USE OF WAREHOUSING RECEIPT SYSTEM BY NATIONAL CEREALS AND PRODUCE BOARD AS A STRATEGY TO INCREASE SUPPLY CHAIN EFFICIENCY

BY

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DECLARATION:

This research project is my original work and has never been presented for examination in any other university.

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DEDICATION

I would like to dedicate this research project to my Dear mother Naomi, Brothers and Sisters and to my Friends for their moral support.
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ABSTRACT

The magnitude, speed and direction of environmental change is increasing at unprecedented rate. In order for organizations to survive, strategies have to be devised to respond to the forces that threaten to halt survival. Companies that do not respond appropriately are usually phased out of business. Companies respond to the challenges in terms of devising cost cutting strategies, adopting new technologies, competing on low prices or on high quality product or services, differentiating the market or focus strategies. National Cereals and Produce Board has had its share of environmental impact since liberalization of the Kenyan economy.

The purpose of this study was to determine the use of Warehousing Receipt System at National Cereals and Produce Board as a strategy to increase supply chain efficiency. This was a case study and the researcher used an interview guide as the primary data collection instrument. The interview guide was administered using face to face interviews to seven senior managers at National Cereals and Produce Board. Data collected was analyzed based on content analysis.

According to the findings, Warehousing Receipt System will increase the supply chain efficiency of the agricultural commodities through facilitating trade, enhancing market efficiency in agricultural markets, easing access to rural financing, mitigating price risk and enabling cost effective management of public food reserves. The system is still in its pilot stage due to lack of a regulatory framework/structure which will ensure that the interest of all stakeholders are taken care of especially the farmers. The financial sustainability of the Warehouse Receipt System without a regulatory framework has been questioned by potential players, the financial sector has been skeptical about use of Warehouse Receipts without additional legislated security.
Due to all this, a legal framework is seen to be the biggest limitation of the new concept and it is believed that a good regulatory framework will bring the desired results if other aspects are favorable like the infrastructure and technology. The legal framework is currently being worked on and it is projected to have been put in place by the end of 2011. A well developed collateral management system would complement the services of the operators and inspections where applicable. Certification of a Warehouse demands some minimum requirements of which so far NCPB stores in ten sites with a capacity of approximately fifty four thousand metric tons have been certified. NCPB is also carrying out extensive training to the stakeholders enlightening them on the benefits of this concept. The major players of WRS are the depositor the operator and the financier. The agricultural commodities deposited in the Warehouses will be traded under Commodity Exchange.

The minimum quantity required from a depositor in order for a Warehouse Receipt which acts as collateral to be issued is ten (10) Metric Tones which translates to one hundred and eleven (111) bags per 90Kg. Those who will not have met the minimum quantity will be issued with a good intake receipt which in the this case will not benefit from the financing but post harvest losses will be reduced.
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LIST OF ABBREVIATIONS

1. NCPB - National Cereals and Produce Board
2. WRS - Warehousing Receipt System
4. CSCMP - Council of Supply Chain Management Professionals
5. SGR - Strategic Grain Reserve
6. FRS - Famine Relief Stocks.
7. CEO - Chief Executive Officer
8. WR - Warehouse Receipt.
9. BAZ - Bankers Association of Zambia
10. ZACA - Zambia Agricultural Commodity Agency
11. JIT - Just in Time
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CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Organizations across the world are exposed to a dynamic and competitive environment characterized by globalization, mergers, acquisitions and consolidation. Challenges of globalization and environmental turbulence have inevitably required companies to change their growth strategies to suit the business environment. Environmental changes are seen as having a significant impact on survival of organizations in the whole world. Porters (1985) observed that external environment is significant to organizations on the understanding that all organizations operate in open systems and they depend on external environment for their survival. Asnoff and Mc Donnel (1990) observed that organizations are environment dependant and that failure to adapt them effectively to their environment leads to strategic problems. Pearce and Robinson (2005) state that in order for organizations to achieve their goals and objectives, it is necessary for them to adjust to their environment. The dynamism of the environment implies that organizations have to constantly redesign their strategies in order to remain competitive.

Given the current uncertainty and surprising environmental turbulence in the global context, and more so in Kenya, there is a need to institutionalize flexibility and dynamism in planning and implementation of projects. No longer can any enterprise depend on historical trends or projected trend without critically observing, analyzing and evaluating surprising events and issues which affect the known trend—be it external or internal (David, 2003). In a discontinuous and unpredictable environmental turbulence, companies adopt strategies to meet changed circumstances, new technology, and new competitors, a new economic environment, or a new social, financial, or political environment.
The Kenyan business environment has been undergoing drastic changes for some time now. These changes include the accelerated implementation of economic reforms, the liberalization of the economy, discontinuation of price controls, privatization and commercialization of public sector, increased competition and performance contracting in the public sector. This therefore has resulted to both government ministries and organizations to constantly review their strategies in order to adapt to the changing environment. This study focuses on use of WRS by National Cereals and Produce Board (NCPB) to increase its efficiency.

1.1.1 The concept of strategy

A strategy is a long term plan of action designed to achieve a particular goal, most often 'winning' (Thompson et al, 2007). Strategy is a deliberate search for a plan of action that will develop a business’s competitive advantage and compound it. For any company, the search is an iterative process that begins with recognition of where you are now and what you have now (Clayton, 1997).

Strategic response to competitive environment is the art and science of formulating implementing and evaluating cross-functional decisions that will enable an organization to achieve its objectives. It is the process of specifying the organization’s objectives, developing policies and plans to achieve these objectives, and allocating resources to implement the policies and plans to achieve the organization’s objectives (Treacy & Wiersema, 1993).

The benefit of strategy is not just offering simplification and consistency to decision making, but the identification of strategy as the commonality and unity of all the enterprises decisions also permits the application of powerful analytical tools to help companies create and redirect their strategies. Strategy can help the firm establish long term direction in its development and behavior (Gary & Prahalad, 1993).
The global economic downturn brings not only disastrous prospects for some companies, but also unprecedented opportunities for those with sufficient resources to buy assets or to acquire market share at attractive terms. The ability to take advantage of the current conditions depends largely on the strategists' recognition of changing the patterns of behavior (Ticha, 2009).

1.1.2 Supply Chain Efficiency

A supply chain is a system of organizations, people, technology, activities, information, and resources involved in moving a product or service from supplier to customer. Supply chain activities transform natural resources, raw materials, and components into a finished product that is delivered to the end consumer. The Council of Supply Chain Management Professionals (CSCMP) defines Supply Chain Management as follows: “Supply Chain Management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies. Supply Chain Management is an integrating function with primary responsibility for linking major business functions and business processes within and across companies into a cohesive and high-performing business model. It includes all of the logistics management activities, as well as manufacturing operations, and it drives coordination of processes and activities with and across marketing, sales, product design, and finance and information technology” (Wieland & Wallenburg, 2011)
Efficiency in general describes the extent to which time or effort is well used for the intended task or purpose. It is often used with the specific purpose of relaying the capability of a specific application of effort to produce a specific outcome effectively with minimum amount of quantity of waste, expense or unnecessary effort. Efficiency is key to any business, whether with regard to daily business operations, customer and company communications or long term expansion (Sheffrin, 2003).

Economic efficiency refers to the use of resources so as to maximize the production of goods and services. An economic system is said to be more efficient than another if it can provide more goods and services without using more resources. In absolute terms a situation can be called economically efficient if no one can be made better off without making someone else worse off; no additional output can be obtained without increasing the amount of inputs; production proceeds at the lowest possible unit cost. A system is efficient if nothing more can be achieved given the resources available. The inefficiencies in the supply chain have been identified as a key constraint in growth and increase in the agricultural sector. These inefficiencies result from limited storage capacity, lack of post harvest services, and poor access to input markets, amongst others (WRS Business Plan, 2010).

1.1.3 Warehousing Receipt System

Warehouse receipting is normally part of a package of innovations designed to modernize, and enhance the efficiency of agricultural marketing systems. It can play a very important role in the development of agriculture, by permitting farmers to hold food back to the lean season, allowing them to access markets on more equitable terms, and enhancing the efficiency of the entire commodity chain. Warehouse Receipting System (WRS) is the use of a stored commodity, evidenced by the issue of a Warehouse Receipt (WR) acceptable by banks, as
collateral for loans to the producer or trader of the commodity. This system involves a three-cornered arrangement between the bank, a borrower (producer/trader) and a warehouse operator (Coulter, 2009).

