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ASSESSMENT OF E-MARKETING STRATEGIES AMONG AGRIBUSINESS FIRMS IN OTA METROPOLIS, OGUN STATE, NIGERIA

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Abstract: Many firms have high-level patronage of ICT in order to promote their businesses. Therefore, modern distribution of farm products is been shifted from paper-based, people-intensive marketing systems towards electronic-based procedures that rely on Internet communications and web-enhanced software tools. The objective of this paper is to assess the e-marketing strategies among agribusiness firms in Ota metropolis of Ogun state, Nigeria. A questionnaire was prepared based on the review of current literature and distributed to 120 employees of agribusiness firms in Ota metropolis, which have adopted the e-marketing strategy. Data collected were analyzed using descriptive statistics, difference of means (t-test), OLS regression analysis and ANOVA. The study found out that larger agribusiness firms adopted more e-marketing strategies than smaller ones and that a significant relationship existed between relative effect of types and years of establishment of agribusiness firms on adoption of e-marketing distribution services. The study recommended among others that managers and operators of agribusinesses should be exposed to more enlightening programmes for increased revenue and ranking of their businesses.

INTRODUCTION

The rapid development of e-marketing presents challenges and opportunities to agribusiness at all levels of the channel as they develop their distribution strategies (Ilorah, 2002). This challenge is especially difficult given the seemingly continual flow of new information technology and software applicants (Haag et al, 2004). Nevertheless, agribusiness firms are forging ahead with their e-marketing strategies, in part fearing they will lose customers to competitors if they do not conform to the latest trend. E-marketing is not limited to the sales of goods or services via the Internet. It includes, yet is not limited to, the distribution of company information, marketing and product promotion, after-sales service, inventory management, and logistics.

STATEMENT OF THE RESEARCH PROBLEM

The commercialization of the Internet has caused agribusiness firms to rethink their distribution channel. In this modern age, E-marketing provides firms with the ability to reach new customers and old customers in new, efficient and faster ways. In the same vein, e-marketing also allows firms to tap new and old suppliers through new and innovative channels. These possibilities have raised the expectations of improved efficiency and substantial cost savings.

The process and function view of the supply-chain is used to guide the analysis into Internet-e-marketing adoption by agribusiness firms. Manager's perception of the impact of Inter-e-commerce strategies on the five functions of the supply-chain is expected to influence the likelihood of Internet/e-commerce adoption. The ability of the Internet to reduce transaction costs through improvements in transaction, information, and negotiation functions of the supply-chain is associated with higher probabilities of Internet/e-commerce adoption amongst agribusiness firms. The ability of Internet/e-commerce strategies to reduce production costs arising from the logistics and promotion functions also encourages Internet/e-commerce adoption. Yet, larger firms with an international scope are most likely to readily implement Internet/e-commerce strategies.

Customers and competitive arena are driving agribusiness to adopt individualized solutions that enable them to bring together product, service, and information in unique ways. Advances in information technology facilitate delivering these customized bundles to customers. In practice, decisions regarding channel structure and strategy, particularly with respect to new technologies such as internet, can be critical to firms' success or failure (Wu, Mahajan and Balasubramanian, 2003). Surprisingly, given the significant body of research in this area, there is little empirical work that provides insights as to how firms' e-marketing strategies may evolve overtime. Moreover, there is lack of research that examines the drivers of this evolution. Insight into these areas will help guide theory building and managerial understanding of e-marketing strategy across multiple channels.

OBJECTIVES

The purpose of this study is to explore the activities of e-marketing and distribution channel strategies among agribusiness firms in Ota metropolis. The specific objectives of this research are:

- To examine the effect of e-marketing on the agribusiness distribution channel.
- To ascertain the roles that manufacturers, distributors, and the dealers need to play in the new environment of electronic exchange.
- To determine the factors that guide the adoption of e-marketing strategies by agribusiness firms in Ota metropolis.
- To highlight the e-marketing challenges that are inherent in the traditional system strategies.

