Barriers to Market Entry, Poor Livestock Producers and Public Policy

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This is the 46th of a series of Working Papers prepared for the Pro-Poor Livestock Policy Initiative (PPLPI). The purpose of these papers is to explore issues related to livestock development in the context of poverty alleviation.

Livestock is vital to the economies of many developing countries. Animals are a source of food, more specifically protein for human diets, income, employment and possibly foreign exchange. For low income producers, livestock can serve as a store of wealth, provide draught power and organic fertiliser for crop production and a means of transport. Consumption of livestock and livestock products in developing countries, though starting from a low base, is growing rapidly.

Barriers to market entry are multi-faceted, complex and difficult to define, analyse and overcome. The main aim of this study is to provide analytical methods to examine barriers to market access for poor livestock producers, for these to be used in dynamic policy analysis and implementation. It situates the problem by analysing how market systems operate, showing how poor livestock producers are positioned in such markets. Within this context, this study identifies the various classes of barriers to and opportunities for market entry of their particular livestock products, and demonstrates the important relationships that exist between public policy, governance and barriers to market entry.

We hope this paper will provide useful information to its readers and any feedback is welcome by the author, PPLPI and the Livestock Information, Sector Analysis and Policy Branch (AGAL) of the Food and Agriculture Organization (FAO).

Disclaimer

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EXECUTIVE SUMMARY

Barriers to market entry are multi-factorial, diffuse, complex and difficult to define, analyse and overcome. In contrast their existence is relatively simple to detect. This document builds a picture of the broader environment in which the poor livestock producer is operating then links the producer and markets to a policy environment as a way to identify particular constraints and build public policy to help overcome them. To do so the following areas are considered:

1. The operation of markets and market systems including what constitutes a market and how markets operate,
2. Poor livestock producers and their production in relation to the market,
3. Barriers to and opportunities for market entry
4. Relationships between public policy, governance and barriers to market entry
5. Analytical methods to examine barriers to market access for poor livestock producers including policy analysis and implementation as a learning process for the analyst and as a means to draw together the other five elements

When working with barriers to market access affecting poor livestock producers it is useful to have an understanding of the market systems that operate and the way in which the structure and power in those systems has been changing and can be expected to continue to change. The relationship between poor livestock producers and markets is not well understood. The examination of the issues from the perspective of markets rather than from the perspective of technical efficiency has the potential to produce a different set of outcomes from the examination.

The market system being considered in this document is the food sector market and the livestock producer generally operates as a supplier to the food sector rather than as part of an independently operating agricultural sector. The emphasis is significant because it acknowledges both the commercial realities and that public policy in most countries focuses on meeting the needs of the rapidly growing urban population rather than supporting agricultural producers.

Operation of Markets

A market can be defined as an exchange between sellers and buyers with that exchange being an entry point to a market system that takes a product from its initial production through processing to consumption by the final consumer. In considering markets several factors need to be accepted including the: complex nature of markets; changing nature of the way in which markets operate, and heterogeneous nature of markets in relation to their demand for product with respect to both quantity and quality.

The nature of the place at which the product is purchased by the consumers can be further defined to include: live markets; wet markets; restaurants; small shops, and supermarkets. The location of the place of sale can be part of the formal economy or part of the informal economy. There is a strong interaction between the nature of the place at which consumers purchase the various animal products and the location of the consumer. Major markets into which poor producers could sell product can be termed: industrial input markets, and local markets with various other markets operating between the two. Each market sector has its own product standards that are often reported as being defined by the consumer but are also determined by other commercial operators and the nation state via regulation and enforcement. The
requirements and standards for product will often vary between countries and also between cultures within countries.

The industrial market system for food has changed considerably over the past 20 years. The system now talks in terms of vertically integrated chains linking the production, processing and movement of product from producer to the final consumer. The competition for efficiency of the industrial system is said to be between chains rather than the more traditional approach of competition between operators at the same level in the chain. As a result of the quest for efficiency between chains coordination of the various components of the chain and the relationship between them has become increasingly important.

In industrial markets farmers provide an input into an industrial food production system and year round consistent supply of product is a key issue. The purchaser of product at most levels of the supply chain prefers to work with large quantities of product and a relatively small number of producers. They require producers to provide consistent quality and to have the ability to meet quality standards imposed by the market and public sector organisations with minimal supervision from the purchaser. In addition an efficient chain requires that the various participants in the chain are aligned in their processes (and may also require alignment in their purpose). A high level of communication including transfer of knowledge is required as the chains move towards what has been referred to as the “efficient food service response” method for food supply.

When a farmer is working to enter a market it is the whole market system that he or she is entering; and the market system can be described by the supply chain. A supply chain provides a useful device to describe the market system and illustrates the physical, institutional, social and economic processes involved in taking the product from the producer to the final consumer. In the chain the product is subjected to several transformations that may be processing or in location and the various individuals and organisations in the system are linked together via relationships. An important consideration in the analytical framework is that analysis of both transformations and links is involved. Working with value (or supply) chains provides a useful framework for description and analysis rather than a well defined and developed method for analysis.

The way in which the market is managed is undergoing change as is the method of and responsibility for governance of market systems. The market is moving towards governance by the private sector rather than the public sector. For, example much of the management and coordination of agricultural production has been transferred from the state to other organisations including transnational corporations (such as supermarkets), supranational organisations such as the European Union, various environmental groups and other groups such as consumer groups. The nation state has taken a limited role in the coordination of the various stakeholders and not worked in the regulation of their demands which poses questions with respect to the relevance of public policy and implementation activities in managing the interaction between farmers and the various players in the market chain.

Poor Livestock Producers

To assist the producer to develop relationships with markets and overcome barriers it is important to understand the farmers’ situation in particular their location, purpose, the livelihood strategies they use to meet that purpose and the livestock products they produce. Poor livestock owners and producers are in a precarious position, are risk adverse and do not operate as entrepreneurs. They may not have knowledge of the principles of market based production and how to operate in a commercial environment and their social system may not be conducive to a commercial focus. For
example, the poor livestock producer is not focussed on producing a livestock product that will meet the needs of the consumer of that product. Producers may be unable or unwilling to reduce the labour in their other livelihood activities and this constrains livestock production activities to meet market requirements.

Because livestock production is generally a slow moving and risky business and capital circulates slowly it is not very attractive to investors and gaps in production in relation to demand exist. The livestock industries that are attractive to capital investment and large scale commercial production systems are those where the production time can be shortened and the risks reduced as is the case with pig and poultry production. Asking a poor producer to increase commitment to livestock production could increase their exposure to risk.

Alignment is an important concept and refers to the congruence between various operators in the chain. That congruence refers to various factors focussed around the transfer of physical product and the nature of the relationship between the organisations. A poor livestock producer with a purpose to maintain their livelihood through various strategies, and not operating as a commercial producer of livestock products, is therefore unlikely to be aligned to an organisation focussed on commercial operation to supply a supermarket.

**Barriers to Market Entry**

Barriers to market entry are located within a complex collection of social, economic and physical interactions embedded in a political environment. Barriers have various characteristics including they: have many origins; operate at various levels; are dynamic; are not necessarily the same for all markets, segments of market or for all livestock products; and do not operate one at a time but operate simultaneously and interact with each other.

Categorisation and classification of barriers is a difficult task and barriers can be categorised in many ways. Four ways to classify barriers are examined in this report and are briefly described here. All four can be applied to describe the various characteristics of the barrier. First barriers can be classified as being: technical, financial, and social and cultural. Using this form of classification the lack of alignment between a poor producer and the market system could be considered a barrier influenced by all three categories.

Second barriers to market entry can also be classified as having either: direct, or indirect effects. Direct barriers are those that impact directly on the first sale whereas indirect barriers are those that have their origin elsewhere in the system and operate via other mechanisms to impact on the first sale of the producer.

Third classification as to whether their impacts are immediate or delayed. The delays between a barrier and its impact relate to distance in space or time or both. Immediate barriers are those where the effect is close in both space and time to the producer and the first transaction while delayed barriers can be distant in either space or time or both.

Fourth barriers can also be considered to be intrinsic or extrinsic. Intrinsic barriers are those that exist irrespective of the producer and market and may for example be due to the nature of the product (meat is bulky and highly perishable for example). The majority of small scale livestock production systems have not been developed to align with modern methods for the processing and marketing of livestock products. As a result there are numerous barriers to market entry that form an intrinsic component of the production system. Some of those barriers such as distance to market cannot be removed but the barriers that cannot be removed can be mitigated.
Barriers and Knowledge

In many ways detection of barriers to market entry for poor livestock producers is relatively simple because a barrier can be deemed to be present when poor livestock producers are unable to sell their produce at a reasonable price where there is demand for that product. However, the detection of the presence of a barrier does not ensure the barrier will be overcome or removed. One reason for this is that the operation of barriers is multi-factorial with barriers often consisting of multiple components operating at once and removal of one component of the barrier may not be enough to remove the barrier. In order to remove a barrier the location of the barrier its components and the nature of the barrier’s operation also need to be determined. Removing what may be a barrier for one person in one industry may lead to another barrier being introduced for other operators in the same or another area or industry.

Given the nature of barriers knowledge is an important element in working to remove them. The lack of knowledge farmers have with respect to production processes has to been the focus in the public sector and has been addressed through extension services. However, other areas of knowledge are also important including knowledge of the operation of the market system, how to enter it, and what constitutes a fair price. The knowledge of those other than farmers is also crucial to overcoming barriers to market entry, including those involved in: policy development and implementation such as the policy analysts and designers; public sector staff within the operational sectors (i.e. implementers of policy) and, various actors in the supply chain (market system).

The approach taken to knowledge varies between disciplines and individuals based on their experience and perspective. Knowledge can be classified in several ways including as, communicable knowledge and tacit. The two types of knowledge can be defined as: Communicable Knowledge is knowledge that can be transmitted from one person to another Tacit Knowledge is acquired in part by participating in a particular area or activity and not all of this knowledge can be communicated to another person. Individuals vary in their ability to gain tacit knowledge.

Discovering markets, evaluation of markets and managing the method of production require the development of tacit knowledge in order to understand the complexity involved and establish mechanisms to work within it. The specific knowledge required is generally specific to a situation and the institutions that operate in that situation. In order to invest in the acquisition of new knowledge the institutional arrangements need to allow that acquisition and the individual or organisation needs to see the benefit in the investment. The benefit may involve a significant change in production processes as well as a change in the nature and operation of institutions.

The relationship and communication with the first step in the chain forms a critical step in the process of product sales for small scale producers and provides an example of the knowledge required to participate in the market. During the first exchange sellers need to have: knowledge of the potential buyers, what they buy and when they want to buy it (including seasonality of demand); knowledge of the other services offered by the various potential buyers; capacity to produce the product that buyers want to buy (resources and knowledge); ability to negotiate a fair price (including an understanding of what constitutes a fair price within the current market and in relation to the cost of production); assurance that they will be paid for the product such as a binding contract and ability to enforce that contract to ensure payment.

Many producers have limited if any knowledge of who the alternative purchasers of their product may be or the price likely to be offered by those alternative purchasers. In part because producers have limited access to information and limited capacity to access information in rapidly changing markets.
Executive Summary

Relationship between Public Policy, Governance and Barriers to Market Entry

Implementing policies that lower barriers to entry for poor livestock producers can entail modifying existing market processes and institutions and developing new processes and institutions. Understanding how the livestock market system currently works is therefore a fundamental step in developing policy. Policy can have positive or negative impacts on market access – that is policy can operate as a barrier or can reduce the impacts of barriers to market entry. Policy analysis tends to focus on specific measurable outcomes rather than flow on effects. For example, improved transport is not analysed with respect to its impact on small scale livestock producers but on how much more effectively the transport system operates - improved transport to an isolated area could reduce the welfare of poor livestock producers.

Public policy operates in many ways; it can work within sectors and across different sectors, it operates at multiple levels and can influence the market system in various ways. In general public policy is a characteristic of the nation state model of government and forms a component of overall governance structures that often also include traditional governance structures and commercial governance arrangements. It is important to understand the nature of government versus governance in determining the relationship of policy and its operation to enable (or in some cases inhibit) market entry. In addition, the scale of operation of public policy is also an important factor to be considered.

Many of those involved with policy design, analysis and implementation are aware of the words and jargon associated with market access but few have a clear understanding of the meaning of the words in practice. This lack of knowledge and understanding constitutes a major policy barrier to improving market access for poor producers because policy analysts are not able to include the issues in their analysis providing an example of the role of knowledge in barriers. Livestock policy, economic policy and development policy are generally disconnected from each other and from the people being serviced such that flow-on effects are often not considered.

The nature of the causal relationships and distance in place and time between policy and its implementation and the association between policy implementation and the political process are important factors in setting public policy priorities. If the association between cause and effect is distant and longer in time than the political cycle then the impetus for politicians to make changes is limited. Policy is often thought of as an adaptive process that involves monitoring and response to that monitoring and if change in response to policy implementation is slow then policy may be rejected before impacts from its implementation are detected.

Exchanges between buyers and sellers of produce are governed in several ways such as through various cultural norms including traditional cultural relationships and the culture of commercial organisations. In addition there are various rules imposed by the nation state that formalise many arrangements such as ownership and to enable enforcement of agreements. The governance modes can be described as involving three areas, namely: traditional governance structures; private sector and the norms that govern the way in which it operates, and public sector via the modes of operation of the nation state (with policy and practice that can be coercive or not coercive).

Each of the areas of governance operates in different ways and the power of each to control the others varies depending on the scale at which it is operating and the location of the market system in relation to the centre of power of the nation state.
Policy Analysis and Implementation as a Learning Process

The lack of a definitive method for analysis of the policy opportunities to assist poor livestock producers suggests the need for a process to integrate the inputs from the various discipline perspectives, develop, analyse and implement policy and review the impact in light of the policy aims. While such an approach might be considered standard procedure it is rarely followed, in part because it is so difficult to do. However, learning frameworks can play a significant role in assisting policy analysts to understand the processes involved and move to improving policy outcomes.

A supply chain provides a useful device to describe the market system and illustrates the physical, institutional, social and economic processes involved in taking the product from the producer to the final consumer. As the product moves from the producer to the consumer via the market system the product is subjected to several transformations that may be processing or in location. In addition the various individuals and organisations in the system are linked together via relationships.

As has been stated earlier there is no single simple solution surrounding the issue of market access and no simple analytical tool that can determine the “correct” policy framework. Policy development, analysis and implementation is to a large extent an iterative learning process on the part of the policy designers and implementers and if the policy process is taken as a process of learning and improving rather than a strictly analytical process of determining strategy then carrying it out with a clear causal link between the actions and outcomes the use of the supply chain as a method to integrate various other forms of analysis becomes apparent.

Many policy analysis tools and methods for data collection can therefore be considered learning devices where concepts are being tested; experience is gained and, observations undertaken in order to improve the process. When used appropriately the tools build the capacity of the policy analyst and designer as well as the community from whom the data is collected. In this way not only will knowledge about a particularly policy and its impacts be developed but also knowledge about the usefulness of the analytical tool and its strengths and weaknesses and how it can be used.
INTRODUCTION

The relationship between poor livestock producers and markets is not well understood. Various approaches can be taken to describe and analyse the relationship including an evaluation of barriers to market entry. In its simplest sense the issue being considered relates to the poor livestock producer, consumers of livestock products and the way in which they are connected to that system made up of individuals, organisations and processes. All three elements (production, consumption and connection) need to be considered and together can be referred to as the livestock production and marketing system. The production and marketing of livestock products pose particular problems because they are bulky and usually highly perishable.

The examination of the issues from the perspective of markets rather than from the perspective of technical efficiency has the potential to produce a different set of outcomes from the examination. The argument in relation to livestock production has tended to be that if the technical efficiency is increased someone will buy the product without consideration of the market’s requirements or the location of the producer in relation to the market. Such an approach forces producers into the area of commodity production where they have little control over the marketing of their product and have little chance to improve their commercial position.

This paper takes an integrating approach that considers the operation of the broader market system in relation to public policy. This approach has been taken to deal with the multiple and obvious imperfections in the market and to provide a framework for the development of public policy that works to the advantage of the poor producer or at least diminishes the disadvantages they experience when attempting to enter markets. The approach considers the producer in relation to markets using various analytical tools and builds a model of policy development and analysis as learning and capacity building activities. In association with this paper is a method for evaluating market access based on evaluation of the system as a whole.

This document first builds a picture of the broader environment in which the poor livestock producer is operating. To do so various areas are considered, including:

1. The operation of markets and market systems including what constitutes a market and how markets operate,
2. Poor livestock producers and their production in relation to the market,
3. Barriers to and opportunities for market entry
4. Relationships between public policy, governance and barriers to market entry
5. Analytical methods to examine barriers to market access for poor livestock producers
6. An alternative approach to examine barriers to market access
7. Policy analysis and implementation as a learning process for the analyst

Once the broader system is clearly defined the interactions between the components of the wider environment and a definition of policy and its impact on market access for poor livestock producers in both facilitating and preventing access to markets are then developed. After that picture has been developed an approach to determining barriers to market entry and the relationship between public policy and those barriers can be devised and analysed so that appropriate policy frameworks can be put in place.
Background

Various general statements can be made about the consumption of livestock products including:

- The size of the market for livestock products is growing
- The market has various segments that can be described by the nature of the consumer and their demand for the various products and their mode of production and presentation of the products
- The various market segments are often supplied by different players via different channels or supply chains
- The rate at which the various market segments are changing in the quantity and nature of their demand is not well defined

In line with the statements above the marketing system for livestock production like most other food products has changed considerably in recent years. The demand for livestock products is increasing in many countries, with large percentage and absolute increases occurring in countries where poor livestock producers operate. Much of that increase in demand is for monogastric meat but increased demand has also occurred with respect to milk and other meats. The analysis and writing that has been carried out has focussed on aggregated data that does not distinguish between the various segments of the market. However, the various market segments differ in their requirements and modes of operation and those differences need to be considered with respect to the relationship between poor livestock producers and the market.

A key element of the change in marketing of agricultural products is that agricultural production is now considered in many countries to be an input into an industrial system rather than a distinct sector. The change has resulted in a significant modification to the way in which agriculture operates in the economy, its relationship to society and the level and form of public sector support. This integration into the industrial system has occurred over a period of time but has become most apparent as a result of changes in the socio-political system and a shift in the role of global capital in relation to that of the nation state. Livestock production therefore cannot be considered in isolation as it often was in the past but rather needs to be understood in terms of its relationship to the broader food system.

The changes that have occurred in the food system and the perceptions of that system by various disciplines further demonstrate the changes that have occurred over time in the system. It is therefore important to note that the current dominant position and perspective of that system are not a natural or permanent state of affairs but rather one view of a developing and evolving food system within a changing socio-economic system.