Warehouse receipt systems were developed in the 1990s as a response to farmers' income instability due to price fluctuations resulting from liberalization. Since prices tend to be low during harvest periods and to subsequently rise, warehouse receipts systems provide a solution by storing commodities for the suration of the low price. The lack of access to credit is a severe constraint for many farmers. Warehouse receipts are an important and effective tool for creating liquidity and easing access to credit. Such schemes also offer additional benefits such as smoothing the supply and prices in the market, improving grower income, and reducing food losses, Coulter & Shepherd (1995). Warehouse Receipt provides an important addition to the store of negotiable instruments in a country's financial sector. They can be especially useful in developing and transition economies where new market instruments need to be created (Lacroix and Varangis, 1996).

1.1.4 National Cereals and Produce Board.

The origin of National Cereals and produce Board (NCPB) goes back to 1939, when the colonial Government formed the maize and produce Control Board to regulate the operations of the regional market board. In 1979, the GoK established the NCPB by merging the Maize and Produce Board with the Wheat Board of Kenya in order to streamline the management, handling and marketing of grains. The NCPB Act, Cap.338, was subsequently enacted in 1985 making the NCPB a corporate body. Under the Act the Board was given monopoly powers to purchase, store, market, and generally manage cereals grains and other produce in Kenya. NCPB regulated the whole grain chain with a controlled price system. However, due to
increased food production, the cost of managing such subsidized cereals marketing system turned out to be a heavy burden on the exchequer. The government started a reform program in 1988, leading to the full liberalization of the grains sector in 1993. This not only removed the Government regulatory role through NCPB, but also weakened the institution and created gaps in the grain sector.

The reforms have since forced the once monopoly and regulator to re-examine its purpose and role in a liberalized environment. In 2002 the NCPB diversified into the marketing of various agricultural inputs such as fertilizers and certified seeds as part of the strategy of enhancing efficient cereal production through the use of affordable quality inputs. This move was undertaken in response to farmers’ requirements and the need for the NCPB to take advantage of its extensive network which enabled it to move these essential inputs closer to the farmer. Currently, NCPB is vested with the responsibility of being a Gok tool for grain price stabilization; logistics support services provider for Strategic Grain Reserves (SGR) and Famine Relief Stocks (FRS); and a commercial grain trading organization. NCPB has 110 depots and silos spread out across Kenya with a total storage capacity of 1.8 million metric tones of grain.

To survive in the current competitive industry, all firms including NCPB must adopt strategic response management to the competitive environment in which they operate in, as a means of performance improvement; it is upon this background that this study is formulated to study the use of WRS as a strategy used by NCPB to increase its efficiency.

1.2 Research Problem

Warehouse receipt system is an institutional device to facilitate market exchange. Warehouse receipt is an important and effective tool for creating liquidity and easing access to credit. Such
schemes also offer additional benefits such as smoothing the supply and price in the market, improving grower incomes and reducing food losses. The warehouse receipts system, also known as inventory credits, can facilitate credit for inventory or products held in storage. These receipts, sometimes known as warrants, when backed by legal provisions that guarantee quality, provide a secure system where by stored agricultural commodities can serve as collateral, be sold traded or used for delivery against financial instruments including future contracts.

Kenyan policy towards maize marketing has gone through a series of distinct periods since colonial era. The colonial government tightly controlled the maize sector to provide economic support to white settler farmers in the Kenya highlands. After independence in 1963, this control was maintained for another 27 years for several reasons: First the control guaranteed an orderly and efficient marketing with a reasonable balancing and stabilizing of producer and consumer prices. Second, the control assured food security through strategic reserves by the state boards. Third, the controls ensured regulated domestic movement of maize with strict management of imports and exports. Implicitly the state had supply of maize at reasonable and stable prices. Maize accounts for over 70% of total grain production in Kenya annually.

Any grain production and trading must therefore take cognizance of the maize supply chain in the country. Maize marketing during the pre-liberalization era consisted of formal and informal systems operating side by side. The formal maize marketing system was strictly regulated and managed by NCPB. The informal system was free, unregulated and unofficial with many market participants operating parallel to the formal systems. NCPB did not provide a guaranteed outlet for maize for all farmers and did not supply maize to many rural areas. The vacuum left by NCPB was the opportunity that the informal system exploited. Liberalization was supposed to lead to improved procurement and distribution of key agricultural commodities, especially foodstuffs. But several years into the liberalization era, the country
continues to experience frequent food shortages that greatly compromise the welfare of its citizens, especially the poor. This situation placed great doubt on the efficiency of the Kenyan grain production and marketing chain and also brought to light the challenges in the existing grain management system, including systems within the NCPB.

Researches on response strategies for Kenyan companies have been carried out in the past. According to Abdullahi (2000) most companies do not have a clear cut strategic approach. Muli (2010), Were (2007), Mwangi (2006) Kathuku (2005), carried out a research on strategic responses by various firms facing environmental conditions, Coulter (2009) studied warehousing receipt system and inventory credit initiatives in Eastern and South Africa but none has focused on WRS as a strategy adopted by NCPB. It is with this respect that this research sought to fill the gap by studying WRS as a strategy at NCPB for increasing its efficiency. This therefore leads to the research question; how is National Cereals and Produce Board is using Warehousing receipt system to increase its efficiency?

1.3 Research Objective

The objective of this study was to determine how National Cereals and Produce Board is using Warehousing Receipt System to increase its efficiency.

1.4 Value of the study

The study will be beneficial to NCPB’S manager’s strategic thinking in regard to the WRS as a strategy and the challenges that may have been experienced in using the strategy in their organization. Other organizations will get the understanding of how NCPB has managed to use Warehousing Receipt System even with the dynamism of the surrounding environment in order to achieve their objectives and remain competitive.
Policy makers will also benefit with the knowledge of how to implement strategies to increase efficiency and challenges experienced during implementation for their proper planning. The government will also benefit on their planning of strategic reserve and relief food for the country and also can participate in purchasing commodities and hold warehouse receipts and release the same through the commodity exchange at an appropriate time. Lastly the academician will greatly benefit in that there will more literature for their research.
2.1 Concept of Strategy

The word strategy originates from the Greek word strategies, which initially referred to the
general in command of an army. Quinn, Mintzberg and James (1988) noted that there is no
single universally accepted definition of strategy. The several definitions of strategy include:
strategy as a game plan, commercial logic, competitive battle, and direction and scope. Johnson
& Scholes (2002) defined strategy as” the direction and scope of an organization over long
term, which achieves advantage for the organization through its configuration of resources
within a changing environment to meet the needs of markets and fulfill stakeholder
expectation” i.e. direction, long term nature and business objectives.

Porter (1985) defined strategy as the process of positioning a business to maximize the value of
capabilities that distinguishes it from competitors. Since strategy influence the way
organizations respond to their environment, strategy is a fundamental planning process.

The goal of many business strategies in general is to achieve competitive advantage (Tomsik
2007). In order to possess competitive advantage, a firm has to sustain profits that exceed the
average for its industry. Strategic response to competitive environment is the art and science of
formulating implementing and evaluating cross-functional decisions that will enable an
organization to achieve its objectives. It is the process of specifying the organization’s
objectives, developing policies and plans to achieve these objectives, and allocating resources
to implement the policies and plans to achieve the organization’s objectives (Treacy &
Wiersema, 1993).
The benefit of strategy is not just offering simplification and consistency to decision making, but the identification of strategy as the commonality and unity of all the enterprises decisions also permits the application of powerful analytical tools to help companies create and redirect their strategies. Strategy can help the firm establish long term direction in its development and behavior (Gary & Prahalad, 1993). Equally important, a strategy serves as a vehicle for achieving consistent decision making across different departments and individuals. Hamel & Prahalad (1989) view organizations as composed of many individuals all of whom are engaged in making decisions that must be coordinated. For strategy to provide such coordination, it requires that the strategy process act as a communication mechanism within the firm. Business strategy, which refers to the aggregated operational strategies of single business firm in diversified corporation, refers to the way in which a firm competes in its chosen arena. Michael (1980) views corporate strategy, as the overarching strategy of the diversified firm.

Porter’s generic strategies are known as the source of positional advantage since they describe the firm’s position in the industry as a leader either in low cost or differentiation. The resources based view (Barney 1991) on the contrary emphasizes that a firm utilizes its resources and capabilities to create a competitive advantage that ultimately results in the superior value creation. According to resources based view, there can be heterogeneity on the firm level that allows some firm to sustain competitive advantage.

