



**UNITED NATIONS
UNIVERSITY**

UNU-MERIT

Working Paper Series

#2008-068

**Private Capacity and Public Failure: Contours of Livestock
Innovation Response Capacity in Kenya**

Ekin Keskin, Mirjam Steglich, Jeroen Dijkman and Andy Hall

PRIVATE CAPACITY AND PUBLIC FAILURE: CONTOURS OF LIVESTOCK INNOVATION RESPONSE CAPACITY IN KENYA

Ekin Keskin¹, Mirjam Steglich², Jeroen Dijkman³ and Andy Hall⁴

Abstract

Globalization, urbanization and new market demands — together with ever-increasing quality and safety requirements — are putting significantly greater pressures on agrifood stakeholders in the world. The ability to respond to new challenges and opportunities is important not just for producers but also for industries in developing countries. This paper aims to present what “innovation response capacity” entails, especially for natural resource-based industries in a developing country context. It will also provide an analytical framework that draws elements from agricultural innovation capacity and the innovation systems framework. This is provided through case study research conducted in Kenya by exploring two livestock product companies: Farmer’s Choice and Kenchic. The cases show how companies had worked around the problem of weak interaction with the various livestock-related agencies of the public sector by developing links with international sources of knowledge and technology. This allowed the sector to respond rapidly to different challenges. While the country’s historical development explains this pattern of innovation response capacity, public policy appears to be failing in its role of nurturing and contributing to the capacities needed for development in emerging economies, such as that of Kenya.

Key words: Livestock; agriculture; innovation; innovation response capacity; Kenya

JEL codes: O31, N57, Q16

UNU-MERIT Working Papers
ISSN 1871-9872

**Maastricht Economic and social Research and training centre on Innovation and Technology,
UNU-MERIT**

UNU-MERIT Working Papers intend to disseminate preliminary results of research carried out at the Centre to stimulate discussion on the issues raised.

¹ PhD. Researcher, Learning, Innovation and Knowledge (LINK), keskin@merit.unimaas.nl

² Researcher, LINK, steglich@merit.unu.edu

³ Joint Coordinator, Learning, INnovation and Knowledge Network (LINK), Food and Agriculture Organization of the United Nations (FAO), Jeroen.dijkman@fao.org

⁴ Joint Coordinator, Learning, INnovation and Knowledge Network (LINK), United Nations University, MERIT, Maastricht, The Netherlands, hall@merit.unu.edu

TABLE OF CONTENTS

1. INTRODUCTION.....	4
2. INNOVATION RESPONSE CAPACITY.....	6
3. SECTORAL BACKGROUND.....	13
4. CASE STUDIES.....	15
4.1. CASE STUDY I: FARMER’S CHOICE.....	15
4.2. CASE STUDY II: KENCHIC.....	19
5. DISCUSSION: A COMPARATIVE LOOK AT INNOVATION RESPONSE CAPACITY.....	24
6. CONCLUSIONS.....	27
APPENDIX: TABLES AND FIGURES.....	29
TABLE 1. INNOVATION RESPONSE TO DIFFERENT CHALLENGES: LINKAGES TO DIFFERENT ACTORS — FARMER’S CHOICE.....	29
TABLE 2. INNOVATION RESPONSE TO DIFFERENT CHALLENGES: LINKAGES TO DIFFERENT ACTORS — KENCHIC.....	29
FIGURE 1. THE INTENSITY OF RELATIONS IN FARMER’S CHOICE.....	30
FIGURE 2. THE INTENSITY OF RELATIONS IN KENCHIC.....	31
REFERENCES.....	32

1. INTRODUCTION

For natural resource-based industries in developing countries responsiveness to rapidly-changing markets, trade rules and policy conditions is central to survival. This responsiveness entails being able to continually innovate; introducing new products, using new processes and addressing new consumer demands. This capacity, which we term *innovation response capacity*, is thus central to the economic success of companies and sectors. Yet, despite its obvious importance, the contours of this type of capacity are poorly understood and documented — particularly in relation to developing countries.

This paper addresses the issue in two ways. Firstly, it develops an appropriate analytical framework. Based on the innovation systems and dynamic capabilities literature, the framework draws attention to the networks of intervention required both to gather information about upcoming challenges and opportunities as well as to the links needed to mobilise knowledge to respond to these challenges. Secondly, it uses this framework to investigate and document innovation response capacity in two livestock product companies in Kenya — Farmer's Choice and Kenchic — to show how they have responded to changing market and animal disease issues in recent years.

A multi-case study approach is used for this research to discuss the examples of local companies from Kenya. These two companies have been chosen as they represent successful cases that have endured many different challenges.

A series of key informant interviews were carried out over the period between September 2006 and April 2007 with relevant staff from the companies (production, marketing, operation managers) and with other stakeholders in the public sector. Besides the interviews, relevant company documents were also examined. These have provided the data for the analysis that follows. The key findings of the paper are that linkages between companies and the various agencies of the public sector have been weak or non-existent, and this has been shaped historically. However, the cases are important enough to show how the companies work around the problem, provided that sufficient links to market information are

established. In this way they can get access to international knowledge markets. In addition, the cases show the significant role of social capital and indicate that analytical frameworks need to expand to be more appreciative of this role. The paper concludes by suggesting that weak patterns of interaction in Kenya are detrimental to response capacity but could be addressed by a more pro-active public sector.

2. INNOVATION RESPONSE CAPACITY

New sources of comparative advantage lie in the ability to access, adopt and use knowledge to innovate. A major part of this ability concerns the capacity needed to respond effectively to changing circumstances. We refer to this as the concept of innovation response capacity. We locate this concept in contemporary ideas of innovation as a systems phenomenon. The idea of an innovation system is now widely used to explore the innovation process and capacities at both national and sectoral levels (Lundvall, 1992; Freeman, 1995, Malerba, 2002) in both the developed (OECD) and increasingly developing economies (Hall et al 2002, World Bank 2006). At its simplest, the concept departs from earlier notions of innovation as a research-driven process of technology transfer and, instead, views it as a social process where different sources of knowledge and ideas are put into use. The concept gives centre stage to two interconnected dimensions of innovation. First is the interaction among different players in economic systems, the roles they play and the way their interaction facilitates the transmission, adaptation and use of ideas, thus enabling learning and innovation.

The second dimension is the way the process is located in, shaped by and responds to various contexts. These include: the habits and practices — institutions — of the various actors involved in innovation; the historical, cultural and political setting that gives shapes to habits, practice and styles of innovation; and the enabling environment that includes some of these other contextual elements, but also includes policies and infrastructure as well as the market itself as a mechanism for providing incentives for entrepreneurial activity. Two other important considerations that the innovation systems framework allows one to reveal are the dynamics of the processes involved and the capacity that emerges at a systems level. So, while the concept recognises the importance of certain types of relationships and linkages that mediate information flows, it also recognises that in ever-changing environments (markets, policy, technology), patterns of linkages need to change to meet new conditions and demands.

The recognition of this process as a systems phenomenon, however, is arguably the critical point of departure for contemporary thinking on innovation. Not only does it recognise the

interaction of many individual parts, and the non-linearity of the outcomes of these interactions, but it also recognises that these networks of interacting elements have emergent properties. That is to say these systems have properties which are more than the sum of the constituent parts and which cannot be accounted for by analysis of individual elements of the system. It is for this reason that institutional settings of actors — *ways of working* — assume such significance since this is, in a sense, the “hidden hand” that determines how the system operates. By the same reasoning it is why science, technology and innovation policy focus is shifting towards considering capacity development in terms of the behaviour of systems rather than in terms of quantum of research or the nature of technology transfer elements.

