

A guide to developing the small ruminant value chain in northern Ghana: A value chain approach

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Through action research and development partnerships, Africa RISING is creating opportunities for smallholder farm households to move out of hunger and poverty through sustainably intensified farming systems that improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.

The three regional projects are led by the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa) and the International Livestock Research Institute (in the Ethiopian Highlands). The International Food Policy Research Institute leads the program's monitoring, evaluation and impact assessment.




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Abbreviations

APD	Animal Production Directorate
ARI	Animal Research Institute
BAS	Business Advisory Services
CAHWs	Community animal health workers
CSIR	Council for Scientific and Industrial Research
DoA	Department of Agriculture
FAO	Food and Agricultural Organization of the United Nations
GDP	Gross domestic product
GSS	Ghana Statistical Service
ILRI	International Livestock Research Institute
MOFA	Ministry of Food and Agriculture
NGO	Non-governmental organization
RFJ	Rearing for Food and Jobs
SRs	Small ruminants
STATS	Statistics
SWOT	Strengths, weaknesses, opportunities and threats
UN	United Nations
VCA	Value chain approach
WAD	West African Dwarf

About this resource

This handbook has been exclusively developed by a multidisciplinary team of experts who have many years of experience in diverse fields of animal agriculture in sub-Saharan Africa. Using simple language, the authors present a wealth of knowledge and experience in implementing research and developmental projects in the livestock subsector using the value chain approach.

Consisting of five chapters, the book aims to be a comprehensive practical guide to apply the Value Chain Approach to transform the small ruminant value chain in northern Ghana and similar locations with similar small ruminant production and marketing practices. Chapter One presents an introduction to the value chain approach to enable readers to understand the fundamentals of applying the value chain approach with ease, which is further detailed in Chapter Two. Chapter Three climaxes the objectives of the handbook by presenting a simplified strategy with activities that can be applied and adapted to diverse situations. The challenges that hamper the development of the small ruminant industry in northern Ghana based on current information are presented in Chapter Four, while Chapter Five includes some recommendations for the envisaged transformation of the small ruminant value chain which includes some novel innovations.

The handbook is written using a writing style and language targeting a wide range of readership including small ruminant value chain actors, extension agents, policymakers, both existing and potential agribusiness men and women, researchers, and passionate developmental workers. An effort has also been made to include figures and case studies to actively engage the readers while learning.

Introduction

The economy of Ghana is largely agricultural contributing about 19.7% of the Gross Domestic Product (GDP). Crop-based agricultural products account for 14.5% with only 2.7% contributed by domestic animal production (GSS, 2019). Frozen fish and meat products are listed among the top ten imported commodities to Ghana (UN Comtrade, 2017). Therefore, a low level of in-country animal products contributes to the low contribution to the GDP. This imbalance in crop and animal agriculture is also reflected on the plate of everyday Ghanaians with more than 70% of protein coming from cereals, roots and tubers. Inadequate intake of animal protein has contributed to the prevalence of stunting among children and the alarmingly increasing overweight adult population in the country (FAO-STATS, 2010).

Most livestock-related activities take place in northern Ghana which is considered the breadbasket of the country. Therefore, scaling up animal agriculture in northern Ghana as a means for poverty alleviation has long been proposed with several interventions initiated. However, the impact of these has been minimal due to multiple factors.

On the contrary, there exist multiple examples of research and developmental interventions in agriculture with sustained impact through integrating the interventions with the flow of businesses from production to consumer. This is best achieved by an approach that has come to be known as the 'Value Chain Approach'.

The majority of the farmers in the North are crop farmers who also keep some livestock and poultry. They depend on crops for food and some cash. Small ruminants (SRs) are kept as an investment, savings and insurance due to their ability to start small ruminant production with minimal capital investment but direct cash returns. They sell SRs for cash as capital to invest in crop farming and to meet urgent financial needs (Honya et al., 2007), a situation that is characteristic in most rural economies in West Africa (Oluwatayo and Oluwatayo, 2012). On average livestock contributes between 43–45% of household income in northern Ghana. Thus, small ruminant (SR) production plays a pivotal role in the household economy (Honya et al., 2007). Due to this versatility, most rural households in northern Ghana, in particular, keep SRs. This high turnover often ranks SRs among the livestock and poultry commodities that earn the most locally generated income annually (Oppong-Anane, 2011). Therefore, the development of a vibrant SR value chain should be among priorities for the rural, northern sector and national development.

This handbook thus seeks to provide practical guidelines for applying the Value Chain Approach to build or strengthen the capacity of key actors in the small ruminant value chain in northern Ghana to contribute towards attaining an effective functioning of the entire value chain and to inspire actors to adopt the Value Chain Approach.

Therefore, this handbook was written with two main objectives:

1. Build the capacity of a wide range of value chain actors and practitioners by providing guidance to the application of the Value Chain Approach along the small ruminant value chain particularly in northern Ghana and in areas that share similar small ruminant production and marketing practices.
2. To highlight relevant institutional, policy, socio-economic and innovative interventions that could facilitate the transformation of the SR value chain in northern Ghana that can also be relevant in other areas in tropical Africa.

We hope that this handbook will contribute to the transformation of small ruminant production in Ghana, thereby improving animal productivity at the household level that would, in turn, translate to increased protein intake and employment opportunities for all actors of the small ruminant value chain. It is anticipated that this knowledge product will contribute to bridging the developmental gap between the north and south of Ghana by using improved animal production as a key lever which could also be scaled in other tropical African countries that share similar livestock production and marketing practices.

Chapter 1: Understanding the value chain approach

This chapter provides a basic functional understanding of the value chain concept and highlights the interconnectivity of different players along the value chain.

1.1. What is a 'value chain'

There is a value chain operating behind every product or service we enjoy from day to day. For example, consider bread, a common product we consume. Production of bread requires the key ingredients wheat flour and yeast. Bakers in Ghana get wheat flour from producer countries through a chain of suppliers from the international market to the local markets. They get yeast from other origins, also ending up at the local markets. Bakers procure them, knead and bake them, all to 'produce' bread. Throughout these interconnected processors, transport and labour are also needed. Bread is then transported and marketed at retail shops. Finally, the consumers purchase the bread. A full range of activities was needed to transform wheat flour into bread. The complete range of activities required to transform wheat flour into bread makes up the bread value chain. Wheat flour, yeast, water and labour are among the key '**inputs.**' Those who supply these inputs are '**input dealers or suppliers.**' In this case, bakers are the '**producers.**' Some products also go through additional levels of transformation before they reach the consumers. For example, meat and meat products go through '**processing**'. A value chain also includes activities related to marketing at different levels until final products reach '**consumers.**' A value chain includes all processors or activities from sourcing for inputs, production, processing and marketing until the final product or service reaches consumers.

Therefore, a value chain can be viewed as an interacting system starting from input suppliers through producers to consumers of a given product range. Interconnected individuals or companies that constitute the core of a value chain are broadly referred to as value chain actors (Kaplinsky and Morris, 2001).

The specific sequence of value chain actors differs among commodities and the operational environment. For example, actors of the small ruminant value chain may differ from those of large ruminant value chains. Similarly, the type and sequence of small ruminant value chain actors in Ghana may differ from those of small ruminant value chain actors operating in another country with different production and marketing practices. No matter the type and the sequence of value chain actors, products, money, and information will flow between actors of any value chain.

Since the value chain is essentially how the individual businesses are linked to a single network of businesses with many stakeholders, there is an obligatory continuous flow of products, services, and money throughout the chain. However, the flow of information is always not continuous, and actors sometimes limit their communication and direct interaction with the other actors immediately linked to them. Even with immediate value chain actors, partnerships may remain weak. Although the consumer is the main source of money in a sustainable value chain, there is no or minimal communication with the consumer by those at the production phase of the value chain. This limits their business potential and makes them vulnerable to problems at segments of the value chain they are not directly in touch with.

1.2. The organization of small ruminant value chains

As per the description of a value chain, a small ruminant value chain is made up of the 'network' of actors from input dealers to consumers of small ruminants and their products. Small ruminant value chain actors constitute the important human nodes of a small ruminant value chain. A single technology, legislature or government can bring about a change that may bring a positive or a negative change in the organization of small ruminant value chains.

The specific groups of small ruminant value chain actors and how they are linked depends on the scope, locality, time, and prevailing enabling conditions. As noted previously, the specific actors and how they are linked will differ from country to country. In industrialized nations, large-scale producers may be engaged in processing, packaging, branding and distribution. Some producers have associations that directly work with large-scale processors. These types of systems are operational in some African countries as well. Simple differences in the organizational structure or legislature can make the organization of the value chain different even within areas with similar socio-economic backgrounds. A simple example is the difference in the way value chains are organized between neighboring northern Ghana (NG) and Southern Burkina Faso. As at the time of compilation of this handbook, there was no known fenced market in Navrongo, in northern Ghana. However, across the border, in neighboring Burkina Faso, the market was fenced, and activities were more organized. The market was organized in structure and function. Animals were kept under sheds with improved sanitary conditions within the fenced market while feed sellers, suppliers of water to animals and transport operators were outside the fence. The revenue generated from sales was used for the maintenance of the market, providing an operational location for a vibrant value chain.

Having understood that there is no single design for a SR value chain as they differ in scope, location, prevailing conditions and with time, it is important to characterize a value chain before bringing any change to maximize the benefits and minimize any unintended negative impact. However, the good news is that they can be improved to benefit most of the value chain actors. For example, a local assembly intervening by constructing a well-structured, fenced small ruminant market with a regulated entrance, exit, counters or offices for revenue officers and veterinary inspectors and with appropriate animal sheds can have tremendous improvements within a local SR value chain. Mutually, local governments can also benefit from regular income generation.

1.3. The organization of a small ruminant value chain in northern Ghana

The small ruminant value chain in Ghana is a complex one. The national value chain is made up of segments of the chain in different parts of the country. Although there can be differences even within the locality that will be subjected to changes with time, in general, the small ruminant value chain in northern Ghana consists of small ruminant producers, assemblers, small ruminant traders at different points, processors and consumers. However, these actors do not exist as organized groups. For this reason, it is having negative impacts on the growth of the small ruminant industry in northern Ghana.