In order to provide answers to the objectives, the following hypotheses were tested:

Hypothesis 1

That the relationship between e-marketing strategies and manager perceptions on the barriers is positive and high.

Hypothesis 2

That the large agribusiness firms adopt more e-marketing and distribution strategies than small agribusiness firms.

Hypothesis 3

There is a significant relative effect of types and years of establishment of agribusiness firms on prediction of adoption of e-marketing distribution strategies.

REVIEW OF RELATED LITERATURE

This section discusses the benefits of e-marketing, marketing, transaction costs, and channel choice, and keys to success in e-marketing

The Meaning and Benefits of E-Marketing in Small Business in Nigeria:

E-marketing "is any process that a business organization conducts over a computer-mediated network". It refers to exploiting the combined power of the Internet and information technology to fundamentally transform key business strategies and processes (Jones, 2002). In a world where the information technology is changing the way businesses are conducted, the decision to start an e-marketing is not something that one can postpone for the future. Today, e-marketing is not only a good business idea, but "it is a business imperative, because it brings fundamental alterations to the way entire business relationships are conducted" (Asikhia, 2009). Compared to large corporations, small businesses are characterized by limited market, small capacity and resources, as well as operate in a less complex organizational structure. Their survival can be en-

hanced if they develop the knowledge and strategy that could improve their existence in the new Internet economy. Undoubtedly, access to the Internet and the low costs of telecommunication now allow them to use the global network, which was once only the proprietary of large international corporations. Especially, by applying e-marketing, agribusiness would be able to create new market channels at the local level, capture global markets, sell to international customers and compete favourably with large corporations (Poon, 1999). The transformation to online marketing would also enable them to overcome psychological, operational, as well as organizational and market barriers.

The last few years have shown that small businesses used the Internet (1) to communicate and do business with partner firms, (2) to buy and sell products and services, and (3) to communicate with government and other agencies. There are hundreds of thousands of products that can, in principle, be marketed on the Internet. But not all products are suitable for e-marketing. Product characteristics like size and bulk relative to value, perishability, and popularity and uniformity of the product affect the transformation to online marketing. E-marketing can in fact create or facilitate new products not previously available. Therefore one important factor for agribusiness firms is to identify products that are suited to market on the Internet. They need to understand that, depending on the type of product, e-marketing alters the shopping experience, the way the product is sold or purchased, and the distribution system of the product (Coviello et al, 2002). Reaching out to global marketplace also involves logistics, delivery, maintenance, support and other services. According to Poon (1999), if a small business is not properly prepared for international markets, it can jeopardize its reputation as an Internet business. Therefore, like any other business, building and maintaining successful E-marketing sites requires prior serious thoughts and an approach implying planning, commitment and management supported by technology, process and structure. It is very essential to make sure that all the right pieces are in place before going live on the Internet.

BENEFITS OF E MARKETING

Small businesses are the powerhouse of Nigeria's private sector. The Web has become an established business tool that changes the way we transact and do business. To develop the information society in Nigeria, small business must take advantage of the opportunities offered by ICT and e-business. According to (Liebowitz, 2002), some of these benefits include among others the following:

1. Availability of timely information for management and decision-making
2. Better performance through increased efficiency.
3. Reduced costs. Lower inventory costs, lower supply costs.
4. Enhanced labour productivity and low staff costs.
5. Flexibility to work at your own pace, anywhere, anytime. The small businessperson can take total control of the business. Businesses can be grown and managed at the owners' pace.
6. Startup costs are low compared to the brick and mortar environment. Businesses require minimal infrastructure for startup. In other words, businesses can be operated from the comfort of the owners' minimal startup infrastructure or even at home. There may be no need to rent an office.
7. The Internet and Internet technologies are used to communicate and transact with external customers and suppliers. And the business is available 24 hours a day which implies 100% availability.