It is the question of capacity and the nature of capacity that is the focus of this paper. However, it is not just innovation capacity in a general sense that the paper wishes to explore, but the aspect of responsiveness to changing contexts and, in particular, responses to rapidly changing market conditions. For natural resource-based industries like horticulture and livestock in developing countries this has become a particularly important concern. The higher degree of market integration that has accompanied the globalisation of the value chains of these products is increasingly exposing farmers and industries to increasing competition in the global market place and changing consumer demands and standards and norms in distant markets. The ever-increasing rate of change in these markets means that responsiveness is likely to be the critical element of innovation capacity.

This is not the same as the way that technological capabilities have usually been specified in the literature (eg., Lall, 1992, 2004). Nor does it really accord with how innovation capabilities have often been portrayed — that is, through major changes in the design and core features of products and production processes (Ernst, Ganiatsos and Mytelka, 1998). It is more akin to the concept of dynamic capabilities (Teece et al. 1997) as the firm’s ability to integrate, build and reconfigure internal and external competencies to address a rapidly changing environment. It accords also with Eisenhardt and Martin (2000)’s definition of dynamic capability as “the firm’s processes that use resources, especially the processes to integrate, reconfigure, gain and release resources to match and even create market change”.

However, a broader view than just one that focuses on firms is necessary to understand the underpinnings of innovation response.

The idea of innovation response capacity is not really well defined in the literature. It would seem, however, that its broad contours are similar to what is generally discussed as innovation capacity as has been outlined above, but with specific analytical attention given to two aspects. First are the factors, arrangements and attributes that lead to rapid response. In other words the factors that allow a timely response in a rapidly changing environment are going to be crucial. This implies that the response capacity must both include mechanisms for early warning of upcoming changes, as well as mechanisms for dealing with the opportunities and challenges that arise from these.

The second aspect that needs attention is the specificity of the response. That is to say the response has to be tailored to the characteristics of the opportunity or challenge as well as the context of the response. In other words it is no good having a general capacity to respond to changing consumer demands. For example, if the demand is for organic produce, the capacity to innovate around this clearly must be specific to that type of product. Taking the example further, while a country with a strong analytical science base and effectively enforced food standards may be able to respond in certain ways, a country without these competencies and skills would need to respond to consumer demands differently, possibly with external assistance, for example.

What then might be the specific elements that could be used to explore innovation response capacity? A useful starting point is to follow the four-point analytical framework developed by the World Bank to investigate agricultural innovation capacity (World Bank, 2006). Detailed analysis of a cross-section of case studies of innovation across eight countries concluded that the following four elements are central to a viable innovation system:

- i. Actors and their roles
- ii. Patterns of interaction
- iii. Habits and practices
- iv. Enabling environment

On the first of these (*actors and their roles*) the study concluded that the process of successful innovation requires a diversity of actors, including entrepreneurs, research and training organisations, public policy bodies and civil society organisations. In terms of responsiveness it is not possible to be prescriptive about which actors should be present. However, particularly significant is their capacity to coordinate activity across sectors, the degree to which they exhibit capabilities to identify new opportunities and, if necessary, take risks in mobilising resources accordingly. Also important is their ability to anticipate the future and exchange relevant information, their capacity to undertake necessary research, or at least to acquire necessary knowledge, to supply relevant services and to ensure socially desirable outcomes.

The second of these (*patterns of interaction*) is shaped by the local context and the particular innovation challenges or opportunities that are being addressed. These patterns are dynamic and will change over time in response to changing patterns of challenges and opportunities. What one would expect to see is evidence of a loose network of linkages among actors that provides coherence and which acts as foundation for more concrete forms of linkage and collaboration in times of need. This is in line with the argument that capacity development “takes place not just in individuals, but between them, in the institutions and networks they create — through what has been termed the ‘social capital’ that holds societies together and sets the terms of these relationships” (Fukuda-Parr, Lopes and Malik 2002). In analysing patterns of interaction it is important to bear in mind that forms of interactions that allow two-way flows of information are the most important. Also, while frequency of interaction is an important consideration, quality of interaction is equally important. Critical aspects of the patterns of interaction that are specifically relevant to innovation responsiveness include links to consumers, to sources of specialist knowledge and mechanisms to facilitate interaction across disparate groupings.

The third element (*institution, habits and practices*) is probably the most intangible component of innovation capacity, but it is undoubtedly fundamental. Institutions are defined as “sets of common habits, routines, established practices, rules or laws that regulate the relations and interactions between individuals and groups” (Edquist, 1997). These are the

mainly informal rule sets that determine how people behave and the way they do things. The innovation systems concept gives particular attention to those institutional elements that affect processes of interaction, information sharing and learning. In relation to innovation response capacity there are a number of basic ways of working that are likely to be important. These include attitudes towards change, trust, the capacity to learn and change behaviour accordingly, and the ability to develop a shared identity across organisational boundaries.

Finally the *enabling environment* defines the wider set of policies and institutions in which the innovation process is situated. Much of the enabling environment manifests itself through the factors already discussed. For example, agricultural science and technology policy often determine the degree of interaction between researchers and actors in the productive sector. More specific factors might include monetary policy; infrastructure; the level of corruption; the effectiveness of the legal system; education practices; and the regulatory regime in place.

It should perhaps be emphasised that governments have a great responsibility for ensuring a supportive enabling environment as may be seen by looking at the recent economic history of Japan and its “followers”, the East Asian NICs. In these countries it was the responsibility of the state to create a context suitable for innovative activity. Fukusaku (1995), for example, shows how the technological development of the Japanese shipbuilding sector over the period 1880-1939 was heavily dependent on systematic investments in technological capabilities carefully orchestrated by both corporate and national policy. And Fransman (1995) shows that one of the big advantages possessed by Japan and many of the East Asian NICs was the stock of highly-trained technical manpower built up in the post-War period. But this asset was only a *necessary* condition of technological development. It was *not sufficient*. What was also crucially important were mechanisms to translate this specific (disciplinary) expertise into economically productive output; mechanisms which took many innovative forms designed to bridge the gap between formal education and research on the one hand, and its applicability on the other. The Japanese government was proactive here, changing the ways in which knowledge impinges on economic production, mainly through assistance provided by the Ministry of International Trade and Industry (MITI).

Two examples of this are the Protein Engineering Research Institute (PERI) and the International Superconductivity Research Centre (Istec). In both cases MITI sponsored the organisations by contributing a proportion of the funds, but both bodies are also sponsored by relevant industrial firms who agreed to collaborate amongst themselves at the strategic research end of the innovation process. What is especially significant here is the apparent success of a (Japanese) public sector agency in devising an institutional mechanism within which the private can simultaneously cooperate (in R&D) and compete (in the production and sale of products).

Nor are these processes confined to East Asia. A well known case in point is the development of a modern telecommunications sector in Brazil where the Brazilians were very conscious of the need to develop the telecoms sector in such a way as to build up their own technological capacities. There was no point, they reasoned, in purchasing foreign technology through multinational firms without in some sense “endogenising” the resultant capacities through incremental learning. Innovation policy was important, therefore, and appropriate institutions needed to be established. However, these would have to be created outside the formal university sector. In practice this took the form of creating a specialised research institution (the CPqD) to carry out a series of tasks involving technology sourcing, training in relevant skills, policy advice to government organisations and technical inputs to the national utility — tasks that included but went well beyond the normal R&D role for such an institution.

Hobday (1990) has shown that the CPqD became the cornerstone of technological development, a “node” of information flows and a source of indigenous learning. Its very existence not only enabled the Brazilians to ensure that the import of foreign technology was appropriate to national needs, it also embodied the relevant technological capacities as a permanent national resource in such a way that Brazilian development could, in future, evolve independently. In short, what Brazil had done was to create the institutional capacity to ensure the development of an indigenous technological capability in an important strategic area and to locate this capability outside the formal TE sector. This did not mean, however,

the redundancy of that sector in any sense. Rather it was seen (correctly) as a means of mobilising expertise for a specific set of objectives, while at the same time enhancing the more disciplinary expertise housed within national universities and colleges of technology.