Another important element of the situation is that while demand for livestock products is increasing it cannot be assumed that poor livestock producers in the countries in which the demand is increasing will benefit from that increase. Currently much of the increased demand is being met from importation of product and from production in country through intensive livestock industries, neither of which involve poor livestock producers.

Confusion with respect to the distribution of income has come from the rhetoric surrounding policies based on economic neoliberal policies. The policies have had various effects and while the rhetoric has related to increased opportunities for producers brought about by increased freedom in the marketplace the reality of recent changes has been considerably different. One of the trends in development of agri-food production and marketing systems under neoliberal policies is the
marginalisation of small farmers and processors and improvements in the efficiency of operation appear to have had the effect of concentrating power and opportunity in the hands of large producers, the relatively well off urban retail chains, their rural agents and the urban consumer (Wheatley and Peters 2004). To avoid the problems associated with policy analysis that takes a single perspective when examining the opportunities for poor livestock producers it is necessary to consider the producers’ situation with respect to the market in a more holistic manner than has generally been done in the past. This examination requires an approach that crosses discipline barriers, considers the operation of the market in a broad sense within its social and political context and examines the impacts of policy not only in the operation of the market but also in the distribution of opportunity, income and livelihoods.

Poor livestock producers face several issues with respect to the opportunity to supply the expanding markets for livestock products. The issues faced can be considered to be related to the producers’ alignment with the market in the type, quality and quantity of product they supply. In addition, the purpose of the livestock producer in producing livestock in relation to the purpose of the market can also impact on the alignment between the two.

When examining the opportunities for small scale livestock producers to enter the market it is important to consider the factors and processes in the system including the way in which the market operates, and the manner in which the various players in the market organise themselves. Poor producers suffer from various disadvantages related to the physical environment in which they operate and their social, economic and political position. With respect to most agricultural products the market system is made up of a large number of producers who are supplying a relatively small number of buyers with the producers characterised as price takers. The situation is reinforced by the need for suppliers of perishable products to have an assured market because product in almost all cases must be supplied fresh.
1. THE MARKET SYSTEM

The market system being considered in this document is the food sector market and it is important to note that the livestock producer generally operates as a supplier to the food sector rather than as part of an independently operating agricultural sector. The change in emphasis is significant because it acknowledges both the commercial realities and that the emphasis in public policy is focussed on meeting the needs of the rapidly growing urban population rather than supporting agricultural producers (of which livestock producers can be considered a subset) because of their intrinsic worth.

Defining a market is a useful initial step in determining opportunities to supply that market and barriers restricting those opportunities. A market can be defined as being where buyers and sellers meet to exchange goods and services. However, it is perhaps more appropriate to consider a market in the sense of an exchange between sellers and buyers with that exchange being an entry point to a market system that takes a product through all of the stages and includes its initial production through processing to consumption by the final consumer. The market therefore has various elements that include both things and processes, some of the elements are:

- Consumers
- Product
- Processing of product
- Mechanisms for the supply of the product to the market
- Transactions in the market
- The way in which the transactions are governed

In this section a brief outline of market systems including paths from producer to consumer is provided as a basis for understanding the overall system. In doing so the area often focussed on namely the first transaction between the producer and purchaser is outlined followed by a broader description of the market using a supply chain approach.

A supply chain provides a useful device to describe the market system and illustrates the physical, institutional, social and economic processes involved in taking the product from the producer to the final consumer. As the product moves from the producer to the consumer via the market system the product is subjected to several transformations that may be processing or in location. In addition the various individuals and organisations in the system are linked together via relationships. An important consideration in the analytical framework is that analysis of both transformations and links is involved. Each transformation and the organisation involved can be examined individually as can the links between the transformations, however it is placing all of the analysis in the chain that helps to determine critical steps and areas for policy intervention. The approach taken to the provision of products to consumers has developed with that approach moving to encompass the whole process from production through to the retail sector with the whole system known as a supply or value chain. Working with value (or supply) chains provides a useful framework for description and analysis rather than a well defined and developed method for analysis. Supply chains have been used in various ways and are further explored in Section 5 of this document. Their use in this section is to illustrate the processes in the market system.
The chain can be illustrated using a series of boxes joined by arrows. The boxes denote transformations of the product (which may consist of a physical process such as spinning of wool or a transfer in place via transport). The arrows illustrate the links between the transformations. A simple diagrammatic representation of a supply chain is provided as Figure 1. Much of the final cost of product to the consumer is in the form of costs and margins that are accrued in the supply chain. However, the influence of the efficiency of the operation of the supply chain on the price paid to the producer is less clear.

Figure 1: A diagrammatic representation of a simple supply chain

![Diagram of supply chain](image)

Each transformation and the organisation involved in the chain can be examined individually as can the links between the transformations however, it is placing all of the analyses into the context of the chain that assists to determine critical steps and areas for policy intervention.

Within each box (transformation) in the supply chain is an organisation (which could range from a family to a large company) and the members of that organisation are meeting a specific purpose which relates to their livelihood from the transformations that take place in the part of the chain controlled by the organisation.

Each transformation within the supply chain can also be viewed as a system managed to meet the needs of a human purpose as illustrated in Figure 3. In doing so the organisation is interested in the transformation process as it relates to meeting the systems purpose. Therefore analysis of the efficiency of operation needs to relate to that purpose as for example outlined in livelihood analysis which also includes the financial efficiency of operation.

Each link (arrow) in a supply chain relates to the flow of product but also outlines relationships between the various organisations (and individuals in different organisations) and includes aspects such as the transfer of goods and the payments and enforcement of contracts involved in that transfer (ie the ways in which business is done; known as institutions in NIE). Therefore while the arrows suggest a one-way flow demonstrating the flow of product the relationships between organisations operate in both directions along the arrows.

Supply chains are usually not as simple as illustrated in Figure 1 and Figure 2 provides a more complex but still simplified representation of a supply chain where there are various sources of supply of product. There will also be multiple operators at other levels of the chain. However, it is important to keep the representations as simple as possible to provide understanding rather than confusion.
To gain greater understanding of the function of the supply chain it is useful to determine the situation within the transformations and links. Figure 3 provides a more detailed but still greatly simplified illustration of a box and arrow representation of the situation within transformations and links for a poor livestock producer. In working to understand the producer it is useful to embed them within the market system and Figure 3 provides a representation of the situation where the producer operates and is linked to the market. Figure 3 takes the approach that the poor producer is focussed on their family’s livelihood rather than commercial production and any links they have into the market system are relational as well as commercial. At the same time commercial production can form one of the strategies that are applied to meet the family’s overall requirements.
If the aim is to improve the efficiency of operation within the transformations and links, with respect to the rest of the chain, it is important to understand and work with the purpose of the organisation managing the transformation process. The purpose often relates to the livelihoods for the members of organisation (which may be a family) with the transformation being focussed on particular aspects of that livelihood.

The efficiency and method of operation of the links between transformations also have their basis in the purpose and culture of the organisations associated with that link and the reason of the operation of the link may not be obvious to an observer. Information flows also play an important part in the links in providing information on for example price. An important part of the links between the various transformations is that while the arrow is depicted as operating in the direction of product flow it also operates in the opposite direction with the next transformation box having similar issues in relation to price, relationships and so on with the organisation before it in the chain as well as the organisation after it.

The following sections examine consumers in relation to markets (that is the demand side of the market) before an examination of the supply of product and the nature of the product are considered in Section 2.

1.1 Consumers and Markets

While there is not agreement about the nature of markets and economists disagree with those involved with marketing it is useful to have an indication of the nature of the final consumers of a product and their interest in purchasing and capacity to purchase product. A simple process for defining the market is briefly outlined in this section to provide a mechanism for detecting market opportunities.

Using the above definition of the market and the representation of the market system outlined in Figure 1 the consumer is the final step in the chain and if the chain is driven by demand the consumer is the key driver in the market system. Consumers are not a homogenous collection of people but rather the population of consumers is made up of people with various interests in consuming different products, they have different capacities to purchase those products and live in a variety of locations that may be close to or some distance from areas that produce livestock products.

As illustrated in Figure 4 the potential market for a particular livestock product is made up of a subset of the total population and can be defined as people who would be interested in purchasing the product. A subset of the potential market is the available market that is made up of consumers from the potential market who have sufficient money to purchase the product, this is the part of the market of interest to the producer. Having defined the available market the producer is then in a position to decide which part of the available market they wish to sell to with this group known as the target market. The consumers in the target market that actually purchase the product are known as the penetrated market and may be a small proportion of the total population.
Acceptance of diversity in a population with respect to their potential as a market for a product leads to the idea of market segmentation. Market segments can be classified in various ways and the factors that can be considered in that classification depend on how the classification will be used and include the:

- nature of the consumer including their income,
- types of animal products they consume which has associated cultural and religious elements
- level of that consumption
- location of the consumer, and
- nature of the place in which consumers purchase product (that is the retail outlet)

Consumers have been divided into four tiers (Prahalad and Hart 2002) with the four tiers defined as follows:

- Tier 1: 75 to 100 million affluent consumers from around the world. Consists of middle and upper income people from developed countries and a few rich elite from the developing world.
- Tiers 2 and 3 are poor consumers in developed countries and the rising middle classes in developing countries who have been the targets of multinational companies past emerging market strategies.
- Tier 4 consists of four billion people with an annual per capita income of less than $US1,500. For over a billion people per capita income is less than $1 per day.

The perception that the bottom of the pyramid is not a viable market also fails to consider the growing importance of the informal economy among the poorest of the poor which by some estimates accounts for 40 to 60% of all economic activity in developing countries. At the same time the idea that there were millions of “middle-class” consumers in developing countries with high levels of disposable income and a desire for products was perhaps overestimated. It is possible that the main source of
market potential is not the wealthy few in the developing world or the emerging middle income group but rather the large number of poor whose incomes are rising and are joining the market economy for the first time (Prahalad and Hart 2002). However, most tier 4 people live in rural areas or urban slums and shantytowns. They usually do not hold legal title to their assets and little or no formal education and are hard to reach via conventional distribution, credit and communication channels. The nature of these consumers may not fit conventional economic frameworks and they may not only have the potential to act as consumers (albeit through purchasing small quantities of product) but to also act as small scale producers of livestock products to meet the demand.

The nature of the place at which the product is purchased by the consumers can be further defined for example, the various places from which animal products can be purchased by consumers include:

- Live markets
- Wet markets
- Restaurants
- Small shops, and
- Supermarkets

The location of the place of sale can be part of the formal economy or part of the informal economy. There is a strong interaction between the nature of the place at which consumers purchase the various animal products and the location of the consumer. For example, urban consumers are more likely to purchase through supermarkets and other parts of the formal sector than rural consumers. Alternatively broad areas can be considered with respect to product description, markets and poor livestock producers. In this case major markets into which poor producers could sell product can be termed:

- Industrial input markets, and
- Local markets.

These two markets could be seen as occupying two extremes in the landscape and various other markets with their own criteria for product operate between the two. Each market sector has its own product standards that are often reported as being defined by the consumer but are also determined by other commercial operators and the nation state via regulation and enforcement. The requirements and standards for product will often vary between countries and also between cultures within countries. In addition, the barriers that a livestock producer might face in attempting to enter various market sectors may also vary between the sectors.

The way in which the industrial market system for food operates has changed considerably over the past 20 years. The system now talks in terms of vertically integrated chains linking the production, processing and movement of product from producer to the final consumer. The competition for efficiency of the industrial system is said to be between chains rather than the more traditional approach of competition between operators at the same level in the chain. As a result of the quest for efficiency between chains coordination of the various components of the chain and the relationship between them has become increasingly important.

An efficient chain requires that the various participants in the chain are aligned in their processes (and may also require alignment in their purpose). A high level of communication including transfer of knowledge is required as the chains move
towards what has been referred to as the “efficient food service response” method for food supply. This approach to describing the way in which product is supplied to consumers is useful to describe and analyse various methods of operation including traditional markets. The relationship of this area of market theory to the position of the poor livestock producer is not well understood.

1.2 Paths between the Producer and Consumers of Livestock Products

When working with barriers to access to markets for poor livestock producers it is useful to have an understanding of the market systems that operate and the way in which the structure and power in those systems has been changing and can be expected to continue to change. There is no one market for livestock products and livestock products follow various paths to the final consumer. In this section an understanding of the markets and the various manners in which they operate are developed.

When a farmer is working to enter a market it is the whole market system that he or she is entering; and the market system can be described by the supply chain. The market system involves many players and processes including farmers, inputs to the farms, the initial purchaser of the product then, through all of the processes to the final consumer. Therefore, without an understanding of the market system as a whole and the ways in which the market system is managed it is difficult to determine current and potential barriers to entering a market, the relationship of these barriers to public policy, and how the barriers and their impact on the ability of poor livestock producers to enter markets can be reduced through policy interventions.

In considering markets several factors need to be accepted including the:

- complex nature of markets
- changing nature of the way in which markets operate, and
- heterogeneous nature of markets in relation to their demand for product with respect to both quantity and quality.

While markets are heterogeneous public sector reporting of production activity including quantity and price tend to aggregate the various markets (with the exception of export versus domestic markets) and by particular products such as milk, eggs and meat (also disaggregated by the species of origin).

1.3 The Changing Nature of Markets

The nature of markets and how they operate has changed considerably over recent years. Internationally those changes have lead to issues associated with the nature of the market system and the management of that system. For example as illustrated in Figure 4 there has been:

- Increase in the importance of large buyers in global food supply systems
- Increase in concentrations at various points in the value chain
- Increase in the importance of public and private standards in the food industry
The increasing importance of large buyers in global food supply systems has produced a more homogenous market system. The large buyers have specific requirements in various areas including product quality, reliability of delivery and product differentiation. The requirements of large buyers including the need for production of a consistent product irrespective of the physical and social environments in which the product is produced may favour large scale industrial production systems over small scale production systems.

The characteristics of the market system and its associated supply chains vary considerably from market to market. In many countries especially those with a large number of poor producers supplying a commodity the chains for livestock products are characterised by the presence of a large number of steps and intermediaries in association with poor infrastructure and transport systems that are serviced by poor information production and dissemination systems. Together with the increase of large buyers has been a change in the power relationships in the food supply system.

Many of the changes that have occurred in the market are a result of a change from product push to market pull in the food industry. In the past in relation to product (or supply) push the focus was on short term linkages between the supplier of product and the market. However, in the case of market pull the industry and overall market system has moved to long-term relationships and is focussed on the whole system.

There are increasing concentrations at various points in the value chain including - input suppliers (seeds, feed, health products, chemicals), processors and retailers. In this situation issues are raised about market power and strategies to offset this power including: regional branding, geographical indicators, niche products and alternative marketing channels

The complex nature of the supply can be illustrated so that the market is expanded to include the whole market process from the producer to the consumer then the number of steps and the role of each of those steps become of interest. Figure 5 outlines the changes in the number of actors that take place as the product moves through the supply chain. The number of final consumers usually exceeds the number of producers and the product may move through various steps such as processing where there will be relatively few processors in the case of many products while those processors will supply a larger number of wholesalers who will in turn service a larger number of retailers.

Supermarkets follow the system of integration of the supply chain as illustrated as the thick line through the chain in Figure 5. In this situation the relationships enable the costs to be reduced through the established relationships and contracts and reduction in the need to collect large quantities of data about the suppliers and purchasers of product.
**Figure 5**: The supply chain illustrating changes in number of actors at various stages.

Source: Developed using Kasper and Streit (1998) as a starting point
Public and private standards in the food industry are becoming more important with the standards related to food safety, social standards (such as those related to appropriate treatment of farm workers and animal welfare) and environmental impact. Included are mandatory standards relating to animal and human safety (sanitary and phytosanitary standards, SPS) as managed nationally and internationally by public sector bodies. In the private sector standards have been developed by coalitions of private companies and business associations in relation to product description and are increasingly important in markets controlled by supermarkets.

In general the system has a large number of producers supplying a small number of buyers with the sellers characterised as price takers.

The changes in the operation and management of the food production and supply system are highlighted with respect to market structure in Europe where there is increasing concentration in the retailing sector (as outlined in Dobson et al 2003) with multinational retailers increasing their influence. The multinational supermarkets operate as ‘gate keepers’ for access to consumers and control the impacts of suppliers who operate through them with the balance of power lying with the retailers (Dobson et al 2003). If the situation of increasing concentration of power in the market with the supermarkets, and the power of even relatively large suppliers to those supermarkets being limited, is to continue and expand into the markets in the geographical regions in which poor livestock producers operate how will those poor livestock producers be able to access that market?

Other changes relate to the way in which the market is managed and the method of and responsibility for governance. In many situations the market is moving towards governance by the private sector rather than the public sector. As part of the changes in the operation and control of markets has been that much of the management and coordination of agricultural production has been transferred from the state to other organisations including transnational corporations (such as supermarkets), supranational organisations such as the European Union, various environmental groups and other groups such as consumer groups. The nation state has taken a limited role in the coordination of the various stakeholders and not worked in the regulation of their demands which poses questions with respect to the relevance of public policy and implementation activities in managing the interaction between farmers and the various players in the market chain. The shift has been outlined as being from government to governance and has been one that has seen the movement of control from the nation state to control by a combination of state and non-state actors. It is therefore important to consider government policy and its implementation within this environment.

The poor producer may not be aware of the whole market system but rather is focussed on the first transaction or initial exchange of their product because once they have sold the animal or its milk or fleece they are no longer involved. An important feature of the initial exchange process between a producer of livestock products and the first purchaser in the market is that there are usually more sellers than buyers and that in a small scale system there tend to be a large number of both as illustrated in Figure 6. The presence of a large number of buyers and sellers requires a process to manage the operation of the exchange process in particular methods to collect, test and exchange information and ways to determine ownership. Collecting information incurs a cost and both the buyer and seller need to determine how much they are prepared to spend to gather and confirm information. In this situation the buyers are usually in a better position than the sellers because they are purchasing often and the same information can be used to assist in multiple transactions and often over a period of time. This contrasts with the situation faced by the small producer who is generally only involved in a transaction occasionally. In addition, the trader who is involved with the market on a regular basis will be more aware of the various trends in the market, in particular seasonal variation in supply and demand where as the producer is not so closely involved with the market and may
not be aware of those trends and patterns. This recognition of patterns is considered important in the management of a business (and other forms of organisation) in the current environments (Slywotzky 1999).

**Figure 6:** A representation of the market focussing on the initial exchange process

1.4 Areas within the Market

In general firms attempt to be either leaders in the market and produce large volumes of product or to operate on a smaller scale and meet the needs of consumers whose needs are either not met or are poorly served by larger firms. The smaller specific markets are known as niche markets. Poor livestock producers generally operate at such low levels of production that they would find it impossible to operate in the environment as market leaders and would not be able to provide sufficient product to supply most niches when operating alone. Therefore, poor livestock producers need to determine in which markets they can operate and to develop appropriate mechanisms and processes to operate in those markets. Three forms that markets can take namely, industrial, niche and traditional are outlined in this section. Each market form operates with its own product descriptions and requirements and they can be located physically close to each other or distant.
Much of the work examining the expansion of the market has focussed on what is known as the formal market sector mainly because there is some information available for this sector in standard government statistical databases. The other section of the market is known as the informal sector. However, for a producer this definition is of no significance and in some ways pushes markets towards western based ideas of what is an appropriate way to buy and sell.