The resources based view of firms is based on two main assumptions: resource diversity and resource immobility (Barney 1991; Mata; 1995). According to Mata et al (1995) these assumptions are defined as: resource diversity/ resource heterogeneity which pertains to whether a firm owns a resource or capability that is also owned by numerous other competing firms, then that resource cannot provide a competitive advantage; the second is resource
immobility which refers to a resource that is difficult to obtain by competitors because the cost of developing, acquiring or using that resource is too high. These two assumptions can be used to determine whether an organization is able to create a sustainable competitive advantage by providing a framework for determining whether a process or technology provides a real advantage over the market place. Therefore the resource based view emphasizes the strategic choice, charging the management of the firm with important tasks of identifying developing and deploying key resources to maximize returns.

Abnormal returns according to Barney (1991) can be generated by resources meeting the following criteria: Valuable- a resource must enable a firm to employ a value creating strategy, by either outperforming its competition or reducing its own weaknesses; Rare- to be of value, a resource must be by definition rare. In a perfectly competitive strategy factor market for a resource, the price of the resource will be a reflection of the expected discounted future above average returns; in-imitable- if a valuable resource is controlled by only one firm, it could be a source of a competitive advantage. This advantage could be sustainable if competitors are not able to duplicate this strategies asset perfectly (Perteraf 1993). An important underlying factor of inimitability is causal ambiguity, which occurs if the source from which firm’s competitive advantage stems is unknown (Peteraf 1993); Non-substitutable- even if a resource is rare, potentially value- creating

2.2 Implementation of Strategy

According to Pearce and Robinson (1997), Implementation of strategy is the process of translating strategic thought into organizational action. Implementation of strategy can be done through the business functions where annual objectives are developed. If well developed, these objectives provide clarity, a powerful motivator and facilitator of effective strategy
implementation. The functional strategies are developed which translate grand strategy at the levels of the firm as a whole into activities for the firm’s units. Operating managers participate in the development of these strategies, and their participation in turn, helps clarify what their units are expected to do in implementing the grand strategy. The third concern is communicating policies to guide decisions. Polices are specific guides for operating managers and their subordinates. They can be powerful tools for strategy implementation if they are clearly linked to functional strategies and long term objectives. Annual objectives, functional strategies and policies represent only the start of the strategy implementation. The strategy must be institutionalized. According to Pearce & Robinson (1997) four fundamental elements must be managed to fit a strategy if the strategy is to be effectively institutionalized: organizational structure, leadership, culture and rewards.

Successful strategy implementation depends in large part on the firm’s organizational structure. Structure helps identify the firm’s key activities and the manner in which they will be coordinated to achieve the firm’s strategic purpose. Organization leadership is essential to effective strategy implementation. The CEO plays a critical role in this regard. Assignment of key managers, particularly within the top management team, is an important aspect of the organizational leadership. Deciding whether to promote insiders or hire outsiders is often a central leadership issue in strategy implementation. Organizational culture has been recognized as a pervasive influence on organizational life. Organizational culture which is shared beliefs and values of an organization’s members, may be a major help or hindrance to strategy implementation. The reward system is a key ingredient in motivating managers to execute a firm’s strategy. Firms should emphasize incentives systems that ensure adequate attention to strategic thrusts. This usually requires a concerted effort to emphasize long-term strategic performance as well as short-term measures of performance.
2.2.1 Challenges faced by Corporations when implementing Strategies.

According to Elkin, (2003) a survey of 3 fortune 500 US firm revealed that over half of the corporation experienced the following 10 problems when they attempted to implement a strategic change. He listed the problems in order of frequency. Implementation took more time that originally planned; Unanticipated major problems arise; Activities were ineffectively coordinate; Competing activities and crisis took attention away from implementation; The involved employees had insufficient capabilities to perform their jobs; Lower-level employees were in adequately trained; Uncontrollable external environment factors created problems; Departmental managers provided inadequate leadership and direction; Key implementation task and activities were poor defined; The information system inadequately motivated activities.

Fingerhut experienced almost all these problems in its internet expansion, all except the first one. Poor implementation has been blamed for a number of strategic failures for example, studies show that half of all acquisition fails to achieve what was expected of them and one out of four international ventures do not succeed. A study by KPMG Margins from 1996 to 1998, found that 83% of the margins failed to increase the acquires shareholder value within a year of completing the merger. From the study Fingerhut, company is one example of how good strategy can result in a disaster through poor strategy implementation. (Elkin, 2003)

Locally studies have been undertaken by various scholars and have identified various challenges of strategy implementation studies by Okumu’s (2003), found that the main barriers to the implementation of strategies include lack of condition and support
from other levels of management and resistance from lower levels and lack of or poor planning activities.

Freedman, (2003) list a number of implementation pitfalls such as strategic inertia, lack of stakeholder commitment, strategic drift, strategic dilution, strategic isolation failure to understand progress, initiative fatigue and impatience.

Sterling (2003) identified reasons why strategies fail as anticipated market changes, lack of senior management support effective competitor responses to strategies application of insufficient resources, failure of buy-in understanding and/or communication timeless and distinctiveness; lack of focus, and bad strategy, poorly conceived business model. Sometimes strategies fail because they are simply ill conceived.

Koske (2003) observes that there are many organizational characteristic which act to constraint strategy implementation. He identified most challenges as concerning connecting strategy formulation to implementation. Resources allocation; match between structure with strategy, linking performance and pay to strategies and creating a strategy of supportive culture. Selecting people for key positions by putting a strong management team with the right personal chemistry and mix of skills is one or the first strategy implementation steps (Thompson and Strickland, 1997) They point out that assembling a capable team is one of the cornerstones of the organization-building task c strategy implementation must determine the kind of the core management team they need to execute the strategy and then find the right people to fill each slot. Staffing issues can involve new people with new skills (Hunger and Wheelen, 1995)
There are three major keys to successful strategic planning and implementation; commitment, credibility, and communication. Up-front commitment by leaders must include an adherence to the full and thorough process of strategic planning. They must also be commitment to implementing the strategies recommended by the strategic planning committee. The leaders should implement programs and services and commit allocation to meet the objectives of the strategic plan at a level that is "doable" for the organization and level of activity. As one person has put it "To commit to plan, is to commit to change." (FP&M Strategic Plan 2007-10)

2.3 Warehousing Receipt system as a Strategy

Coulter and Onumah (2002) defines warehousing receipt system as institutional device to facilitate market exchange. WRS are part of modern market institutions that countries adopt in different combinations and permutations according to circumstances to develop their agriculture and render markets more efficient and effective in delivering benefits to consumers and producers. Warehousing receipting system is the use of stored commodity, evidenced by issue of a warehouse receipt (WR) acceptable by banks as collateral for loans to the producer of the commodity. This system involves a three cornered arrangement between the bank, a borrower and a warehouse operator. According to Lacroix and Varangis (1996) Warehouse receipting is normally part of a package of innovations designed to modernize, and enhance the efficiency of, agricultural marketing systems. It can play a very important role in the development of agriculture, by permitting farmers to hold food back to the lean season, allowing them to access markets on more equitable terms, and enhancing the efficiency of the entire commodity chain. Warehouse Receipting System (WRS) is the use of a stored commodity, evidenced by the issue of a Warehouse Receipt (WR) acceptable by banks, as collateral for loans to the producer/trader of the commodity. This system involves a three
cornered arrangement between the bank, a borrower (producer/trader) and a warehouse operator.

Warehouse receipt are documents issued by warehouse operator as evidence that specified commodities of stated quantity and quality, have been deposited at a particular location by named depositor. The depositor may be a producer, farmer group, trader, exporter, processor or in deed any individual or body corporate. The warehouse operator holds the stored commodity by way of safe custody; implying he is legally liable to make good any value lost through theft or damage by fire and other catastrophes but has no legal or beneficial interest in it. The receipt may be transferable, allowing transfer to a new holder- a lender or trades counter party- which entitles the holder to take delivery of the commodity upon presentation of the WR at the warehouse (Lacroix and Varangis, 1996).

According to Lacroix and Varangis (1996) WRS has several benefits; correctly structured WR provide secure collateral for banks by assuring holders of the existence and condition of agricultural inventories. It can be used by farmers to finance their production and by processors to finance their production and by processors to finance their inventories. Collateralizing agricultural inventories will lead to an increase in the availability of credit; reduce its cost, and mobilizing external financial resources for the sector.