In short there is a considerable body of knowledge about how governments have created an enabling environment to stimulate and support innovative behaviour. We shall see below that in the case of the two Kenyan livestock firms examined it was very often the lack of such support that has forced these firms to do act for themselves more than they would normally have expected to.

3. SECTORAL BACKGROUND

The livestock industry in Kenya accounts for about 10 percent of the country's GDP and over 30 percent of agricultural commodities production. About 20% of the meat consumed in Kenya is white meat, namely poultry and pig meat. According to the Export Processing Zone Authority (EPZA) Report (2005) Kenchic and Farmer's Choice are the two main players for poultry and pork production respectively. In Kenya, livestock production is a major economic and social activity for the communities that live in the high rainfall areas for dairy production and in the arid and semi-arid areas (ASALS) for beef production. About 67% of the red meat is produced in the arid and semi-arid lands (ASALs) under a pastoral production system. Pastoralists keep about 70% of the national livestock herd, estimated at about 9.7 million beef cattle, 9.6 million goats, 8.3 million sheep, and 0.8 million camels.

The sector is dominated by small producers. According to FAO (2004), in arid and semi-arid lands (75% of total land), the livestock sector generates around 90% of employment and more than 95% of family incomes. However, these are the areas with highest poverty and lowest access to basic services. According to EPZA (2005) data, the livestock industry produces more than 363 million kilograms of red meat each year, valued at over Ksh43 billion (\$615 million), with the value of the beef market alone being estimated at Ksh35 billion (\$500 million). The combined goat meat and mutton market is worth more than at Ksh8 billion (\$114 million) while camel meat stands at Ksh0.66 million (\$9,400). Since 2005, Kenya has substantially expanded its export market to countries in the COMESA⁵ and Indian Ocean regions, including Mauritius, Seychelles and the Comoros.

Livestock sector development can be traced back to the white settlers who started ranching activities in the Rift Valley in the early 1900s. With independence from Great Britain in 1963, a number of Government Acts were set up to regulate the sector. The first of these Acts was the Kenya Stock Traders Licensing Act of 1962 with others such as the establishment of the Kenya Meat Commission (KMC) following. During the 1970s the livestock sector

⁵ Common Market for Eastern and Southern Africa: member countries are Angola, Burundi, Comoros, D.R. Congo, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Namibia, Rwanda, Seychelles, Sudan, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe.

achieved significant economic development. However, Kenya's total exports declined in 1985 as a result of the closure of the KMC, which, at the time, was the leading exporter of canned meat. This was probably due to mismanagement and corruption in the parastatal (public enterprise). In the days after independence parastatals had been set up by governments to pave the way for the establishment of private businesses. Although KMC went under in the 1980s, there was a realisation back then of the need for quality and safety standards in Kenya. This is clear from a statement made during a meeting about the audited accounts of KMC, which were tabled before Parliament in October 1984, during which Commission chairman Peter Barclay partly blamed the crisis on unfair competition from private abattoirs and some weaknesses.

"We have to comply with certain stringent standards and regulations and other controls for abattoirs, which means we have very high overheads for slaughtering. We are obliged to have very high standards of sanitation and processing to maintain our export market, which our competitors do not have."

According to Aklilu (2002) livestock trading has been in the domain of the private sector following the liquidation of the KMC and the exit of the Livestock Marketing Division (LMD) from the markets. Prior to this, the KMC and LMD had a well-developed network of stock routes to designated markets with watering and grazing points. In 2006, the Kenya Meat Commission reopened again as a parastatal. This is an important development for the pastoralists and the livestock farmers living in the arid and semi-arid areas, where livestock farming is the main source of income. Another parastatal in the livestock sector was Uplands Bacon Factory for pork products. Due to failures with the privatisation of the company, the factory collapsed in 1987 and since then pig production in Kenya has been in the hands of the private sector. After the demise of the state-owned Uplands Bacon Factory, it was Farmer's Choice which revived this sub-sector. The Kenyan government established Kenchic as a mainstay of the poultry sub-sector in the 1960s.

4. CASE STUDIES

4.1 Case Study I: Farmer's Choice

Farmer's Choice is a private company established in 1975 as Kenya Meat Processors Ltd — a subsidiary of the Block Hotel Group⁶ — with the sole purpose of supplying the group's hotels with reliable pork meat products. This established a historical link with the Kenyan tourist industry, which began to develop from the 1970s. By 1980, Kenya was receiving 372,000 international tourists per year, more than any other African country after South Africa (World Bank, 2002). The real impetus for developing Farmer's Choice's business therefore was the growing number of tourists coming to Kenya combined with limited local sources for reliable meat products in sufficient quantities. After the collapse of the state-owned Uplands Bacon Factory, there was a need for revival in the sector. Farmer's Choice acquired an export license for pork products in the late 1980s when it built a slaughter and processing plant licensed for export by the Kenyan Government. Around 20% of its total output (8-9,000 tons per year) is now exported to Bahrain, Ghana, Ethiopia, Eritrea, India, Mauritius, Muscat, Somalia, Tanzania, Uganda, Zanzibar, and the United Arab Emirates. The remainder is sold locally to the retail sector, fast food sector and hotels and catering businesses.

A substantial proportion of the company's production in Kenya is consumed by international tourists. Compared to beef and chicken, pork is more expensive in Kenya. Thus, the target market for pork products in the supermarkets is the high value consumer. To broaden the customer range Farmer's Choice also supplies beef and chicken products through multiple contracts with other companies. For example, it currently uses KMC's export slaughter house. The final product is distributed to supermarkets which then sell these products, or to Kenchic (or other fast food) restaurants and hotels, which in turn process the meat further before sale to consumers. Currently the company does not export to European markets.

⁶ Farmer's choice was acquired by Lonrho in 1989 and since 2001 it is owned by the IPS (Industrial Promotional Services) which is under the Aga Khan Development Network.

However, the tourist industry is extremely dependent on the stability of the country, which is variable. One example of this is the car bombing of US Embassy in Nairobi by Al-Qaida in 1998. Around 250 people, mostly Kenyans, were killed and this had a dramatic effect on tourism. As a result, the demand for pork products in hotels, especially in the Mombasa area dropped. This was not an isolated incident and was, in fact, followed by others such as a suicide bombing in Mombasa in 2002. As a response to this instability Farmer's Choice decided to target new market segments in Kenya and came up with inexpensive products to increase demand for pork products. Farmer's Choice now produces a wide range of different products, such as bacon, ham, sausages and burgers to reach a broad range of local consumers. However, sausages used to be perceived in Kenya as being rich man's food and Farmer's Choice is attempting to change this perception. To educate the local consumers and also provide them with quality products, it has decided to supply smoked and heat processed products (called Smokies).

This was explained by the export manager as "the company being not just about earning profits but feeling the social responsibility to give back to the community". It also aims to make sausages as affordable and accessible as eggs, thereby addressing the issue of the nutritional gap. Smokies are an already-cooked product and have a long shelf life. Being cheaper and rich in protein they are ideal to be marketed to the poor, who often have no electricity, let alone refrigerators to speak of. The idea has caught on in the Kenyan market and Farmer's Choice has now started producing Smokies for neighbouring countries such as Tanzania, Congo and Uganda. This has been a typical product innovation; underlying technical issues are well-known and R&D is not required. In-house food expertise has developed the product using existing technology. Although the company flags Smokies as a corporate social responsibility, targeted at poor Kenyans, in fact, it was probably mainly a strategy to increase demand for the company's products.