1.4.1 Large-scale Industrial Markets

Large scale industrial markets are generally made up of large scale supply chains with multiple steps and operate with as few players as possible to minimise transaction costs. Many of the players in the chain have developed long term relationships and operate cooperatively rather than competitively.

This part of the market system is undergoing change and internationally much of that change is driven by the large supermarkets that buy in large quantities and establish standards for quality and quantity and demand reliability of supply (Dobson et al 2003). This change is part of the movement from agricultural production as a special sector to it providing an input into the industrial and retail sectors. Therefore, product is usually produced to meet specific product descriptions and quality control is present at most steps of the chain.

The nature of food provision in industrial countries has moved towards the situation where farmers provide an input into an industrial food production system. In this document such markets are called industrial input markets. In the case of the industrial system year round consistent supply of product is a key issue. The purchaser of product at most levels of the supply chain prefers to work with large quantities of product and a relatively small number of producers with whom they need to negotiate. They therefore require producers to provide consistent quality and to have the ability to meet quality standards imposed by the market and public sector organisations with minimal supervision from the purchaser.

The system is asserted to be governed by the market but there are large variations in the distribution of power along the supply chain. Within the large scale production system the product usually meets standard criteria. This sector of the livestock market tends to supply consumers via supermarkets and other large retail shops including butchers in urban areas.

Industrial input markets are usually high volume markets. These markets work on the basis that farmers are producing a commodity though one with a relatively precise product description (or at least several precise product descriptions with each category of product having a price associated with it). In general the market has a final consumer who is distant to the producer with product description and quality management controlled by the retailer, such as a supermarket.

1.4.2 Niche Markets

Niche markets are a particular market segment and can be defined as relatively small markets with specific needs and therefore could also be considered to be market sectors. In order to supply a niche market the producer needs to have a relationship with the consumer so that they understand the consumers’ needs and are able to provide a product that meets those needs. In addition, the producer needs to be able to respond to feedback from consumers and adjust their production processes to meet changes in those needs.

The provision of traditional foods to urban markets in many countries could be classified as a niche market. One example of such a niche is the market for what is known as “village chicken” produced using a production system where local breeds of
poultry are grown using free range production methods. In general higher prices are paid for village chicken because it is believed to have superior flavour and texture and is less readily available than intensively produced broiler meat.

Niche markets could provide part of the solution to the issues of small producers producing small quantities of product. However, aggregation of the produced items needs to take place at some level to provide sufficient quantity for the product to be recognised by potential purchasers.

### 1.4.3 Traditional Markets

Traditional markets like other market systems are not static and therefore it might be more appropriate to refer to them as local markets because in almost all cases the market is located close to the production system. Local markets usually have a short supply chain and in many cases the various participants know each other personally. The product description is not precise and there is limited quality control in place.

Local markets usually provide seasonal produce are characterised by fluctuations in levels of supply of specific products. Demand may also fluctuate in relation to cultural events such as festivals.

In this document local markets are defined as those that supply consumers located relatively close to the site of production. Local markets are not homogenous and can involve both urban and rural communities. Local markets have several characteristics they are less formalised in their requirements for products than the industrial input markets and the perspective of each local market will vary with the local requirements. In general in this market the product description is less precise than in the case of the industrial system and generally based on different criteria. In general the product in local markets can be divided into two main categories, namely: product for daily consumption and for traditional purposes including celebrations.

Where product is used for traditional cultural purposes (such as for ceremonies) the price paid is often much higher than the price in the industrial market. For example, the preferred breed of chicken in a traditional market is a local village chicken which is considered to be more flavoursome in comparison to an imported broiler chicken breed. The traditional sector of the market tends to be relatively insensitive to price whereas those products purchased for personal consumption will have a different set of criteria to meet and are generally more sensitive to price.

### 1.4.4 Market Comparison

Two key factors in relation to the market requirements for the first transaction relate to product description and the quantity of product or number of animals required. Table 1 provides a comparison of the product descriptions in relation to market requirements for traditional and industrial input markets for poultry meat as an example of a livestock product. The table outlines the more flexible nature of the traditional market with respect to product description and that it is usually focussed on local breeds of animal. The industrial market in comparison requires large numbers of uniform animals at any one time.
Table 1: Traditional versus Industrial markets: descriptions of poultry meat.

<table>
<thead>
<tr>
<th></th>
<th>Traditional market</th>
<th>Industrial market</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size</strong></td>
<td>Variable</td>
<td>Clearly defined</td>
</tr>
<tr>
<td><strong>Breed</strong></td>
<td>Local breed often preferred</td>
<td>Imported breed</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>Variable</td>
<td>Young (around 6 weeks)</td>
</tr>
<tr>
<td><strong>Number sold</strong></td>
<td>As few as one</td>
<td>Large numbers preferred (such as 20,000 in a batch)</td>
</tr>
<tr>
<td><strong>Seasonality</strong></td>
<td>Often peaks in demand associated with cultural events</td>
<td>Year round demand with some seasonal and cultural variation</td>
</tr>
<tr>
<td><strong>Advertising</strong></td>
<td>No advertising</td>
<td>Advertising often via mass media</td>
</tr>
<tr>
<td><strong>Timing of sale</strong></td>
<td>Flexible</td>
<td>Fixed</td>
</tr>
</tbody>
</table>

By providing this sort of information it is possible to start to understand the needs of the various consumers and their capacity to purchase and how that relates to the products that are available to them and those that are not. However, poor livestock producers operating individually are not in a position to carry out market studies of this type and therefore have a limited understanding of the opportunities to produce an appropriate product for sale.
2. POOR LIVESTOCK PRODUCERS AND THEIR PRODUCTS IN RELATION TO THE MARKET

The previous section has described the various forms of market and supply systems for those markets. This section now examines the relationship between the poor livestock producer and the various market models. In doing so it explores the priorities of the poor livestock producer and the nature of livestock production then attempts to consider various forms of livestock production in relation to market systems.

2.1 The Producer in Relation to Markets

To assist the producer it is important to understand their situation in particular their location, purpose, the livelihood strategies they use to meet that purpose and the livestock products they produce. Poor livestock producers occupy various niches from weakly integrated areas (WIA) that are usually rural to urban environments where they often operate without access to land. The importance of livestock in the livelihoods of these people has been outlined by several authors (Owen et al 2005, FAO 1997) and in most situations the keeping of livestock relates to meeting various needs including provision of food to the family, reducing risk, the provision of saving, meeting customary obligations and income generation. The importance of each of the above reasons for keeping livestock varies with the situation of the livestock producer and their cultural background.

Poor livestock owners make decisions on the allocation of their labour and resources to support their livelihood strategies rather than on a commercial basis. In light of that decision process if a producer is to focus on satisfying the market demand for a particular product they will need to direct additional labour and resources to that production process and away from other strategies and activities. This will undoubtedly be a trade-off that the livestock producer will consider and the way in which they evaluate the situation will depend on their knowledge and attitude to risk.

In the allocation of their resources poor livestock owners and producers are in a precarious position and are generally risk adverse and do not operate as entrepreneurs. They may not have knowledge of the principles of market based production and how to operate in a commercial environment and their social system may not be conducive to a commercial focus. For example, the poor livestock producer is not focussed on producing a livestock product that will meet the needs of the consumer of that product; nor do they monitor the various inputs into livestock production in relation to the price they are paid for products to ensure production is profitable. Producers may therefore be unable or unwilling to reduce the labour in their other livelihood activities and this constrains production to meet market requirements.

Leonard (2004) outlines another of the key issues linked to the large number of poor sellers and few buyers namely the ability of poor farmers to address their interests and their ability to operate in markets through horizontal political associations with their peers rather than through the vertical linkages that often take a patron client form. Leonard (2004) also comments on the need to work within the current market focussed neoliberal policies that are in place in order to assist poor producers. In this paper we explore methods to analyse the vertical linkages and the public sector policies that impact on the various parts of the system as well as the flow on effects to the poor farmer of the various policies.
2.2 The Nature of Livestock Products and Their Relationship to Markets and Opportunities

In working with a market focussed approach it is important to have a clear understanding of the nature of the products being considered. The products need to be understood in light of their physical nature and relationship to the market system. Much of the literature in relation to livestock products takes a commodity based approach with limited consideration of the nature of the product in relation to the needs of the market or the opportunities for producers. There are many ways to classify products including their physical nature, source, market or commercial use. The physical nature of products is considered first with the commercial nature then examined.

Animal products are generally bulky highly perishable items (with the exception of wool that while bulky is considerably less perishable). The products are generally perishable at all stages of production and processing and require cold storage for transport or need to be consumed soon after slaughter in the case of meat if cold storage is not available.

Another method to classify products relates to their position in the market. Fisher (1997) classifies products as being either functional or innovative. Under Fisher’s definition functional products include staple food products that by their nature have a relatively stable and predictable demand in the short term and are available from a variety of retail sources. Functional products therefore have much in common with commodities because they tend to be produced in large amounts and are undifferentiated in the market place.

Most livestock products are sold as undifferentiated commodities often as inputs into the industrial food production system. Sale as commodities limits the scope for the producer to differentiate their product in the market or to derive a specific cost advantage. Figure 7 outlines the various positions in which a producer may be placed with respect to its product. Within the figure the commodity producer is most poorly placed with little opportunity to improve the quality of their service or reduce the costs of production in order to improve their profits. Opportunities for producers of commodities to increase their returns rely on their being able to differentiate the product by changing its nature to one that is clearly distinguishable in the market.

*Figure 7: Place of commodities in the market.*

<table>
<thead>
<tr>
<th>Value advantage</th>
<th>Cost advantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Service leader</td>
<td>Cost and service leader</td>
</tr>
<tr>
<td>Commodity market</td>
<td>Cost leader</td>
</tr>
</tbody>
</table>

Source: Christopher (2005)
2. Poor Livestock Producers and Their Products in Relation to the Market

The livestock production and market system generally contrasts with the current thinking in industrial production where “Increasingly a firm competes through its capabilities and competencies; in other words, by how well it manages the fundamental processes involved in satisfying its customers.” (Christopher and Juttner, 2000). Most poor livestock producers are focussed on the production processes rather than the customer and are located as commodity producers; they do not have a value advantage over other producers. However, because they are prepared to accept lower rates of return poor producers could be described as having a cost advantage.

If producers are to satisfy the needs of the customer the producer needs to be aware of those needs and how their product can be produced to best satisfy them and be in a position to modify production processes to meet those needs. To a certain extent customers exist at all steps along the supply chain and the producer may not benefit if while producing a product that meets the needs of the end user (such as size and quality of an individual animal) they are unable to produce in sufficient quantity to meet the requirements of their own purchaser in the next step of the supply chain. The flow of information within the chain is therefore important.

Products can also be differentiated in the market in light of the impact of the production process and environmental impact is also an element of the consumers’ perspective that needs to be considered. However, many poor producers are not aware of the need to, nor able to certify the processes used for production in relation to the environment.

2.3 The Nature of Livestock Production

Livestock production is generally a slow moving and risky business and an understanding of the production processes within a market context provides useful information for the development of livestock production and marketing systems and an understanding of the risky nature of production for poor producers. In general capital circulates slowly in livestock production due to the nature of much of livestock production with its dependence on annual seasonal cycles, relatively long gestation periods and growth cycles together with the risks of disease and risk associated with climatic variations. Therefore, gaps in production in relation to demand exist in areas that relate to the long term production cycles and inherent risk associated with livestock production.

The livestock industries that are attractive to capital investment and large scale commercial production systems are those where the production time can be shortened and the risks reduced as is the case with pig and poultry production. The portions of the livestock industry where the production cycle remains long relative to the labour time such as cattle and sheep production where the environmental factors cannot be controlled and returns on capital are erratic and often low, that large scale producers are less likely to operate and opportunities exist for small scale producers. The poor livestock owner does not generally operate as a capitalist and is prepared to accept low returns to labour and capital in comparison to those accepted by large firms.

As one moves along the supply chain from the primary producer towards the consumer the returns to capital increase in direct relationship to reductions in risk and higher and more reliable returns to capital. The parts of the supply chain with lower risk and higher returns are more likely to be controlled by larger firms.

It is clearly the potential for high returns or presence of low risk in the production process that stimulate a poor farmer to be involved with livestock production. It is possible that in other available opportunities risk is greater or that the returns from livestock production in relation to investment and effort are greater compared with other activities available to the farmer. Livestock can fulfil a particular function within a portfolio of activities farmers use to meet their needs. It is therefore clear
that livestock production forms part of a wider perspective that the farmer has as they attempt to meet their needs from multiple sources or is seen as a particular interest by the producer (with that interest having a strong cultural link). Livestock are also important as a source of saving and cultural importance with any sale of product being considered a bonus to the owner rather than a primary purpose.

Contract production as used in several livestock industries works to reduce the transaction costs for those letting out the contracts because the contracts remove the need to coordinate the factors of production especially land and labour. In addition, much of the risk associated with the production process has been passed to the contracted producer from the organisation letting the contracts.

2.3.1 Livestock Producers and Production Systems

Livestock producers are a highly heterogeneous group and to some extent, speaking about livestock producers as a single group is not particularly useful. The variation involves multiple factors including scale of operation, nature of the production system, species of livestock and the products produced as well as the location of the producer with location a determinant of the physical environment in which they operate and their proximity to markets and services. Livestock producers and production systems have generally been classified from the perspective of the physical environment in which the systems operate with the social environment providing a secondary component. In taking such an approach it is the capacity to produce and limitations to production that form the focus and the relationship of that production to the requirements of markets is not an important consideration in that classification. If the focus is on the capacity to provide product for markets the elements of a classification system need to be expanded.

Considerable variation also occurs in relation to the significance of livestock in the overall livelihood strategy of the producer. The three areas below provide an indication of the variation that can be present in relation to the role that livestock play in the livelihoods of poor people. As a starting point livestock producers can be broadly classified as being:

- livestock dependent with livestock their principal source of resources and produce and income
- mixed crop and livestock producer with varying concentration on crops or livestock and the relative importance of the two
- income dependent and working in a low paid job with livestock providing an additional source of food and income

Multiple factors operate to determine the position of the farmer and some of those are explored in this section.

The nature of the resource base and climatic conditions are important and livestock production systems can be described in various ways with most classification methods considering the production potential of areas using agro-ecological zones (AEZ) as the basis. Two useful methods for evaluation in this way are briefly outlined in this section.

Sere and Steinfeld (1995) classified and documented world livestock production systems. That study provided quantitative estimates of the importance of each system globally and by region in relation to the resource base, the human population, the number of animals and the outputs from those systems. In particular the system of classification was enabled by restricting the criteria examined to the integration of
livestock with crops, animal - land relationship and AEZ. The study focussed on countries and AEZ within those countries.

Otte and Chilonda (2002) examined cattle and small ruminant production systems in sub-Saharan Africa. In doing so they outlined the various mechanisms for classification of livestock production systems including: integration with crop production, the animal - land relationship, agro-ecological zone (AEZ), intensity of production and type of product. Additional criteria outlined include: size and value of land holdings, distance and duration of animal movement, types and breeds of animals kept, market integration of the livestock enterprise, economic specialisation and household dependence on livestock. Otte and Chilonda state that classifying ruminant production systems by farming systems first, then placing them into the context of an AEZ has the advantage of providing information with respect to the resource endowment and can therefore be a useful indicator of the potential for growth in livestock production.

In an alternative approach livestock production systems can be considered from the perspective of the farmer in relation to the priorities of the farmer and how they operate can be linked to the requirements of the market.

The nature of producers can also be identified in relation to the nature of their focus on livestock and the role of livestock in their overall livelihood strategies for example they can be classified as:

- Livestock dominant where the producers livelihoods are focussed around their livestock (can be of various scales) and may be livestock dependent and used to trading livestock
- Livestock integrated with crops (where the crops or livestock can be dominant) and livestock are sometimes traded
- Opportunistic livestock producers who see livestock as an opportunity to generate income and move in and out of livestock production
- Livestock keepers where the owner keeps livestock as a bank to be used when other livelihood strategies are not successful or to meet specific needs such as education expenses of their children that are seasonal in nature
- Livestock keepers where livestock are kept to meet cultural obligations

A livestock owner may operate in more than one of the areas and vary their livestock number, inputs and mode of production. Various species of livestock lend themselves to different modes of operation. Three factors that contribute to livestock production are flexibility, risk and the size of the investment unit and in Table 2 a way to compare the three factors is briefly illustrated.

### Table 2: Species of animals and production in relation to farmers needs.

<table>
<thead>
<tr>
<th>Species of animals</th>
<th>Risk</th>
<th>Flexibility</th>
<th>Size of individual investment unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle (milk)</td>
<td>***</td>
<td>*</td>
<td>*********</td>
</tr>
<tr>
<td>Cattle (meat)</td>
<td>***</td>
<td>***</td>
<td>*****</td>
</tr>
<tr>
<td>Poultry eggs</td>
<td>***</td>
<td>*****</td>
<td>*</td>
</tr>
<tr>
<td>Poultry meat</td>
<td>***</td>
<td>***</td>
<td>*</td>
</tr>
</tbody>
</table>

The focus of the modes of classification has been on the production potential of the various systems. None of the systems to classify livestock production has had a direct
link between the production system and commercial markets for the products of the system. Therefore while useful to determine areas of physical potential for increased production the methods do not provide an indication of the potential opportunities for the sale of that increased production. There is a need to build such a relationship and this document commences development of that approach in Section 2.4 where it defines farmers from the perspective of the market system.

2.4 Defining the Poor Livestock Producer from the Perspective of Markets

In the previous sections the nature of livestock production from a product focus has been outlined however, the perspective the market has of a small producer may differ considerably from the view the production specialist or social scientist has of the livestock producer and what they produce. With the focus now on the requirements of the consumer as communicated by the retail sector it is important to view the poor producer from that perspective. In addition consideration of the position and attractiveness of the poor producer as a supplier in comparison to other suppliers of similar product needs to be examined to understand where the small producer may have an advantage or disadvantage as perceived by the customer of the product.

If we start at the market and work back to the producer and the overall position of the producer their aims and potential as a commercial producer we see a very different perspective than if we start from a more traditional perspective of livestock and their role to the producer then examine the relationship to the market in the hope of finding a match. In the first approach the market is examined as an opportunity whereas in the second the focus tends to be on barriers between what the producer is currently producing and the market. The second approach also tends to suggest that a producer has a right to access a market irrespective of the type, quality or quantity of product produced. It can also give a false assurance that the barriers can be overcome or removed without modification to the activities of the livestock producer or the cultural environment in which they are operating.