The small ruminant value chain in northern Ghana consists predominantly of small ruminant producers who are smallholder farmers, both men (76%) and women (24%). Traditionally men assume ownership of household resources including small ruminants. They rear animals with or without housing although many producers are now realizing the importance of

providing proper animal housing. Feeding the animals during the period of tethering is a challenge and should be improved to counter the losses due to the depreciation of animals during that period. Although largely, most smallholder farmers in northern Ghana own the West Africa Dwarf (WAD) breed, producers prefer the Sahelian breeds from Burkina Faso due to their larger size. Considering the preference for both size and the typical flavor of the WAD, crossbreeds seem to be the best to help the producers based on the field experience with producers. At the village level, most actors comprise SR producers, a limited number of actors are involved in SR processing and trading.

Some youth assemble the animals for the traders, or farmers transport the animals to the market on their own. Sometimes traders visit the producers but, largely the small ruminant market is an important node in the SR value chain for a given local assembly in NG. Activities in these markets are governed to some extent by the local authorities and informally by the traders themselves who are often organized into associations. A recent study conducted by scientists of CSIR-Animal Research Institute revealed that the linkages within the value chain actors in NG were poor. The traders are the dominating force of the current small ruminant value chain in NG. Traders go across the border to Burkina Faso to bring animals to markets. However recent terrorist attacks in Burkina Faso have slowed down the movements creating a vacuum in the supply and there is currently a big demand for locally produced small ruminants. This presents an opportunity for the transformation of the SR value chain in NG.

Information on specific details of local value chain actors and how they are linked is beyond the scope of this book but necessary before any meaningful intervention in specific localities can be undertaken. Most of the information summarized here is based on a study conducted by CSIR-Animal Research Institute in Kassena-Nankana Municipality and Wa West District. We highly recommend reading the full technical report of the study by Avornyo *et al* (2020) for an in-depth understanding of the SR value chain in these project districts.

1.4. What is the ‘value chain approach’?

Having understood that value chains are very complex interconnected networks, a good question to ask would be what sustains a value chain? What makes a value chain such as the bread value chain function and grow without much governmental intervention? The answer would be consumer demand. As long as there is demand for bread it is profitable to produce bread. Any value chain has two key things essentially flowing through them. Products flow from input suppliers to consumers while money flows from the consumers through other value chain actors to producers of inputs. Therefore, the dominant force that sustains the value chain is consumer demand.

A value chain is a dynamic network of value chain actors. All actors are important in the delivery of products. However, if one is to answer the question of who is the most powerful in the value chain. The answer would be the consumers. Consumers ‘pull’ the entire value chain as they have the power to purchase or not. There are several considerations before starting or expanding a business. However, the most important factor to consider is the consumer. Any attempt to start or expand a business is not sustainable without consumer demand.

One can follow several strategies to start or expand businesses and an approach that has come to be known as ‘the value chain approach’ is one of them. This approach recognizes the dominant force that pulls the entire value chain. All decisions and proposals for expansion are geared towards satisfying the consumer. Therefore, the value chain approach can be viewed as a business strategy considering the value chain in its totality, instead of

focusing on one or few value-chain actors, with consumer-driven pull at its heart. The value chain approach can be best understood by contrasting the value chain approach with the supply chain approach.

As the name suggests the key determinant in the supply chain approach is the 'supply'. The supplier or the key producer drives the business. The supplier or the producer produces what they want, when they want and how they want without considering the consumer. Therefore, it can be viewed as a 'push' from the producer towards the consumer though not in direct communication. The producer produces what he or she wants and makes it available to the trader. Since the producer has already produced, his or her motivation is to sell of course at the highest profit. The trader has not demanded the products from the producer and the trader has several producers to choose from. The trader aims to buy at the lowest price and the producers aim to sell at the highest price at each transaction. Therefore, the relationship between them is not mutual but transactional. Therefore, the producer aims at expanding the business on his own. The producer does so without considering and without prior consultation with other partners downstream.

In contrast, the value chain approach can be viewed as a 'pull', a consumer-driven pull. The thrust of business initiates from the consumer. The retailer is in communication with the consumer. The retailer gives feedback on what, when and how the consumer wants the products to the producer. The producer produces in response to the consumer although the producer may not be in direct communication with the consumer. The business thrust is generated from the downstream side like a river flowing in response to gravity and is effective. Therefore, the wastage is minimal because the producer is responding to an actual existing market. There are more opportunities for growth in volumes too. In that way, the volume of goods or services exchanged can grow at every step of the chain. Everyone feels the benefit. No one is unduly advantaged or disadvantaged and there are ample trust and a lot of communication throughout the value chain.

Chapter 2: Pillars of the value chain approach

Before detailing the best practices to be followed to develop value chains, it is important to understand the driving forces of the Value Chain Approach (VCA) that work together to bring about improvements. The most dominant driver is the 'pull' exerted by the consumer. The consumer demand or the 'pull' can only be met by good partnerships among the partners of the value chain who essentially are the value chain actors. The producer should deliver the right quality and quantity of the product at the right time while high-quality service providers are essential (feeding, health and housing) for producers to meet consumer demands. As mentioned earlier all other factors can respond to this 'pull' to develop vibrant value chains. Other factors that can influence the value chains include the influence of local institutions, policy environment, market access, socio-economic environment and access to credit. These drivers and factors are explained further with practical examples to lay the foundation for understanding best practices in developing value chains.

2.1. The consumers

As consumer preferences form the 'pull' of the value chain approach, consumer needs are the foremost factors to consider and identify when applying the value chain approach. The consumers themselves are diverse with different needs. It is important to understand the different groups of both existing and potential consumers and their proportions. For example, a larger proportion of consumers buy meat from butchers while a few would purchase from supermarkets. There may be a set of consumers that would prefer to purchase packaged meat cuts from cold stores at the same time they would purchase other frozen food such as fish and chicken. A large segment of the consumers in Ghana also consumes small ruminant meat from restaurants.

It is important to understand both existing consumers and new ones that have not been explored. For example, making small ruminant meat available in a packaged form and frozen with a label for a segment of consumers is yet to be explored in Ghana. If successful, this can create a constant market flow and can become a strategy for expanding the SR value chain. Secondly, it is important to evaluate each category of consumers in-depth. In a nutshell, this evaluation demands finding answers for the common questions 'WHAT, HOW, WHEN, WHERE AND HOW MUCH' with respect to consumer demand. These are further detailed under best practices for developing a value chain using the VCA in Chapter Three.

2.2. Partners and existing partnerships

The second greatest driving force of the value chain approach are the partners of the value chain; those building sustainable partnerships among them. There are several types of partners and partnerships in a value chain. The critical partners are the value chain actors who form the human nodes. These include input dealers, producers, assemblers and traders. Although the word 'partners' can mean a wide range of actors that has some influence on the value chain, in this handbook, the term 'Partners' is used to describe integral actors of self-sustaining value chains. Therefore, within the context of this book 'partners' include input dealers, producers, customers and regulatory bodies whose services are an integral part of the product delivery and provision of a supporting or enabling environment. Stakeholders are other institutions that provide one-time, short-term or long-term support to initiate, develop or rescue value chains.

Although value chain actors exist in a functional supply chain, there are limited partnerships. Because the VCA is rather targeted at consumers, it can work effectively if there is a free

flow of information throughout the value chain to start with. Such partners should be networked and further strengthened by every transacting business. These partnerships can be compared to a rope that connects the consumer-pull to the delivery of goods by producers (Figure 1). Therefore, a prerequisite for any intervention to develop a value chain demands bringing partners together to create a platform first to discuss opportunities and challenges, to find solutions together and rather become the answer to each other's questions. Therefore, creating associations, multi-partner platforms will be a good starting point to develop value chains.

2.3. Delivering the value chain demands

As the consumer sets the demands that ultimately reach the producer through partners, the next step is to consider how to meet the demand. Can the producers within the group meet the demand at the right quality, quantity, timing and frequency? What are the challenges that producers or traders face for the delivery of value chain demands? For example, there may be a gap between the time farmers want to sell SRs and the time that consumers want to buy them. The farmers and traders traditionally may sell live animals however, an emerging consumer group would prefer meat cuts. The group needs to amend production in terms of quantity, quality, time and mode of delivery to meet the value chain demand.

This evaluation of what existing partners can offer, the consumers' demand, the matches, mismatches and how to solve them, all aiming at fulfilling the consumer demand is very important for planning.

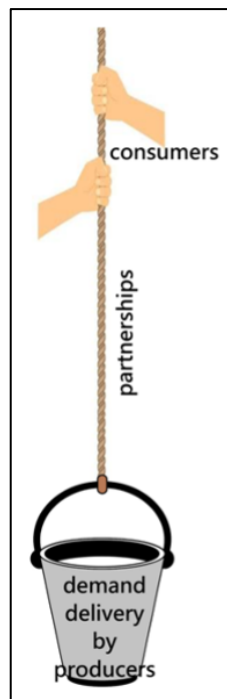


Figure 1. Schematic representation of the principles of the Value Chain Approach; harmonized functions of consumer pull, partnerships, and delivery by producers to meet consumer demand.

2.4. Minimizing waste and maximizing the value

When the volumes increase and new product specifications are defined, new waste products emerge and with increased volumes. Therefore, before take-off, there should be a critical evaluation of waste, their volumes and if possible, consider opportunities to minimize them. This not only implies waste during slaughter and processing but additional expenses to be paid as unwarranted levies and extortions.

2.5. Some other factors that influence the small ruminant value chain

2.5.1. Influence of local institutions

A host of traditional, state, and private institutions can support all major drivers of the value chain, hence can influence value chains at local levels. For example, chiefs are usually the custodian of local lands. If the government wants to bring development to the SR value chain by constructing a livestock market, the land is solicited through the chiefs. Therefore, their decision to give or otherwise and where it should be cited can influence the local SR value chain.

