbers of infections /Hospitalisations /Diseased per month							
6. Cost of infections/Hospitalisations /Diseased per month							
Commercial prices, costs, and revenue							
9. Estimated number of customers served per day (estimate visitations per month)							
10. Estimated number workers per day/month (workers, traders, transporters/drivers)							
11. Estimated price/unit quantity							
12. Quantity handled e.g., amount sold (per month)							

13. Total Cost of doing business (<i>Kshs per month</i>)- including hygiene							
14. Total sales (<i>Kshs per month</i>)							
15. Subsidy external & other earnings that supports hygiene,							
16. Total net income/revenue per month							

N/B. Below are the suggested quantity units to be used for the estimations.

Cost	Quantity units
Costs of installation of	
Functional toilets	No.
Hand washing facilities (tap water and soap)	No.
Food products handling and transportation equipment	No.
Solid waste management facilities	No.
Grey water management facilities	No
Costs of operation and management/month for:	
Toilets	No.
Tap water and soap	No
Cleaning of surfaces	No. of cleaning sessions per week?
Collection and disposal of solid waste	No. of collections per week?
Sewerage	No of cleaning sessions
Stormwater drainage (if no sewers are present)	
Wearing masks	No of masks supplied
Regulations costs	Regulations costs
Building capacity of regulators	No. of trainings
Monitoring hygiene	No of days
Enforcing hygiene	No of days
Health costs	Health costs
Cost of infections/Hospitalisations /Diseased per month	No.

Annex 14. Hygiene integration in AVC – assessing and characterising incentives

Stakeholder and key question	Potential incentives	Methodology (data collection and analysis)	Questions/topic guide
<p><i>National policymakers:</i> Which incentives trigger policymakers to formulate policies on integrating hygiene in AVC?</p>	<p>Pressure from donors, political pressure, interest in improving health outcomes</p>	<p>Semi-structured interviews; thematic analysis</p>	<ol style="list-style-type: none"> 8. Is there pressure from international donors to introduce policies on hygiene in the agriculture value chain? 9. Do you face pressure from the public to introduce policies on hygiene in the agriculture value chain, for better nutrition and health outcomes? 10. Are you advised by public health departments to introduce hygiene in the agriculture value chain to improve health outcomes? 11. Is there pressure from political groups to improve hygiene? 12. Are any groups lobbying to resist greater requirements for hygiene and what are their reasons? 13. In your opinion, are there other factors that would trigger policymakers to formulate policies on hygiene integration? 14. Are you personally motivated to improve hygiene in the agriculture value chain? If so, what this motivation?
<p><i>Business owners:</i> Which factors would incentivise AVC actors to integrate hygiene?</p>	<p>Compliance with regulation, improved revenue, WASH service availability</p>	<p>Semi-structured interviews; thematic analysis</p>	<ol style="list-style-type: none"> 1. Can you name some diseases you can get from contaminated food? 2. Are you aware of hygiene regulations at your workplace e.g., provision of toilets, handwashing station, waste disposal, personal protective equipment (PPE)? 3. Do local authorities make site visits to monitor compliance with these regulations? If yes, what are the consequences for non-compliance? Do authorities ask you to pay a bribe to pass these checks? 4. Does your business have rules around hygiene at the workplace e.g., personal hygiene, safe waste disposal, PPE, etc.? If yes, what motivated you to put these rules in place? Are you concerned about the effect of worker health on your food products? 5. Do you provide your employees toilets, handwashing stations, or PPE? If yes, what motivates you to do so? If not, why not? 6. Would you be interested in improving these services? If yes, what would enable you do this? If not, why not? 7. Do you have to show compliance with hygiene regulations to apply for credit/financial support from investors? 8. In your opinion, does your revenue depend on the appearance and apparent safety of your food products and facility/stall?