The emphasis in the food system for a more seamless production, processing and marketing system has produced the need for greater interdependency between all parties operating within that system – as illustrated by the supply chain approach where the efficiency of the whole system is examined. Associated with the interdependency is the need for cooperation between the parties involved, an approach that may seem to be at variance with the tenet of competition within a free market. While the need to improve coordination of supply chains is acknowledged empirical research as to how this can best be achieved is not available and methods consist mostly of conceptual guidelines rather than more effective methods and decision support systems. Of particular concern is the need for a clear understanding of buyer/supplier relationships and how they can be modified to improve operation of the system as a whole. Given the lack of understanding in sophisticated market systems it is even more so in the situation for poor livestock producers.

Many poor livestock producers are interacting with markets by chance or via traditional mechanisms rather than as part of a planned overall strategy. In general the poor livestock producer is producing what they know how to produce and that is often what previous generations before them have produced. As with other populations of people a proportion of poor livestock producers will be entrepreneurs and have the desire to seek and the ability to detect opportunities to produce livestock and livestock products for a commercial market. In most cases the opportunities detected will be local because very few have the desire and capacity as well as the information or resources to collect information about distant market opportunities.
The approach of a poor farmer differs from a commercial organisation in several ways including:

- The reasons for production taking place
- The production method and product, and
- The cultural environment and relationships in which the production takes place

That is, there are different technical methods and technologies used (as well as large differences in scale) and the purpose for production varies from personal and family survival in one case to profit to be distributed to non-farm owners such as shareholders at the other extreme. Therefore, in order to describe livestock owners and their relationships to markets an understanding of who they are, how they operate and the cultural environment in which they are embedded is needed. Understanding them involves taking different view to the most commonly used productionist view that focuses on the suitability and capacity of a place to produce a particular species of livestock or livestock product from a physical perspective. Rather it is necessary to develop an understanding of the people involved or likely to be involved in livestock from the broad perspective of their livelihoods. That understanding can be used in association with an understanding of the environments capacity to produce to relate the livestock owner’s desire and capacity to produce to the needs of a market. This is an important addition because it provides a chance to determine the alignment between the producer and the market and from that the opportunity for a producer to participate in a market can be derived rather than a measure solely of their ability to produce a product.

All livestock producers are not the same and it is important to acknowledge the heterogenous nature of the population of producers as an initial step in assessing their opportunities to enter markets and the barriers that may be operating. While acknowledging the heterogenous nature of livestock producers, poor livestock producers have several characteristics in common, they generally:

- produce small quantities
- have limited resources at their disposal,
- have multiple activities to meet their needs,
- are busy working to survive,
- are poorly educated, and
- lack political power

Large variation occurs in relation to the physical location of poor producers from for example rural producers operating in weakly integrated areas distant to markets to urban producers operating in crowded centres close to markets. The social structures and strictures that surround the livestock producer differ significantly between a rural and urban area. In rural areas traditional modes of social operation impinge on the relationship between the poor livestock producer and any external body including the market and the way in which they operate may be managed through traditional relationships (such as patron client relationships) or via brokers. The urban producer will operate in a more informal set of arrangements at the margins of traditional and market systems and modern and traditional society.

Another important factor that needs to be considered in understanding the farmer are the requirements they need to meet. Their requirements relate to their survival and
that of their family and the desire they have for the future of their family. Their family position may vary from being a sole parent with several children to feed and educate to a person operating within a strong extended family with associated relationships that will assist them in times of stress.

The next area to consider is the relationship between the producers and markets. The producers will have various associations with market systems including:

1. No association with markets
2. No association with ‘external’ markets but participation in local trade on a small scale
3. Opportunistic association with external markets - for example they sell when they need cash or have a surplus of animals or product
4. Seasonal supplier - supply to external markets on a seasonal basis
5. Regular supplier to markets
6. Market focussed (which may be seasonal) and operate on a commercial basis

The various categories are not mutually exclusive and a poor livestock producer could move from one to another depending on the circumstances. The culture of a commercial livestock producer differs from that of a poor livestock producer. The commercial producer is operating in a different external cultural environment and is aligned with and reacts to the rest of the market system because it provides their focus and they have developed their production system and external relationships to operate in this way. The poor producer has a very different focus and cultural environment and tends not to react to changes in the market because supplying the market forms part but not all of their livelihood strategies (though this varies with how dependent they are on the market compared with their other livelihood activities) and have a collection of relationships that enable them to deal with the risky environment in which they operate.

It is clear that many poor livestock producers do not think of themselves as being focussed on production for a specific market but rather they are focussed on maintaining their livelihood through various means and the sale of livestock or their products as an element within that strategy. As farmers change their focus towards a market focus their need for information increases as does their need for money to pay for inputs. The risks that they face also increase if they have outgoing expenses and an increased dependency on a single product or market rather than a diverse livelihood portfolio.

Producers allocate their resources and time to meet their livelihood needs and priorities. Moving towards a commercial mode of operation will impact on their current strategies and it cannot be assume that changing will not produce a cost trade-off and in doing so the producer will have a change in their mode of operation the cost of inputs, financial risks as well as having a chance to potentially increase their benefits. Figure 8 diagrammatically illustrates the situation when a farmer moves from a non-market to a market focussed approach to production.
2. Poor Livestock Producers and Their Products in Relation to the Market

Figure 8: Illustration of the change in input costs, financial risks and potential benefits as a farmer moves from a non market system to a market system of production.

<table>
<thead>
<tr>
<th></th>
<th>Cost of inputs</th>
<th>Financial Risks</th>
<th>Potential benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No market</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Market dependent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.5 Describing Poor Livestock Producers from a Market Perspective

Poor livestock producers are a diverse group for example they can be individuals and male or female, they can be families with male and female members, they can be young or old and located in rural or urban areas. They can operate individually or in aggregations such as villages and cooperatives. Producers allocate their resources and time to meet their livelihood needs and priorities (purpose). In general they have multiple activities that are combined to meet their needs. The needs each producer has to meet will vary and the role and potential role for livestock in enabling them to meet those needs will also vary.

Poor livestock owners are generally busy people with a combination of food production, income generation and social activities that they use to meet their needs and those of their family. Moving towards a commercial mode of operation will impact on their current strategies and in doing so the producer will have a change in their mode of operation and risk associated with their strategies. Therefore changing the focus of their strategies and activities will incur a cost (or trade-off) in time. That is something they used to do will not be done and their resources will be reallocated. Therefore when considering the reallocation of time care needs to be taken not to assume that the opportunity cost of the time of poor livestock producers is zero.

Table 3 provides an indication of the view a market may have of a poor livestock producer. From Table 3 it is clear that working with a small scale poor livestock producer poses many challenges for other parts of the market system and requires the system to see some advantages in order to offset the additional costs associated with that relationship.
Table 3: View of a poor livestock producer a market perspective.

<table>
<thead>
<tr>
<th>Characteristics of poor livestock producers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Produces small quantities of product</td>
</tr>
<tr>
<td>Variable quantities</td>
</tr>
<tr>
<td>Product is of variable quality</td>
</tr>
<tr>
<td>Often uncertain to certify methods of production</td>
</tr>
<tr>
<td>Seasonal peaks and troughs in both quality and quantity of product</td>
</tr>
<tr>
<td>Limited knowledge of methods for production</td>
</tr>
<tr>
<td>Not market focussed and limited knowledge of requirements of markets (or knowledge of how to produce for those markets)</td>
</tr>
<tr>
<td>Limited knowledge of the cost of production</td>
</tr>
<tr>
<td>Limited knowledge of a fair price for their product in relation to market activity</td>
</tr>
<tr>
<td>Inflexible in production methods and type of product (are generally working with a product with a long production cycle)</td>
</tr>
<tr>
<td>Have multiple sources of income (i.e. a diverse activity base to support their livelihood and can include producers who are livestock focussed and those who are crop focussed with livestock as a support system)</td>
</tr>
<tr>
<td>Few inputs so potential for organic certification</td>
</tr>
</tbody>
</table>

Having considered how the market might view a poor livestock producer it is useful to consider the requirements the market has of its producers and the difference between the requirements of the market and the capability and capacity of the poor livestock producers. To do so it is useful to examine the situation from the basis of the various market sectors including the traditional local market and the larger industrial input market and to compare those with the provision of food for the family.

Table 4: The ideal livestock producer and product from the perspective of various market systems.

<table>
<thead>
<tr>
<th>Market</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial input</td>
<td>Producing large quantities of product (therefore low costs to access product)</td>
</tr>
<tr>
<td></td>
<td>Consistency in quality and quantity produced</td>
</tr>
<tr>
<td></td>
<td>Linked to the retailer through contract that ensures criteria are met</td>
</tr>
<tr>
<td>Local - traditional cultural uses</td>
<td>Product available when needed (for example at time of cultural events)</td>
</tr>
<tr>
<td></td>
<td>Product matches local specifications</td>
</tr>
<tr>
<td>Local - home consumption</td>
<td>Convenience is important</td>
</tr>
<tr>
<td></td>
<td>Small quantities so no need for storage if slaughter an animal (eg a chicken)</td>
</tr>
<tr>
<td></td>
<td>Small animals limits the nutritional needs and effort required to provide food to the animal</td>
</tr>
</tbody>
</table>
Table 4 outlines the ideal livestock producer from the perspective of three sources of demand or market sectors namely the industrial input system local traditional markets and home consumption and illustrates the differences between the expectations of the three. Alignment between the characteristics of the poor producer and the nature of the market system and its various sectors can be considered using Tables 3 and 4 as a starting point.

2.5.1 Linkages between Defined Production Systems and Markets

In order to understand livestock production in relation to market systems it is useful to continue with the idea of segmented markets with each segment having different product requirements and levels of demand (and therefore operating on different demand curves) then, link the market to production methods to examine opportunities for poor producers to participate in the market and the form that participation can take. The linkages are considered from the view held by the market system of the poor livestock producer and how different production systems and methods of marketing can influence that view and with it the opportunities for the poor livestock producers. From that linkage it is possible to consider the producers and their mode of production with respect to the markets they are currently and could potentially supply. In doing so the types of production processes available could be classified in various ways based on the perspectives of the various markets they can supply.

The market can operate to organise producers to meet its needs through for example contract production (a vertical linkage) and producers can organise themselves into a larger group through horizontal linkages that can be formal (as in the case of cooperatives) or informal.

Contract production has often been used in the industrial livestock production sector for example it is common for broiler chickens to be raised by a contract farmer. Several forms of contract farming have also been used for beef cattle production in Indonesia for example where it is known as the nucleus system.

In this system the farmer has a guaranteed market and depending on meeting the market description for the product a guaranteed price. However, the operating margins in this sort of system are often low and profitability can be low. In addition the farmer takes most of the risk associated with the production and in the case of cattle a single death can produce huge losses to a poor producer while an outbreak of a disease in a broiler shed can greatly reduce profit and in some cases have the farmer selling for less than cost of production.

Producers can organise themselves into various networks including cooperatives that work to market their produce and can also work to reduce the costs of inputs to the production process. Networks provide a mechanism for aggregating product, providing marketing and production information and gaining negotiating power at a commercial and political level. Because of the increased power that can be gained by this form of organisation some governments do not allow their development.

2.6 Concepts in Relation to the Nature of Supply to Markets

This section outlines two perspectives that can be used to assist in analysis of market systems and play a role in understanding the relationship between poor livestock producers and market systems. The concepts outlined in this section relate to:

- Alignment, and
- Competition and innovation
A fourth important concept is that of barriers to market entry with that concept explored in the next section of this document.

### 2.6.1 Alignment in Supply Chains

Alignment is an important concept used in supply chain literature to refer to the congruence between various operators in the chain. That congruence refers to various factors focussed around the transfer of physical product and the nature of the relationship between the organisations.

Alignment in a supply chain is multidimensional and can take two main forms, namely:

1. **Alignment between the various organisations that make up the supply chain, and**
2. **Alignment between the firm’s or organisation’s activities and the aims or purpose of that firm or organisation.**

The first form of alignment can relate to various areas including the alignment of what is produced with the demands of the final consumer and the relationships between the various participants/stakeholders within the overall supply chain. Communication is an important element in the development and maintenance of alignment in a market system.

Within a large firm the second element of alignment relates to the alignment between the firm’s commercial activities and its shareholders; for a poor producer it would relate to the needs of the family in material and social terms.

Historically alignment between various individuals or organisations in the production, processing and sale of goods developed over a relatively long period of time that may have been generations and bears a cost to maintain. Currently the sectors, the lines along which they operate and the governance structures and mechanism are changing rapidly and this change has modified the way in which alignment between organisations is developed.

In the current environment alignment is expected to be produced very rapidly to meet the commercial imperative that drives most trading activities. To that end organisations will often have a group that has the role of developing and maintaining the personal relationships required and another to organise the logistics of the relationship including flow of the physical product. The product flow to be managed includes what is to be purchased, from where and how it will be transported. In contrast the maintenance of the relationships and provision of product as required are managed by the individual poor producer if they wish to participate in this form of production and operate to supply the market.

### 2.7 Competition and Innovation in Global Supply Chains

Having defined the market and the issues being faced by the poor producer it is necessary to consider the position of the poor producer in relation to supplying the market.

If the issue being considered is the ability of the small scale poor livestock producer acting as a supplier into the industrial food sector then there are several issues that are immediately apparent. First there is a basic lack of alignment between what the producer is doing and the way in which they operate in comparison to the mechanisms and the actions and culture of the rest of the market. If alignment is a crucial element then the following question needs to be asked “Is that lack of alignment conducive to
change through policy actions?”. This section attempts to provide a mechanism to answer that question through an evaluation of supply chain concepts and methods.

According to Ayers (2004) the drivers of supply chain management are:

1. Innovation
2. Extended products
3. Globalisation
4. Flexibility
5. Process centred management
6. Collaboration

Further definition of what is meant by each of the various drivers is now provided. Innovation relates to advances made in the product and the processes of production and selling. Innovation in this area often requires operation at a large scale or the ability to make an innovative use of an innovation developed by another organisation such as a government research organisation with the information available in the public domain. If we take the supply chain as a whole then an innovative supply chain might be looking towards alternative sources of supply with those suppliers providing for example a more environmentally friendly production process.

Extended product development involves provision of features and services that operate beyond the product itself to differentiate the product in the market.

Globalisation relates to taking a broader perspective in sourcing and selling product.

Flexibility involves a fast response to a change in the market and physical environment and often involves a shortening of the product cycle (this is however a difficult area for small poor producers who are often involved with long production cycles.

Process centred management involves a focus on improving the processes involved in the operation of the chain in order to improve the quality of relationships and efficiency of operation.

Collaboration is required to break down boundaries in order to develop cooperation within and between the various organisations in the supply chain to meet their mutual goals.

In recent years elements of social and environmental responsibility have also entered as drivers of the operation of supply chains and should also be considered.

2.8 Types of Value Chains Faced by Poor Livestock Producers

Value chains are one way of analysing market-based linkages between input markets, producers, processors and intermediaries, and the final consumer. The value chain literature mainly considers international value chains for manufacturing industries. Analysis of the value chains involving poor livestock producers in developing countries requires a different focus.
As Farrington and Gill (2002) point out, the majority of the rural poor live in ‘difficult’ areas. Three of the things that make these areas difficult are:

- weak infrastructure,
- highly fragmented and weakly functioning markets
- poor connectivity to national, regional and global markets.

Farrington and Gill (2002) define areas as weakly integrated areas. Saying that these areas are weakly integrated is another way of saying that the value chains in these areas are underdeveloped or virtually non-existent. Whereas the value chain literature focuses on upgrading global value chains, the requirement in weakly integrated areas is the building, perhaps from scratch, value chains for local, regional and national markets. Dorward, Poole et al (2002) emphasise the need to ‘kick start’ markets as part of the rural development process. Indeed, Joseph Stiglitz pointed out as far back as 1989 that economies can be locked in to low output equilibria.

Dorwood, Poole et al (2002) argue that the serious ‘state failure’ existing currently involves failures ‘in providing the institutional support required for privatised markets to develop and work in the challenging conditions where poverty is most intractable’. Dorward and Poole et al (2002) point out that there is an inherent contradiction between an analytical framework based on neoclassical economic concept of competitive markets and the pragmatic idea found in the ‘conventional development wisdom’ that support for bottom-up non-market organisations such as producers groups, micro-finance groups and other stakeholder groups, is important and that these groups can work. The contradiction is that these groups do not have a place within the analytical framework of neoclassical markets. However, such groups are central to supply chain analysis.

Dorwood, Poole et al (2002) make a distinction between tradable and non-tradable goods and services. This is a concept borrowed from international trade theory but can also be usefully applied to the analysis of pro-poor policy and intra-national trade between rural and urban areas as well as international trade. Tradable goods and services are those that can be imported or exported from the area under consideration. Where the analysis is concerned with the rural poor, non-tradable goods and services are those that are exchanged in the area. The distinction between tradable and non-tradable goods and services depends on the boundaries of the area considered, the accessibility of the area and the comparative production costs inside and outside the area (Dorwood, Poole et al 2002). This distinction between tradable and non-tradable goods and services is useful for the current discussion as they can be thought of as having separate, but perhaps overlapping, supply chains.

In these terms weakly integrated areas are areas where the export and import of goods and services are low. The markets for non-tradable, the exchange of goods and services within the area, may also be underdeveloped with a significant component of exchange taking place within the context of tradition obligations and reciprocal arrangements.

Dorwood, Poole et al (2002) argue that where the non-tradable good has a high average budget share, increased productivity in producing that good will be effective as a source of poverty reducing growth. Consumption can be either by the poor themselves or a large non-poor population. ‘Institutional or technological change in non-tradable production may also have important redistributive effects by bringing down barriers to entry for poor producers and allowing them to gain market and income shares from less poor producers, as well as lowering prices to poor consumers’ (Dorwood, Poole et al 2002, p. 4).
When considering the upgrading of supply chains for tradable goods and services, as defined above, a factor that must be taken into account is the rapid spread of integrated supply chains controlled by corporate retailers such as supermarkets. Vorley (2002) reports that 20-35% of the rural retail sector in Central America is controlled by supermarkets; for example a single firm controls 60% of chicken purchases in the region. In Argentina the share of the retail sector controlled by supermarkets increased from 20% to 80% during the 1990s. Weatherspoon and Reardon (2003) report on the extremely rapid rise of supermarkets in Eastern and Southern Africa since the mid 1990s.