Municipal and district assemblies are among the key state institutions that influence SR value chains at the local level. These authorities have the mandate to establish and maintain livestock markets and road networks connecting them. Realizing the importance of local businesses, these institutions also have established Business Advisory Services (BAS) to provide advisory and support services to groups of actors to improve their businesses. Also, the Department of Agriculture (DoA), under the supervision of the district assemblies, is responsible for the implementation of government policies and interventions on agriculture at the regional and local levels. For example, between 2016 – 2020, the government has been implementing a flagship program dubbed the 'Rearing for Food and Jobs (RFJ) in the northern sector of the country. Under this programme, improved sheep breeds would be reared in about 7 – 11 operational areas of the country. The Animal Production Directorate (APD) of the Department of Agriculture would work with some selected nucleus farmers who would produce and supply to other farmers. Other institutions and partners work with local assemblies and their DoAs for the successful implementation of both research and developmental projects that seek to transform agriculture value chains.

While partnerships among value chain actors form a major driving force of the value chain approach, partnerships within different value chain actor groups are also important. These can be formalized to form trader associations, producer groups, cooperatives, value chain platforms and can become strong local institutions that influence value chains. Such associations can lobby for developmental interventions and policy changes all in favour of the development of value chains and become the voice of all value chain actors to the state and the country. Aside from these, they can work together to facilitate value chain operations, for example, trader associations can contribute to the rehabilitation and maintenance of markets. Producer associations can also work together to pool resources to purchase inputs such as breeding animals, feed processors, water resources and medications in bulk at discounted prices. Besides these, social and welfare activities among them can also further foster mutualism. Developmental partners and non-governmental organizations (NGOs) working at local levels are among other institutions that can influence value chain activities.

2.5.2. Market access

There is a large market for SRs throughout the year by consumers including local restaurants popularly known as 'chop bars', although the demand is greater during Eid-al-Fitr, Eid-al-Adha, Easter, Christmas and New year. Amidst high demand, there are challenges associated with animal delivery systems to access markets. There is no efficient and dedicated transport system for SRs as traders use various means ranging from long-distance passenger buses to trucks for the transportation of animals. A poor road network from the north to the south becomes a challenge to access markets. Market access can also be facilitated by greater networking through recently available tools such as social media. The use of online marketing tools is yet to be harnessed in the livestock subsector.

2.5.3: Access to credit

As mentioned earlier, a key pillar of the VCA is amending production and processing to meet consumer demand. For farmers to deliver SRs in the right quantity and quality as per the consumer demands, they need to expand and improve their production through the acquisition of improved breeds, build better housing and provide nutritious supplementary feed to pregnant and lactating animals. Traders on the other hand need substantial income to purchase many animals to retail to their customers. To invest in these inputs and purchases both producers and traders, who are mainly smallholders need to be empowered by financial institutions through access to credit. In northern Ghana, a few financial institutions are mandated to support farmers with agricultural credit, but mainly may apply to farmer groups, to acquire inputs for production and trade.

Chapter 3: Activities for developing the small ruminant value chain using the ‘value chain approach’

This chapter highlights important activities during the process of developing a given small ruminant value chain. It is important to note that developing the value chain refers to introducing a new value chain or expanding and improving the efficiency of existing value chains. As explained earlier, value chains differ based on commodities, prevailing conditions, place, and time. Therefore, there cannot be one strategy to develop a value chain. On the other hand, what an individual or an institution can do to bring about a positive transformation will also depend on the objective, mandate, and resources available at a given time. A strategy that a single business entity can follow may differ from a cooperative association of farmers. Similarly, a strategy and scope of activities a government institution or a developmental partner can adopt will differ from the scope and strategy of a business entity. Therefore, the strategy that should be followed in developing a value chain will depend on the nature of the value chain, implementing agency, the scope, objectives, and resources available and should be treated case by case. Nevertheless, based on the information available from experiences of successful application of the VCA in several agricultural commodities and our own experiences in livestock value chains in Ghana a scheme of best practices can be proposed. This chapter highlights the best practices that can transform the SR value chain in Ghana to the best of our knowledge. Each activity and how it is implemented should be optimized to suit the task ahead and the resources available.

3.1. Understanding the basic structure and the functions of the value chain or ‘mapping the value chain’

Regardless of the value chain and your scope, the first step should be to understand the basic structure of the value chain and how it operates. This is often called ‘Mapping the value chain’. However, how wide and deep one should and can understand the value chain will depend on the scope, your role in the value chain, resources available to you and the specific objectives of your interventions. Some stakeholders who try to develop the value chain of a commodity overlook this step to save time. The results are implementing interventions that have no impact, wasting of resources or interventions that do more harm than good. Therefore, it is important, beneficial, and wise to map the value chain as the first step using the best approach for your need. Value chains can be mapped through interviews, group discussions involving value chain actors and multiple stakeholders, baseline surveys and reviewing recent literature and reports of baseline surveys in the target value chain.

3.1.1 Mapping the value chain for small- to medium-scale businesses

If you are a single business entity that has identified an opportunity of starting a business along the value chain, you can observe, reflect, and understand how the value chain is structured and how it operates within the existing structure. You can utilize the template provided in Figure 2 or just list the activities carried out by each actor. If you have been part of the value chain, your rich experience becomes an indispensable resource. However, it would be beneficial for you to find more information about the parts of the value chain that you have not paid attention to before including the consumer categories you never thought of before.

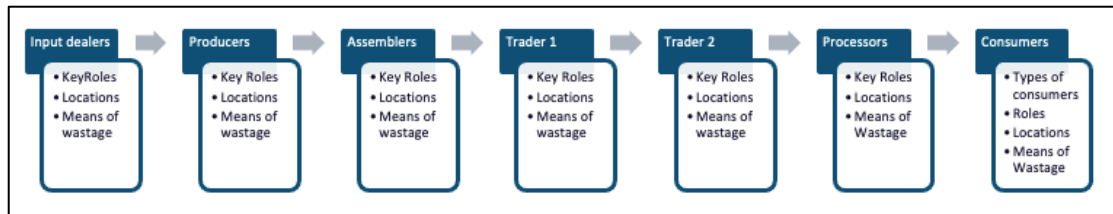


Figure 2. Basic template for mapping a small ruminant value chain

3.1.2 Mapping the value chain during training and participatory value chain development

During sessions to develop the value chain using participatory approaches and for training workshops, the value chain can be mapped as part of a group work involving as many types of value chain actors as possible. Participants can be asked to carry out the following activities while discussing answers to the questions. Ask the participants to summarize the answers on paper or a poster using the template in Figure 2. The exercise given in Case Study 1 provides a simple but stimulating exercise to learn how to map a value chain.

1. Draw a flowchart to show how different value chain actors are connected in the target value chain on posters or paper.
2. Identify key inputs for both services and goods such as land, housing, breeding animals, medications, veterinarians, and advice, etc.
3. Who are the main types of producers?
4. What roles do the producers play including providing housing, establishing stock from breeders or kids, feeding, managing the flock's health, protecting the stock from theft, and sending the animals to the market?
5. What roles do the assemblers play? Are they beneficial?
6. What are the types of SR traders? What roles do they play?
7. Who are the types of processors and what roles do they play?
8. Who are the main categories of consumers and what roles do the consumers play?
9. How far does a given actor communicate with others? If they do what are the means of communication?
10. What are the challenges encountered by each actor to meet the demand?

Case study 1

Mapping the small ruminant value chain in Kassena-Nankana District

Northern Ghana is considered the breadbasket of Ghana. The northern sector of the country provides most of the locally produced large and small ruminants to major market destinations in the capital, Accra, and other major cities such as Kumasi, Takoradi, Koforidua, etc. Kassena-Nankana Municipality is one of the areas noted for SR production. As part of a research and developmental project funded by the Africa RISING project, a team of scientists conducted a baseline survey in Kassena-Nankana Municipality of which Navrongo is the municipal capital. As part of the baseline survey, they interviewed various operators to map the value chain.



Small ruminant market in Navrongo. Photo credit: Mohammed Shaibu/CSIR-ARI.

The following is a summary of some information gathered.

In the Kassena-Nankana District, SR production was mainly carried out in the communities by small holder SR farmers. Farmers housed the animals some providing well fenced housing, fed the animals with crop residues allowing them to graze during non-crop seasons, managed health of their animals and mostly transported the animals to the Navrongo market on their own. In Gia community, small ruminant rearing was being considered as a viable alternative for both men and women because the community had run out of fish stocks in their dam.

The people of Bonia community mentioned that the previous AR project was beneficial because it enabled them to provide better care for their animals resulting in their multiplication and sale of some of their animals. They were able to sell a ram for one thousand seven hundred Ghana Cedis (GH¢1700.00). They however wished their animals were like those from Burkina Faso so that the animals could fetch them more money. They visited Navrongo market with regards to the small ruminant trade. Some of the male youth in the community were engaged in assembling of small ruminants for the Navrongo market. It was clear that the producers were not organized as they sold few animals at a time individually. However, traders invariably doubled as producers. Livestock were not bought by weight, but rather by color, size, general appearance, etc. Black color sells low unless for ritual purposes.

Due to the low level of organization of producers, small ruminant traders in Navrongo played a dominant role in the running of the small ruminant value chain in the district. They had an active association. Their leadership was therefore the best contact point for gaining insight into the small ruminant value chain. The Municipal Assembly of Kassena-Nankana, which includes the Department of Agriculture works with the small ruminant traders in the regulation of the market. The traders and processors, each has its executive. Processors comprise khebab sellers and butchers, and the processors also belong to one association.

Exercise

Develop a value chain map for the SR value chain dominant in Kassena Nankana District. You may use the templates suggested in this handbook.

3.1.3 Baseline studies

A comprehensive baseline study is a good approach to mapping a value chain with wider geographical coverage in greater depth. Recognizing this, most donor agencies or developmental partners recommend conducting a baseline study before developing a value chain. Details on how to conduct baseline studies are beyond the scope of this book nevertheless some important practical tidbits related to the VCA are provided below.