			<p>9. Do you have concerns about the costs of improved hygiene and if so, what are these?</p> <p>10. Do you lobby policy makers for lower hygiene regulations?</p>
<p><i>Employees:</i> Which factors would incentivise AVC actors to practice hygiene?</p>	<p>Compliance with workplace rules, improved salary benefits, WASH service availability</p>	<p>Semi-structured interviews; thematic analysis</p>	<p>11. Can you name some diseases you can get from contaminated food?</p> <p>12. Does your workplace have rules around hygiene e.g., personal hygiene, safe waste disposal, PPE, etc.? If yes, do you know if these are based on government regulations or if they are imposed by the business owners?</p> <p>13. Do employees strictly follow these rules?</p> <p>14. What are the consequences for non-compliance?</p> <p>15. Would you be more or less likely to comply with these rules if you were paid a higher salary? If not, what would make you more compliant with these rules?</p> <p>16. Do employees at your workplace have to pass health and safety checks?</p> <p>17. Do you have access to a tap with running water, a toilet or handwashing station at your workplace?</p> <p>18. What motivates you to practice hygiene? A. food safety concerns B. compliance with regulations/fear of losing your job C. habit D. Other (please specify)</p> <p>19. What are some barriers to practicing hygiene? A. Lack of taps/soap/toilets/PPE B. not convenient for me to use C. not concerned about hygiene in my work. D. Other (please specify)</p>

<p><i>Market traders/vendors:</i> Which factors would incentivise AVC actors to integrate hygiene?</p>	<p>Compliance with regulation, improved sales, WASH service availability</p>	<p>Semi-structured interviews; thematic analysis</p>	<ol style="list-style-type: none"> 10. Can you name some diseases you can get from contaminated food? 11. Are you aware of hygiene regulations at your workplace e.g., personal hygiene, safe waste disposal, personal protective equipment etc.? 12. Do local authorities make site visits to monitor compliance with these regulations? If yes, what are the consequences for non-compliance? Do authorities ask you to pay a bribe to pass these checks? 13. Have you ever applied for credit/financial support for your business? If so, did you have to pass a health and safety check? 14. In your opinion, do your sales depend on the appearance and apparent safety of your food products and facility/stall? 15. Do you have access to a tap with running water, toilet, or handwashing station in the market? 16. What motivates you to practice hygiene? A. food safety concerns B. compliance with regulations C. fear of losing customers D. habit E. Other (please specify) 17. What are some barriers to practicing hygiene? A. Lack of taps/soap/toilets/PPE/waste collection B. not concerned about hygiene in my work C. Too expensive/inconvenient to practice hygiene behaviours D. Other (please specify)
<p><i>Consumers:</i> Which factors influence consumers' decisions on food purchase?</p>	<p>Food safety and nutrition</p>	<p>Surveys; Thematic analysis and descriptive statistics</p>	<ol style="list-style-type: none"> 8. Which factors affect your decision to buy food from a particular vendor? 9. Can you name some diseases you can get from contaminated food? 10. Do you think food can get contaminated in unclean market settings or from poor vendor hygiene? 11. Do you consider cleanliness of the vendor and the stall before you buy food from them? 12. Do you consider freshness and cleanliness of food before you buy it? 13. Would you pay more for food if you knew it was safe from contamination?

<p><i>Water, sanitation, and waste collection service providers:</i> What would incentivise you to provide running piped water, toilets, and waste collection services in local markets?</p>	<p>Environmental and health safety</p>	<p>Semi-structured interviews; thematic analysis</p>	<ol style="list-style-type: none"> 1. Can you name some diseases you can get from contaminated food? 2. What is the cost of installing and providing taps, toilets, handwashing stations, soap and sanitisers, gloves, face masks, waste bins, drainage infrastructure in food markets? 3. What is the cost to maintain taps, toilets, handwashing stations, soap and sanitisers, gloves, face masks, waste/recycling bins and collection? 4. Do businesses pay for the use of water supply, toilets, or waste collection services? 5. Can you recover O&M costs/make a profit by providing these services in local markets? 6. Are there local or national regulations around providing water, sanitation, and waste collection in food markets?
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IMPACT THAT MATTERS



About us

The COVID-19 Response and Resilience Initiative for Food Value Chains (CORE) ran from July 2020–December 2022. Initiated by the Netherlands Ministry of Foreign Affairs and led by SNV, it was set up by to strengthen responses to the COVID-19 pandemic across eight major SNV-implemented agriculture projects in Africa: BRIDGE, CRAFT, HortInvest, HortiLIFE, TIDE, MODHEM+, PADANE and STAMP+.

Based on field-level demand, CORE selected four themes that capture key structural challenges highlighted by the pandemic across agri-food systems: farmer inputs and services; consumer-oriented strategies; environmental hygiene integration; and digitalisation for agriculture (D4Ag). Each theme contributes to the structural resilience of food value chains and agri-food systems to shocks and stresses.

This brief is published by SNV Netherlands Development Organisation under the COVID Response and Resilience Initiative (CORE - Africa)

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