Warehousing receipts contribute to the creation of cash and forward markets and thus enhance competition. They can form basis for trading commodities, since they provide all the essential information needed to complete a transaction between a seller and a buyer. Their availability will thus both increase the volume of trade and reduce transaction costs. Since the buyers need not to see the goods transactions need not take place at either the storage or the inspection location.
A warehouse receipt system provides a way to reduce gradually the role of government agencies in agricultural commercialization. Government intervention in agricultural markets usually has two main objectives: to support prices, by buying directly from producers and to guarantee a measure of food security. Since warehouse receipts guarantee the existence of stocks, government can achieve their food security objectives by merely holding these receipts. Warehouse receipts can be combined with price hedging instruments. This combination provides lenders with secure collateral, in the form of WR and puts a minimum value on it through the hedging operations.

2.3.1 The objective of WRS

The Warehouse Receipting System can play an important role in ensuring that the liberalized grain market in Kenya becomes more responsive to the domestic market opportunities. It will also create competitiveness in relation to the world markets by:-Increasing the willingness of banks to lend for agriculture and wholesale trade; linking post harvest credit, through Warehouse Receipt Financing, to funding for agricultural inputs, and thereby raising agricultural productivity; improving grading systems and facilitating the sale of commodities at reduced cost; improving price-risk management, by providing more secure basis for forward transactions and for the development of commodity exchange trading; reducing the cost of public support for agricultural marketing Kenya Agricultural Commodity Exchange Site (2009).

2.3.2 Potential Challenges in applying the regulated warehouse receipts approach
Coulter and Onumah (2002) identified several difficulties and challenges faced in introducing Warehousing Receipt System as experience in Zambia and other African countries. The issues include disabling elements in the policy environment, legal issues, engendering confidence among bankers, addressing business opposition, scale economies and ensuring smallholder participation;

Disabling elements in the policy environment: Coulter and Onumah (2001) noted that Governments often resort to ad hoc interventions, which can potentially undermine inventory credit programmes, on foodsecurity grounds. This phenomenon hampered two schemes in Ghana during the 1990s and contributed to the delayed start in Zambia in 2001. Building stakeholder consensus and policy coherence has emerged as critical to reducing, though not eliminating, ad hoc interventions. In the case of Zambia, this approach enabled local stakeholders to effectively counter pre-electoral policy reversals and prevent the project from being derailed. However, consensus building is a long-term endeavour and requires sustained commitment from key stakeholders.

Legal limitations on the negotiability of WRs: Legal aspects of the WR system need to be carefully studied, with a view to identifying factors which diminish the holder's title to the underlying goods and/or security interest in them. The desirable state of affairs is one where the holder of the receipt need not carry out searches to establish the absence of previous charges on the goods, such as could lead to lengthy litigation. Often this is not the case, but as noted by Coulter and Shepherd (1995), lenders may be able to live with a certain amount of legal ambiguity, where the economics of the scheme are strong enough and they are confident that the practical risks are small, a case in point being silo receipt system that took off in South Africa in 1996. In the case of Zambia, there is a lack of local custom and practice or statute, allowing title of WRs to be confirmed, so banks need to carry out searches of a kind not
required under a fully negotiable system. Stakeholders are, therefore, actively lobbying for legislation that would recognise WRs as documents of title in Zambia.

Engendering confidence among bankers. Experience in both Ghana and Zambia shows that engendering confidence among bankers is a major challenge. In Zambia, the situation has been transformed since November 2000, from one where the Bankers’ Association of Zambia (BAZ) was reluctant to consider the proposed model, to one where an international bank is willing to finance stocks of maize deposited by farmers at an advance rate of 70% of the market value of the crop in US dollars. Two other international banks are showing strong interest.

Dealing with business opposition: Some parties may see themselves as losers, at least in the short term, with the introduction of transferable WRs. In Zambia, for instance, two international inspection companies participated for months in stakeholder meetings dedicated to the establishment of the WR system, but later came out in opposition to Zambia Agricultural Commodity Agency ltd (ZACA).

Scale economies: WR systems involve major scale economies, both in terms of managing warehouses and providing regulatory oversight or certification. Scale economies also pose a challenge to the model proposed here. In Zambia, it is being addressed by: (a) making the system open to all players including large millers and commercial farmers who should be encouraged to participate from the outset, and; (b) starting with large warehouses in major places of concentration. Large warehousing sites should be prioritised with a view to covering the fixed costs of the regulatory function; smaller sites can then be opened up as long as they cover variable costs and make some contribution to fixed costs.
Increasing smallholder involvement: There is no doubt that smallholders will benefit indirectly from the system, through its aggregate impact on price stability and the transparency of price formation. The experience of some developing countries indicates that there is a considerable potential for the direct involvement of smallholders in the WR system, especially as members of marketing groups. In India, both small farmers and traders deposit crops with warehouses owned by the Central Warehousing and State Warehousing Corporations, even though seasonal price variability is low compared to most African countries. Smallholders have participated directly in a small scheme in Niger, which allowed them access to inventory credit in the form of fertiliser. Smallholder coffee producers are likewise involved in some Latin American countries, for example in Guatemala.

2.3.3 The Warehousing Receipt System Process.

After the producer (farmer) has harvested his crop, he transports it to a certified warehouse. The grain is checked to ensure that it meets the stipulated quality standards. If the grains pass the quality check and the quantity is equal to the minimum set by the Warehouse Operator (for example 100MT), they will be received by the Warehouse Operator, who will then issue a Warehouse Receipt to the farmer.

The farmer may present the Warehouse Receipt to a bank, which may offer him short term financing, which will be a proportion of the market value of the grain deposited in the warehouse. This enables the farmer meet his basic financial obligations such as domestic needs or preparing for the next planting season, as he waits for the price of his grains to improve in the market. The Warehouse Receipt remains in the custody of the bank.
When the market prices improve, the farmer sells his grain and the buyer is instructed to pay direct to the bank. The bank then deducts the loan and interest from the proceeds and the Warehouse Operator also recovers any storage charges. The farmer is then given the balance.

2.4 Supply Chain Efficiency

Organizational efficiency is defined as an internal standard of performance and is approximately a construct “for doing the things right” (Pfeffer and Salancik, 1978). From a resource dependence perspective efficiency is an independent measure for evaluating organizational productivity: Output produced per resources utilized should equal 100% inclusive losses.

Efficiency seen in this formula is a good measure of a closed system’s output, such as an organization from a machine-bureaucratic perspective when produced output is the same as profit. However, making evaluations of activity systems, as supply chains, rather than organizations is more complex as boundaries is flux (Hoek, 1998). Hakansson and Prenkert (2004) conceptualize efficiency based on a dyadic system’s exchange value. Exchange value is evaluated by the two actors regarding the activity system’s utilization of resources. A supply chain is an activity system, i.e. an exchange system of producing and using activities as well as a networking activity system. If we elaborate that one firm use its resources to 100%, it seemst to be efficient. However, in a producing and using activity system, as a supply chain, this might be inefficient due to expensive inventory costs. Efficiency is thus a quantitative as well as a qualitative evaluation in a supply chain as goals have to be negotiated.

Efficiency is seen as a “value free” quantifiable measure – highly valued as a rationale for
activities such as improvement programs or as a base for rewards. This is problematic for social systems as efficiency is two dimensional (input and output) and social systems usually have several dimensions in their output (Pfeffer and Salancik, 1978). An example of this is the interdependencies within as well as among supply chains that cause efficiency in one supply chain and inefficiency in overlapping supply chains (Dubois et al. 2003). This means that efficiency within a supply-chain system is difficult to optimize due to limited knowledge of interdependencies within the supply chain as well as towards other supply chains.

This is evident in the ramp-up phase of Volvo’s S80 model. Despite a trade-off where Volvo’s suppliers balanced between efficiency (through scale) and unique solutions they contributed to the supply chain efficiency (Corswant et al. 2004). This implies that the supply chain is a specific activity system, where the efficiency goal is compound and negotiated along the chain. This is seen in findings from Volvo Car Corporation evaluation of their suppliers (Fredriksson and Gadde 2003). The efficiency is therein described as a compound evaluation of quality, delivery, cost, and overall capability that is not only planned and relationship but also a measure of the relationship. The efficiency of the producing and using system is influenced by serial interdependencies through relationships. Efficiency is thus evaluated of several parties within the exchange system and negotiated interdependencies determine efficiency goals.