Vorley (2002) points out that the governance of supply chains hinges on controlling the means of coordination rather than the means of production:

‘The control of value chains in agri-food by clusters of powerful downstream industries has profound impacts on agriculture, especially in weakening the link between farm prices and food prices... Retailers can concentrate capital within value chains by governing access to consumers. Market access for producers to value chains does not have much to do with classical notion of “efficiency”. Rather, market access has everything to do with exploiting a marketing advantage, meeting large processor and supermarket demands for consistency of supply (reliable quality), speed of response and compliance with standards’ (Vorley 2002, p. 81).

Further, large enterprises can exert market power and dominate supply chains:

‘Sustainability’ as a set of process standards can provide leverage for large enterprises to control markets and raise barriers to competition. When a processor or retailer develops a strategy for sourcing more ‘sustainable’ products, they can-as governors of the chain of value-push all compliance costs and risks down to suppliers. Standards and Codes of Practice thus favour well-capitalised farms (not necessarily always ‘large’ farms) while presenting smallholders with high transaction costs (Vorley 2002, p. 84).
3. BARRIERS TO AND OPPORTUNITIES FOR MARKET ENTRY

Barriers to market entry are located within a complex collection of social, economic and physical interactions embedded in a political environment. Several disciplines provide perspectives of the situation and each provides clues as to how the processes operate. However, none directly deals with how to improve the situation for poor livestock producers. In part this is a defect in the way in which disciplines operate where they attempt to understand and explain situations from a particular perspective rather than to explicitly work to improve them. Barriers to market entry can become apparent in several ways with the most obvious including a low sale price that is less than the cost of production and the inability to sell the product at all.

The previous sections examined the nature of the market and of livestock producers; and it is clear from the previous section that there is often a misalliance between small scale livestock producers, their production processes and the outcomes they expect from production and the market system. It then becomes necessary to examine which of the factors contributing to the misalliance (and it may be some or all) can be considered barriers before those conducive to policy actions are determined.

The concept of barriers is examined and a working definition provided in this section. Definition of the term might help to clarify the issue however, as analysis progresses the various factors involved and the interactions between those factors could render any specific definition to be of limited value. However, definition does provide a common starting point and language for communication. The diverse nature of methods of classification further emphasises the complex nature of barriers and reinforces the need to consider each situation as a separate case.

3.1 Defining Barriers to Market Entry

Barriers can be described and classified in various ways; they can have their origins in the public and private sectors and can relate to the producer or the purchaser or other components in the market system and value chain. As a starting point for this study barriers to market entry are defined as being any inhibition to the entry to markets and could include advantages given to other producers as well as specific disadvantages experienced by the poor in entering the market.

Categorisation and classification of barriers is a difficult task and it is important to note that the naming and categorisation of barriers will vary with the perspective and experience of the analyst including the discipline approach being taken. Therefore barriers can be categorised in many ways, for example Steinfeld (2002) suggests three categories, namely:

- Technical
- Financial, and
- Social and cultural

In this situation the lack of alignment between a poor producer and the market system could be considered a barrier influenced by all three categories. More specifically there is significant overlap between the three categories for example, the knowledge a farmer has on how to produce is influenced by all three of the factors. In this section various ways to outline and examine barriers are considered including examination of key areas, the perspective of firms and the mode of operation of the barrier.
Some of the overall characteristics of barriers are:

- Barriers have many origins
- Barriers can operate at various levels
- Barriers can be direct effects and can also be indirect and unexpected flow-on effects from other actions
- Barriers are not static
- The same barriers do not necessarily operate for all markets, segments of market or for all livestock products
- Barriers do not operate one at a time but operate simultaneously and interact with each other

An additional approach to one that defines and categorises barriers is to consider key areas within the overall market system and examine those. In taking such an approach a method for categorisation can be expanded to include other important issues, for example the following approach considers barriers from an operation sense and market perspective and includes the various actors and processes namely the producers, markets, products and the relationships between them; each of the four areas are explored below.

1. **Producers**
   - Attitude of producers and level of entrepreneurship in the community of poor producers (the attitudes, characteristics, skills and strategies to succeed as an entrepreneur focussed on supplying a market may be different to those required to preserve their livelihood the focus of most poor livestock producers).
   - Knowledge and learning systems. These include two areas the first can be described as technical knowledge on how to produce, what to produce and where to produce with the second composed of market knowledge including information on who is interested in purchasing the product, where they are and how to reach them.
   - Sources of knowledge to producers which can include other actors in a supply chain, through local networks (including networks of producers) and other agencies such as government agencies
   - Physical environment in which they operate, and
   - Location in relation to resources required for production and markets

2. **Markets**
   - Segments of consumers within the market
   - Level of demand within the various segments
   - Location of consumers (from the various segments)
   - Price (and relationship of price to product description)
   - Knowledge and information with respect to potential suppliers of product
   - The number of steps and processes in the chain between the producer and the consumer
   - Relationship of market to producer with that relationship mediated via the first transaction
3. **Products** in particular the nature of the products including

- Perishability and special requirements for shelf life and transport,
- Bulk (for example milk where most of the product is composed of water),
- Quality including a description of the characteristics, and
- Quantity that is needed, and
- Seasonality of supply

4. **Relationships** between the producers, products and the markets

- Location, related to the physical distance between producers and consumers and availability and cost of appropriate transport
- Nature of contracts for exchange and the way in which those contracts are administered
- Governance including policy and regulatory barriers

A simplified approach could be taken where in the situation of the poor producer a key effect of the various elements outlined is the price a producer receives on the farm in comparison to the cost of production and the alternative uses to which that product or production unit can be put. To a large extent it can be concluded that barriers to entry affect the price offered to the poor producer. Some factors that clearly influence the price received by the producer include their bargaining power, the physical distance the producer is from the consumer, and the number of steps in the chain between the producer and consumer.

The scale of operation of barriers is also an important consideration because barriers also operate at various levels such as the micro, meso and macro levels. The various levels are defined in several ways depending on the author and the situation they are considering and have strong relationships to the nation state classification of levels of government and include an international level and in some situations relate to the nature of governance of the market. Scale is also an important factor in relation to the operation of policy frameworks, implementation and impact.

The impacts that are felt by the small producer can be due to barriers that operate at any of the levels. Barriers that operate at producer level can relate to resource endowments, the price paid versus the cost of production, time availability to participate in the production activity and marketing of product and the requirements of other livelihood needs and activities to support those needs.

Table 6 considers the classification of barriers from a commercial perspective and outlines the various components for each group barriers considered from an overall livelihood perspective may be different.
### Table 5: A simple way to classify barriers including examples of specific barriers.

<table>
<thead>
<tr>
<th>Category</th>
<th>Examples of specific barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Physical barriers</td>
<td>Soil, landform, quantity of land, land tenure and access to land</td>
</tr>
<tr>
<td></td>
<td>Climatic conditions</td>
</tr>
<tr>
<td></td>
<td>Location - including distance to market and distance from production support</td>
</tr>
<tr>
<td>2. Product barriers</td>
<td>Perishability of product</td>
</tr>
<tr>
<td></td>
<td>Bulky nature of most products</td>
</tr>
<tr>
<td>3. Production barriers</td>
<td>Access to means of production</td>
</tr>
<tr>
<td></td>
<td>Knowledge of how to produce</td>
</tr>
<tr>
<td></td>
<td>Knowledge of what to produce</td>
</tr>
<tr>
<td></td>
<td>Knowledge of when to supply</td>
</tr>
<tr>
<td></td>
<td>Knowledge of cost of production</td>
</tr>
<tr>
<td></td>
<td>Length of product production cycle</td>
</tr>
<tr>
<td></td>
<td>Scale of production (also operates as a trading barrier)</td>
</tr>
<tr>
<td></td>
<td>Risk in production cycle (also includes trade and physical barriers)</td>
</tr>
<tr>
<td></td>
<td>Quality of product available for sale</td>
</tr>
<tr>
<td>4. Social barriers</td>
<td>Gender issues</td>
</tr>
<tr>
<td></td>
<td>Nature of personal relationships (relationships between markets and producers)</td>
</tr>
<tr>
<td>5. Trading barriers</td>
<td>Knowledge of what constitutes a fair price</td>
</tr>
<tr>
<td></td>
<td>Knowledge of to whom to sell</td>
</tr>
<tr>
<td></td>
<td>Knowledge of how to sell (&amp; when to sell)</td>
</tr>
<tr>
<td></td>
<td>Asymmetry in power and knowledge in transactions</td>
</tr>
<tr>
<td>6. Policy as a barrier</td>
<td>Knowledge of policy analysts and designers with respect to development and implementation of policy including flow-on effects</td>
</tr>
<tr>
<td>6.1 Development of policy</td>
<td>Identification of policy outcomes</td>
</tr>
<tr>
<td></td>
<td>Policy goals (eg disease control programs)</td>
</tr>
<tr>
<td></td>
<td>Understanding of the relationship between policy and its impacts</td>
</tr>
<tr>
<td></td>
<td>Processes in policy analysis and design</td>
</tr>
<tr>
<td></td>
<td>Lack of inclusion of flow on effects of policy decisions in analysis</td>
</tr>
<tr>
<td>6.2 Policy implementation</td>
<td>Disconnection between policy aims and implementation</td>
</tr>
<tr>
<td></td>
<td>Regulatory barriers including</td>
</tr>
<tr>
<td></td>
<td>Disease reporting and health status requirements (especially if at farm level)</td>
</tr>
<tr>
<td></td>
<td>Animal identification</td>
</tr>
<tr>
<td></td>
<td>Certification procedures</td>
</tr>
<tr>
<td>6.3 Advantages given to large scale commercial producers (through policy)</td>
<td>Import subsidies for stock feed</td>
</tr>
<tr>
<td></td>
<td>Tax advantages and incentives</td>
</tr>
<tr>
<td></td>
<td>Subsidised loans</td>
</tr>
<tr>
<td></td>
<td>Land subsidies</td>
</tr>
<tr>
<td></td>
<td>Export incentives</td>
</tr>
</tbody>
</table>

*Note: This table assumes the producer operates from a commercial perspective*
3. Barriers to and Opportunities for Market Entry

Many of the barriers listed in Table 6 are immediately obvious as barriers as is the mode in which they operate. For others the situation is less clear and it will be necessary to provide further description and examples of the various barriers classified above and how they operate.

Policy can have positive or negative impacts on market access - that is policy can operate as a barrier or can reduce the impacts of barriers. Policy analysis tends to focus on specific measurable outcomes - for example improved transport is not analysed with respect to its impact on small scale livestock producers but on how much more effectively the transport system operates - improved transport to an isolated area could reduce the welfare of poor livestock producers.

An example of public sector action advantaging large scale producers is the provision of technical support to livestock producers using information and methods originally funded and developed by the public sector. The provision of this support has decreased the risk to producers (for example through control of livestock diseases) and the reduction in risk has enabled larger scale more intensive production to take place. Changes in risk to large scale capital intensive producers, as occurred with the recent outbreak of avian influenza in East Asia, leads to a rapid response from governments and international agencies to ensure the risk is again reduced and the returns to capital protected.

Within policy analysis the knowledge held by policy designers, analysts and implementers is discipline focussed often technical and they therefore tend to operate within a narrow reductionist framework. This knowledge base while useful can limit the ability of design the policy processes need in the relationships between the production processes and the market system.

Many of those involved with policy design, analysis and implementation are aware of the words and jargon associated with market access but few have a clear understanding of the meaning of the words in practice. This lack of knowledge and understanding constitutes a major policy barrier to improving market access for poor producers because the policy analysts are not able to include the issues in their analysis. Livestock policy, economic policy and development policy are generally disconnected from each other and from the people being serviced.

Attempts to get livestock officers from the field to describe the market system in which poor livestock producers were operating were often met by a general statement about the need for poor livestock owners to access markets suggesting that in many cases the field officers were not aware of the situation they were trying to improve.

Policy officers would talk in general terms about issues associated with market access for poor livestock producers and made use of terms such as “transaction costs” and “barriers to entry” but were unable to communicate how the terms related to the situations they were involved with operated. While this lack of informed staff continues improvement appears unlikely except by chance because there is not any program in place to improve the understanding of these officers.

Policy officers also tended to lack a clear understanding of the way in which commercial firms operate and their view of barriers within a market system. Another way to classify barriers is the manner used by most firms operating in the commercial sector. Firms tend to describe barriers to market entry as taking various forms and some of the barriers are classified as:

- Investment
- Government regulations
- Predatory pricing
- Intellectual property
- Economies of scale
3. Barriers to and Opportunities for Market Entry

- Customer loyalty
- Advertising
- Research and development
- Sunk costs
- Network effect
- Restrictive practices

Further work is needed to understand how the ways in which the commercial sector operates with respect to barriers in markets and the relationship to poor livestock producers is needed.

3.2 The Manner in Which Barriers Operate

Barriers to market entry can also be classified according to how they operate. For example, the classification of barriers can relate to the way in which the barriers impact on market access and be classed as having either:

- Direct, or
- Indirect effects

In this case, direct barriers are those that impact directly on the first sale where as indirect barriers are those that have their origin elsewhere in the system and operate via other mechanisms to impact on the first sale of the producer.

In addition, it is possible to classify barriers dependent on whether their impacts are

- Immediate or
- Delayed

The delays between barrier and its impact relate to distance in space or time or both. Immediate barriers are those where the effect is close in both space and time to the producer and the first transaction. In contrast, delayed barriers can be distant in either space or time or both. Figure 10 provides a pictorial representation of the nature of barriers and demonstrates the areas of mode of operation and temporal and spatial elements.
Irrespective of the nature and mode of operation of barriers the impact on the poor producer is generally the same, namely they are unable to sell their product when they want or need to for a reasonable price. But because barriers operate in various manners there is a need to develop an understanding of the way they operate to be able to have an impact on the barrier and reduce the impact of the barrier on the poor producer and their ability to access markets. However, barriers with indirect or delayed impacts provide a difficult issue for policy analysts and those implementing policy. It is therefore crucial that policy analysis and monitoring examine for indirect impacts that may be operating.

Barriers can also be considered to be intrinsic or extrinsic. Intrinsic barriers are those that exist irrespective of the producer and market and may for example be due to the nature of the product (meat is bulky and highly perishable for example). The majority of small scale livestock production systems have not been developed to align with modern methods for the processing and marketing of livestock products. As a result there are numerous barriers to market entry that form an intrinsic component of the production system. Some of those barriers such as distance to market cannot be removed but the barriers that cannot be removed can be mitigated.

Traditional social structures in many countries have an association with trading relationships and many of those relationships appear fixed reducing the opportunities for the small scale producer to participate in the wider economic system.

By their nature small scale producers produce small quantities of product and therefore any purchaser of that product for a larger market would need to develop a relationship with a large number of small producers. The development and maintenance of each of those relationships imposes a cost. Therefore the need to purchase product from a large number of producers is in itself a large transaction cost that must be borne.
3. Barriers to and Opportunities for Market Entry

3.3 Detecting Barriers

In many ways the detection of the presence of barriers to market entry for poor livestock producers is relatively simple to do because a barrier can be deemed to be present when poor livestock producers are unable to sell their produce at a ‘reasonable’ price where there is demand for that product. However, the detection of the presence of a barrier does not ensure the barrier will be overcome or removed. One reason for this is that the operation of barriers is multifactorial and a barrier will often consist of multiple components that are operating at the one time and removal of one component of the barrier may not be enough to remove the barrier.

In order to remove a barrier the location of the barrier its components and the nature of the barriers operation also need to be determined. Removing what may be a barrier for one person in one industry may lead to another barrier being introduced for other operators in the same or another area or industry.

Several barriers are clear and can be detected fairly simply. Distance to market and knowledge are two such area and both are briefly outlined in this section.

3.3.1 The Relationship between the Product and Distance to Market

Given the nature of livestock products and that they are often produced relatively long distances away from large urban markets the cost of transport and the ability to provide appropriate transport are important factors in determining the potential for poor livestock producers to participate in markets.

An algorithm can be derived to consider whether it is viable for a producer to supply a distant market where:

\[
\text{Cost of production} > \text{cost of transport}
\]

\[
\text{Cost to supply market} = \text{cost of production on farm} + \text{cost of transport} + (\text{number of steps} \times \text{cost per step}) + (\text{number of steps} \times \text{transaction costs per step}) + \text{processing costs}
\]

From the above formula it is clear that the greater the distance to the market, the higher costs are likely to be and that the more steps in the chain between the producer and consumer the higher the transaction and holding costs will be.

In order to operate in a financially viable manner the:

\[
\text{Cost to supply market} < \text{price paid in market}
\]

Exporters of livestock products rely on efficient transport linkages and efficient production (and in some cases subsidisation of export product through domestic prices) to enable them to trade successfully.

There is an advantage to a producer who is located close to a market and is able to maintain low production costs.
3.3.2 Knowledge as a Barrier

The lack of knowledge farmers have with respect to production processes tended to be the focus however, other areas of knowledge are also important including their knowledge of the operation of the market system how to enter it and what constitutes a fair price. While farmers are important the knowledge of other groups is also crucial to overcoming barriers to market entry. Knowledge in relation to barriers relates to other groups involved in policy development and implementation including the:

- policy analysts and designers
- public sector staff within the operational sectors (i.e. implementers of policy)
- various actors in the supply chain (market system)

The knowledge systems for policy analysts and designers and other public sector staff are considered in a later section of this document. In this section various issues related to knowledge are presented as background before more detailed evaluations are carried out.

The approach taken to knowledge varies between disciplines and individuals based on their experience and perspective. Knowledge has been classified in various ways and in this section we make use of the terminology used by North (1990), communicable knowledge and tacit knowledge, to examine the situation of the poor producer in relation to markets. The two types of knowledge outlined by North (1990) can be defined as:

- Communicable knowledge is knowledge that can be transmitted from one person to another
- Tacit knowledge (coined by Michael Polanyi, 1967 in his book The Tacit Dimension) is acquired in part by participating in a particular area or activity and not all of this knowledge can be communicated to another person. Individuals vary in their ability to gain tacit knowledge

The knowledge acquired by individuals will reflect the advantage that possessing that knowledge will enable the individual to achieve and can be regarded as being embedded in the institutional frameworks that operate and constrain their activities. It is therefore apparent that is the skills and knowledge needed to operate as poor agricultural producer are different to those needed by a commercial farmer.

Discovering markets, evaluation markets and techniques and managing the method of production require the development of tacit knowledge in order to understand the complexity involved and establish mechanisms to work within it. The specific knowledge required is generally specific to a situation and the institutions that operate in that situation.

In order to invest in the acquisition of new knowledge the institutional arrangements need to allow that acquisition and the individual or organisation needs to see the benefit in the investment. The benefit may involve a significant change in production processes as well as a change in the nature and operation of institutions. To do so may require trials, experiments and innovations (North 1990) to improve adaptive efficiency.