The size of the Kenyan domestic market (mainly due to the size of its tourist industry) has also encouraged Farmer's Choice to improve overall quality. In fact, it was demand from the tourist industry that helped the industry to respond to other markets such as the Middle Eastern market. Moreover, it was initial demand from chefs, who moved from hotels in

Kenya to work in the Middle East, which pushed Farmers Choice to enter these markets. This demand for Farmer's Choice products was followed by others abroad once popularity grew. The company responded to these signals and acquired the necessary quality certificates to serve these markets. This was done basically by accessing the expertise that already existed in Kenya's successful horticulture sector, where certification bodies already existed. Farmer's Choice thus acquired BVQI (Bureau Veritas Quality International), Hazard Analysis Critical Control Point (HACCP) and Total Quality Management standards, which are accepted by its export partners. The BVQI is the independent certification body of Bureau Veritas, an international company that has the expertise to help build compliance with standards and regulations relating to quality, health & safety, environment and social responsibility. The Group has a network of regional and local offices, including offices in Kenya.

The company now breeds pigs both for its own farms and for supply to its contract farmers. Currently it rears around half the pigs it processes; the remainder (some 50,000 pigs per year) comes from third party contract growers. Farmer's Choice produces its own feed for pigs, which it also supplies to its contract farmers at cost. It supports its contract farmers through technical advice, veterinary services, supply of piglets and the provision of concentrates on credit. In addition a team of company-employed pig production specialists regularly visits out-growers offering advice on all aspects of pig health and production. Traceability issues have thus been solved by vertical integration, which has also helped deal with different consumer concerns of quality and safety issues.

The company employs around 1,000 people, many of whom participate actively in the management process. This was explained by the operation manager as a "hands-on" management style that ensures constant consultation with those on the plant floor and with representatives in the market place. This approach has created enthusiasm and understanding of the operations of Farmer's Choice for the employees. Since 2005 Farmer's Choice publishes *Bangers & Mash*, an in-house magazine which is designed to bring customers up-to-date with people, products and services provided by the company. The magazine also highlights the achievements and many activities of the company. This outreach also features

articles on the employees themselves, hence providing them with a sense of belonging and further motivation.

One recent opportunity for Farmer's Choice to up production was the increased demand for pork products due to the occurrence of Rift Valley Fever (RVF) in Kenya in December 2006. RVF is transmitted primarily to humans through contact with or consumption of infected animals, who contract the disease through mosquito bites. As a result of this outbreak, consumers increased their consumption of pork products instead of beef products, which are cheaper in Kenya. However, even as demand for pork products increased, the company was faced with a shortage of pigs. Farmer's Choice does not have access to a well-developed live animal market in Kenya to buy extra stock. However, due to already established linkages with Brazilian producers, the company was able to buy additional stock and make the most of the increased demand for pork. The company had established links with Brazilian producers long before the RVF outbreak, in the face of shortages of breeding stocks in Kenya and the lack of government support to address the issue. Farmer's Choice did a global survey to look for different suitable pig breeds and identified Brazil as a supplier for the right breeds and at the right price. After establishing contacts in Brazil, the company took public officials to inspect Brazilian sites and thus managed to get necessary permission from the government for clearance and import. Thus, in the face of supply shortages during the RVF outbreak, the company was able to reactivate already-established linkages with Brazil step up its production.

Farmer's Choice has also been confronted with other challenges, including escalating production costs, especially with rising fuel, electricity and labour costs, and lack of supportive agricultural policies in Kenya. An example of this is the high costs of inputs. In times of drought, maize prices go up, causing feed prices to increase in turn. These cycles are recurrent in the pork sector and are directly related to cereal production. Since quality of the raw material feed is important this has implications for the quality of the meat. However, the company claims that it has not been able to import cheaper feed from outside Kenya due to high duties imposed by the government. Farmer's Choice is talking with relevant public bodies about the need for subsidies and lowered prices for the feed sector. However, it is not

clear why Farmer's Choice is not searching for technical ways of reducing feed and other inputs by, for example, using alternative locally available feedstock such as sorghum and cassava. And one wonders why decades of research on alternative feeds by national and international agricultural research have not helped this situation. One also notes the tendencies to look to the government for tax and price relief, a throwback to the day of a paternalistic, state-dominated economy. Those have gone but Farmer's Choice may not have moved on completely in the way of responding to these sorts of patterns.

4.2 Case Study II: Kenchic

Kenchic was established in the 1960s by the Kenyan government initially as an initiative to start a large-scale poultry industry and to support local poultry farmers. In 1972, British American Tobacco (BAT), the cigarette manufacturer, took over from the government. BAT had, with the mandate of the Kenya government, set up a company called Kenya Poultry Development with the aim of developing the poultry industry in the newly independent Kenya. Prior to this, farmers had to import day-old chicks from Europe, which they would then raise to supply the local market with chicken products. Kenchic now imports layer parent stock from Europe and rears them to produce commercial layer chicks, which are sold into the local market or exported. The company has developed strong linkages with global poultry breeding companies such as Aviagen, for which Kenchic is the franchise holder for East Africa and parts of Central and West Africa. It operates a one-parent stock hatchery in Kajiado, a commercial hatchery in Mombasa and has its main commercial hatchery in Athi River. The chicks produced from these facilities are shipped either by road or air to various destinations. From the parent stock, the company currently has a production capacity of 300,000 broiler chicks per week. These birds are sold into the local market through the company's own depots or agents, while some are grown through a contract scheme and bought back for processing. About 15% are exported into the wider East African region.

In addition Kenchic has its own grandparent programme for Arbor Acres broilers, one of the Aviagen brands for chicken breeding from Europe. The production facilities are regularly audited by the company's counterparts and all the breeder farms have dedicated quarantine facilities where entry is restricted even to staff that works there. One of Kenchic's strategies

has been to employ local people as managers. Today, the Kenchic general manager believes that it is largely the support of local directors, who are citizens of Kenya and concerned about its farmers and consumers, that has brought the company to where it is today. A good example of the Kenchic policy approach has been a “job swap” arrangement whereby employees move from one department to another for a period of 2-3 months. This strategy has been aimed at making employees appreciate the functions of other departments and also understand how the company functions as a whole. Other examples of internal managerial cross-fertilisation are include the processing manager making regular visits to supermarkets and butcheries to monitor the quality of the product at the sales outlet, or the hatchery manager making field visits to monitor the first week’s mortality on farms.

Like Farmer’s Choice, Kenchic also operates a contract farmer growing scheme, where a farmer enters a contract with the company to grow commercial broilers for it at an agreed price. This scheme helps the company address the traceability issue, which is important for consumers. The farmer is given chicks, feed and technical input and is paid for the chicks delivered to the processing plant. The company has 65 contract farmers. The contract farmers make up 70% of production and the rest is made up by others who buy day-old chicks from Kenchic. Around 70% of the company’s customers are women. Kenchic has a follow-up system where it knows the trends of the market by keeping in close touch with farmers. It also trains contract farmers in shed design, technology and feeds. It trains two types of farmers — individual and group. It has its own veterinary services and provides periodic support to farmers when needed. The birds that are cropped from the contract farmer are taken to the company’s processing plant located in Tigoni. This is a modern poultry processing plant, which meets all the necessary health and safety requirements. The birds are processed into different products, e.g., whole birds, cut-ups, chicken sausages, chicken burgers.

Kenchic’s main mission is to increase Kenyan consumption of chicken in the form of high quality products and standards given increased consumer concern for quality and safety. The traceability throughout the production process is actually to assure customers that their products are healthy and safe. Performance is measured against international standards and

the aim is to always meet these targets, although traditionally such standards have been very low. Since 2006, Kenchic has acted as a HACCP (Hazard Analysis Critical Control Point). According to the production manager, emphasis to commitment and endeavour to achieve this certificate has required a successful business management strategy. In addition following and keeping up with changes to consumer standards has demanded employee education and commitment. Kenchic successfully attained approval by bringing in expertise from different certification bodies in Kenya. With this certificate, it can demonstrate traceability from grandparent stock to the processed product. Kenchic also provides Halal products to broaden its customer range to Muslim consumers. These products are export-certified for chicken, but not yet for processed chicken products. Two meat inspectors from the Ministry of Agriculture check the processing plant in Tigoni daily.