Two variables are left to elaborate on from the formula of efficiency: Resources utilized and losses. These variables capture lots of efficiency goals targeted in JIT, Kaizen and lean production. Volvo Car Corporation uses a JIT-production, which is mirrored in their use of efficiency evaluation. Utilization of scarce resources has cost implications but also implications regarding capability to innovate (Fredriksson and Gadde 2003). This implies that
losses in an evaluation of one firm or one relationship are efficiency to the supply chain. Efficiency thereby means exploitation of interdependencies, reliability and control of resources. This means that efficiency is neither value-free nor easily quantifiable measure.

Thus, the supply chain efficiency as an internal standard of performance differs from the organizational efficiency as the activity system's boundaries shifts. Activities are also a problematic unit of analysis as they are interdependent and changes influence dynamically several outcomes. And finally the meaning of efficiency is ambiguous as very high resource utilization is not necessarily perceived as efficiency.
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

Research is defined as the process of arriving at a dependable solution to a problem through planned and interpretation of data. The research methodology highlights the overall approach to be taken in the research in terms of the Research Design, Data Collection, Data Collection Tools, Respondents, Data Collection Procedure and Data Analysis.

3.2 Research Design

This research was conducted through a case study since it was a research on one organization. A case study is an in-depth investigation of an individual, institution or phenomenon (Mugenda & Mugenda, 2003). Since this study sought to determine the use of Warehousing Receipt System by National Cereals and Produce Board as a strategy to increase Supply Chain efficiency a case study design was deemed the best design to fulfill the objectives of the study. The importance of a case study is emphasized by Young (1960) and also by Kothari (1990) who both acknowledge that a case study is a powerful form of qualitative analysis that involves a careful and complete observation of a social unit, irrespective of what type of unit is under study. It is a method that drills down rather than cast wide.

3.3 Data Collection

Both primary and secondary data were used for the study. Interview guides were administered among seven senior managers who included, Warehousing Receipt System Manager, Operations Manager, Human resource Manager, Sales and Marketing Manager, Technical Manager, Chief Accountant, and Quality and Pest Control Manager at NCPB to collect primary data. This is because the senior managers are the ones involved in ensuring the new system is working and they also get reports from the entire network on how the system is
working and the challenges involved hence they were the most appropriate interviewees in this study. The use of an open interview strategy enabled better exposure of interviewees’ personal perspectives, their deeper thoughts, emotions and ambitions. This less structured approach allowed the interviews to be much more like conversations than formal events with predetermined response categories, permitting the respondents’ views to unfold, rather than the predisposition of the researcher. The interview guides were administered on a face to face basis. Secondary data sources were also employed through the use of previous documents.

3.4 Data Analysis
Data collected was qualitative in nature and was analyzed based on the content. The researcher used the data with an aim of presenting the research findings in respect to the Warehousing Receipt System as a strategy by National Cereals and Produce Board to increase Supply Chain Efficiency. Conceptual content is defined by Creswell (2003) as a technique for making inferences by systematically and objectively identifying specific characteristics of messages and using the same approach to relate trends. Bryman & Bell (2003) described it as a technique used to make inferences by systematically and objectively identifying specific characteristics. This was the best method of analyzing the qualitative data that was collected from the interviews and discussions.
CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents data findings from the field, its analysis and interpretations there-of. The data was gathered through interview guides and analyzed using content analysis. The data findings were on the use of Warehousing Receipt System by National Cereals and Produce Board as a strategy to increase Supply Chain Efficiency.

Primary data was collected from NCPB's senior managers projected in the previous chapter who are members of corporate strategy team and also foresee the implementation of the developed strategies in the organization. Data analysis was done through quantification of the results obtained from all the respondents by comparing and summarizing the data to come up with conclusions. The main tool applied in this data analysis was content analysis.

4.2 Demographic Information.

The study established that the respondents had worked for the organization for more than five years. The study, in an effort to ascertain the interviewees' competence and conversance with matters regarding Warehousing Receipt System as a strategy asked questions on the highest level of education. According to the data findings, most of the interviewees had at least a University Degree while a few had a Masters Degree. The respondents were also requested to indicate the position they held in the organization. From the findings, all the interviewees were head of department; two of them were on acting capacity. The researcher also asked a question on the number of years that the interviewees had worked in the organization (NCPB). According to the interviewees' response, all of them had worked for the organization for at least five years as most promotions are internal, within the organization. The interviewees' responses hence had the advantage of good command and responsibility being that they were
senior managers and had experience and aptitude owing to their years of experience in the organization.

4.3 Understanding of WRS

According to the respondents Warehousing Receipt system is a storage system, a marketing tool or a facility where goods can be used as collateral for financing before the sale. Also the depositor stores the commodities in the warehouse waiting for prices to rise in order to optimize the returns after sale. According to responses, Warehousing Receipt System is going to strengthen the supply chain by ensuring that the commodities are available throughout the year, WRS will even the supply, demand and prices of commodities, consumers will also be more certain of supply because of the assurance of availability of the commodity in the market. Quality of products will improve since the commodities will be warehoused by professionals who have the experience, skills and necessary facilities. Post harvest losses is said to be 30% of the total harvest will be reduced as the farmers will not be concerned about post harvest management of commodities at the farm level but will deposit their produce in certified warehouses where quality of the produce will be maintained until the time of sale. WRS will also form basis of establishing and operating a commodity exchange, it will facilitate trade by enabling commodities of known description to be assembled at stated locations; it will facilitate impersonal trade by reducing information asymmetry between counter parties.

The respondents also stated that WRS would also enhance market efficiency in agricultural markets. The use of warehouses as delivery locations would allow transparent trade in agricultural commodities to develop between producers and large traders or processors thereby reducing the length of the marketing chain and narrowing distribution margins. Producers will also be able to defer the sale of produce by making use of inventory credit to satisfy immediate
consumption needs. Increased storage by participants in the commodity system will moderate seasonal price variability and reduce trade margin for the benefit of both producers and consumers.

WRS will also ease access to rural finance. By attracting deposit from small farmers and traders, the system will help formalize their trade transactions, enabling a database on their activities to be generated, which will assist banks in evaluating loan requests. Lenders can mitigate credit risks using collateral which is more readily available to the producer and of better quality than the traditional security that banks accept. Availability risk, associated with movable collateral, is reduced by the warehouse operator's guarantee of delivery from a stated location, and foreclosure can be simple and low cost, without any resort to the courts, depending on the legal framework. Lenders can minimize the risk of loss of value of the collateral by monitoring movements in its market value and using margining and price risk management instruments. Lenders no longer need to monitor a large number of small borrowers, but few warehouse operators to assure loan performance. This will reduce monitoring costs and encourage commercial lending to the rural sector, helping to capitalize the rural trade, and in turn, facilitating the development of a competitive national network of service providers in rural areas.

WRS will also mitigate price risks. Producers often lack the means to mitigate price risk, and this affects their income and ability to repay loans. According to respondents, WR system will facilitate development of simple mechanisms by which producers, lenders and traders can secure a floor price by locking in a fixed future price. Forward contracts and over the counter put options can be used for this purpose, but the former entails substantial performance risks producers have strong incentives to renege on forward contracts if prices raise significantly
above the fixed future price or they may simply fail to deliver according to specification. Warehouse operators can mitigate such risks by guaranteeing delivery against forward contracts. The development of commodity exchanges makes it possible for producers and lenders to gain access to exchange trade forward contracts, or more sophisticated price insurance instruments like futures and options.

WRS will also help in cost effective management of public food reserves. Food security concerns have been an important factor behind government controls that undermine the development of efficient agricultural markets. Food insecurity has often been attributed to inadequate food production and high food prices, but is increasingly being acknowledged as being a problem of low and unstable household income. Therefore, a combined range of policy instruments that increase household income, stabilize food prices and improve household access to finance for consumption smoothing are needed. A WR system will contribute to the attainment of these goals, for instance by enabling farmers obtain better prices through deferring sale or selling further down the marketing chain. It makes smooth consumption possible by easing access to finance and households will benefit from more stable food prices, resulting from improved storage and better managed supply. Management of reserve stocks will be more cost effective as the WR system will allow government access to more reliable data on private stockholding, enabling it to forecast shortages more realistically. It will also create a more transparent system for procuring and selling Government stocks, using WRs. Large organizations will no longer be needed to manage strategic food reserves, thus reducing the scope for corrupt practices.