What then does this mean in the case of the poor producer? Several statements can be made in this situation the producer who is prepared to invest in gaining additional knowledge will prosper if they get it right.
3. Barriers to and Opportunities for Market Entry

The relationship and communication with the first step in the chain forms a critical step in the process of product sales for small scale producers and provides an example of the knowledge required to participate in the market. While the interaction between the producer and the first purchaser of the product is a critical step in the process that step is influenced by a wide range of external factors that are not controlled by either agent involved in that transaction in particular the institutions that govern that interaction are generally created externally to the poor producer. Therefore it is important to have a broad view of the factors influencing the first transaction with that transaction firmly embedded in the wider market system. Once the relationship is understood the relevant policy requirements can be developed.

During the first exchange sellers need to have:

- Knowledge of the potential buyers, what they buy and when they want to buy it (including seasonality of demand)
- Knowledge of the other services offered by the various potential buyers
- Capacity to produce the product that buyers want to buy (resources and knowledge)
- Ability to negotiate a fair price (including an understanding of what constitutes a fair price within the current market and in relation to the cost of production)
- Assurance that they will be paid for the product such as a binding contract and ability to enforce that contract to ensure payment

Many producers have limited if any knowledge of who the alternative purchasers of their product may be nor the price likely to be offered by those alternative purchasers. In addition the producer often receives other services, such as credit from the first purchaser. However, poor livestock producers have limited access to information and limited capacity to access information in rapidly changing markets. The sort of information required to access markets includes information on production methods (what to produce and how), market cycles and the risks associated with various strategies.

Not all poor producers have the capacity to compete in the market therefore some who change their focus will succeed while others will decline.

Figure 11 provides a model of the relationship between poor producers and the market and outlines some of the key elements that do not align including the institutions, knowledge and processes, and aims of the two areas.
Figure 10: Model outlining the incongruence between poor producers and markets.
4. RELATIONSHIPS BETWEEN PUBLIC POLICY, GOVERNANCE AND BARRIERS TO MARKET ENTRY

Public policy operates in many ways; it can work within sectors and across different sectors, it operates at multiple levels and can influence the market system in various ways. In general public policy is a characteristic of the nation state model of government and forms a component of overall governance structures that often also include traditional governance structures and commercial governance arrangements. It is important to understand the nature of government versus governance in determining the relationship of policy and its operation to enable (or in some cases inhibit) market entry. In addition, the scale of operation of public policy is also an important factor that needs to be considered.

One way to consider policy is as part of a broader process in the development of statements of intent or outcomes to be achieved. Those are then achieved through the development of processes to implement actions; processes include legislation, programs and projects. Public policy has been classified in various ways (see for example Lowi (1972) and Smith (2002)) but because of policy’s diverse nature classification systems are a useful device but not prescriptive. Policy classification in its simplest form can be related to whether the policy is coercive or non coercive where in its coercive form actions are enforced via regulation and other methods such as incentives and provision of information can operate as non-coercive tools. There is a limited connection between classification of policy in this way (to a large extent the domain of political science) and economic policy.

Policy and its implementation is one influence on market systems with those market systems operating in a highly complex area with multiple often conflicting external influences. The way in which policy analysis is carried out and the form policy interventions take are highly variable and that variation may depend upon the theoretical basis on which the analysis is founded, the political environment (including power relations) and the basic assumptions, knowledge and skill of the analyst. In addition, the capacity of those who design and carry out an intervention based on a policy will have an important impact on the policy outcomes.

The nature of the causal relationships and distance in place and time between policy and its implementation and the association between policy implementation and the political process are important factors in setting public policy priorities. If the association between cause and effect is distant and longer in time than the political cycle then the impetus for politicians to make changes is limited. In addition, the further the disconnection between cause and effect in both time and space and the more factors that influence the situation the more difficult it is to demonstrate the relationships in any form of analysis or through empirical studies. Policy is often thought of as an adaptive process that involves monitoring and response to that monitoring and if change in response to policy implementation is slow then policy may be rejected before impacts from its implementation are detected.

This section first examines some of the key principles in public policy and its underpinning concepts. It then explores governance as an issue in relation to public and private sector roles in the management of market systems with a focus on the situation faced by poor livestock producers.

4.1 Public Policy and Why Governments Become Involved in Markets

In examining public policy in any particular area it is important to consider the wider national objectives of the government and civil society as part of the examination. Government intervention can significantly impact on resource allocation within a
4. Relationships between Public Policy, Governance and Barriers to Market Entry

particular sector and on the economy at large. National priorities within budgets and political constraints will determine both the nature and scope of public sector interventions in any particular sector. It is important to address the issues of why governments become involved in the economy and the outcomes that are expected from that involvement. Various attempts have been made to outline why governments become involved in the economy through development and implementation of policy.

There is a hierarchy in public policy development and it is important to understand the position of a policy within that hierarchy. Often when policy in livestock production is developed it is developed from a technical point of view rather than from the perspective of the overall aims of government policy and the relationship is not clearly stated or defined. Such an approach emphasises the issue of how we do things but neglects the important aspect of why things are done and the relationship to the overall aims of government intervention in the economic system. In addition, livestock production and the position of poor livestock producers are not only influenced by policies directly related to livestock production but also to other policies that operate more broadly to influence the social and economic environment as a whole. Incorporating this understanding is an important step for livestock policy analysts to ensure the relationships are clearly understood and stated.

The relationship between public policy interventions and economic theory is another factor to be considered and a brief outline of the relationship between public policy and economic theory is provided as part of an overall description of the aims of public policy. Public policy interventions that impact on the way in which markets operate are in some ways in opposition to economic theory and the assumption that markets work best with minimal government intervention. Therefore interference in markets through public policy needs to be justified using economic arguments. Working to increase the opportunities for poor livestock producers to enter markets could be considered to be interference in the market. Many policies are seen as having clearly bounded effects yet they often have multiple flow-on effects or externalities that have impacts outside the expected boundaries. In many cases policy analysis does not consider the externalities but focuses on the direct impacts of the policy and its implementation.

From an economic perspective, governments become involved in the economy to improve economic efficiency. In the extreme case of no government intervention market processes determine the types and quantities of products produced, the way those products were produced, the prices paid for the products and the incomes earned by those producing those products. Governments have tended to remove themselves from the market, but economists believe there are reasons for governments to get involved in public policy in order to improve economic efficiency. Authors have expressed in various ways the economic justifications for government involvement in the markets. In general those justifications relate to market failure and include:

- distribution of income and asset values
- provision of public goods
- presence of externalities
- information failure
- coordination failures, and
- natural monopolies
In another approach the objectives of government policy have been stated by Norton (2004) as being encompassed by the following three areas:

- efficiency
- equity, and
- sustainability

The objectives stated by Norton (2004) have a strong relationship to the economic justifications. Public policy objectives differ from those of private company policy that are generally thought of as being profit maximisation and in the case of individuals economic theory suggests maximisation of personal utility is the objective.

Norton (2004) further suggests five principles that guide public sector policy actions with those principles representing conditions or limits on the actions that can be used to achieve objectives. In brief the five principles are:

- economic sustainability, that is deliver real economic benefits
- social sustainability - improve the situation for lower income and disadvantaged groups
- fiscal sustainability - must have adequate funds to support the activity
- institutional sustainability - organisations supported must be able to stand alone
- environmental sustainability

It is not the intention of this document to review the economic justifications for public policy but rather to acknowledge their existence to assist policy analysts to understand the relationships in a broader context. For a useful and more complete description of the relationships and justifications for public policy see Chapters 2 & 3 of Norton (2004).

4.2 Policy as a Barrier to Market Access

Policy can have positive or negative impacts on market access - that is policy can operate as a barrier or to reduce the impacts of barriers and any policy analysis needs to acknowledge this potential. Policy analysis tends to focus on specific measurable outcomes directly related to the policy aims - for example improved transport is analysed in relation to how much more effectively the transport system operates. Transport systems are rarely analysed with respect to their impact on small scale livestock producers yet changes in the transport system could have many impacts both positive and negative. For example, improved transport to an isolated area could improve the situation for poor producers enabling them to have access to inputs required and to have a way to send produce to external markets. However, if the producers are currently accessing a local market the improved transport could reduce the welfare of poor livestock producers in the area by introducing a collection of other players into the local animal product markets because producers from outside the area could now access it more easily. The flow on effects would need to be considered from both an equity (distributional) and time perspective.

The literature on policy is undergoing a period of growth as various methods to deal with increasing complexity in the policy environment are explored. Conventionally policy development is described as a linear process consisting of various steps that have been summarised by Roe (2000) as:
4. Relationships between Public Policy, Governance and Barriers to Market Entry

- define the problem
- identify the alternatives
- agree on the methods and criteria to evaluate the alternatives
- gather the relevant information
- evaluate the alternatives in light of the data
- decide on recommendations, and
- communicate them in a way stakeholders can understand and act upon.

The initial sections of this document worked to provide a definition of the situation through an understanding of the system in which the poor livestock producer operates and to enable alternative scenarios to be examined. In that way it has dealt with the first two points raised by Roe (2000) and outlined above. Methods to evaluate the alternatives are also derived and are further explored in relation to public policy in this section by incorporating policy analyses with elements of livelihoods approach and development of an understanding of governance.

4.3 The Nature of Governance and its Relationship to Livestock Product Markets

Having considered the basic underpinning of policy and the relationship between government and governance it is now useful to further explore governance in market systems with specific emphasis on poor livestock producers. Exchanges between buyers and sellers of produce are governed in several ways such as through various cultural norms including traditional cultural relationships and the culture of commercial organisations. In addition there are various rules imposed by the nation state that formalise many arrangements such as ownership and to enable enforcement of agreements. Governance therefore includes formal and informal norms as well as methods for enforcement. In doing so it includes an approach that is horizontal and involves the willing participation of the various parties in addition to an approach that is imposed through government legislation. Governance can therefore be facilitated by public sector policy rather than imposed. The governance modes can be described as involving three areas, namely:

1. Traditional governance structures
2. Private sector and the norms that govern the way in which it operates, and
3. Public sector via the modes of operation of the nation state (with policy and practice that can be coercive or not coercive)

Each of the areas of governance operates in different ways and the power of each to control the others varies depending on the scale at which it is operating and the location of the market system in relation to the centre of power of the nation state. A representation of the extent of influence of two systems of control over market operations is provided in Figure 12 where the further from the centre of power of the nation state a market is the more it is governed by traditional governance structures and the power of the nation state is diminished.

The nature of commercial operations also differs as one moves away from the centre of government that is usually based in large urban centres to rural areas and towns further away. In the major urban centres large retail outlets are present and they provide food to many of the middle class urban dwellers and operate using supply
chain methods. In rural areas the retail outlets are less likely to be so large and the smaller retail outlets are less focussed on the highly complex supply chain management systems applied by larger firms. In many ways governance is strongly related to institutions (as used in institutional economics) such that “governance is governed by institutions”.

**Figure 11:** *A simplified representation of the extent of influence of the nation state and traditional governance in relation to the distance from the centre of government activities.*

A similar approach to that taken in Figure 12 could be taken to demonstrate infrastructure development for areas close to and far away from the centre of government activities. Figure 12 is limited in its scope because it does not include international governance procedures or the influence of commercial organisations both local and international. In addition there is a need to consider the nature of private sector governance in supply chains.

### 4.3.1 Governance in Market Systems and Supply Chains

This section considers the concepts of governance in relation to value chains. In doing so it considers the governance structure outlined in the value chain literature then expands that to provide a framework in relation to poor producers.

Gerreffi (1994) states that the governance structure of value chains is the authority and power relationships that determine how financial, material and human resources are allocated and flow within a chain. Governance is therefore more than management and as stated earlier in this document is not the role of the nation state alone. Various questions therefore arise including:

- Who are the players in governance?
- How do they relate to each other (or what are the rules by which they operate)?
- At what levels does governance operate?
- How are issues of fairness and income distribution considered within the governance structures?
How does public sector policy operate to influence the governance of the chain (in the chain as a whole and within each link of the chain)?

Gereffi, Humphrey and Sturgeon (2005) take the definition of governance further through development of a typology that describes chains in view of the governance system and key factors that influence governance.

The concept of economic institutions has gained increasing prominence in the literature, particularly the applied development literature, in the last decade and a half. Economic institutions are usually broadly defined as the rules of the game (North 1990). While institutions are now recognised as being an essential element of analysis in economic development, see for example World Development Report 2001, the question of how these issues should be dealt with is far from resolved.

The concept of governance in value chains provides one avenue of incorporating institutions into policy discussions. Humphrey and Schmitz (2000) define governance as any coordination of economic activity through non-market relationships. Examining the governance framework in a value chain effectively means considering the institutional framework for a particular set of production and market activities. However, the link between value chain governance and economic institutions is not one that is explicitly made in the literature and is an area for further development.

The usual starting point for considering value chain governance is Gereffi’s (1994) distinction between two types of value chains; those that are producer driven and those that are buyer driven. Gereffi (1999) describes producer-driven value chains as being those in which large manufacturers play the central roles in coordinating production networks, including the backward and forward linkages. Such chains usually involve transnational corporations in capital and technology intensive industries such as automobiles, computer, semiconductors and heavy machinery.

Buyer-driven value chains occur in “industries in which large retailers, marketers, and branded manufacturers play the pivotal roles in setting up decentralized production networks in a variety of exporting countries, typically located in the third world” (Gereffi 1999, p. 1). These industries generally involve labour-intensive production but with product design and marketing being critical. Examples of buyer-driven value chains involve athletic footwear companies such as Nike and Reebok, and fashion-oriented apparel companies. Gereffi (1999) states that one of the main characteristics of this type of firm is that they design and/or market the branded products they order but they do not manufacture them.

Gibbon (2001) extends the governance taxonomy to consider chains for primary commodities and international trader-driven chains. Gibbon (2000) argues that primary commodities are the main current link between LDCs and the global economy. International trading companies have a coordinating role in these markets because they can continuously procure specific volumes and quality mixes for a number of processors.

No individual supplier or country-specific association of suppliers has the capacity to perform this function, which moreover is uneconomic/impractical for processors to carry out. Entry barriers to the trading function are very high levels of working capital (necessary because of high volumes traded); accumulated market knowledge - including knowledge of markets for trade-related services like transport, insurance and financial services; and intangibles like reputation - itself largely a combination of reliability and discretion (Gibbon 2000, p. 12).
These categories of governance reflect an emphasis on the relationship between globalisation and economic development by writers in this field. Useful insights into the workings of supply chains can be obtained from this level of analysis. However, Kaplinsky and Morris (2000) provide a more general discussion that may have greater relevance to the supply chains faced by poor livestock producers. Kaplinsky and Morris (2000, p. 30) take the discussion of governance in a civil society as their starting point and thus distinguish three elements of value chain governance:

- **Legislative governance** is concerned with setting the parameters for governance within the value chain,
- **Judicial governance** covers coordinating the conformance to the set parameters
- **Executive governance** is a form of proactive governance that provides assistance to value chain participants in meeting the operating rules.

Governance roles can be provided by parties within the supply chain or those external to it. Table 7 provides examples of these three forms of governance.

**Table 6: Examples of legislative, judicial and executive value chain governance.**

<table>
<thead>
<tr>
<th></th>
<th>Exercised by parties internal to chain</th>
<th>Exercised by parties external to chain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Legislative governance</strong></td>
<td>Setting standards for suppliers in relation to on-time deliveries, frequency of delivery and quality</td>
<td>Environmental standards</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Child labour standards</td>
</tr>
<tr>
<td><strong>Judicial governance</strong></td>
<td>Monitoring the performance of suppliers in meeting these standards</td>
<td>Monitoring of labour standards by NGOs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specialised firms monitoring conformance to ISO standards</td>
</tr>
<tr>
<td><strong>Executive governance</strong></td>
<td>Supply chain management assisting suppliers to meet these standards</td>
<td>Specialised service providers</td>
</tr>
<tr>
<td></td>
<td>Producer associations assisting members to meet these standards</td>
<td>Government industrial policy support</td>
</tr>
</tbody>
</table>

Source: Kaplinsky and Morris 2000, p. 31

In addition to the forms of governance, Kaplinsky and Morris (2000) discuss three other elements of supply chain governance. First, governance requires the ability to sanction behaviour. Sanctions are generally negative such as exclusion from participation in the supply chain, but can also be positive. The second element relates to legitimacy. ‘In the long run, sustained governance reflects the legitimacy of those in power’ (ibid, p. 30). The third element concerns the depth and pervasiveness of governance, that is the extent to which the governance structure affects the core activities of individual parties in the chain. An important aspect of this element is whether there are competing bases of power.

The concept of power is closely linked with that of governance. Unlike neoclassical economics where power is usually assumed to be symmetrical and thus can be ignored, value chain analysis acknowledges that power may be symmetrical or asymmetrical. Power may manifest itself in two seemingly contradictory ways
It is clear, even from this brief summary, that supply chain governance is a concept that provides a way of incorporating social institutions into the analysis of market based activities. Evaluation of the governance of the market system therefore can be used as an integral part of policy analysis as well as part of a monitoring program.

4.3.2 Supply Chains Crossing Governance Systems

The supply chain models illustrated in Figure 4 illustrate an apparently aligned model of the production and market systems where it is often assumed that the governance structures and institutions that manage the system are similar if not exactly the same for the whole system. However, this is not necessarily the case and poor livestock producers in rural areas operate with a modified traditional set of governance structures and institutions that manage their social and production activities and interactions. The market system operates at a distance and using a different set of governance and institutional arrangements to manage its processes. Therefore, if a poor livestock producer wishes to participate in the market system they need to either be familiar and connected with the structures and operations of the market system or have access to a linking individual or organisation as illustrated in Figure 13.

*Figure 12: Representation of the disconnection between governance processes and institutions that operate for poor livestock producers in rural areas and market systems.*

In the traditional sector producers have often operated within various arrangements including patron client relationships. When producers operate in association with external market systems they will often work with agents who do not provide the same services as they receive in the patron client relationship. Given that the poor producers have not become more secure since they have entered the market system they will often require the additional services provided in the patron client relationship (the services may include short term loans in times of need and assistance to get food when conditions are poor). If the agent is unable to provide these services then the position of the producer may have become worse in accessing the market.
Urban poor livestock producers operate in a cultural environment that has a closer association with western market concepts than most rural areas and a different set of cultural relationships within the community.

4.4 Value Chains, Livelihoods Analysis and Public Policy

In this section the discussion focuses on how supply chain analysis can be used to complement the analytical framework provided by livelihoods analysis. Each system has its own strengths and weaknesses. By combining the two, a more complete framework for policy development is produced.

The principal shortcoming of supply chain analysis as outlined above, is that it focuses on profits and income streams. It would be enhanced if the wider impact on livelihoods of supply chain participants were considered. Such an approach would also provide a way of integrating policy initiatives for poor livestock producers into a wider development policy framework.