A baseline study or survey involves collecting information on the value chain from samples of all value chain actors or partners and stakeholders in each value chain. Therefore, this involves gathering information from critical partners including input suppliers, SR producers, SR assemblers, traders, transport operators, processors and the consumers, and other stakeholders who should or have played supportive roles in developing that value chain. Since these actors are not located in the same geographical area this would be tedious and time-consuming. Since our focus is following the VCA, a consumer survey can also be part of the baseline study, or it can be carried out as a separate activity as explained in Section 3.2 of this book.

If you are a developmental worker, researcher, or any stakeholder directly not responsible for working with value chain actors it is best practice to initiate the survey with the involvement of representatives of the Department of Agriculture (DoA), local assemblies and/or traditional leaders. They can be key informants to map the value chain if it is completely a new terrain to you. Then a sample of each category of value chain actors including SR producers, SR assemblers, traders, processors should be interviewed preferably by visiting them. This can be done through focus group discussions or/and semi-structured questionnaires. Seek services or advice of experts and research institutions for the successful implementation of baseline surveys. Keep good records of data and pictorial evidence of data gathered.

3.1.4 Literature review

Published data on recent and credible baseline surveys may provide valuable information on existing value chains at a greater depth. Therefore, researchers and other stakeholders are highly recommended to publish their findings in the form of reports that can be accessed through public online databases.

Literature reviews become the key source of in-depth information on how existing value chains are structured and function in cases where you are constrained with resources to conduct your baseline survey. However, a smaller study interviewing key informants is a must to validate the structure and functions of a value chain that you have reviewed. The greatest danger of depending on literature reviews would be gathering outdated information. The biggest limitation of depending on literature reviews is usually the limited availability of updated information. A literature review can also reveal how value chains change over time even if you have conducted your baseline survey.

3.2. Understanding the consumer

One of the major outputs of SR value chain mapping is to identify the actors in the value chain you seek to develop. Once the critical value chain actors have been identified, it is logical to study how each category of value chain actors can contribute to developing the value chain. Then comes the decision as to which category of actors to be studied first or 'who is the most important in the map?' Well, everyone is important, but in our attempt to develop the value chain using the value chain approach, the consumer undoubtedly becomes the most influential. Secondly, since the VCA capitalizes on consumer needs, it is obligatory to understand consumer needs first so that we can direct production to meet consumer needs in terms of quantity and quality through other actors of the value chain.

Consumers are the people who consume the products. The consumer creates the pull into the value chain which sustains the value chain. As emphasized earlier all consumers are not the same. They include a diverse set of people with diverse needs. Therefore, after mapping the value chain our next activities should focus on the following objectives.

1. Identify different categories of consumers both existing and potential
2. Assess and understand the needs of each category of consumers

An important consideration at this point is 'how' to gather this information from consumers that will define the rest of our interventions. There are several sources of information that one can depend on for reliable consumer information, but the best approach will be to gather information from several sources and validating them on your own. Detailed following are some of the approaches that can be used to gather information on consumer needs.

1. Consumer Surveys

The best but most involving approach to gather consumer information is to conduct a consumer survey. With the participation of multiple stakeholders and customers, key categories of consumers should be identified. Samples of these categories of consumer groups can be then interviewed with guided questionnaires, data analysed and answers to key questions determined. It is also important to publish results of such surveys in the form of handbooks and fact sheets to make them available to all value chain actors through public databases unless one has a commercial interest to tap into new markets. However, conducting surveys is expensive and time-consuming. If you have the capacity, you can conduct the survey yourself with experienced resourceful people to help you. If not, you may use the service of researchers, or an institution specialized in conducting consumer surveys.

2. Literature searches and review

In cases where current and reliable information from market surveys exists, information can be gathered and organized to answer the key questions by searching and reviewing such information. State research institutions and universities can be directly contacted for unpublished sources of information. This highlights the importance of publishing information from consumer surveys in peer-reviewed journals, published reports and fact sheets which remain a responsibility of state research institutions, universities, and research wings of state departments. However, publishing outcomes of consumer surveys as published reports simplifies findings for value chain actors who need them most while mass media popularization of such findings also goes a long way to help value chain actors.

3. Key informants

Some people along the value chain are valuable sources of information when consumers cannot be directly reached. These include customers who directly deal with consumers such as supermarket owners, chop bar operators, processors, and other experienced personnel such as researchers and public servants in charge of matters related to SR value chains.

To understand consumer needs extensively, one or more of the above approaches should seek to find answers to the following critical questions summarized in Figure 3. Therefore, the questionnaires and interviews that are conducted as part of consumer surveys should cover these questions and additional questions relevant to the value chain. All efforts should also be made to include all categories of consumers covering both genders.

'WHAT', Product qualities do consumers prefer? <ul style="list-style-type: none">• Are there any preferences for breed, size or colour?• Are there any preference for taste or flavour?• What are the nutritional benefits they desire in SR meat products?• What risk factors would they like to avoid?
'HOW', Do the consumers like the products to be purchased? <ul style="list-style-type: none">• How do the consumers prefer SR meat? Fresh or frozen?• What type of packaging do they prefer if sold packaged?• What specific information do the consumers want to appear in the packaging among the origin, expiry date, slaughter methods, details on processing facility, etc.?
'WHERE', Do the consumers purchase? <ul style="list-style-type: none">• Where do they buy the product currently?• Where would they like to buy in the future?
'WHEN' Do the consumers buy? <ul style="list-style-type: none">• How often and when do they buy SRs as live animals?• How often and when do they buy SR meat or meat products in a week?
'FOR HOW MUCH' Do the consumers buy now and would? <ul style="list-style-type: none">• How much are they paying for the animals and SR meat now?• How much more are they willing to pay and for what qualities?
"HOW CAN WE ADD VALUE ?" <ul style="list-style-type: none">• What are the product traits that consumers are willing to pay more for?• What processed products do consumers prefer; frozen, smoked, dried?

Figure 3. Key questions to ask consumers.

3.3 Understanding the customers

Understanding the consumers lies at the heart of the development of a value chain using the VCA. However, SR producers cannot reach the consumers directly and need to link up with the SR assemblers, traders, and other actors. All these parties become 'customers' to SR producers. Therefore, as emphasized in section 2.2 of this handbook, the term 'customer' refers to traders and processors that link the producers to consumers in the VCA. While too many intermediary linkages reduce returns to producers, some customers are crucial and are difficult to avoid. Customers such as restaurateurs, chop bar operators and processors can assure a ready market for the producers. As customers represent the gateway to the consumers, the next activity should be to consult and gather information from customers once the consumer needs have been identified.

Consulting and collecting information from customers can be done in several ways.

1. Organize field trips to meet a wide array of customers where SR producers and other value chain operators get to meet them, question them, and initiate partnerships
2. Invite a range of customers to workshops or focus group discussions in the presence of SR producers and other stakeholders
3. Create sustainable multi-stakeholder platforms as part of the interventions to initiate, sustain dialogue and build lasting partnerships. This intervention alone can transform value chains by fostering partnerships, reducing waste, and maximizing market volumes

Critical questions to ask the customers during these interactive sessions should cover a broad range of areas including product quality, current demand and supply, potential consumers, etc.

Product quality is an important issue for customers as well as consumers. Because customers want to satisfy the consumer, the customer is equally concerned about product quality. Therefore, customers should be consulted and questioned extensively on issues related to product quality. The questions to be asked and activities to be carried out are summarized in Figure 4. After organizing the meetings their inputs should be recorded accurately to aid the development of an action plan during future activities to develop the value chain.

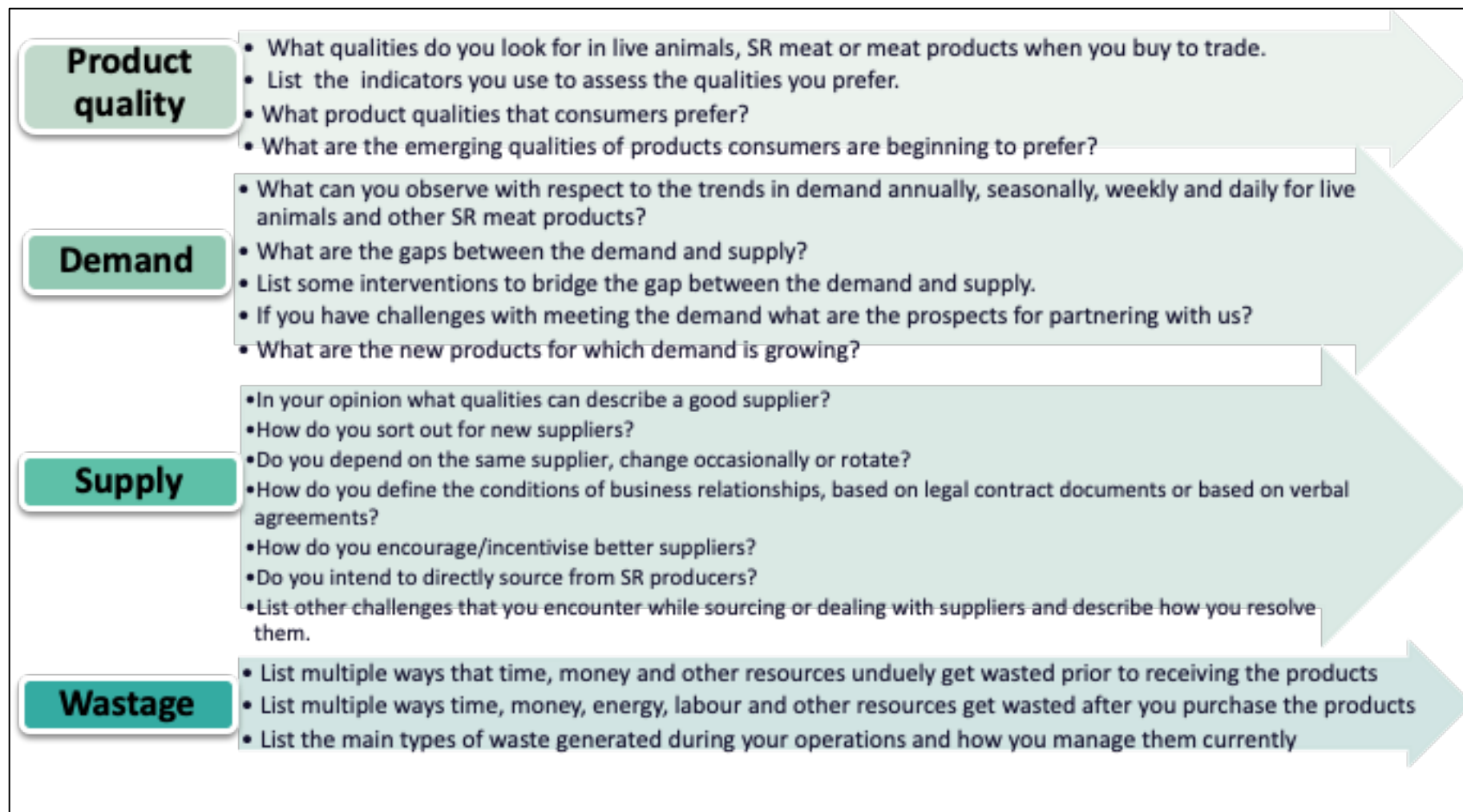


Figure 4. A guide to gathering information from customers.