WRS has impacted different functions in the company, as per respondents certified warehouse meet certain minimum standards and by this technical department has improved the physical
infrastructure by making major repairs and also procuring upgraded weighing facilities, for operations department it has given room to work, add value and improve operations efficiency this is because it has potential of working more on food security following the fact that there will be supply throughout the year as the depots will always be open up for business for storage unlike previously where the government would close out the buying of agricultural commodities by the institution, for the Training School department it has brought new challenges by showing the need to disseminate more knowledge on the concept of WRS it has also brought the need to developed new courses on the subject of WRS and the need of establishing a fully fledged in-house training facility. For the Human Resource department there has been a lot of employee development through extensive training on the new concept of WRS. Warehouse Receipt system will increase revenue generated because the depositors shall be required to pay for services rendered at the prevailing Warehouse Operators rates as follows:-

Table I: Warehouse Operators Rate for Deposited Commodities.

<table>
<thead>
<tr>
<th>Month</th>
<th>Days</th>
<th>Ksh. Per 50 Kg Bag</th>
<th>Ksh. Per 90 Kg Bag</th>
<th>Ksh. Per Tonne</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0-30</td>
<td>41.7</td>
<td>75.00</td>
<td>833.25</td>
</tr>
<tr>
<td>2</td>
<td>31-60</td>
<td>51.1</td>
<td>92.00</td>
<td>1022.10</td>
</tr>
<tr>
<td>3</td>
<td>61-90</td>
<td>60.55</td>
<td>109.00</td>
<td>1211.00</td>
</tr>
<tr>
<td>4</td>
<td>91-120</td>
<td>70.00</td>
<td>126.00</td>
<td>1399.85</td>
</tr>
<tr>
<td>5</td>
<td>121-150</td>
<td>79.45</td>
<td>143.00</td>
<td>1588.70</td>
</tr>
<tr>
<td>6</td>
<td>151-180</td>
<td>88.9</td>
<td>160.00</td>
<td>1777.60</td>
</tr>
</tbody>
</table>

Source; Provision of Warehouse Receipting Services between NCPB and Depositor(s) (October 2010)
Certified warehouse need to meet a number of minimum requirements and so far stores in ten sites with a capacity of approximately fifty four thousand metric tones have been certified. There is no specific storage capacity that has been set a side for the new system but the entire network is to be used for WRS. According to information gathered the previous operations of Strategic Grain Reserves (SGR), Famine Relief Stocks (FRS) and commercial grain trading will operate under WRS. This will be through Commodity Exchange which is a market organized to allow for the selling and buying of commodities on the basis of rules and procedures laid down by the Exchange. The total capacity of NCPB as per region is shown in the table below:

Table II: Capacity of NCPB as per Region

<table>
<thead>
<tr>
<th>Region</th>
<th>TOTAL GRAIN CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X 90 Kg Bags</td>
</tr>
<tr>
<td>Nyanza/Western</td>
<td>3,979,000</td>
</tr>
<tr>
<td>North Rift</td>
<td>4,830,000</td>
</tr>
<tr>
<td>South Rift</td>
<td>5,700,000</td>
</tr>
<tr>
<td>Nairobi/ Eastern</td>
<td>3,554,500</td>
</tr>
<tr>
<td>Northern</td>
<td>2,519,000</td>
</tr>
<tr>
<td>Coast</td>
<td>973,000</td>
</tr>
<tr>
<td>Total</td>
<td>21,555,500</td>
</tr>
</tbody>
</table>

Source: Ministry of Agriculture Report on Draft Rules and Regulations for WRS (September 2010)

NCPB vast network in all regions in Kenya gives it an added advantage to act as a Warehouse operator because it will make commodities available in all areas hence easing accessibility.
A few of the respondents however believe that WRS will be one of NCPB’S product line and will be operated separately from other operations. The structure of WRS consists of Producer—these are smallholder farmers’ association/groups, commercial or large scale farmers; Banks and Insurance (Financial Sector); Buyers who consist of millers, traders, government and processors; Grain handlers, these are warehouse operators, collateral managers and inspection agencies. The major players participating in Warehouse Receipting System include: producers, millers, traders, brokers, collateral managers (warehouse operators) and transporters.

WRS will be accommodative to the market conditions. It will facilitate development of simple mechanisms by which producers, lenders and traders can secure a floor price by locking in a fixed future price. Forward contracts and over the counter put options can be used for this purpose, but the former entails substantial performance risks producers have strong incentives to renege on forward contracts if prices rise significantly above the fixed future price or they may simply fail to deliver according to specification. Warehouse operators can mitigate such risks by guaranteeing delivery against forward contracts.

The development of commodity exchanges makes it possible for producers and lenders to gain access to exchange traded forward contracts or more sophisticated price insurance instruments like futures and options. Prices of commodities will be under commodity exchange and rationality will prevail where by trading will not go below the production cost. According to one of the respondents the system has an in built
trigger mechanism that ensures that losses are minimized when prices remain unfavorable hence it is worth it even when prices are not that favorable.

According to respondents the other players just like Warehouse Operators who in this case is NCPB are highly involved as the system cannot be effected without the three players. The financiers are taken to be risk averse and have been reluctant in accepting the system whereby they are to finance the stocks of different produce deposited by farmers in advance. This can be fully solved when a proper legal framework is put in place. Legal aspects of the WR system need to be carefully studied, with a view to identifying factors which diminish the holder’s title to the underlying goods and/or security interest in them. The desirable state of affairs is one where the holder of the receipts needs not carry out searches to establish the absence of previous charges on the goods, such as could lead to lengthy litigation. Lenders may be able to live with a certain amount of legal ambiguity, where the economies of the scheme are strong enough and they are confident that the practical risks are small. Therefore it is imperative that the legal framework expressly and unequivocally recognize WRs as documents of title in Kenya. NCPB has embarked on a massive roll out programs to sensitive farmers on WRS, and it has been embraced due to the many benefits that the system offers.

WRS is a new concept and NCPB has carried out a number of country wide sensitization programs which have been aimed at different types of stakeholders. These programs includes the following: -holding WRS launches in the main grain growing areas in South Rift, Nyanza, Western, North Rift and Eastern; Making WRS the centre piece / focal point during participation in national Agriculture Society of Kenya (ASK) shows held in various parts of the country; Making WRS the centre piece focal point during participation in various field days and
exhibitions; Participation in radio shows to explain the concept of WRS; Distribution of fliers / pamphlets that explain the concept and the sensitization is still ongoing.

In Kenya, as per responses gotten, the supply shortages and escalation of food prices have led to a high incidence of hunger, malnutrition and, in some extremes, starvation. The estimated postharvest loss by the Ministry of Agriculture is 30% of total production. This loss can be reduced by use of WRS to up to 2% of which the secured 28% will contribute significantly to food security. WRS will also increase the incomes to the small scale farmers through commercialization of agriculture hence the farmers will be able to plant in time due to availability of credit and they will be able to procure the necessary agricultural inputs early enough therefore increasing production. According to respondents, Kenya having higher demand of agricultural commodities than supply will ensure that there will always be a market for these commodities hence making the WRS even more effective. The table below shows Maize and Beans exports to Kenya from Tanzania and Uganda from year 2004 to year 2008;

Table III: Maize and Beans Exports to Keya

<p>| MAIZE AND BEANS EXPORTS TO KENYA IN ‘000 TONNES |
|--------------------|-------------|-----|-----|-----|-----|-----|-----|</p>
<table>
<thead>
<tr>
<th></th>
<th>From</th>
<th>To</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>Uganda</td>
<td>Kenya</td>
<td>76</td>
<td>125</td>
<td>161</td>
<td>85</td>
<td>53</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Tanzania</td>
<td>Kenya</td>
<td>89</td>
<td>77</td>
<td>55</td>
<td>121</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>Beans</td>
<td>Uganda</td>
<td>Kenya</td>
<td>54</td>
<td>77</td>
<td>128</td>
<td>57</td>
<td>107</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>Tanzania</td>
<td>Kenya</td>
<td>2</td>
<td>9</td>
<td>9</td>
<td>8</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

Source: RATIN trade information service; this captures a large part, but not the totality, of the (mainly informal) trade flows concerned (2009)
The above table verifies that Kenya has not producing enough to meet its demand hence it relies on the neighboring countries to meet the gap.

In Kenya production is predominantly by smallholders, often cultivating less than two (2) hectares and is largely rain fed. There is a very marginal use of productivity-enhancing inputs like fertilizer and yields are low and highly variable from year to year. Food distribution margins and seasonal price variability is high and has remained so after markets reforms. Storage and transportation infrastructure in food markets is poor, and access to commodity finance is limited. Traders face a great deal of risk because of unstable marketing, risks of theft and storage losses, difficulty in enforcing contracts, and uncertainty concerning government policy. They also lack institutions and instruments to manage price and other risks. Systems of standard grades and measures are poorly developed, except for a few export crops, making it difficult for more efficient trade to develop. The markets lack transparent systems of price discovery.