One outcome of Kenchic's quality and safety policy has been the supply of processed chicken to Innscor (Kenya), the South African company running Nandos fast-food outlets in Kenya. The company changed its policy of supplying homegrown products (i.e., from South Africa) after Kenchic's products were approved through quality checks by Innscor's global quality controller. Kenchic was tested for two different retailing channels; supermarkets and company-owned restaurants. With respect to restaurant interactions, Kenchic also supplies chicken to competing fast food chains. The company not only offers quality chicken in terms of health standards, but also affordability. As with Farmer's Choice Kenchic is the major supplier for hotels in Kenya. Demand from tourists, together with compliance with the concerns of international chefs, has helped shape product range. Kenchic now has over 25 different chicken products in both fresh and frozen forms. Not only individual consumer demand but also large catering business demands are taken into account in shaping new product lines.

Avian influenza (Bird Flu) is perceived as the biggest challenge to the poultry industry. It is common to see seasonal disease outbreaks with local chicken due to movement of birds and lack of vaccination against the H5N1 virus. Kenchic operates a laboratory, which monitors the health status of its flocks and assists farmers who may have problems with theirs. Kenchic was hit by the bird flu epidemic in 2005 and had to face huge losses (26 million

Kenyan shillings). This loss was blamed on a ban by Ugandan authorities on imported chicken and poultry products; this made up between 30 to 50 per cent of the firm's losses in that year. The problem was partly solved by diversifying the market to other countries such as Ethiopia, where the company exported 15,000 chicks a week. The company manager believes that the decrease in sales was also due to changing consumer perceptions.

Kenchic was involved in a joint campaign with the Kenyan government to educate people on Avian Flu and also addressed the issue through its own efforts in the media. Kenchic also organised a symposium for stakeholders in the industry to sensitise them on how to mitigate the threat from the virus. Further, Kenchic has been recruited into the National Task Force Committee to develop a communication strategy to educate consumers and poultry growers on the disease. A multi-sectoral Task Force has been set up to prepare and coordinate a bird flu preparedness and response plan in Kenya. The members include government ministries, UN bodies, research institutions, the poultry industry, consumer organisations, Centres for Disease Control and NGOs, bilateral and multilateral donors. However, the company maintains that the effectiveness of this multi-agency approach has been considerably undermined by poorly-developed relationships and patterns of trust in the sector, which reflect its historical patterns of development.

One of the challenges for Kenchic has been the high costs of producing broiler chicken in Kenya. One of the reasons of this is the relatively small scale of operations, where the biggest farmer has 20,000 birds per shed, while in Asia normal units have around 50,000 birds per shed. Secondly, poultry feed is 50% maize, which is also the main staple food for Kenyans and production costs are high. A bag of maize in Kenya sells for around Ksh. 1400.00 while in Uganda it is about Ksh.700.00. This means the dressed chicken sell at Ksh. 180/= per kilo while frozen chicken from the USA or Brazil currently retails at half the price. Kenchic, together with the feed industry and local universities, has been looking at alternative sources of raw materials which can be used in feed formulation. So far, this is in the initial stages of development. The company is also encouraging farmers to expand their operations so that the unit cost comes down.

In 2000, the company started to look for a type of chicken which would not take as long to nurture as the local one and would also be more resilient. Since research is not cheap, it did not want to get involved with major breeding programmes that involve considerable selection issues. Instead, Kenchic introduced a new chicken breed, Kenbro from France, into the Kenyan market where it partnered with a French organic foods business. In the beginning commercial farmers were not interested in this new bird, which was white. The demand was for a red coloured one so that it would not become prey to other animals. One big lesson here for the company was that it should have listened to or learned from the farmers on exactly what was needed. Kenbro is now a red feathered bird with both broiler and layer characteristics. After the colour change, Kenchic experimented with small groups of women to see how Kenbro would be received. With an initial positive response from these women, other farmers also saw the benefits and Kenbro started taking off in Kenya. With this domestic success behind it the company is now exporting to Sudan, Tanzania and Somalia. It is also trying to increase the sale of Kenbro meat in local supermarkets since the taste is very similar to indigenous chicken and the company is confident that in time consumers will buy it as indigenous chicken.

5. DISCUSSION: A COMPARATIVE LOOK AT INNOVATION RESPONSE CAPACITY

What do these cases tell us about innovation response capacity? Despite some differences it seems there are considerable similarities in the experience of both companies. These may be outlined as follows:

- a) **Role of Government:** The first clear point to make is that the public sector, as a whole, has not played the positive enabling role that one might expect to see in an emergent economic system. Leaving aside issues associated with parastatal mismanagement and failure there seems to have been little interaction with the university and research sector. Nor has veterinary services provision been obtainable for public sources. Instead both companies have sought out international sources of relevant technology. Both have established their own laboratories to deal with recurrent issues such as avian influenza and RVF. Indeed the fact that it was one of these companies that organised a relevant stakeholders meeting on the RVF issue is telling. Should such action not normally be initiated by government? Equally we might expect to have seen some government response to help alleviate high input costs resulting from drought and other stresses, or to assist in the provision of quality control and traceability measures needed for wider export markets. Instead both companies have been effectively on their own and have sought suitable expertise where necessary on their own initiative. Looked at from this standpoint they appear to have coped quite well.
- b) **Diversification and Innovation:** Like many developing countries the market context has often been unstable. Initially markets were driven by demands from the tourist sector but factors like political trauma caused by bombings and disease outbreaks have encouraged both companies to diversify their production. Both have begun to make inroads into the Middle East export market (e.g., on Halal products for the Muslim market) and both have diversified their products quite considerably. For example, the Farmer's Choice development of cheaper but acceptable products like "Smokies" to cater for poor consumers without means to preserve food has clearly been an important innovation. In fact both companies have shown evidence of entrepreneurship in their respective responses to challenging contexts.

- c) **International Technical Contacts:** Both companies have made positive efforts to solicit technical services and related expertise from outside Kenya. The association between Kenchic and Aviagen for the provision of quality assured layer chicks is a good example of a strategy that is bound to have had spin-off impacts on the wider commercial system. Similarly the search for and subsequent exploitation of new breeding stock (in this case from Brazil) for pig production by Farmer's Choice is an excellent example of a company being proactive in response to hard commercial challenges and, in this way, improving local technological capacities.
- d) **Developing the National Innovation System:** Both companies now operate contract farming schemes and by so doing have acted as key nodes in the development of technological and production capacity. For example, besides supplying breeding stock Kenchic supplies training, shed design systems and other veterinary support to around 65 contract farmers in Kenya. And although much of the subsequent output is sold back to Kenchic the farmers themselves have begun to market around 30% of their output to independent outlets with good quality assurance through the Kenchic connection. One would expect to see at least some economic development occurring through channels such as this. In addition the greater focus on traceability and quality control has enabled Kenchic to expand into the South African owned fast food market outlets in Kenya. A similar story is evident from Farmer's Choice's experience.
- e) **Building Social Capital:** Kenya is a country that has been traditionally differentiated along ethnic lines, leading to significant issues of trust. Both companies are aware that it is a potential problem and both have employed strategies where being part of the company is seen to be important. In other words attempts have been made to build a "shared identity" for company employees (e.g., of being part of the Farmer's Choice Family). For example, Kenchic claims that its strategy of employing local people as managers has helped to create the "higher" identity of being "Kenyan". Also in Farmer's Choice, a sense of "belonging" and being "part of team" has been encouraged through mechanisms such as the publication of an in-house magazine. It is at least arguable that such company policies have been useful in developing response capacity through building relevant learning and tacit knowledge among employees.