8. Global reach to more customers. All organizations can operate in the global environment and take advantage of global networks and markets. Business products can reach the whole world from anywhere the business is being operated and managed. Customers, foreign investors, partners are just a click away.
9. The new environment enables the creation of new business value, while enabling new relationships. Businesses are able to interact and transact business with new and different customers and partners.
10. Ideas and creativity count more than size and physical infrastructure. Huge growth potential with the ability to transform information into knowledge.
11. It provides the ability to understand the customer better by testing and tracking the performance of offers and the activities of customers. Accurate Knowledge and understanding of customers can be used to enhance customer value.
12. Promotional costs to get new customers are much lower than what it costs using traditional media. Web advertising and promotions are inexpensive, making it easy to market products and services on the Web.
13. It also allows for electronic delivery of products and services (such as publications, software, music, video, consulting and banking).

MARKETING, TRANSACTION COSTS AND CHANNEL CHOICE

Reductions in transaction costs are motivating businesses to incorporate the Internet into their business strategies (Winklhofer and Diamantopoulos, 2002). Damisa (2007) differentiates transaction costs from production costs by defining transaction costs as the “cost of running the economic system” while production costs are “the cost category with which neoclassical analysis has been preoccupied” (Oladapo et al, 2007). Thus, transaction costs are the frictions associated with the economic system.

Changes in agribusiness are placing increased importance on the friction in the agribusiness marketplace. One friction of doing business that has increased in importance is the gathering, exchange, and use of information. The ability to distribute and locate information easily over the Internet is leading some firms and customers to engage in e-commerce transactions. Today’s economy is also more global, thereby bringing new players and more options into the market. Frictions arise in building new relationships, altering old ones and generating convenience of exchange in the new economic environment. The Internet provides a channel in which to build relationships and generate convenient transactions with a larger, more geographically diverse customer base (Johnson, 1999). In addition, the Internet may allow existing relationships and channels to function more efficiently.

Traditionally, distribution channel choice focuses on physical delivery and logistics as managers emphasized inventory management and transportation/shipping (Ahmed, 1992). The concept of a supply-chain has extended this traditional viewpoint by incorporating marketing, information access, and relationship building into the channel choice function (Johnson, 1999).

The distribution channel may be viewed as the processes or functions performed by the supply-chain (William, 2000). Recognition of these processes and the interrelationship among business participants allows companies to generate efficiencies through coordination within these processes. Channel choice decisions are guided by the search for improved efficiency in the seven processes of the supply-chain described below.

Table 1: The Function/Process View of the Distribution Channel

		Production			Transactions		
Process/ Participants	Manufactur- ing/ Processing	Logistics	Promotion	Financing	Information	Transaction	Negotiation
Manufacturers	X	X			X	X	X
Agents/Brokers		X	X	X	X	X	X
Wholesalers		X			X	X	X
Third Party Logistics Agencies		X		X	X	X	X
Financial Service Agencies				X	X	X	X
Dealers		X	X		X	X	X
Customers					X	X	X

Source: William C. Copacino, 2000

Four of the seven functions, manufacturing/processing, logistics, promotion, and financing, relate to Williamson's concept of production costs in a supply chain. The ability of e-marketing to improve the efficiency of these functions will encourage the implementation of e-marketing strategies by agribusiness firms.

Businesses exist to transform inputs into outputs. Manufacturing/processing is the physical process of transforming procured inputs into single or multiple outputs. Logistics is the channel process which is key to linking the supply chain. Inventory management and customer support are chief concerns among businesses as they strive to improve the efficiency in their logistics systems (William, 2000). The coordination of transportation and shipments are other focal points of improved efficiency. Promotion of products is the next process performed in a supply-chain. Businesses engage in marketing and advertising to promote their product, provide information, and make product recommendations. Promotion allows businesses to improve sales by reaching segmented end-users (William, 2000). Financing is fourth function in the supply-chain as businesses raise funds to finance projects.