Marketing uncertainty, faced especially by smallholders, dampens production incentives, and contributes to stagnation in agricultural output and productivity. High food price variability makes poor consumers in urban and deficit producing rural areas prone to food insecurity. WRS will lead to increase in production if there is a secure storage and sustainable marketing linkages in place.

In the National Budget 2010/2011 the Government of Kenya made a commitment to assuring food security through proper and secure postharvest grain management. It is in this regard that the idea of a National Warehouse Receipt System and Commodity Exchange were conceptualized as a strategy of secure storage and marketing of commodities in an efficient,
competitive and transparent manner. It is from this that the GoK is fully supportive of the system and it will only intervene in a state of emergency in order to mitigate a situation of scarcity. The following table represents the production of primary crops by product and year.

Table IV: Production of Primary Crop by Product and Year.

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>257255</td>
<td>307523</td>
<td>379034</td>
<td>397005</td>
<td>365696</td>
<td>358061</td>
<td>354249</td>
<td>336688</td>
<td>219301</td>
</tr>
<tr>
<td>Rice</td>
<td>44996</td>
<td>44996</td>
<td>40498</td>
<td>49290</td>
<td>57942</td>
<td>64840</td>
<td>47256</td>
<td>21881</td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td>2757620</td>
<td>2411007</td>
<td>2713561</td>
<td>2454930</td>
<td>2918157</td>
<td>3247777</td>
<td>2928793</td>
<td>2369569</td>
<td>2442823</td>
</tr>
<tr>
<td>Sorghum</td>
<td>116724</td>
<td>115700</td>
<td>127343</td>
<td>86580</td>
<td>150127</td>
<td>131188</td>
<td>147365</td>
<td>54316</td>
<td>95955</td>
</tr>
<tr>
<td>Millet</td>
<td>61072</td>
<td>72327</td>
<td>63731</td>
<td>75171</td>
<td>59481</td>
<td>79207</td>
<td>119599</td>
<td>38462</td>
<td>56417</td>
</tr>
<tr>
<td>Beans</td>
<td>370862</td>
<td>481225</td>
<td>429183</td>
<td>232074</td>
<td>375820</td>
<td>531800</td>
<td>383900</td>
<td>261137</td>
<td>465363</td>
</tr>
<tr>
<td>Pigeon Peas</td>
<td>93537</td>
<td>93296</td>
<td>98378</td>
<td>105571</td>
<td>94950</td>
<td>116841</td>
<td>95637</td>
<td>84168</td>
<td>46474</td>
</tr>
<tr>
<td>Cowpeas</td>
<td>49264</td>
<td>5928</td>
<td>6967</td>
<td>29321</td>
<td>36242</td>
<td>87808</td>
<td>83251</td>
<td>47958</td>
<td>60152</td>
</tr>
</tbody>
</table>

Source: Ministry of Agriculture, 2010

Production of the primary crops has been fluctuating with the years even with adoption of new methods of farming. This according to the respondents is attributed to the lack of farmers’ motivation due to exploitation and instability in prices. With the adoption of the new concept of WRS, the production is projected to significantly increase due reduction in post harvest losses, access of funds before sale for farmers and price mitigations.

For the government to zero rate the duty on imports of agricultural commodities, the depositors will have been given the opportunity to sell their deposits in the warehouse. From the report on
Draft Rules and Regulations for WRS of Ministry of Agriculture, the Government acknowledges the importance of Warehousing Receipt System and Commodity Exchange and by this it will not approve of anything that will negatively affect the system. This is because the system will strengthen the regulation of quality and standards in the grain sector, the country will not be exposed to unpredictable supply, food insecurity and price volatility. The marketing and processing support for farmers will be effected hence impacting positively on their earnings and credit worthiness especially the small scale farmers.

Warehousing Receipt System has not been fully established at the time but once it is fully running it will provide a platform for the introduction of other institutional innovations, notably grading. It is difficult to introduce a grading system into markets where most grain is traded informally and ungraded, due to a situation where buyers don’t look for graded produce because it is unavailable, while farmers don’t grade because of the lack of a price premium. By grading commodities on arrival to the warehouse issue of quality manipulation will decrease. This is because the commodities will be categorized according to the grade and this will translate to the price of the commodity. Based on this quality of commodities are set to improve. WRS will also increase the capacity utilization of available storage capacity of NCPB. This is because the intake of commodities will be open throughout the year and not as the directive of the government. This will increase the revenue generation at NCPB through optimum utilization of its facilities as well as through the charges to the depositors as a result of offering the services of warehousing.

According to the respondents oppositions have been faced from traders who see themselves as losers. This is because the middle men (some of the traders) have been exploiting farmers by buying the agricultural commodities at very low prices at peak period and sell high a few
months later. WRS will facilitate development of simple mechanism by which producers, lenders and traders can secure a floor price by locking in a fixed future price. As well producers can access funds before sale. Another opposition was from farmers who have not fully understood the system and the benefits thereof. Due to this extensive training has been on going to ensure the farmers embrace the system as anticipated. WRS will help farmers to secure the best possible deal, allowing them to deal directly with downstream buyers and financiers, and overcome asymmetric power relationships within the market chain.

Smallholder farmers are typically isolated from markets, have limited selling alternatives, lack contact with downstream buyers, are unable to enter into contractual relationships (due to lack of trust), are usually obliged to accept the buyer’s assessment of weight/volume and quality and, find it difficult to hold the crop for better prices. Farmers (or groups of farmers) will overcome these constraints by depositing their crops in a warehouse that dries, cleans and grades them according to established standards, and holds them until they wish to sell. Of equal importance is the warehouse’s service as guarantor, i.e. acting as collateral manager for any lender who wishes to finance the farmer against the security of the warehouse receipt, and guaranteeing delivery of the goods against the farmer’s contractual commitments.

The warehouse operator uses its own commercial and financial standing to enhance the farmer’s own standing with bankers and commercial counterparties. The warehouse will be linked to a commodity exchange through which the farmer can sell the goods. Alternatively, the farmer may sell privately or make use of a simple escrow-based settlement mechanism to ensure that he (along with the bank and warehouse operator) gets paid before the goods are removed from the warehouse.
WRS involve major scale economies, both in terms of managing warehouses and providing regulatory oversight or certification. Though it involves large scale economy, smallholders will benefit indirectly from the system, through its aggregate impact on price stability and the transparency of price formation. Also small scale farmers are encouraged to form groups or cooperatives where by they can deposite their commodities as one consignment. This will make them attain the minimum quantity which at the time stands at ten metric tonnes. For those farmers who will not attain the minimum quantity, after delivery a good receipt note will be issued but not a Warehouse Receipt which acts as a collateral.

As per the responses WRS negotiability have encountered legal limitations as no legal structure has been put in place yet but the legal framework is being worked on and it is coordinated by the Ministry of Agriculture. The move to structured trading will not only not bring warehouse receipts as a key trading documents but also marked the entry of specialized grain service providers including warehouse owners, warehouse operators, inspectors, financial institutions and collateral managers. There is also the crucial supplier of grain, the farmer (depositor) who hopes to benefit from the system. Therefore, it is crucial that these service providers meet and maintain key standards in terms of physical premises, facilities and equipment, grain care managerial qualities, financial capability, insurance and security covers so as to protect depositors against negligence, mismanagement and fraud. Consequently, there is need to ensure that there is an oversight body or regulator to enforce these required standards and license all the players.

The most suitable regulatory approach for WR involves fostering the development of a national network of privately managed warehouses, issuing transferable warehouse receipts, and where trust is developed through a robust certification and inspection system. This entails
the creation of an independent regulator that is capable of reining in the activities of these private players. This is in tandem with modern regulatory practices and principles. The warehouses are required to apply strict commodity grading and weight standards, and electronic documents are used with a view to reducing transaction costs and enhancing security. The prime source of income of the regulator is user-fees, though it may be subsidised by the Government in its early years.

According to some of the respondents, the negative publicity of NCPB was perpetuated by entities that did not understand operations of NCPB. Participation in field days, ASK show and other forums have had some positive contribution on the public image of NCPB. Involvement of Kenya Anticorruption Commission Council to undertake a system audit to review the Organizations internal process also gave evidence of transparency of the Organizations operations has also had a positive contribution. NCPB is in the process of being ISO certified and this also is seen as a tool that will significantly elevate its image. WRS was also seen as a tool and strategy of building the image of the Organization by working hand in hand with financiers' traders and farmers. As one respondent stated, when WRS commenced in Narok Depot on September 2010, one large scale farmer made his deposit of his commodities to find out whether the system was workable. The farmer went to the bank to borrow funds using the Warehouse Receipt as collateral which worked therefore building his confidence on the system. This therefore translates that WRS is also a tool of improving the image of the organization.