3.4. Building and sustaining partnerships along the value chain

Developing a value chain using the VCA is a long process that involves many voluntary actions aimed at reliable and consistent delivery of consumer demands that ensures sustainable value chain operations. Recall Figure 1; if the pull is the consumer needs, the rope would be the partnerships.

Reliable partners could be difficult to find. 'Partnerships' takes three 'T's the **T**rust, **T**ime, and **T**ests to develop. Nevertheless, 'partnerships' form one of the most important pillars of any business (Hobbs *et al.*, 2000). It may be tempting to allow partnerships to collapse over issues arising during the exchange of goods, money and other unseen challenges but would be equivalent to 'killing the golden hen'. On the contrary, continuous commitment can transform the one-time 'cash and carry' transactions to contract-based businesses and then to long-term partnerships.

As explained earlier, critical partners are the value chain actors and will include:

1. Producers who supply animals or products and 'create value' in response to consumer needs
2. Input dealers who provide goods, supplies and services to help producers produce as per the consumer needs
3. Customers who link producers to consumers
4. Processors who add value to the main product or those who add value to the waste thereby minimizing waste in the value chain

Key types of partnerships that need to be built and sustained when using the VCA include:

1. Producers and their customers
2. Producers and producers
3. Input dealers and producers

3.4.1. Small ruminant producers and their customers

Producers need traders who are their main customers and processors who purchase animals for value addition. Customers need producers to consistently provide what consumers need.

Responsibilities and activities of producers towards customers include:

- Understanding consumer and customer needs in terms of quality and quantity
- Communicate with customers constantly to receive feedback
- Create value by working hard to deliver SR products and animals as per the consumer and customer demands
- Reliably supplying animals on time in needed volumes i.e., Reliability
- Responding to feedback from consumers and customers

Responsibilities and key activities of customers towards producers include:

- Communicate consumer needs to producers
- Honouring commitments to pay for produce on time
- Avoid abuse of power and opportunism
- Reward producers for reliability and consistency in terms of quantity and quality with incentives, credit, and encouragement

3.4.2. Partnerships among SR producers

One of the key partnerships needed to graduate producers from subsistence to VCA is fostering good producer-producer partnerships. These can be facilitated by the establishment of farmer-based organizations (FBOs) and cooperatives but can only be made effective with commitment and a shared vision.

Benefits of producers coming together include:

- Ability to supply the customers with larger volumes consistently and on time
- Negotiate with input dealers for better pricing of inputs
- Reduce some cost in transportation, wholesale purchases, etc. by sharing costs with other actors
- Ability to better voice their concerns to the government bodies and other stakeholders

Considering the importance of building partnerships, projects aiming at developing livestock value chains should include the following activities:

- Organize fora or workshops to bring all value chain actors of the SR value chain under one roof to facilitate matchmaking
- From inception, follow an **all-inclusive** policy to include all value chain actors in training and capacity building activities to foster relationships
- Initiate value chain platforms as part of activities of value chain development projects and sustain communication within them using social media platforms
- Develop innovations to facilitate networking such as contact directories and value chain databases for the SR value chain in Ghana as part of developmental projects

It also should be noted that projects and external stakeholders can facilitate the initiation of partnerships using the above-mentioned strategies but building sustainable partnerships depends on some key foundations for strong relationships (Dent *et al.*, 2017) which are listed below:

- Understanding and appreciating complementary resources and expectations of each other
- Commitment and reliability
- Effective communication
- Reasonably sharing costs, risks, and rewards
- Taking proactive measures to avoid conflict
- If conflicts arise, striving to resolve them objectively to sustain relationships

3.5. Identifying how to create the ‘consumer value’ and meeting the demand

During the last sections, we studied in detail the importance of consumers who ‘pull’ the value chain, how to assess their needs and how to understand the needs of customers who are at the ‘gateway’ to meeting those consumer needs. From the standpoint of SR producers, these define the demand side of the value chain. Now that the demand of consumers and customers are well understood, the next thing to do is to reflect and learn how to ‘transform the supply’ to meet those needs. Therefore, this activity marks a reflective point to prepare value chain actors to prepare their action plans.

1. Categorize the most potent consumers into a few groups. Example. In a SR value chain, these may be consumers who would like to purchase processed, labeled and

branded SR meat in small packages, chop bar operators and other consumers in major cities who would like to buy live animals

2. Prioritize the needs of each category of consumers by ranking
3. Identify the customers who would link SR producers to each consumer category
4. Prioritize the needs of each customer group who can link the producers to the identified consumer group by ranking
5. For each category, link the consumer needs to customer needs and identify extremely relevant linkages that would become our objectives henceforth
6. Compare what, how and when SR producers or processors 'supply' and the 'demand'
7. Identify the gaps between the demand and the supply
8. Identify what should be done at the supply phase or by producers and processors to bridge these gaps
9. Identify the opportunities, challenges, infrastructural, training and institutional needs to meet the needs of each category of consumers

3.6. Value Addition opportunities for farmers

One of the main aims of studying consumer needs and customer needs is to identify and make improvements that the consumer would want to pay more for. Within the context of the SR value chain, these include the sex of the animal, breed, age, processing, packaging of frozen SR meat products, smoking, etc. Some of these may include value addition activities. If consumer surveys reveal that any of the value-added SR products are in great demand among some consumer groups or locations, attention must be paid to harness the potential and increase production volumes. Currently, processors also treat sheepskin for making drums as a value addition to activity.

3.7. Learning from existing vibrant value chains

Application of the value chain thinking to developing the SR value chain begins with mapping the value chain followed by deeply understanding the consumer needs, the customer needs and finally identifying what should those on the supply side do to meet the demand and to improve businesses. During this process of understanding the demand and designing your path to prosperity, it would also be very useful to learn from those who have succeeded in doing so. This would need the willingness and cooperation of value chain actors of such 'model value chains'

This can be done by field visits to meet and interview the value chain actors of the 'model value chains' with their prior consent. If you are an individual, association, or company, you can contact state or non-profit organizations that work with livestock commodity value chains to identify such vibrant value chains. If you are an institution working to help develop the livestock value chain, you may coordinate such field trips by adequately sensitizing on the objectives and discussing both questions and answers with the actors of that model value chain before embarking on the visit. This activity is often called 'walking the chain' (Dent et al., 2017). Such opportunities to see and learn to build trust in the value chain approach should be an integral part of the activities aimed at developing a value chain using a participatory approach.

Here are some titbits to note:

- Value chain actors are busy people, therefore, try to get the most out of their little time
- Always inform in advance and schedule a time suitable for the actors
- Prepare questions ready to ask actors but paying particular attention to how they succeeded in linking the consumer demand to their production practices, how they build and maintain good partnerships at each node of the model value chain, points of conflicts and mechanisms of resolving them
- Note the most important lessons to learn from each interviewee
- Sensitize and remind participants of the objectives, interview plans and ground rules to adhere to and outputs expected beforehand
- After the interviews, analyse and list the information gathered, lessons learnt and specific points that you can integrate into your business plans or action plans

Case study 2
'Walking the SR value chain' in Burkina Faso

Amidst the local potential for a vibrant SR industry in northern Ghana, traders bring ruminants from Burkina Faso although this has reduced due to recent terrorist attacks in Burkina Faso and falling value of the Ghanaian cedi. The reasons for traders to cross the border to buy animals included better quality, larger size of animals and a steady supply. Despite the similarities in climate and socio-economic features between Southern Burkina Faso and northern Ghana, Burkina Faso can boast of a more vibrant ruminant industry. Therefore, a team made up of three livestock researchers and a ruminant trader visited Burkina Faso and carried out an in-depth analysis to learn from them. The following are some of the key findings from across the border that are relevant to the challenges observed in northern Ghana.