- f) **Consumer Links:** Besides the creation of trust and collaboration among employees, creation of trust among consumers is an equally important element of social capital. In this way customers can have complete confidence in the quality and safety of products. Indeed both companies are aware of the fact that when the meat is properly handled, the pay-offs are higher. And so satisfying demands of consumers and providing quality products have always been an important challenge for both companies. These attributes are ensured by both companies having clear quality and food safety standards through the Hazard Analysis Critical Control Point (HACCP). Also that is why both exhibit vertical integration, owning both animal breeding level and meat processing levels, while establishing production contracts with growers.
- g) **Other Patterns of Interaction [See also Tables and Figures 1 and 2 in the Appendix]:** One of the key properties of a viable innovation system is the degree of interaction that is built up across a variety of stakeholder bodies. There is clear evidence from both companies that steps have been taken to build this up, although building trust and networks with outside counterparts has been easier than with the national public sector counterparts. But both companies have made efforts to learn through interaction. For example, we have seen how Kenchic experimented with local women to determine the acceptability of a new breed of chicken imported from overseas and how it is company policy to make regular visits to sales outlets.

6. CONCLUSIONS

This discussion paper has explored the notion of innovation response capacity using case studies of two Kenyan firms. Both cases summarise the experiences of companies in the meat processing sector. We have defined *innovation response capacity* as the ability to respond to sudden changes in the socio-economic context through continuous innovation, i.e., through the capacity to introduce new products, accessing new inputs, using new processes and addressing new consumer demands. And we have used as our conceptual framework a recently published World Bank (2006) study that set out the characteristics of a viable innovation system in low income countries.

The two cases analysed appear to tell a story of slow but persistent development despite periodic crises and with little help from a government sector that has been moribund, to say the least. In this way the private sector has taken the initiative in looking for solutions and strengthening its capacity to adapt constructively to challenges. Particularly important has been the companies' interactions with international stakeholder groups. These have allowed them not only to access new market opportunities but also to gain access to up-to-date inputs and technologies. In turn this appears to have encouraged both companies to concentrate increasingly on quality control and in-country vertical integration. And so their capacity to respond to demands from consumers, local, regional and in international markets has also become stronger. Similarly steps have been taken to build social capital as a response to the drawbacks of a national culture in which issues of distrust are always present.

In short our cases tell a story of firms using their own initiative to compensate for many of the problems of underdevelopment. Of course the story is by the same token also one of a public sector that does not do its expected job of creating a supportive environment for economic development. This is so since many of the challenges faced by the companies could have been eased considerably by appropriate government inputs and related policy interventions at different times. The conclusion must, therefore, be that the public sector has a role to play in facilitating the innovation capacity of the whole system. We outlined above in Section 2 examples from the Far East and Latin America of how this can be done. But there are many other institutional innovations like foresight exercises, for example, that have

been introduced across the industrialised world as well. The point surely is that an embryonic private sector should not be left on its own if the stated national aim is developmental. Innovation response capacity also requires government investment in relevant institutional reforms. There is no shortage of examples of how this may be done. The main problem is the political will to do something about it.

APPENDIX: TABLES AND FIGURES

Table 1. Innovation Response to Different Challenges: Linkages to Different Actors —Farmer’s Choice

Challenges	Innovation Response	Public Local R&D	Private	International	Quality control and Regulatory Agencies	Farmers	Industry Associations
Quality safety issues	HACCP			■	■		
Feed costs	In progress	■					
Local consumers	Smokies Other product choices besides pork		■			■	
International Consumers	High quality products			■			
Disease issues	Brazilian pigs			■			

Table 2. Innovation Response to Different Challenges: Linkages to Different Actors — Kenchic

Challenges	Innovation Response	Public Local R&D	Private	International	Quality control and Regulatory Agencies	Farmers	Industry Associations
Quality safety issues	HACCP			■	■		
Feed costs	Search for New feed types		■				
Local consumers	Kenbro			■		■	
International Consumers	High quality products			■			
Disease issues	Trust (from consumer that the products are safe)	■	■	■	■	■	■

Figure 1 The Intensity of Relations in Farmer's Choice

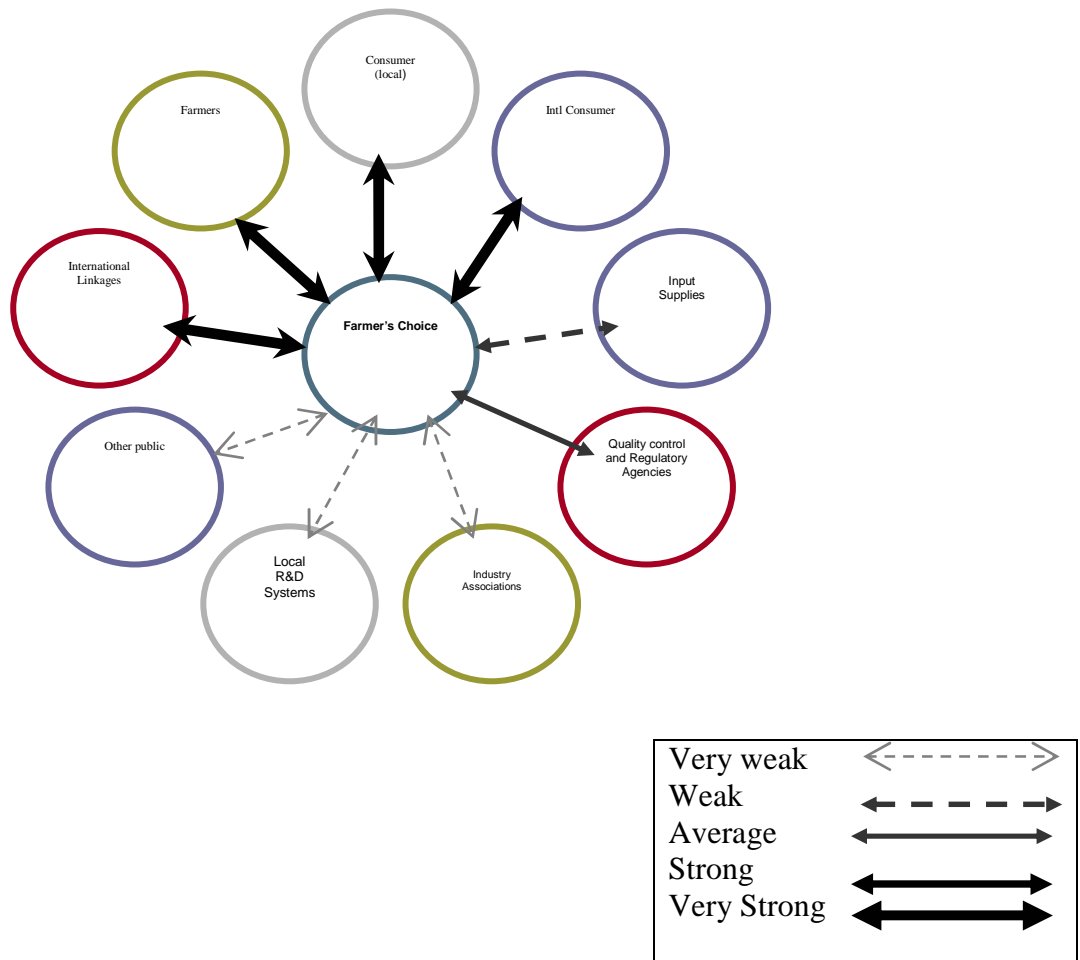
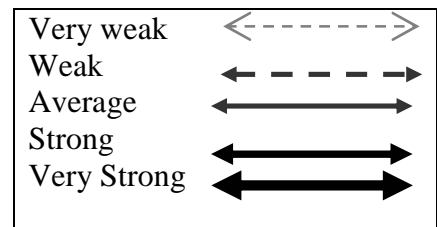
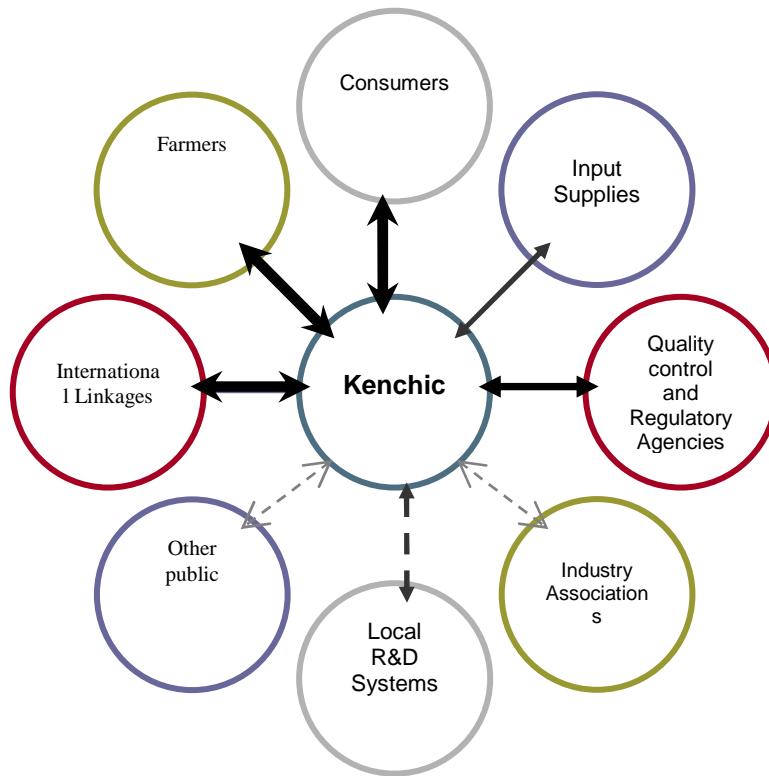