4.4 Challenges

The biggest challenge that exists at the time is legal framework which has not been put in place yet. As per the respondent this has been the limitation of the system being fully operational.
The challenge of engendering confidence among bankers and other players shall be eliminated by putting in place proper legal framework.
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presented the summary of the key data findings, conclusion drawn from the findings highlighting and recommendation made thereof. The conclusions and recommendations were drawn in the quest of addressing the research question.

5.2 Summary of the Findings

Warehousing Receipt System being undertaken by National Cereals and Produce Board currently is at the pilot stage and is being done without a regulator. Due to lack of any regulatory regime, existing service providers have not come close to fulfilling the industry's development potential in Kenya. The effect of the system has not been fully experienced as the legal framework has not been put in place. This is being worked on and it is believed that once this bill is passed the system will kick off and its full benefits will be enjoyed.

The benefits of the system to customers and stakeholders will include; guaranteed food security through state of the art post harvest service; delivery of responsive and dependable value for money service, and an efficient, reliable and engaging business partner; there will be transparency in trading activities and fair and level playing field for all players; the Exchange will ride on WRS to connect physically dispersed markets by allowing information and/ or orders to flow creating optimal conditions for arbitrage between markets; under the conditions, the dynamics of trade should not be under estimated, development of futures and forward contracts that are tradable from spot contracts will greatly enhance financial deepening in the country; it will also save on identifying the sources and markets for commodities in terms of time and money especially for farmers; it will also ensure price Discovery/ Forecast and enable
farmers to decide cropping patterns and investments. Ability to project prices into the future would enable farmers to plan accordingly.

This would in turn eliminate the element of unpredictable market conditions; WRS will improve national planning as accurate data would be available; Warehouse Receipts introduced trading at the Exchange would lead to proper grading, standardization and storage of agricultural commodities resulting in better value and price realization to farmers. The receipts can be discounted by farmers with banks and used to access credit quickly. The exchange would also provide liquidity and a viable market for the warehouse receipts; it will give the ability to keep constant touch with trends in commodity prices particularly of those deposited under WRS and traded on the exchange through publications and dissemination of information to the relevant stakeholders.

Not all the storage facilities have been upgraded to meet the minimum requirement of a certified warehouse, NCPB is gradually developing and maintaining systems, processes and procedures that are effective and efficient, economic and responsive to the new concept. The organization has strength of its extensive network and advanced skills and experience in grain management to offer grain storage and handling services to farmers and this gives them an added advantage to be operators of the WRS. As per the findings the operation of WRS is not fully clear to all the heads of department as some believe that it will operate as a new product line while for others all other existing operations will be under WRS.

5.3 Conclusion

WRS has not been fully established but it is still at the pilot stage awaiting a legal framework to be put in place in order for it to be operational. Once operational it will increase the supply
chain efficiency through providing transparency in trading activities as there will be free flow of market information on agricultural commodities. The warehouse will be open throughout the year therefore giving producers an open window for their produce unlike before where purchases at NCPB were being dictated by the government and was not open throughout the year. This will reduce postharvest losses therefore increasing the supply in a country which mostly experience a deficit in supply of these agricultural commodities.

WRS will increase the supply chain efficiency through free flow of market information flow to all stakeholders making the trading activities transparent. By establishing a commodity exchange, the agricultural products offered through WRS will be traded therefore eliminating the middlemen and removing the distortion in the supply chain by providing farmers with a market for their products. It will also stabilize prices especially through the trade in futures contracts. Stabilization and market intervention will be carried by industry and the Governments strategically, and the equilibrium in supply and demand for a particular commodity made possible. The SGR function of the Kenyan Government for instance can purchase commodities and hold warehouse receipts and release the same through the Commodity Exchange at an appropriate time. This will give the Government the power to intervene during times of shortages and surpluses effectively.

5.4 Recommendations

NCPB should set aside some of their major depots specifically for regulated warehousing Receipt system. This is because the system requires some standards to be met before the warehouse is certified of which to upgrade its entire network for certification will take long hence delay the takeoff of the system. The long term goal should be to phase out other operations and integrate them to the new system. NCPB should also equip its staffs with
adequate knowledge of the new system because as it was noted a few departmental heads had little to say on the Warehousing Receipt System. This can contribute to delay in full implementation of the system as staffs may not be in full realization of the many benefits that the system is going to offer.

In emerging economies such as Kenya there is need to put in place a relevant legal and regulatory framework to guide the business environment and protect the interest of all players including private property hence it is recommended that this should be put in place first not to kill a big dream by simply not putting priorities right. Such a framework would also spell out the role of each player. Trust and discipline should also be encouraged among players. A regulated warehouse requires the grain handling staffs to be highly qualified and possess the right skills. The capability of the current staffs should be assessed and the right action taken in order to equip the organization with the right people for the task.

5.5 Limitation of the Study

Being that this was a case study on one company; the data gathered might differ from those of other agricultural organizations that have adopted Warehousing Receipt System as a strategy to increase supply chain efficiency of agricultural commodities. This is because different organizations adopt different strategies that differentiate them from competitors. The study however, constructed an effective research instrument that sought to elicit general information on WRS as a strategy to increase supply chain efficiency of agricultural commodities.

The study faced both time and financial limitation. The duration that the study was to be conducted was limited hence exhaustive and extremely comprehensive research could not be carried on WRS as a strategy to increase supply chain efficiency. Due to limited finances, the
study could not be carried on depots level. The study however, minimized this by conducting interviews at the company’s headquarters since it is where strategies are made and rolled out to the depots that operate on the same blueprint.

5.6 Recommendation for Further Research

More research should be carried out on WRS once it becomes fully operational and the legal structure /framework is in place. This will give the actual rather than projection of the increase of supply chain efficiency through use of WRS. I would also recommend more research to be carried out where all the major players are included like the financiers and the producers in order to get a full picture of their view on the system.
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APPENDICES

APPENDIX 1: Letter of Introduction to the Respondent

University of Nairobi,
School of Business,
P.O Box 30197, 00100
Nairobi

I am a postgraduate student undertaking a Masters degree of Business Administration at the School of Business, University of Nairobi. I am currently undertaking a research project on use of warehousing receipt system (WRS) at National Cereals and Produce Board as a strategy to increase supply chain efficiency.

You have been selected to be a part of this study because of the strategic information that you have on this subject in this organization. I therefore humbly request for your time to interview you using the interview guide attached.

The information that you provide will be used exclusively for academic purposes, and I assure you that the information shall be treated with strict confidence.

Thank you for your anticipated cooperation.

Yours faithfully,

Anne W. Gichau
Student

Dr. John Yabs
University Supervisor
APPENDIX 2: Interview Guide

PART A: Demographic Questions

(i) Position held in the organization

(ii) Department

(iii) Level of education

(iv) Duration in the organization (years)

PART B: Understanding of WRS

(i) What is your understanding of WRS?

(ii) How is WRS going to strengthen the supply chain of agricultural commodities?

(iii) How has WRS impacted your department/function?

(iv) How is the operation of WRS structured and what storage capacity is exclusively for WRS beside other operations?

(v) WRS is based on favorability of market prices after a period of time, what will happen in situations where the prices remain unfavorable?
(vi) For WRS to flourish/work smoothly it requires three major players i.e warehouse operator, depositor and financier, how involved are the other players?

(vii) Since WRS is a new concept, to what extent has NCPB trained and sensitized the stakeholders?

(viii) The country continues to experience food shortages almost every year; in your opinion how is WRS going to solve this problem, bearing in mind that the demand of maize continues to rise more than the supply?

(ix) We have had incidences where the government intervenes through border control by zero rating of duty on imports of commodities; this might affect the market price of commodities in the warehouse, what measures have you put in place to ensure WRS will be operational even in such occurrences?

(x) How has WRS increased the performance of NCPB so far?

(xi) What opposition has NCPB experienced in the use of WRS?

(xii) WRS involve major scale economies, what measures have been put in place to ensure small scale farmers are involved in this system?

(xiii) What legal limitations have you encountered on the negotiability of WRS?

(xiv) NCPB have had negative publicity in the recent past, what effort has been done to earn back the reputation and hence trust from other players?