Exercise

- i. List some qualities customers in Ghana are looking for in SRs.
- ii. Identify what production practices help SR producers in Burkina Faso to meet the needs of customers from Ghana and list them.
- iii. Compare their production practices with your production practices; what lessons can you learn?
- iv. Give an example of how a better organization has helped the Burkina Faso actors to solve their problems

1. Management of weight loss of animals during the tethering period

Producers adopt two main livestock production systems namely the pastoral and agro-pastoral systems to rear SRs. In both systems they allow the animals to graze when conditions are favourable for animals to graze freely. During the cropping season they 'tether' SRs and feed them intensively to prevent damages to crops. In the pastoral system, SRs are allowed to graze outside fenced areas where crop farms are fenced. In the agro-pastoral system, the animals, especially, goats are tethered during the cropping season. In this system, the crops are not fenced but some animals may be completely confined and fed intensively, often with conserved pasture and crop residues. They shepherd the sheep through pasture even during the cropping when often goats are tethered or completely confined. During the tethering period and the dry season, SRs are fed with conserved pasture and crop residues. Farmers themselves grow pasture or they buy bales of conserved pasture. Farmers or feed producers harvest grass during the rainy season particularly around September and October to obtain grass with maximum nutritive value, conserve them by sun or shade drying, bale, store or sell them. They obtain the best quality pasture seeds from the Institute of the Environment and Agricultural Research (INERA). The most common fodder varieties harvested include *Andropogon gayanus*, *Pennisetum pedicellatum*, *Alysicarpus ovalifolius* and *Zornia glochidiata*). In the agro-pastoral system they allow the animals to graze when conditions are favourable for grazing, tether them during cropping season while intensively feeding them with pasture and crop residues. For this they grow dual purpose varieties of sorghum, maize, millet, cowpea or use cotton seed pellets. This way they manage the depreciation by limiting the grazing within confined grazing areas for sheep and to some extent cattle as well as rearing goats intensively with conserved pasture, crop residues and/or other agro-industrial by-products.

2. Animal health management

As in Ghana, farmers in Burkina Faso experience animal health challenges such as peste des petits ruminants (PPR), worm infestations, ticks, and pleuropneumonia particularly during the rainy season. Relatively in general farmers seem to pay more attention to their flock health. Veterinary services are more accessible with well-defined pathways to respond to outbreaks. A producer can visit the public vet clinic at no service charge but only pay for the cost of the items used in the treatment of the animal. If the producer calls a vet to the farm the producer will bear the transport cost as well. The state responds to disease outbreaks through interventions such as free nationwide vaccination programmes.

3. Access to financial sources

The government collects revenue from taxes on each animal exported. A percentage of this money is recycled and made available to SR value chain actors in the form of a loan in partnership with financial services as an aid to expand production, trading and/or processing. This contributes to lessen the still existing burden of access to credit in Burkina Faso.

4. Better organization among value chain actors has a great impact on the value chain

Aside strong partnerships within the value chains, value chain actors are organized into functional associations. This further strengthens the functions of value chains and their ability to voice their concerns to the government. Value chain actors including producers, traders, and processors in communities form associations. Representatives from these associations form a value chain committee that is referred to as the 'interprofessional' at the district level. These are further harmonized to form 'interprofessional' at the regional up to the national level. Their Animal Production Directorate facilitates the meetings. Interprofessional are not mere administrative units but are involved in the development of three-year action plans to develop value chains and implementing them in collaboration with the state and other NGOs.

5. Association voice

Producers used to experience water shortages which they voiced through their associations. Government responded by providing mechanized solar-powered boreholes to address the long-standing water shortages for livestock. This has eased the problem in some areas.



A team of researchers meeting national processors' union in Burkina Faso during activities to 'walk the chain' (photo credit: Abajong K./CSIR-ARI).

3.8. Gender considerations in developing SR value chains

Gender inequality is one of the major issues which negatively impact all facets of human life including growing product value chains. On the contrary, gender inclusiveness can have an enormous positive impact on the VCA because most of the time, women do the purchasing when SR meat is retailed and a bonus to attract donor funding for implementing activities. The following are some activities and guidelines to ensure gender inclusiveness in both capacity building leading to developing SR value chains and in sustained operations of value chains.

1. Ensure the inclusion of women in discussions, planning, field visits and training at all stages
2. Consciously include women and youth value chain actors who have excelled in vibrant value chains during learning from existing value chains
3. Include women professionals, resource persons in training and other activities to facilitate women contributing to discussions, decision making, etc.
4. Dedicate at least one session to discuss and decide on the following issues on gender in the presence of both men and women under one roof and another session where they are given the opportunities to voice the issues in the absence of the other sex.
 - Identify the current roles men and women play in the value chains by classifying the activities that are carried out by men only, women only and both in the value chain maps
 - Constraints that women encounter in playing active roles in the SR value chain
 - Constraints that only males encounter in the value chain
 - Constraints that the youth encounter in participating in value chain activities
 - Emerging opportunities for females and the youth in meeting consumer demand
 - Changes of behavior needed in men to facilitate equitable share for women
 - Changes in women needed to facilitate a fair share of women involvement
5. Agreed activities should be included in action plans to ensure gender inclusiveness



Including women in all the stages of the value chain development ensures equity of benefits to women and children; women participating in a focus group discussion at Passe community in the Upper West Region, Ghana (photo credit: Shaibu, M.T.).

3.9. Converting information, experience, lessons and decisions into actions; developing actions plans

The next crucial step in the development of value chains is to develop action plans. Action plans are strategic plans that would guide you to implement the changes you need to do at your place in the value chain to meet the consumer and customer need more effectively. This, therefore, marks the climax of all the hard work you would have done so far from mapping the value chain, understanding the consumer needs, understanding the customer needs and finally reflecting on what you should do to meet those demands with other considerations. This can mark a new era in your business or the businesses of your beneficiaries. The critical thinking needed to develop a good action plan is summarized in Figure 5.

Depending on the need, you may develop action plans as individuals or in groups. If the target beneficiaries are a group of SR value chain actors you should encourage the development of both individual and group action plans. Although you or your beneficiaries may need some external help to develop action plans, they are best when developed by the SR value chain actors themselves. It is good to dream big and target all the consumers you identified but it is feasible and safer to start small.

The specific actions in final action plans will depend on whether you are an individual or a group, your objectives and the roles you play in the value chain. To help both individuals and groups and to cover most of the value chain actors we have summarized guidelines for developing action plans best suited for a group activity with a representation of key value-chain actors. However, efforts have been made to make all potential actors think as you read. While the following steps provide an excellent guide for developing action plans, they need to be adapted to suit your individual or group needs. For example, if you are a producer group the emphasis will be on how your role links to other actors. If you are a processor, you need to apply the guidelines within your context.

3.9.1. Choose 'target consumers'

During the earlier steps, you identified various categories of consumers that you can reach. Some day you can develop your capacity to take a share in all consumers, but it is important to prioritize on one or few consumer categories that we would call the 'target consumer'. At this point, it would be good to recall the prioritized needs of the 'target consumer'.

3.9.2. Identify the 'target customers'

Since you have decided which consumer category would be your immediate target, it is important to identify the specific customers that can link you to that target consumer. They become our 'target customers'. Making contacts with these customers will also become important activities in the action plan. Recall the needs of those customers that can help link you to your target consumers.

3.9.3. Identify the actions that can make you meet consumer and customer needs

Carefully considering the breeds, quality, and volumes of SRs that consumers and customers are demanding, recall and list all the actions that you would need to carry out if you were to meet those demands. It is time to recall what you reflected and discussed during 'Creating consumer value and meeting the demand' in section 3.5 and incorporate them into the action plan. Remember to include actions that can give equal opportunities to women in the value chain. Identify where women and youth can play an active role.

3.9.4. List the inputs needed

Activities that producers would need to carry out and the needed changes in production would also require certain inputs such as improved breeds, access to vaccines, veterinary services, improved pasture seeds, training on husbandry and other training, source of funds to satisfy the needs of your 'target consumers' and 'target customers'. If you are a processor you would need tools for processing, supplies, infrastructure, training on and processing practices, etc.

3.9.5. Identify the sources

For each input listed, identify from whom or where you can get the inputs you listed. If you are unaware of where to get the inputs, consult the extension services or other service providers.

3.9.6. List all the activities that you need to undertake in the best order for implementation

By now you would have several actions you have identified to meet the demand including how to source the inputs. For effective implementation, we need to identify what to do before production, during production and after production. Also, the best order of implementation would depend on the opportunities you have now, the production season, market season and many other factors.

Figure 6 provides a summarized framework for developing individual and group action plans. Action plans can be built by listing the answers to the questions sequentially. Again, we emphasize the need to apply the framework within the context of the user.



Figure 5. The thinking that leads to good action plans.