The remaining three aspects, information, transaction, and negotiation, are part of transactions costs. Information processes in the distribution channel or supply chain are gaining in importance, as the economy is becoming more knowledge based. Gathering, exchanging, and using information is a major business cost (Oladapo et al, 2007). Information asymmetries that have led to higher profit markets are now being eroded with better and more efficient access to information (Brady et al, 2002). Businesses are recognizing that they are competing not only on the basis of products and services, but also on information control and asymmetries. Strategies that improve information gathering and dissemination are more likely to be implemented. Increasing the exchange of information is also critical in production activities.

Transaction processes in a supply-chain deal with the procurement of goods and services. Improved low-cost communication is improving the efficiency of the transaction process. The costs of payment flows have declined with electronic payments (William, 2000). However, some customers have concerns regarding the security and privacy of e-marketing transactions.

Negotiation is a key aspect to a successful supply-chain (William, 2000). Communication among transaction participants occurs throughout the system. Automation of purchasing functions has smoothed the negotiation function (William, 2000). However, the ability to develop relationships can improve negotiations among participants in the supply-chain. Trust and community building improve efficiency in the supply chain (Ayoola, 2001).

E-MARKETING AND INTERNET USE IN AGRIBUSINESS FIRMS: TRENDS AND ISSUES

The way we buy and sell goods is rapidly changing. Remarkable advances in the use of the Internet in recent years have been the driving forces in shaping the new economy and changing our society (Agudu, 2002). Removing traditional boundaries of time and space and providing opportunities of global reach for any type of business, the Internet has become a new way to expand existing business opportunities or to start a new venture. Given the current business trends and predictions, an Internet presence of a business is likely to be necessary. The chance of future survival of small and rural businesses especially depends on their capabilities to use Internet services that give them access to new markets, better business practices, enhanced competitiveness and greater chances to success.

In the past few years, the FRA/ERE project facilitated and co-sponsored entrepreneurs training programs that included Internet marketing workshops in different counties (e.g. Roscommon and Clinton counties). One of the objectives of the workshops was to introduce E-commerce to entrepreneurs desiring to have web-based businesses and local public service agencies wanting to use the Internet to provide efficient services.

A survey conducted by eTForecasts (2003) indicates that in the past few years Internet access has grown significantly in all regions of the world, rising from a global Internet population of 544 million in 2001 to 665 million in 2002. It is estimated that global Internet access will reach one billion by 2005. The main increases, however, will come from developing countries which are now nurturing and promoting their local information technology sector and focusing on forming alliances with the big multinational Internet players. According to the 2003 eTForecasts, the top five online nations in terms of Internet usage are the US (161 million), China (55 million), Germany (30 million) and the UK 27 million). These developments in computer and Internet access reflect the fact that the Internet is becoming not only an increasingly vital tool in the information society but also a critical element of the national economic policy. Each year, being digitally connected becomes ever more critical to businesses, government agencies and communities. Now that a large part of the society uses the Internet to conduct daily activities, businesses, government agencies and public representatives that lack access to these tools are at a growing disadvantage. "Therefore, raising the level of digital inclusion by increasing the number of Nigerian using the technology tools of the digital age is a vitally important national goal" (Liebowitz, 2002).

These successes in Internet use are partly attributed to the technological advances that made powerful and inexpensive personal computers (PCs) and servers easily available. Especially technological advances in microprocessors, storage, and other components in the past decade have accelerated price declines for computers and peripheral equipment as well as for communications equipment.

The most popular use for the Internet is still e-mail. According to a report by the U.S. Department of Commerce (emarketer, 2003) email (84%), product or service information search (67%), news, weather and sports (62%), playing games (42%) and product or service purchases (39%) are the top five activities of Americans online.

According to Mesenbourg (2001), any electronic business has the following three primary components; E-business Infrastructure, E-business, and E-commerce. He defines E-business infrastructure as "the share of total economic infrastructure used to support e-business processes and conduct electronic commerce. It includes hardware, software, telecommunication networks,

support services, and human capital used in electronic business and commerce”. Examples include computers, telecommunication networks, other hardware, as well as system and application software.