Within the evolving poverty reduction paradigm (EPRP)\(^1\), Sustainable Livelihoods analysis is the main tool of analysis. SL analysis is the process of identifying the resources and strategies of the poor, the context within which they operate, the institutions and organisations with which they interact and the sustainability of the livelihood outcomes which they achieve (Shankland 2000). SL analysis is a method of analysing the complexities of the micro-level realities of the poor. It has the potential to establish connections within the social hierarchy between local realities and the policy-formulating level, ‘linking the micro to the macro’.

Within a sustainable livelihoods approach policy is a process as much as an outcome. Policy is not seen as a linear process but rather one involving multiple viewpoints or perspectives and feedback loops. Policy is therefore not static but dynamic changing with the changing internal and external environment and the perceptions of those involved with the policy. This approach contrasts strongly with the linear before and after approach of conventional policy approaches.

The Sustainable Livelihoods approach has won wide spread acceptance amongst development policy makers as a way of identifying the needs of the rural poor. However, three important (and overlapping) shortcomings have been identified. SL analysis does not adequately take into account: the need to improve governance structures (Vorley 2002), the need to improve market participation (Dorward, Poole et al 2002) and the manner in which policy can be developed from the analysis (Shankland 2000). While since about 2002 livelihoods approaches have diminished in their profile the methods provide a useful device to evaluate impacts on a person, family or community and it is therefore an element or component of an analytical framework not a complete framework.

Vorley (2002) argues that the ‘Policies That Work’ project clearly indicates that it is improvements in governance rather than the addition of yet more policies that is the key to bringing lasting improvements to the lives of the rural poor. The shortcomings in relation to policy are discussed by Shankland (2000). Policy is mediated through existing institutions and organisations to influence people’s choices of livelihood strategies. Shankland argues that the SL concept of social capital under-represents the importance of political connections. The link between Shankland’s position and

\(^1\) Variations of this paradigm have been articulated by the World Bank, the OECD’s Development Assistance Committee, United Nations Development Program, The United Kingdom’s Department of International Development and UNICEF. Poverty reduction is a specific target of EPRP. ‘On balance, the EPRP approach generally places greater emphasis on safety nets and direct/targeted government intervention on behalf of the poor, and explicitly acknowledges the importance of national and local governments as instruments for poverty reduction’ (Salinger and Stryker 2001, pp. 18-19).
supply chain analysis is that the supply chains are part of the economic institutions (markets) through which policy is mediated.

**Figure 13: Policy stages in agricultural development.**

Dorward et al (2002) argue that the SL thinking lacks an emphasis on markets and their role in livelihood development and poverty reduction. The development of markets must be part of the policy process. Dorward et al (2002) argue that experience from the Green Revolution suggests successful poverty alleviation goes through the policy stages shown in Figure 14 to support agricultural development. The policies aimed at upgrading supply chains in weakly integrated areas are a way of ‘kick starting’ markets.
Implementing policies that lower barriers to entry for poor livestock producers entails modifying existing market processes and institutions and developing new processes and institutions. Understanding how the livestock market system currently works is therefore a fundamental step in developing policy. If the purpose of measuring barriers to market entry for poor livestock producers is to develop policies that will enhance the capabilities of those producers to engage in market activity and thereby increase their income and capital. Standard that is, neoclassical, economic theory has a limited contribution to make in this area because of its treatment of markets. In neoclassical economics theoretical outcomes of market processes are the focus of analysis nor the processes themselves; while in the situation being examined in this document the operation of the market and how that operation can be modified is the key issue.

Various methods have been developed to examine the operation of agricultural markets and the associated barriers to market entry to those systems. The methods include transaction cost analysis and various forms of market or value chain analysis. This section first considers transaction costs and the limitations associated with their analysis then outlines various forms of chain analysis.

5.1 Analysis of Transaction Costs

Transaction cost analysis is a method that might be of use in the examination barriers to market entry for poor livestock producers and is outlined in this section. The concept of transaction costs in modern economic theory originated with Ronald Coase’s 1937 paper ‘The Nature of the Firm’. More recently, the concept is associated with the increasing influence of New Institutional Economics (NIE) in the field of applied development economics. The works of Douglass North and Oliver Williams are most prominent in the literature. However, the analysis provided within the school of NIE is almost exclusively theoretical due to the problems associated with defining and measuring transaction costs. A relatively small number of researchers have attempted to quantify and analyse transaction costs for particular market situations. A key point in transaction cost analysis is the divorcing of the various levels of production from any relationship other than a market one, an important limitation when considering the livelihood of a poor producer who operates mostly outside the market.

Transaction costs are the direct costs and opportunity costs associated with the exchange and maintenance of property rights. Eggertsson’s (1990, p. 15) explanation of the origins of transactions costs is widely cited in the literature. In this view, transaction costs arise from the following activities:

- the search for information about potential contracting parties and the price and quality of the resources in which they have property rights;
- the bargaining that is needed to find the true position of contracting parties, particularly when prices are not determined exogenously;
- the making of formal or informal contracts defining the obligations of contracting parties;
- the monitoring of contractual partners to see whether they abide by the terms of the contract, and
5. Analytical Methods to Examine Barriers to Market Access for Poor Livestock Producers

- the enforcement of the contract and the collection of damages when parties fail to observe their contractual obligations.

Birner (1999) adds a higher, macro-level of transaction costs which she labels ‘political transaction costs’. These are the costs associated with maintaining the political organisations, such as the state, that enforce the existing property rights regime. Transaction costs in the economic literature are largely considered in a theoretical sense and much of the research into transaction costs has been centred around explaining the presence of firms; that is demonstrating that firms exist in order to reduce transaction costs. In many cases the term is used without explanation and it is not uncommon to find statements along the lines “Policies need to be introduced to reduce transaction costs” without any explanation as to the types of policies that would have such an effect nor outlining what the transaction costs are that must be reduced. The combination of two imprecisely defined areas, namely transaction costs and public policy and demonstrating the links and causal associations between the two is therefore a difficult task.

Most empirical studies consider micro-level transaction costs rather than those at the macro level. A similar econometric method, namely Tobit limited dependent variable analysis is generally the preferred method for analysis. Several analyses have been carried out using Tobit analysis including Lapar and Ehui (2002), Holloway, Nicholson and Delgado (2000) and Hobbs (1997). The studies have varying levels of sophistication with the study of Holloway et al (2000) perhaps proving the greatest insight. Holloway et al (2000) analyse barriers to small-holder participation in dairy production and extend the idea of transaction costs to ‘include not costs associated with exchange but also the complete set of costs implied when households must reorganize and reallocate labour in order to generate a marketable surplus’ (p. 6). A central part of the analysis is a discussion of the important role of producer cooperatives in reducing transaction costs. The measurement of transaction costs is a component of policy-related research rather than being an end in its own right.

Holloway et al’s analysis is also based on survey data. In this instance the survey focused on 68 households. Data on milk sales were collected for the seven days prior to three separate visits. The econometric technique employed, a Tobit specification using a Markov-chain Monte Carlo method, allows the estimation of a set of latent values for non-participating households. The Markov-chain Monte Carlo method allows inferences to be made about the changes in explanatory variables required to induce current non-participants to engage in market transactions, for example the additional number of crossbred cows or local cows. It is this facet of the econometric analysis that adds value.

The issues that Holloway et al examine relates to the introduction of an institutional innovation, namely the creation of producer cooperatives. Their conclusions are that the innovations themselves are not sufficient to bring about market participation. The transaction cost analysis provides estimates of the additional resources required by non-participating smallholders in order to enter the milk market. These are primarily additions to the milk herd, locating milk collection points so that travel times are reduced and increasing the frequency of extension visits. The analysis also provides insight into other policy related issues. For example, the authors find that crossbred cows have a higher marginal cost than local cows and that this implies a negative gross effect on the marketable surplus of milk compared to local cows.

Within the theoretical framework of the New Institutional Economics literature two important insights into transaction costs are provided:

- First, if the transaction costs are significant they can affect market behaviour.
- Second, transaction costs are difficult to measure.
As the discussion above indicates, attempting to estimate values for transaction costs contributes little to our understanding of how to assist poor livestock holders participate in a market system so that they can accumulate capital. The solution to the barriers to market entry problem does not lie in piecemeal interventions to reduce specific transaction costs. One group the rural poor, in areas weakly integrated into market systems, are locked into low output equilibria (Stiglitz 1989). This is a systemic problem. The solution lies in changing the characteristics of the system so that it is transformed into one that has self-sustaining growth. Recent applied development literature has highlighted the importance of social institutions and governance, livelihood assets and empowerment, in addition to factors identified in the earlier development literature such as physical infrastructure and competitive markets, in facilitating economic growth and development.

Empirical analysis such as that discussed above, when successful, describes the systems as they exist within the limitations of the assumptions of the analytical method. However, transaction costs are reduced and market entry is facilitated by changing the socio-economic systems. Poorly working markets lead to high transaction costs however many policy instruments are blunt tools that can have different effects on poverty and the physical environment for particular groups of households and production systems, depending on the local conditions. Therefore it is necessary to realise that different measures are required for different places and situations and as a precursor the situation needs to be clearly defined before determining which actions might be appropriate.

5.2 The Supply Chain and its Analysis

The literature on supply chain or value chain analysis provides a means of bridging the gap found in neoclassical economics including transaction cost analysis in terms of the analysis of market processes. Analysis of the market chain examines the vertical linkages within the market system rather than the horizontal linkages between various small scale poor producers. Supply chain analysis provides a way of describing and analysing the market system in which the poor livestock producer has to (potentially) operate and incorporates the inputs into the production process, such as veterinary services and microfinance, the production process itself, and the processing and exchange activities that link the producer to the final consumer; thereby demonstrating the position of the producer within the broader socio-economic environment. Analysis of the activities associated with livestock production in light of the public policy that impacts on them provides a means of integrating livestock policies with a wider range of pro-poor policies and development policies (Ingram 2005).

Supply chain analysis works with the outputs of livestock production processes as inputs into the industrial food processing system. Supply chain analysis appears to have its origins in three main areas, namely rural sociology, business analysis and in economic development especially in examination of global market systems. Supply chain analysis studies within a sociological framework provide an important addition to economic studies through the inclusion of people within the approach (Friedland 2001). The application of supply chain analysis in the three disciplines has varied with the aims of the analysis and the perspective of the discipline. In the areas of management and economic development research focuses on ways the efficiency of value chains can be improved or that value chains can be upgraded. In rural sociology the emphasis has been on in many ways a combination of the three discipline approaches provides a more effective and useful tool to assist in development of an understanding of the operation of the market system and its relationship with public policy. It is important that supply chain analysis is not seen as a panacea but rather one of many tools required to provide the analyst with a mechanism to place the
production and supply system in its broad context and to describe, critique, analyse and improve its operation. If the focus is to be on the poor livestock producer then it is important within the analysis to maintain that focus within the social, political and cultural aspects.

Some of the methods including economic and commercial methods for assessing the barriers through chain analysis include:

- Global commodity chain
- Supply chain analysis
- The CaDIAC approach
- The Filiere approach

Many of the techniques are data intensive, laborious and, while they help to understand a situation and provide useful new information or a framework for understanding, they do not necessarily provide the information needed or a process that can be used to improve the situation.

Supply chain analysis has developed in many forms with an outline of the key features of some of those forms outlined in this section. Supply chain methods provide useful mechanisms but are generally focussed on global markets and operate on a large scale. An alternative approach often used in commercial studies is supply chain analysis. Supply chain analysis can be carried out in various ways - most commercial methods focus on an approach that works with the participants to understand and improve the situation of those in the supply chain focussing on the participants as entrepreneurs and acting to work as analytical and change tools. Such an approach emphasises the role of participants in learning and understanding the supply chain as well as determining how to improve it. The approach differs from other approaches because it is not focussed on a few experts analysing the situation and communicating to others how the situation can be improved. Another more economic centred approach is the approach developed by CIRAD known as the CaDIAC approach. The CaDIAC approach differs from the others in that it provides a method for analysis and change.

The various supply chain and network methods are limited because they examine the production and distribution of products in a linear manner while in reality the links are highly complex and form intricate networks. However, the more complex network approaches are not well suited to a rapid assessment method. What is needed is a process to understand and change the supply chain with that process supported by appropriate analytical tools. To achieve this goal we will make use of a supply chain approach that involves a combination of all of the above parts and forms an initial step in a process of change and improvement.

Having described the chain it is then possible to analyse the relationship between public policy and the system including policy bias that operates to support larger scale producers and actors in the chain at the expense of the poor producer. By first defining the chain and the relationship between its components it is also possible to determine opportunities within the system to generate advantages to small scale producers from within the chain. Market chain analysis can also be used to outline the issues associated with the market system and determine whether any of the transformations within the chain are taking an excessive amount of the profit derived in the chain as for example, in Ingram (2005) where the main costs are illustrated as part of the chain analysis.

Within this system the first link in the chain between the small scale producer and the middleman or market intermediary can often be linked by credit arrangements that
make the producer dependent on the middleman also known as patron client relationships (Leonard 2004). Several questions then arise including:

- Can poor farmers with appropriate public policies in place take advantage of current supply chains and if so how are they able to do so without becoming entrenched in a different form of patron client relationships controlled by powerful supermarkets?
- Why would small scale producers form an alliance? What are the motivations of chain members?

5.2.1 Defining the Chains

In this section the various terms describing the chains such as value chain and supply chain are taken as illustration of the same process and are used interchangeably. Several definitions exist with much of the distinctions between the definitions relating to the scale at which the chain is operating. Kaplinsky and Morris (2000, p. 4) provide a simple but useful definition of a value chain. ‘The value chain describes the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producers services), delivery to final consumers, and final disposal after use’. Porter (1985) notes that value is, in competitive terms, the amount buyers are willing to pay for the product or service that a firm supplies. Value is created through a chain of activities each of which has associated costs. Sustainable production occurs when the value a product commands exceeds the costs of production and distribution.

Value chains provide a framework for analysing market-based activities. Kaplinsky and Morris (2000, p. 2) argue that value chain analysis overcomes weaknesses in traditional, static sectorial analysis. ‘By its concentration on inter linkages it allows for an easy uncovering of the dynamic flow of economic, organisational and coercive activities between producers within different sectors even on a global scale’. Whereas standard economic analysis focuses on only price (value) and costs, value chains extend the analysis by also considering activities (and consequently the capabilities of those performing the activities) and the linkages between activities. The linkages between activities are the locus of transaction costs.

The concept of value chains in the management literature is primarily associated with Michael E. Porter, a recognised authority on competitive strategy. Porter is also influential in the area of competitiveness and economic development, for example his 1990 work The Competitive Advantage of Nations. Porter’s work is both influential and insightful and is applicable to the management of modern corporations and the macro-analysis of the strategic trade relations between countries but is not directly relevant to the analysis of market entry for poor livestock producers.

Another strand of the literature has developed from Gereffi’s (1995) interpretation of value chains as global commodity chains (GCC). A central issue of concern here is the process of globalisation and the way in which domestic value chains in developing countries can be upgraded and integrated into the international market system. Gibbon (2000) states that the GCC framework has been most widely applied to the analysis of exports of apparel from East Asia to the United States. Other case studies include tourism, services, electronics, and fresh fruit and vegetables. Except for perhaps the case of fresh fruit and vegetables, these are more developed markets than those that would be encountered by poor livestock producers. Nevertheless, the GCC literature is concerned with market development and it does provides a source of insight for the analysis of less developed market systems.
Four dimensions to global commodity chain analysis are identified by Gereffi (1994), namely their input-output structure, their geographical structure, the governance structure and the institutional framework that identifies how local, national and international conditions and policies shape the globalisation process at each stage of the supply chain. Gibbon (2000) states that the internal governance structures have received the most attention as this aspect incorporates the key notions of barriers to entry and chain coordination. Barriers to entry and chain coordination are central to upgrading the GCC. Upgrading value chains, which is discussed further below, should be one of the objectives of pro-poor livestock policy.

5.3 The Relationships between the Nature of Barriers and Analytical Methods

The analytical methods outlined in this section provide some interesting ideas but are not complete as analytical tools that can be applied to a situation. The relationship between the nature of barriers, policy processes and markets is not effectively developed or analysed by any of the methods. Rather the methods focus on the various elements and not the connections between. To be useful and effective a method needs to be:

- Broad and encompass the issues of the market, its size and operation
- Governance
- Wider public policy
- Bureaucratic operations and capacity (bureaucrats tend to keep on doing what they know how to do)
- Alignment across the system
- Source, mode of operation and impact of a barrier

So the question then arises “What should an analytical tool look like?”.

In addition the method needs to be able to not only detect the existence of a barrier but also locate its source because the source may be distant in both space and time from its detection. A direct barrier may relate to the nature of the product and the relationship between what the consumer desires and producer can produce. That relationship may look like the diagram provided in Figure 15. The barrier is detected at step 4 yet the cause of the barrier is located at step 1 at the consumer - retailer interface that may be distant in both space and time. The barrier relates to various factors including:

- The information the poor livestock owner has on what to produce
- The poor livestock owner may not be aware of how to produce what the consumer wants
- The owner may not have the resources to meet the description
- The capacity/capability of the poor livestock owner to meet requirements

There is no direct relationship between the consumer and the producer nor the retailer and the producer and therefore information is not necessarily passed between the various groups. The ability to meet the product description is also restricted by the time it takes for a livestock producer to respond.
5.4 An Approach to the Evaluation of Barriers

One approach that has been developed to evaluate barriers to market entry for poor livestock producers makes use of some of the concepts of supply or value chains. The approach has been translated into a computer based tool known as the Livestock Market Assessment Tool. Supply or value chains provide a method to outline and evaluate livestock production within the broader context of markets. In so doing the whole process can be mapped and the operation considered for each component in light of the whole. The idea of the supply chain forms an important part of this overall assessment method but the conceptual framework and tools are not limited by the supply chain.

Supply chains are a method for describing a sector and can be defined as the processes linking production to consumption aspects of a product. Therefore supply chains include areas traditionally analysed by those working with livestock production such as animal production processes as well as all of the steps between production and consumption including processing, wholesaling, and retail as parts of the chain. The benefits from considering the livestock production processes in this way are that the connections as well as the elements are evaluated and the producer and production processes are considered as part of an integrated system not as isolated elements.

The assessment process has five parts - the parts have been so named because they are not carried out in a step-wise manner and are therefore not sequential steps. Each part examines a component of the supply chain and its wider environment as outlined below and provides information that relates to the other parts to produce the assessment process. The software tool has taken into consideration most of these parts, but where it has not been possible, this is indicated.

Part one focuses on defining the various supply chains and the different players at each level of the chains. In doing so this part of the process provides an understanding of the context in which the poor livestock producer is operating and therefore
provides the framework around which the rest of the assessment process is based. The software tool has several in depth questions that relate to developing a clear description of the whole market system.