Figure 2 The Intensity Of Relations In Kenchic



REFERENCES

- Aklilu, Yacob (2002). "An audit of the livestock marketing status in Kenya, Ethiopia and Sudan." Prepared for AU-IBAR and PACE.
- Eisenhardt, K.M. and Martin, J.A. (2000). 'Dynamic capabilities: what are they?' *Strategic Management Journal*, Vol. 21, pp.1105–1121.
- Ernst, D., Ganiatos, T. and Mytelka, L. (eds.) (1998). *Technological Capabilities and Export Success in Asia*. Routledge, London and New York.
- EPZA (2005). Meat Production in Kenya. Export Processing Zones Authority.
- FAO (2004). Livestock Sector Brief, Kenya. Food and Agriculture Organization.
- Fransman M. (1995). *Japan's Computer and Communications Industry* Oxford, Oxford University Press
- Fukasaku Y. (1992). *Technology and Industrial Development in Pre-war Japan*, London. Routledge.
- Fukuda-Parr, S. Lopes, C. and Malik, K. (2002). "Capacity for Development: New Solutions to old problems." Earthscan and UNDP, London.
- Hall A.J., M.V.K. Sivamohan, N G Clark, S. Taylor and G. Bockett. (2001). "Why Research Partnerships Really Matter: Innovation Theory, Institutional Arrangements and Implications for the Developing New Technology for the Poor," *World Development*, 29:5, pp783-797.
- Hall, A.J. (2005). "Capacity Development for Agricultural Biotechnology in Developing Countries: An Innovation Systems View of What It Is and How to Develop It." *Journal of International Development* 19(5): 611-630.
- Hobday, M. (1990), *Telecommunications in Developing Countries: The Challenge from Brazil*, London: Routledge.
- Lall, S. (1992). Technological capabilities and industrialization, *World Development*, 20 (2):165–186.
- Lall, S. (2004). Stimulating industrial competitiveness in Sub-Saharan Africa: Lessons from East Asia on the role of FDI and technology acquisition. Paper prepared for the World Bank for the NEPAD/TICAD Conference on Asia-Africa Trade and Investment. Tokyo International Conference on African Development 31October–2 November 2004.
- Lundvall, B.-Å. (ed.). (1992). "National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning". London: Pinter.

Malerba, Franco (2004). “Sectoral Systems: How and Why Innovation Differs across Sectors”, in *The Oxford Handbook of Innovation*, pp. 380-407, OUP 2004.

Teece, D.J., Pisano, G. and Shuen, A. (1997). ‘Dynamic capabilities and strategic management’, *Strategic Management Journal*, Vol. 18, No. 7, pp.509–533.

World Bank. (2002). *World Development Indicators CD-ROM*. The World Bank. Washington, D.C.

World Bank (2006) “Enhancing Agricultural Innovation: How to Go Beyond the Strengthening of Research Systems.” World Bank, Washington, D.C.

The UNU-MERIT WORKING Paper Series

- 2008-01 *Science, Technology and Development: Emerging concepts and visions* by Luc Soete
- 2008-02 *Reframing technical change: Livestock Fodder Scarcity Revisited as Innovation Capacity Scarcity. Part 1. A Review of Historical and Recent Experiences* by Andy Hall, Rasheed Sulaiman V., Mona Dhamankar, Peter Bezkorowajnyj & Leela Prasad
- 2008-03 *Reframing technical change: Livestock Fodder Scarcity Revisited as Innovation Capacity Scarcity. Part 2. A Framework for Analysis* by Andy Hall, Rasheed Sulaiman, V. and Peter Bezkorowajnyj
- 2008-04 *Reframing technical change: Livestock Fodder Scarcity Revisited as Innovation Capacity Scarcity. Part 3. Tools for Diagnosis and Institutional Change in Innovation Systems* by Andy Hall, Rasheed Sulaiman and Peter Bezkorowajnyj
- 2008-05 *Is Inter-Firm Labor Mobility a Channel of Knowledge Spillovers? Evidence from a Linked Employer-Employee Panel* by Mika Maliranta, Pierre Mohnen & Petri Rouvinen
- 2008-06 *Financial Constraints and Other Obstacles: Are they a Threat to Innovation Activity?* By P. Mohnen, F.C. Palm, S. Schim van der Loeff and A. Tiwari
- 2008-07 *Knowledge-based productivity in 'low-tech' industries: evidence from firms in developing countries* by Micheline Goedhuys, Norbert Janz and Pierre Mohnen
- 2008-08 *The Voyage of the Beagle in Innovation Systems Land. Explorations on Sectors, Innovation, Heterogeneity and Selection* by Martin Srholec & Bart Verspagen
- 2008-09 *Crafting Firm Competencies to Improve Innovative Performance* by Boris Lokshin, Anita van Gils & Eva Bauer
- 2008-10 *The Economics and Psychology of Personality Traits* by Lex Borghans, Angela Lee Duckworth, James J. Heckman & Bas ter Weel
- 2008-11 *Embedding Research in Society: Development Assistance Options for Supporting Agricultural Innovation in a Global Knowledge Economy* by Andy Hall
- 2008-12 *Playing in Invisible Markets: Innovations in the Market for Toilets to Harness the Economic Power of the Poor* by Shyama V. Ramani
- 2008-13 *Explaining Success and Failure in Development* by Adam Szirmai
- 2008-14 *Running The Marathon* by William Cowan, Robin Cowan and Patrick Llerena
- 2008-15 *Productivity effects of innovation, stress and social relations* by Rifka Weehuizen, Bulat Sanditov and Robin Cowan