Business organizations include any for-profit, governmental, or nonprofit entity. Their processes include production -, customer-, and internal or management-focused business processes. Examples of major e-business process-categories include online purchasing, selling, production management, logistics, as well as internal communication and support services. E-commerce is “any transaction completed over a computer-mediated network that involves the transfer of ownership or rights to use goods or services. Transactions occur within selected E-business processes (e.g., selling process) and are completed when agreement is reached between the buyer and seller to transfer the ownership or rights to use goods or services”. Since businesses and online consumers use the Internet for a wide variety of activities, however, it is very difficult to draw a boundary line between E-business and E-commerce.

STUDY METHODOLOGY

The following tasks were performed in order to conduct the research and determine the agribusiness firms’ perception of the impact of e-marketing strategies on distribution channel in Ota metropolis, Ogun state.

- a. A questionnaire was prepared based on the review of current literature to determine the agribusiness firms’ perception of the impact of e-marketing strategies on distribution channel.
- b. The questionnaire contained 21 questions related to factors that guide the adoption of e-marketing strategies by firms, roles of manufacturers, distributors and dealers in e-marketing, impact of e-marketing on distribution channel, and challenges facing e-marketing in the study.
- c. The questionnaire was distributed to a number of agribusiness firm’s employees in Ota metropolis of Ogun state. One hundred and twenty completed surveys were received from the firms who have adopted e-marketing strategy. Those firms who do not use e-marketing strategy in any form are not included in our study. The questionnaires were completed by the founder, general manager, marketing executives, sales representative because of their ability and understanding of the issues investigated in the questionnaire. In very few cases more than one individual representing the enterprise filled out the questionnaire-this actually ensured preciseness.
- d. Based on the 120 completed survey questionnaires, simple statistics were adopted and logical inferences were made to determine the impact of e-marketing strategies on channel of distribution of agribusiness firms in Ota metropolis of Ogun state.

RESULT AND DISCUSSION

Table 2 Correlation between e-marketing strategies and manager perceptions

Variations	N	Mean	Standard Deviation	r-observed	Sig
E-Marketing Strategies	120	16.44	4.42	0.724	<0.05
Manager Perceptions	120	14.68	3.41		

One of the most general meanings of the concept of a relationship between pairs of variables is that knowledge with regard to one of the variables carries information about the other variable.

Thus, information about e-marketing strategies would lead to more accurate guesses about manager perceptions than could be made in the absence of that information. In the effort to measure the degree of relationship between e-marketing strategies and retention among agribusiness firms the scoring indicates that the increase in one variable corresponds with increase in the other. Table 2 reveals that high positive relationship exists between the two variables. In other words, there is a significant positive relationship between e-marketing strategies and manager perceptions on the barriers ($r = 0.724$, $df = 121$ and <0.05 significant level). By implication, the first hypothesis is retained.

Hypothesis Two

That the large agribusiness firms adopt more e-marketing and distribution strategies than small agribusiness firms.

Table 3 Summary of Independent t-test

Variation	N	D f	Mea n	Sd	t- observed	Si g
Large agribusiness firms	22	18	64.42	2.17	18.58	.05
Small agribusiness firms	98		38.80	1.24		

*significant

The t value is the estimated number of standard errors between the two means of large and small agribusiness firms. The results summarized in Table 3 suggest a significant difference in the rate of e-marketing strategies adopted by large and small agribusiness. The finding reveals that large agribusiness firms adopted e-marketing strategies more than small agribusiness firms. By implication, the second hypothesis is retained at t -observed = 18.58, 118 degree of freedom and $p < 0.05$.

Hypotheses Three

There is a significant relative effect of types and years of establishment of agribusiness firms on prediction and adoption of e-marketing distribution strategies.

Table 4 Model Summary

Model	Predictors	R	R ²	Adjusted R ²	Std. Error
1	Types of agribusiness firms	.542	.29	.27	9.61
2	Years of establishment of agribusiness firms	.791	.62	.58	11.17

To test the third hypothesis, multiple regression analysis was used to regress the independent variables against dependent variable. Table 4 shows that the model summary of the multiple regression equation that predicts the adoption of e-marketing distribution strategies. The explanation of the values presented is given in Table 5.