Part two details the transformation assessment, examines the situation for each transformation with emphasis at the level of the livestock producer. In particular, it examines the capacity for change in efficiency of production, and includes analysis of the ecosystem potential and the capacity of the producers to produce. The software tool provides a detailed picture of this part.

Part three identifies current and potential consumers, their location and the price they are prepared to pay for product. The software tool identifies consumers along the chain of particular products, and the price paid, but a detailed market analysis on the consumer is not included. While a consumer analysis is seen as an important part of the market analysis it is not possible within this tool to completely cover the consumer analysis. However, the tool provides a useful introductory process.

Part four determines the government policies that facilitate and inhibit the activities carried out in the supply chain. In this part particular attention is paid to effects of various policy instruments with emphasis on the situation of the poor livestock producer. The software tool includes several processes to determine this.

Part five focuses on the potential for change by providing a summary of the major limiting steps to the efficiency of the supply chain as well as the opportunities for governments through appropriate policy development and implementation to more effectively manage the supply chain to the advantage of small scale livestock producers. It includes a process for further analysis and a change process. The software tool includes a process to determine the majority of this. However, the analysis and change process is not a physical part of the tool, but an outcome of the tool analysis created by the user.

5.5 An Alternative Approach that Relates to Consideration of Critical Factors that Interact with Market Access for Poor Livestock Producers

This section outlines an alternative approach to the evaluation of opportunities for poor livestock producers to enter markets based on interacting critical factors. This approach first outlines the critical factors then relates them to the particular situation being evaluated. It is not restricted by a specific discipline perspective but rather takes a contextual approach. In doing so it takes the aim of the policy to change the nature of the relationships between the poor producers and the market and the change can take the approach to being related to modify the institutions that operate in each of the systems and the way in which each group views the other. In doing so it is also important to examine how various scenarios might operate and what the potential outcomes could be.

As a starting point to the approach six factors that might impact on market entry and various associated issues are outlined and evaluated. The factors outlined are:

1. Geographical position
2. Political power (and governance)
3. Knowledge
4. Culture
5. Risk
6. Public policy
Each factor is evaluated from the various perspectives including the producer and the various elements of the market system to provide a clear view of the potential operation of the system and where alignment is most likely to be successful and what needs to be done to increase the chances of success.

**Factor 1 Geographical Position**

The geographical position is a relative position that is the physical relationship between the producers and the market. Distance between markets and poor producers is first evaluated. Included in this evaluation is the nature of markets close by (and access to and cost of appropriate transport) as well as evaluation of markets that are more distant from poor producers. Information (and education varies with location with market demand, production processes and bargaining part of the mix. The resource endowment of the producer also needs to be considered.

**Factor 2 Political Power and Governance**

Power over resources and the way in which relationships are managed is important in any market system and in many ways governance is the way in which that power is managed. Understanding of the way in which the system operates is important to determine policy opportunities particularly because the distribution of power in most market systems is asymmetric and policy in relation to governance can impact on the way in which power is used.

Governance of market systems encompasses the traditional, public and private sectors and includes the way in which relationships between individuals and organisations are governed. The governance structures that are in place to manage relationships in the overall production system that include for example, contracts are also important. Governance structures and power influence many areas including:

- Resource endowment of the various participants in the system such as access to land for poor producers and the security they have over that land
- Information and the way in which it is provided including the level of education of the various participants and their ability to make use of various forms of information to improve their decision making processes
- Bargaining power held by different actors in any transaction, and
- Opportunity individuals and groups have to influence policy and practice in the public sector

**Factor 3 Knowledge**

In the case of knowledge the level of knowledge is considered not only with respect to the knowledge of the producer about the requirements and production processes for the market but also the market’s knowledge of the producer and the knowledge systems used by the policy designer and analyst in the analysis and design of policy.

- Information and education
- Understanding of market processes
- Knowledge of what to produce and how to produce it

A crucial area with respect to knowledge is the sources of information available to the various actors (that is the producers, market system and policy areas). Various assumptions are often made about the level of knowledge including the assumption
that the policy analysts and designers have appropriate knowledge of the production and market systems and are able to use that knowledge to design appropriate policy. Clearly this is a large and almost certainly flawed assumption.

There are various other assumptions about the way in which knowledge system operate. For example, in the value chain theory it is often assumed that knowledge flows along the chain in the opposite direction to the flow of product with the market system freely sharing its knowledge with producers. Alternatively if we consider the approach of network theory the assumption is different and it is thought that local alliances play an important role and that information is less readily available from the market system.

Factor 4 Cultural
The areas to be considered in this area relate not only the reasons for people’s actions but also the alignment between various elements in the food supply system. The purposes and modes of operation of the poor livestock producer and the industrial food sector are poorly aligned. The industrial food sector is moving towards an integrated system to minimise the costs associated with the processes while the poor producer is attempting to survive. The industrial food sector has large amounts of information to enable it to manage its product and operations and significant resources, in contrast poor producers have limited information and almost no resources. Considerations include:

- Purpose of livestock production in the case of poor producers
- Nature of transactions in the community and within the market
- The cultural distance between the market system and the livestock producers

Factor 5 Risk
Risk is an important factor in all decisions but is especially important for people whose existence is marginal and who live in a risky environment where failure of any of their livelihood strategies can have severe (and at times catastrophic) impacts on their existence. Entering a market system can increase the risk faced by a poor livestock producer and that risk must be understood and carefully managed.

Risk occurs in relation to many areas including yield, disease occurrence and environmental conditions. Entering market systems brings with it commercial risk including price risk and also impacts on the size of consequences especially if producers are required to purchase inputs. Because their existence is marginal the attitude of poor livestock producers to risk will often differ from that of the various other players in a supply chain leading to an unaligned market system. In addition, the ability of poor producers to detect and manage risk needs to be considered.

Factor 6 Public Policy
Public policy can play a facilitating role or can act as a barrier to market entry.

Public policy is not a precise instrument and any policy can have flow on effects. The flow on effects can be unexpected or can be expected but tolerated because of the other benefits that accrue from the policy and its implementation.

Policy by itself is not sufficient to be effective policies need to be implemented and there is usually a long lag between the development and successful implementation of a public policy. In some cases bureaucratic procedures can be used to prevent a policy from being implemented.
The lack of a definitive method for analysis of the policy opportunities to assist poor livestock producers suggest the need for a process to integrate the inputs from the various discipline perspectives, develop policy, implement policy and review the impact in light of the policy aims. While such an approach might be considered standard procedure it is rarely followed, in part because it is so difficult to do. However, learning frameworks could also play a significant role in assisting policy analysts to understand the processes involved. For example, many involved with livestock policy have a one dimensional approach based on the perspective of their discipline. However, they are required to explore the outcomes from various other discipline perspectives in order to make sense of the situation and be sure they are focussing on the overall outcome rather than basing their analysis on modifications to a single measure for example production efficiency. But, without an explicit framework and process for learning their progress will be slow and they will fall back onto the methods and ideas with which they are familiar rather than taking an expansive approach to deal with the trans-disciplinary demands of policy analysis, monitoring and implementation in a rapidly changing external environment.

While much focus has been on expanding the capacity of poor producers to produce and market product it is also important to consider the capacity of others involved in the whole value chain including those responsible for the development, analysis and implementation of policy. Learning processes require an acknowledgement of ones limitations and an acceptance that one needs to learn. Various theoretical frameworks exist to describe learning processes and that outlined in Kolb (1984) and presented in Figure 16 provides a useful starting point.

**Figure 15: Kolb learning cycle.**

Concrete experience

Testing implications of concepts in new situations

Observations and reflections

Formation of abstract concepts and generalisations

Source: Kolb (1984)

Policy development, analysis and implementation is to a large extent an iterative learning process on the part of the policy designers and implementers as illustrated in the policy process presented in Figure 17. The collection and interpretation of feedback are often based on the discipline and cultural perspective of the policy designer or analyst rather than the perspective of those for whom the policy has been developed to support. Various holistic methods provide a useful framework in which to place the results from various analyses and critique policy currently in place and develop alternatives. Systems approaches have been widely accepted as a tool in business, economics and sociology yet are often opposed or at best ignored by many from the technical disciplines. One issue is perhaps the nature of the approach and its
use to integrate perspectives comes from an approach at variance with that of reductionist disciplines where complexity is dealt with by reducing the area studied and removing much of the variability. In addition the analytical methods used are not well developed and at times do not give clear answers. Many of the methods are qualitative an approach that is not familiar to most production based scientists who focus on measurable outputs such as the quantity produced rather than social relationships and their impacts.

Figure 16: Outline of a policy cycle.

![Outline of a policy cycle](source: Althaus Bridgman and Davis (2007))

For the purpose of policy development and implementation, it is useful to distinguish between macro-, meso- and micro-levels. The three levels are also important with respect to learning frameworks because the knowledge required of the analyst differs at each of the levels yet the various forms of knowledge need to be integrated. The macro-level (national level) is associated principally with (a) macroeconomic policy and (b) the institutional environment, the framework of socio-economic institutions that shape a society. Ideally, the objective for policy at this level is stability and a ‘level playing field’. Monetary policy focuses on stability of the currency, fiscal policy is prudent and non-distortionary; the political and legal authorities enforce the rule of law and property rights.

The meso-level is an intermediate level corresponding to the regional or provincial level of government. This is the level that is increasingly involved in with provision of services and infrastructure, and the implementation of policy. The meso-level is where socio-economic institutions that facilitate market participation are developed and enhanced. In particular it is the level at which supply chain analysis and development occurs.

The micro-level occurs at the level of the individual and the village level. It is at this level that activities occur that develop capabilities and empower. It is the primary level of participation. This is also the level at which Sustainable Livelihoods analysis takes place. Tamasane (2003) states that international and national NGOs should work with national governments to seek to influence policy based on experience at the micro level.

Why are these three levels important? The three levels provide a framework for systems analysis. A form of systems analysis can be achieved by moving iteratively between the three levels in both the policy development and policy implementation stages.

The three levels, the micro, meso and macro, provide a conceptual framework for what may be termed an ‘enhanced’ livelihoods analysis:
• Analysis of governance structures takes place at the macro and meso-levels.
• Analysis of market structures takes place at the meso-level using supply chain analysis.
• Analysis of capabilities and aspirations of the poor takes place at the micro-level.

Undertaking concurrent and overlapping analysis at the three levels and in the three arenas provides the basis for a systems analysis. While the discussion of policy analysis has its basis in the SL literature, the discussion of policy implementation is based on the related but separate literature concerning participation and participatory learning. In the current discussion, the participatory learning perspective is applied to the problem of developing and upgrading supply chains.

The three analytical levels discussed above also provide a conceptual framework for systemic policy implementation. The fundamental idea is that the objective of policy intervention is to change people’s behaviour. The principle of empowerment implies that individuals determine how their own behaviour and activities should change and that policy facilitates this process. Doing things in new ways implies a learning process. Individuals need to do things in new ways on two levels; first in terms of their capabilities and skills, second in terms of the social institutions that structure behaviour. Recall that ‘institutions’ are the ‘rules of the game’. In other words, institutions are part of the knowledge of the individuals who make up that social group. Changing social institutions entails people changing how they perceive the world to operate. Therefore policy implementation is a process of learning.

The reason that policy implementation is a learning process can be seen by considering two aspects of the process; the acquisition of capabilities and the uncertainty associated with the process itself. The acquisition of capabilities should be considered in terms of the three levels of analysis discussed above. Amartya Sen and others have written extensively about poverty as a lack of capabilities amongst individuals. This is the basis of SL analysis. To move out of poverty, the poor must acquire new skills. This learning process occurs at the micro level. However, several points should be noted. Learning is not the same as teaching (Pretty 1998). Pretty (1998) further argues that sustainable agriculture is fundamentally a process of developing new ways to learn about the world. Increasing capabilities through learning may be a necessary condition, but it is not a sufficient condition. Improving capabilities also entails facilitating access to other forms of capital.

Learning occurs at the meta level in terms of the development of the supply chain and associated market-related institutions. It is not only the capabilities of the rural producers that need to be improved. The capabilities of processors and wholesalers are also an essential part of the process. Considering the capabilities of individuals in these sectors returns the analysis to the micro level. In addition to this learning process, the provision of physical infrastructure such as transport and communications systems, is a well-recognised role of policy implementation at the meso level.

At the macro-level, learning occurs in relation to policy related processes. As noted in the discussion of Binswanger and Deininger (1997), orthodox economic theory is very underdeveloped in this area. Part of the learning process at this level will entail separating what is useful from economic theory from what is merely the current dogma. At this level it is the capabilities of policy makers that must be enhanced.

The second aspect to the learning process is related to acquisition of capabilities by policy makers. The development process is an evolutionary process not a deterministic process. The process does not have a set path to run along, rather the path is determined by the participants as part of the ongoing process. This observation leads to the link between policy development and policy implementation.
Thus far this relationship between these two areas has been treated as sequential however, this is not the case.

### 6.1 Linking Policy Development and Policy Implementation

The link between policy development and policy implementation is an iterative feedback system that can be described as a learning cycle. Policy analysis and policy implementation processes are already in practice parts of a learning cycle. What is required is an explicit recognition of this role an expansion of the analytical framework to incorporate this process and acknowledge its role in the policy process.

Effective policy management processes include the following steps:

- Set policy goals based on requirements
- Define policy goals in terms of measurable outcomes
- Undertake measurement of the outcomes
- Compare the measured outcomes to the designated goals
- Make appropriate adjustments in light of the differences between the policy goals and actual outcomes.

Such a policy process is very similar to a learning cycle which has the following iterative steps:

\[ \text{Reflect} \Rightarrow \text{Plan} \Rightarrow \text{Act} \Rightarrow \text{Observe} \Rightarrow \text{Reflect} \Rightarrow \text{Plan} \Rightarrow \ldots \text{and can be described as a learning cycle.} \]

Pretty (1998) states that there are more than 30 different terms for systems of learning and action. Pretty (1998) lists six common principles that can be adhered to in relation to a learning process:

- A defined methodology and systemic learning process with a focus on cumulative learning by all participants, i.e. their use is participative.
- Multiple perspectives - a central objective is to seek diversity, rather than characterise complexity in terms of average values.
- Group learning processes with three possible mixes of investigators: those from different disciplines, from different sectors and from outsiders (professionals) and insiders (local people).
- Context specific - the approaches are flexible enough to be adapted to suit new sets of conditions and actors.
- Facilitating experts and stakeholders - the process is concerned with transforming existing activities in ways that participants regard as improvements.
- Leading to sustained action - the learning process leads to debate about change, and debate changes the perceptions of actors and their readiness to contemplate action. Action is agreed and implementable changes represent an accommodation between the different conflicting views. Through this process institutions are built or strengthened.

The integration of community level participatory learning approaches into policy level analytical and improvement frameworks provides a useful starting point. As the development process is at a fundamental level a learning process, and depends on the poor acquiring new capabilities, it is likely that policies will be successful when policy makers do more than pay lip service to the concepts of participation and
empowerment. Pretty (1998) states that empirical evidence from completed agricultural development projects suggests four important principles for sustainability and spread:

- Imposed technologies do not persist,
- Imposed institutions do not persist,
- Expensive technologies do not persist,
- Sustainability implies an enhanced capability to adapt in the face of unexpected changes and emerging uncertainties.

Other literature suggests the importance of “champions” at various levels to the success of the process.

As has been stated earlier there is no single simple solution surrounding the issue of market access and no simple analytical tool that can determine the “correct” policy framework. However, if policy is taken as a process of learning and improving rather than a strictly analytical process of determining strategy then carrying it out with a clear causal link between the actions and outcomes the use of the supply chain as a method to integrate various other forms of analysis becomes apparent. Learning has been outlined as a managed experiential process by Kolb (Figure 16) where there is a series of processes involving experience, observations and reflections, development of abstract concepts and testing of those concepts in new situation. Many policy analysis tools and methods for data collection can therefore be considered learning devices where concepts are being tested and experience is gained and observations undertaken in order to improve the process. When used appropriately the tools will build the capacity of the policy analyst and designer as well as the community from whom the data is collected. In this way not only will knowledge about a particularly policy and its impacts be developed but also knowledge about the usefulness of the analytical tool and its strengths and weaknesses and it can be used.

The use of a learning model has been further developed and tested within various spheres including business and agricultural extension. A modified system is suggested by Bawden in Pretty (2005) and for community learning by Ramsay (2005). In order to change and improve a situation it is necessary to have a clear idea of what it is one is trying to improve and in which way it can be improved. Another key area is acceptance of the need to learn before the process of learning will commence. This in part requires rejection or at least modification of the expert model so prevalent in scientific and many social disciplines. Market access for poor livestock producers can also be considered a learning (or capacity building) process for those outside the chain such as those involved with public policy who can influence governance of the chain through various means.
7. CONCLUSION

This document has clearly illustrated the complexity of the nature of barriers to market access for poor livestock producers and the issues that are faced in working to overcome those barriers. In doing so it has been demonstrated that barriers to market entry are multi-factorial, diffuse, complex and difficult to determine, analyse and overcome. In contrast the existence of barriers is relatively simple to detect, giving the false impression that there are simple solutions that can be implemented relatively easily. In developing approaches to analysis of barriers to market entry the various areas have been examined and considered. However, dealing with them in isolation does not provide an effective process because it excludes interactions between them as well as flow-on effects that occur. A simple process to join all of the pieces together does not exist and it is necessary therefore to deal with the complexity of the situation rather than attempt to isolate it in order to deal with the elements in combination.

Dealing with complex systems requires an acknowledgement that a simple solution does not exist and with that acknowledgement a change in mindset from solving the problem to improving the situation. While this change may seem like a minor one it requires the analyst to acknowledge the gaps in their (often discipline based) approach and to take on a more holistic and systemic approach. With the change to dealing with complex systems comes an acceptance of the need to learn and the idea that knowledge can come from unexpected sources. Capacity building is therefore an important element of the approach.

Knowledge forms an integral part of this approach to working with complex systems. Knowledge takes various forms and different knowledge is held by the various participants in the overall market system. The knowledge of policy designers, analysts and implementers of policy is of crucial importance as is the knowledge of the poor livestock producer. Learning models can be developed to include the various actors in the production and market system and one that particularly relates to the situation of policy designers, analysts and implementers is proposed.

The model for learning and its integration into the policy process is particular appropriate because of the alignment between the proposed systems for learning and the nature of policy development, analysis and implementation processes. Through the learning model the situation is modified via a policy action, the modification is evaluated in two ways first to see if it constitutes an improvement and second to see if that improvement can be further improved, subsequent modifications are made and the process repeated. The supply or value chain provides a useful tool to assist in the policy learning process. The supply chain provides an overall view of the situation being improved with the result that potential impacts of policy changes can be examined on the various transformations and relationships in the supply chain and potential flow-on effects also evaluated.
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