- 2008-16 *Entrepreneurship and Innovation Strategies in ICT SMEs in Enlarged Europe (EU25)* by Kaushalesh Lal and Theo Dunnewijk
- 2008-17 *Knowledge Transfers between Canadian Business Enterprises and Universities: Does Distance Matter?* By Julio M. Rosa & Pierre Mohnen
- 2008-18 *Multinationals are Multicultural Units: Some Indications from a Cross-Cultural Study* by Nantawan Noi Kwanjai & J. Friso den Hertog
- 2008-19 *The Innovativeness of Foreign Firms in China* by Branka Urem, Ludovico Alcorta and Tongliang An
- 2008-20 *Beyond the emission market: Kyoto and the international expansion of waste management firms* by Ionara Costa, Asel Doranova and Geert-Jan Eenhoorn
- 2008-21 *The 'making of' national giants: technology and governments shaping the international expansion of oil companies from Brazil and China* by Flavia Carvalho and Andrea Goldstein
- 2008-22 *If the Alliance Fits . . . : Innovation and Network Dynamics* by Robin Cowan & Nicolas Jonard
- 2008-23 *Facing the Trial of Internationalizing Clinical Trials to Developing Countries: With Some Evidence from Mexico* by Fernando Santiago-Rodriguez
- 2008-24 *Serving low-income markets: Rethinking Multinational Corporations' Strategies* by Shuan SadreGhazi and Geert Duysters
- 2008-25 *A percolation model of eco-innovation diffusion: the relationship between diffusion, learning economies and subsidies* by Simona Cantono and Gerald Silverberg
- 2008-26 *New Europe's Promise for Life Sciences* by Sergey Filippov and Kálmán Kalotay
- 2008-27 *A closer look at the relationship between life expectancy and economic growth* by Théophile T. Azomahou, Raouf Boucekkine, Bity Diene
- 2008-28 *Regional Capital Inputs in Chinese Industry and Manufacturing, 1978-2003* by Lili Wang & Adam Szirmai
- 2008-29 *Worker remittances and government behaviour in the receiving countries* by Thomas Ziesemer
- 2008-30 *Strategic motivations for Sino-Western alliances: a comparative analysis of Chinese and Western alliance formation drivers* by Tina Saebi & Qinqin Dong

- 2008-31 *Changing Configuration of Alternative Energy Systems* by Radhika Bhuyan and Lynn Mytelka
- 2008-32 *Promoting clean technologies: The energy market structure crucially matters* by Théophile T. Azomahou, Raouf Boucekkine, Phu Nguyen-Van
- 2008-33 *Local Knowledge Spillovers, Innovation and Economic Performance in Developing Countries: A discussion of alternative specifications* by Effie Kesidou and Adam Szirmai
- 2008-34 *Wage effects of R&D tax incentives: Evidence from the Netherlands* by Boris Lokshin and Pierre Mohnen
- 2008-35 *Cross-border Investment and Economic Integration: The Case of Guangdong Province and Hong Kong SAR* by Naubahar Shari and Can Huang
- 2008-36 *Radical versus non-radical inventions* by Wilfred Schoenmakers, Geert Duysters & Wim Vanhaverbeke
- 2008-37 *Localized Innovation, Localized Diffusion and the Environment: An Analysis of CO₂ Emission Reductions by Passenger Cars, 2000-2007* by Bart Los and Bart Verspagen
- 2008-38 *The economic impact of AIDS in sub-Saharan Africa* by Théophile T. Azomahou, Raouf Boucekkine, Bity Diene
- 2008-39 *Further results on bias in dynamic unbalanced panel data models with an application to firm R&D investment* by Boris Lokshin
- 2008-40 *A multilevel analysis of innovation in developing countries* by Martin Srholec
- 2008-41 *Experimentation with strategy and the evolution of dynamic capability in the Indian Pharmaceutical Sector* by Suma Athreye, Dinar Kale & Shyama V. Ramani
- 2008-42 *The Impact of Social Capital on Crime: Evidence from the Netherlands* by I.Semih Akcomak and Bas ter Weel
- 2008-43 *Portrait of an Odd-Eyed Cat: Cultural Crossing as a Trademark for a Dutch-Thai Strategic Alliance* by Nantawan Noi Kwanjai & J Friso den Hertog
- 2008-44 *The challenge of measuring innovation in emerging economies' firms: a proposal of a new set of indicators on innovation* by Luciana Manhães Marins
- 2008-45 *Intra-firm Technology Transfer and R&D in Foreign Affiliates: Substitutes or Complements? Evidence from Japanese Multinational Firms* by Rene Belderbos, Banri Ito, Ryuhei Wakasugi

- 2008-46 *To Be or Not to Be at the BOP: A One-North-Many-Souths Model with Subsistence and Luxury Goods* by Adriaan van Zon and Tobias Schmidt
- 2008-47 *Habit Formation, Information Exchange and the Social Geography of Demand* by Zakaria Babutsidze and Robin Cowan
- 2008-48 *Agenda Disputes and Strategic Venue Preferences: The Doha Crisis and Europe's Flight to Regionalism* by Francisco P. Toro
- 2008-49 *The determinants of the outward foreign direct investment of China and India: Whither the home country?* by Paz Estrella Tolentino
- 2008-50 *Comparing Chinese and the Indian Software MNCs: Domestic and Export Market Strategies and their Interplay* by Jorge Niosi and F. Ted Tschang
- 2008-51 *Internationalising to create Firm Specific Advantages: Leapfrogging strategies of U.S. Pharmaceutical firms in the 1930s and 1940s & Indian Pharmaceutical firms in the 1990s and 2000s* by Suma Athreye and Andrew Godley
- 2008-52 *Internationalization and Technological Catching Up of Emerging Multinationals: A Case Study of China's Haier Group* by Geert Duysters, Jojo Jacob and Charmianne Lemmens
- 2008-53 *India's Outward Foreign Direct Investments in Steel Industry in a Chinese Comparative Perspective* by Nagesh Kumar and Alka Chadha
- 2008-54 *Internationalization Trajectories – a cross country comparison: Are Large Chinese and Indian Companies different?* By Fabienne Fortanier and Rob van Tulder
- 2008-55 *Europeanisation strategy of Chinese companies: It's perils and promises* by Sergey Filippov and Tina Saebi
- 2008-56 *Public capital, income distribution and growth* by Yoseph Yilma Getachew
- 2008-57 *Growth with Endogenous Migration Hump and the Multiple, Dynamically Interacting Effects of Aid in Poor Developing Countries* by Thomas Ziesemer
- 2008-58 *Nanotechnology Publications and Patents: A Review of Social Science Studies and Search Strategies* by Can Huang, Ad Notten and Nico Rasters
- 2008-59 *When a good science base is not enough to create competitive industries: Lock-in and inertia in Russian systems of innovation* by Rajneesh Narula and Irina Jormanainen

- 2008-60 *Alliance block composition patterns in the microelectronics industry* by Geert Duysters & Charmianne Lemmens
- 2008-61 *FDI and Innovation as Drivers of Export Behaviour: Firm-level Evidence from East Asia* by Ganeshan Wignaraja
- 2008-62 *Russia's Emerging Multinationals: Trends and Issues* by Sergey Filippov
- 2008-63 *Working remittances, migration, accumulation and growth in poor developing countries* by Thomas H.W. Ziesemer
- 2008-64 *The Innovative Performance of Alliance Block Members: Evidence from the Microelectronics Industry* by Geert Duysters, Charmianne Lemmens, Wilko Letterie and Wim Vanhaverbeke
- 2008-65 *Formal and informal external linkages and firms' innovative strategies. A cross-country comparison* by Isabel Maria Bodas Freitas, Tommy Clausen, Roberto Fontana and Bart Verspagen
- 2008-66 *The Heterogeneity of MNC' Subsidiaries and Technology Spillovers: Explaining positive and negative effects in emerging economies* by Anabel Marin and Subash Sasidharan
- 2008-67 *EU enlargement and consequences for FDI assisted industrial development* by Rajneesh Narula and Christian Bellak
- 2008-68 *Private Capacity and Public Failure: Contours of Livestock Innovation Response Capacity in Kenya* by Ekin Keskin, Mirjam Steglich, Jeroen Dijkman and Andy Hall