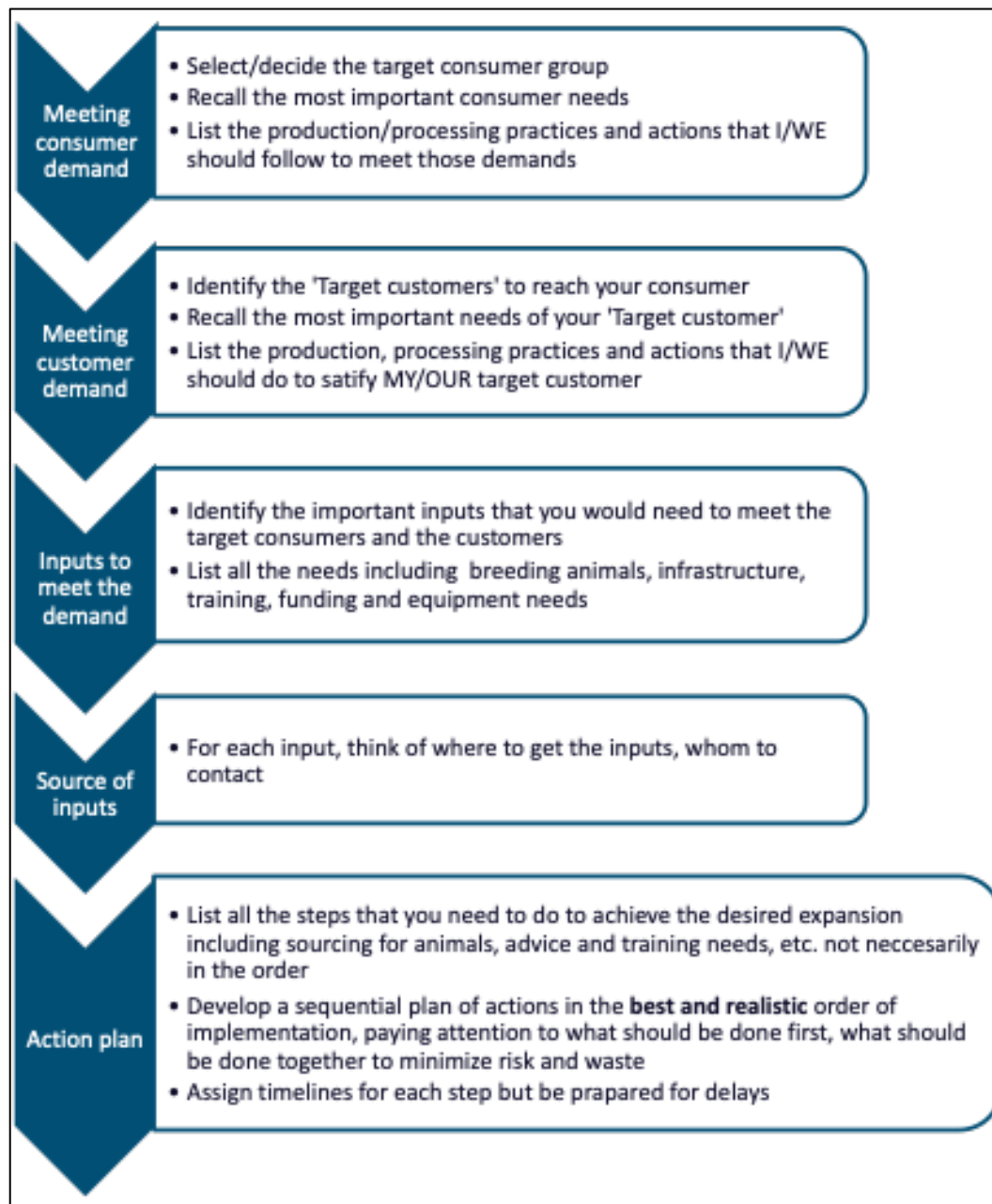


Figure 6. A guide to developing action plans for SR value chain development

Chapter 4: Challenges and opportunities to developing the small ruminant value chain in Ghana

As has been emphasized throughout this book, value chains are extremely dynamic. The specific set of interventions needed to improve a given value chain depends on the current situation, challenges, prevailing opportunities, emerging long-term trends and issues. Therefore, developing the SR value chain in northern Ghana necessitates an evaluation of the present situation, challenges and opportunities and emerging long-term trends. Finally, it should be noted that these plans should be implemented over a considerable period to see improvements.

This chapter seeks to provide an overview of the current situation highlighting the challenges and opportunities.

4.1. Challenges with the development of the SR value chain in northern Ghana

The following are some of the major challenges identified from the baseline study conducted by researchers of CSIR-Animal Research Institute, that is, Avornyo et al. (2020) to characterize the status, opportunities, and challenges of the SR value chain in northern Ghana.

While this information is very beneficial for the identification and prioritization of interventions that can transform the SR value chain in Ghana at the time of compilation of this handbook, we strongly recommend re-evaluating these before the actual implementation of any recommendation due to the dynamic nature of value chains.

4.1.1. Less organized farmers and long supply chains

Presently most of the locally produced SRs come from smallholder farmers in northern Ghana. In general SR producers in communities are not organized. They do not have active associations and no opportunity to working together for greater prosperity. They do not sell animals in bulk. Most often they carry one or few animals to the nearest market. Traders purchase them while some middlemen can intercept farmers on their way to the market and sell the animals at the market at a higher price. Traders who supply SRs to destination markets in Accra and major cities buy from them and transport them in VVIP buses or trucks. Traders dictate the price of live animals. The value chains are unnecessarily long with so many middlemen. Traders who are the major customers are important but too many middlemen create a situation where the farmer is always disadvantaged as their hard work is not adequately rewarded. This demotivates farmers to invest more and graduating to become agribusiness persons from subsistence farming. On the other hand, consumers get SRs and meat at very high prices further reducing consumption. In fact, what is currently in operation are long supply chains not vibrant value chains.

This situation can be turned through some interventions initiated by the state, local governments, developmental projects, NGOs, farmers or even agribusinessmen and women but can be sustained with the engagement of all stakeholders. These include establishing and strengthening associations and cooperatives at community levels, creating platforms that include all partners in the SR value chain, facilitating relevant communication linkages

and infrastructure support along the value chain, and the implementation of projects to develop value chains using participatory approaches.

4.1.2. Absence or low level of communication among value chain actors

A low level of organization among the producers, other value chain actors and stakeholders results in low levels of communication and vice versa. We found that communication along the value chain was limited from the community level and beyond. Despite increased popularization of social media, the use of smartphones even in rural settings and online merchandising nationwide, these technologies have not been utilized to transform livestock commodity value chains including the SR industry. We encountered some farmers struggling to connect with veterinary technicians responsible even at the community level. These can be averted, and new opportunities created for farmers and traders by developing innovations to enhance communication throughout the SR value chain. Some of these are detailed under recommendations.

4.1.3. Unavailability of a constant supply of breeding animals

Producers have a greater preference for larger Sahelian breeds as they can be sold at a higher price. The majority of the final consumers all over the country prefer the characteristic flavor of the West African Dwarf (WAD), particularly the entire (uncastrated) male goat. However, the supermarkets and other upscale markets prefer the Sahelian breed or its meat. This creates a situation where crossbred and pure Sahelian animals are also in demand. However, farmers complain about the unavailability of larger rams crossing with WAD females which often results in larger offspring. A note of caution however is that the ram should not be much bigger than the ewe otherwise the problem of dystocia may arise. They also complain about the high mortality rate associated with the keeping of the Sahelian breed in Ghana.

4.1.4. Tethering during the cropping season

Due to the destruction caused by goats, they are kept tethered during the cropping season. During this season, goats lose weight, and their market value reduces. This is because goats become stressed up and do not get adequate feed during tethering. Their feeding is limited only to some radius of pasture, and do not get the opportunity to move around at their will to graze in other pasture fields.

Research has revealed that a lot of miscarriages, stillbirths, weak neonates, a high incidence of ketosis and a high postnatal mortality rate of dam and offspring are common features in goats during the tethering period (Matthews, 2016). As a result, the herd productivity is hampered, and the male neonates (new-born kids) seem to have a disproportionately higher mortality rate compared to the female neonates thereby reducing the number of male animals that would be available for offtake.

4.1.5. High mortality rate and limited access to veterinary health care

The high mortality rate of small ruminants especially during the rainy season remains a major challenge in northern Ghana. Although Community Animal Health Workers (CAHWs) have been trained on the basics of animal health, farmers still are handicapped with access to veterinary services during sickness and for vaccination. In some communities networking and information flow among farmers to access veterinary services was a constraint.

4.1.6. The high cost of animals

Due to inadequate supply, greater demand, the involvement of too many middlemen and traders dictating prices, the cost of small ruminants has been increased hindering the businesses of processors such as those who sell kebabs.

4.1.7. Extortion of money and corruption

Producers and traders complained that some individuals in the law enforcement agencies unduly extort money at security checkpoints during their journeys to markets. Undue delays at checkpoints, stopping vehicles that transport animals at each barrier increased mortality rates.

4.1.8. Lack of organized delivery systems

Traders depend on a wide array of means for transporting animals including reliance on VVIP buses, taxis, Urban buses. Hiring trucks seems to be an expensive alternative for some traders. Delivery trucks that take the responsibility of delivering animals from different producer groups in the company of some farmers and traders to destination markets and returning with goods on the return journey can be a viable business venture to be scaled up.

4.1.9. Theft

Small ruminant actors invariably identify theft as a key constraint hampering their benefits from the small ruminant sector. According to them, there is organized theft in the communities, in the markets and on the roads, and a concerted effort is required to fight the canker. As a result of this challenge and others, stock numbers in some communities, especially those in Upper West Region have diminished.

The Nandom township, which is also located in the Upper West Region, was compelled to institute a community surveillance operation to address the issue of theft but there were met with challenges that made them disband. People steal small ruminants within the market. Stolen livestock also comes from outside the market. It is difficult to tell which animal is stolen. These problems are discussed with the executives of the traders' associations but in most cases, no solution is found. In the Wa market, for instance, they have a surveillance team that interrogates suspected persons who bring animals to the market to sell. A member of the butchers' association in Wa was constantly accused of theft and was eventually expelled from the association. Assuming an Innovation Platform is established for the actors and strengthened, it would go a long way to reduce the extent of theft cases.

There was an instance where a thief was arrested, thanks to the existence of the IP; the livestock officer of the Department of Agriculture was alerted when a suspected stolen animal was brought to the market for sale and this led to the arrest of the thief and the retrieval of the stolen animal. A few traders who travel to Leo, Ouagadougou and Niger to buy small ruminants do so with a police escort to protect themselves from being robbed by thieves. Each trader was paying about the equivalent of US\$10 of which about US\$3.50 was used to pay for the police escort. Burkina Faso also used to grapple with the problem of small ruminant theft, however, in 2015, they established community-level vigilante groups that have successfully addressed the problem in the communities. The Burkina Faso market management committee pays for security to be provided in the market. A day police guard is at the post in the market and is replaced by a private security guard at night. In addition, they provide security lights and all these have been effective in providing security and curbing the rate of theft in the market.

4.1.10. Conflicts

There are a few conflict situations that are negatively affecting the small ruminant trade in Ghana. The major one is suspected Islamist militants that are killing Burkina Faso soldiers and farmers. This has threatened the security situation in major small ruminant-producing areas and caused farm families to flee from their homes in the northern and eastern parts of Burkina Faso. Another conflict situation is between livestock herders and crop farmers. The movement of livestock within the country must be monitored and measures must be taken to reduce the conflict between herders and farmers.

4.2. Opportunities for the development of the small ruminant value chain in northern Ghana and some ‘value’ traits

4.2.1. Some ‘value’ traits

Based on information gathered during the current study it was clear that larger size is a product quality desired from producers to traders because larger animals are sold at a higher price. Larger sizes of animals are a result of the breed, good husbandry, quality and quantity of feeding including the tethering period. Producers prefer a larger size, hence the Sahelian breeds from Burkina Faso as they get more money per animal. It appears that most consumers prefer the WAD for its characteristic flavor. Therefore, crossbreeds that are superior in size, but it is not very clear if they have the characteristic WAD flavor may be promoted and made available. Also, there is a growing niche market for the larger-frame pure Sahelian breed that needs to be explored.

4.2.2. A large gap between the domestic demand and supply

Small ruminant meat is a delicacy in Ghana. Restaurants, chop bars and butchers in cities source for large volumes of SRs. The demand has further increased due to improvements in income levels and urbanization. Currently, locally produced SRs are largely inadequate to satisfy the demand in Ghana. Therefore, a larger proportion of traders source animals from Burkina Faso. A proportion of traders go to areas such as Douri, Pisila, Goro, Po, Ouagadougou and Guelwongo in Burkina Faso to source for animals. Due to the larger size, these animals have greater value in the market and often compete with locally produced small ruminants. However, recent terrorist activities in Burkina Faso have reduced the supply in Burkina Faso and also traders crossing the border to source for animals. This has further increased the cost of Sahelian breeds from Burkina Faso. All these factors have further increased the demand for locally produced SRs than ever before. This creates an opportunity to be harnessed by applying the value chain approach and through other interventions to strengthen farmers.

Chapter 5: Some recommendations and innovations for transforming the small ruminant value chain in northern Ghana

Agricultural commodity value chains are extremely dynamic networks made up of value chain actors, connected by partnerships of which the functions can be facilitated by a supportive environment. Input dealers, producers, middlemen, traders and processors depend on these value chains for their livelihood and often have a stake in the day-to-day transactions. For example, consumers depend on value chains for affordable food and nutrition. Therefore, the development of sustainable agricultural value chains is among the most impactful developmental interventions for communities and populations and if implemented well, they will serve as mechanisms for transforming masses through improvements in related food systems and livelihoods.

The following are some recommendations to all stakeholders that can play critical roles in the development of SR value chain including the national government, local governments, developmental partners, NGOs, research institutions, responsible ministries and the value chain actors themselves.

Some recommendations are relevant to all livestock commodities. Integrated implementation of such recommendations for livestock commodities certainly has the power to transform the masses. This handbook can be an excellent resource for developmental partners, politicians, policymakers and agricultural practitioners. We say **'Development is everyone's business, nevertheless some should take the lead'**.

5.1. Development of a sustainable organizational structure for the SR value chain operations and its advancement

Studies from the past to the present reveal that the SR value chains in northern Ghana and the whole country are not well organized. This low level of organization hampers all aspects of the development of the SR value chain. Therefore, one of the priority actions is to develop a sustainable organizational structure for the SR value chain and its advancement. Any of the key stakeholders including the Animal Production Directorate, State research institutions or the Department of Agriculture can take this initiative but using an inclusive approach to widen the scope to organize all actors from the community to district, regional and national levels. How the SR value chain is organized in Burkina Faso provides an actualized example of an organizational value chain framework.

5.2. Develop and implement a long-term livestock value chain development strategy to boost local production at the national level with gradual import substitution

Considering the pivotal role that livestock value chains play among the masses of Ghanaians and the electorate, the national government should propose a long-term livestock value chain development strategy with the VCA at its heart to ensure sustainability. Such a strategy can consider maximizing the power of consumer needs, customer needs, value addition, gender empowerment and strengths, weaknesses, opportunities, and threats (SWOT) analysis before the development of strategic plans at the national level. Then

priority should be given to implementing specific transformative developmental actions that only national governments can undertake, such as:

- As, currently, Ghana has well-established cold store chains, sadly, to distribute imported livestock commodities, strategies should be developed to gradually incorporate domestic meat products into the same cold chain. A good start point would be SR cut meat. As cold vans reach the north with frozen fish from the south their return journey can transport frozen SR and beef cuts to the south and making them an integral part of the products widely sold through cold stores. This can be started with a scenario where imported frozen fish is co-distributed with domestic livestock products by simultaneously and selectively imposing a tax on frozen imported livestock products to start with.
- A similar approach can be adopted to apportion a market share to local meat products through negotiations with the wholesale cold store operators and gradually substitute imported products with frozen local products in the long run.
- Incentivize local production by reducing tax on key inputs and gradually increasing the tax selectively on frozen livestock imports.
- Initiation of a railway network connecting most strategic supply points in the north and the destination markets in the south and, by policy, restricting the movement of imported commodities which will hamper local production.

5.3. Integrating the value chain approach into all research and developmental projects

One of the major development challenges, in general, remains the lack of harmonization of state research institutions, universities, developmental projects, local government developmental planning and national developmental planning with no exception in the livestock sector. This can be averted by developing harmonized visions and missions and developing national strategic action plans that are implemented through local assemblies and state institutions in livestock research and production. For example, State research institutions and State universities can be invited or directed to integrate the value chain development activities into their research interventions in all research projects. All government-mediated projects can be directed to integrate activities leading to developing value chains using the VCA such as strengthening farmer associations, developing communication platforms, and connecting farmers to new markets.

5.4. Initiate, strengthen and sustain farmer-based organizations

From data available so far, it is clear that SR producers are the least organized and often the most disadvantaged among the SR value chain actors in northern Ghana. This is largely due to unusually long supply chains. One major reason for unnecessarily long supply chains is the low level of organization of producers. Farmers coming together to form associations provides them with opportunities to link with traders that directly work with restaurants, hotels and chop bars in specific areas shortening value chains and minimizing waste. If the farmers themselves establish communication with the customers, they can organize

themselves to assemble the supply according to the demand. For this, they would have to establish a strong record-keeping on their stocks to plan the supply or/and agree on rotational systems to source the supply. Systems can be established to invite veterinary staff to issue movement permits on agreed days.

Facilitating the initiation of associations, cooperatives or working groups should be an important activity of all livestock developmental projects. By policy, the government can recommend all research and developmental projects to integrate activities to initiate and strengthen FBOs and include such activities in the strategic planning of the Ministry of Food and Agriculture (MoFA), Departments of Agriculture and even at local governmental levels.

5.5. Creation of multi-partner value chain platforms at community levels

While awaiting the government to develop a nationwide organizational structure to network representation of all partners of value chains, research and development projects aiming at improving agricultural commodities can integrate activities to bring various value chain operators together to initiate dialogue, facilitate matchmaking and initiate value chain platforms consisting of all value chain actors. Facilitating the formation of platforms can also be made obligatory in institutional strategic planning of research organizations, the Ministry of Food and Agriculture and NGOs working with rural and agricultural development.

5.6. Develop a contact directory of SR value chain operators

The level of networking starting within the district level to the national level is a critical challenge hindering the growth of value chains. This can be overcome by developing simple tools like contact directories for SR value chain actors in Ghana. A contact directory can be a one-stop resource to get information on locations and contacts of producers, traders, processors, Municipal Agricultural officers, Veterinary service providers, input dealers and suppliers of breeding animals. Some past research activities were initiated to develop such a directory for the SR value chain in northern Ghana. Such activities should be revitalized.

5.7. Development of value chain databases

Data on contacts, capacity and stock hold can be built into databases that can be made available through the internet with the options to feed real-time information and updates. Developing sustainable mechanisms for updating and maintenance of such databases will be the future of facilitating communication and networking throughout commodity value chains. A prototype for such a database was developed by the CSIR-Animal Research Institute.

5.8. Increase availability and accessibility to breeding animals

The state should strengthen SR breeding programmes to increase the availability of superior male animals. In the face of uncertain funding mechanisms to sustain SR breeding programmes, research institutions and breeding stations under MoFA should endeavor to establish self-sustaining breeding programmes to make superior breeder stock available to farmers. Such breeding programmes should have mechanisms to maintain local breeds, constantly appraise animals and inseminate animals at an affordable price while recovering the operational costs. The objectives of such breeding programmes should prioritize the value preference for crossbred animals with larger sizes with the characteristic WAD flavor. The production of the Sahelian breed in Ghana also needs to be appraised. Farmers can also be trained in improved breeding and breeder stock management.

5.9. Improving and revolutionizing animal delivery networks

Strengthening animal delivery systems by increasing the use of delivery trucks by traders and producers coming together will go a long way to minimize deaths along the long journey from the north to the south. This can be facilitated by including transport operators in value chain platforms.

Long-term initiatives to build a railway network linking major producing communities in the north to destination markets in the south will be a single ambitious revolutionary intervention that can transform all agricultural commodity value chains in Ghana.

5.10. Minimizing waste during transportation

Although law enforcement is necessary, undue delays at security checkpoints and unjust extortions of money and corruption increase deaths along the value chain. The government should take action to avoid such situations.

5.11. Develop and disseminate technologies and feed resources to combat weight loss during the tethering period

One of the major challenges in meeting customer preference for male and larger animals is the depreciation of SRs during the cropping season when they are constrained from grazing to prevent damages to crops. The following can be done to minimize losses during tethering:

- Growing quality varieties of pasture during the rainy season
- Conserve pasture by sun-drying, shade-drying or silaging, store them for the dry season and the tethering period
- Further improve conserved feed by formulating feed followed by pelleting or blocking
- Manage SRs largely intensively providing them with conserved pasture or agro-industrial by-products
- Selectively supplement the feeding of pregnant and lactating dams as well as the breeding males
- Train farmers on SR feed conservation technologies such as silaging, solar drying, etc.
- Disseminate technologies on the formulation of pelleted feed, feed blocks and baled feeds to farmers
- Research, develop and disseminate new solutions to combat depreciation during tethering

The following are some good extension materials to learn more from and disseminate on feed conservation. We also recommend the development of a comprehensive manual for feed resource management for the tethering period and the dry season for Ghana.

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Useful contacts

1. The Head of Station, Nyankpala Station
Council for Scientific and Industrial Research – Animal Research Institute, Tamale,
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2. The Director
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Kassena-Nankana Municipal
Navrongo
Upper East Region
3. The Director
The Department of Agriculture
Wa West District
Wa
Upper West Region

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