Table 5 Summary of Analysis of Variance

Model	Variations	Sum of Squares	df	Mean Square	F	Sig.
1	Regres- sion	280	1	280	17.9 0	.00 0
	Residual	1845.52	118	15.64		
	Total	2125.52	119			
1	Regres- sion	993.4128	2	496.7064	26.8 2	.00 0
	Residual	2166.84	117	18.52		
	Total	3160.2528	119			

a Predictors: (Constant); types of agribusiness firms
(Constant); types of agribusiness firms , years of establishment of agribusiness firms
c Dependent Variable: adoption of e-marketing distribution strategies

b Predictors:

The model summary table provides useful information about the regression analysis. First, the 'multiple R' column is the correlation between the actually observed independent variables and the predicted dependent variable (i.e., predicted by the regression equation). 'R square' is the square of R and is also known as the 'coefficient of determination'. It states the proportion (percentage) of the (sample) variation in the dependent variable that can be attributed to the independent variable(s). In this study, 29% of the variations in adoption of e-marketing distribution strategies could be accounted for by types of agribusiness firms (large and small agribusiness firms). When years of establishment of agribusiness firms was added, the interface between types of agribusiness firms and years of establishment of agribusiness firms contributed 62% of the variations in adoption of e-marketing distribution strategies, in which only years of establishment contributed 33%. The hypothesis three which stated that there is no significant relative effect of types and years of establishment of agribusiness firms on prediction of adoption of e-marketing distribution strategies was retained at $R=.791$, $R^2=.62$, $F_{(2, 119)}=26.82$; $p<.05$. This implies that there is a significant relative effect of types and years of establishment of agribusiness firms on prediction of adoption of e-marketing distribution strategies.

DISCUSSION

The diffusion of the Internet has revolutionized the Ota metropolis business landscape. Not only has the Internet reconfigured the way companies do business and the way consumers buy goods and services, it has been instrumental in transforming the value chain from manufacturers to retailers to consumers, creating a new retail distribution channel (Mollenkopf, et al, 2000). The initial wave of research has investigated piecemeal components of e-marketing, notably banner advertisements and consumer information search processes (Lam et al, 2004; Johnson and Selnes, 2004; Bart et al, 2005; Thomas, 2001). What is missing from this research platform are studies that address the organizationally broader, more strategic aspect of e-marketing. From this point of view, the current findings are very timely. The finding of first hypothesis revealed a significant positive relationship between e-marketing strategies and manager perceptions on the barriers. If top management is aware of the benefits of IT infrastructure within an organization, the adoption may depend on how the barriers are perceived. Sometimes, especially in top management are people who do not use computers, simply because they do not know how to use it and are ashamed to ask how to. Managers' perceptions (Thomas, 2001) are important because they affect managers' decision-making and actions regarding the introduction of IT into their organizations (Orlikowski, 2000).

The e-marketing notion is still foreign to many managers or small business owners who have never attended a formal e-marketing course or seminar; therefore, it is plausible that many businesses are implementing the e-marketing concept without being consciously aware they are doing so. Another important factor is that other empirical studies investigating the extent of implementation of the e-marketing in large- and small-sized organizations have ignored certain basic features that make this unique concept so appropriate in the current business environment (Martin and Matlay, 2001; Simpson and Docherty, 2004; Sadowski et al, 2002; Peng et al, 2005; Chinkook L. (2005)). These studies focused primarily on the organization's understanding of buyers' needs; marketing research activities; title of the marketing research person; coordination between various departments; percent of management personnel with formal marketing education; integration of the marketing department; and integration of marketing with other depart-

ments. While these measures can provide useful insight into business activities, the crucial issue is whether these indicators are comprehensive enough to reflect the extent to which the e-marketing is implemented (particularly in smaller organizations). However, the present finding revealed a significant difference in adoption of e-marketing between large and small agribusiness firms. Further, there is a significant relative effect of types and years of establishment of agribusiness firms on prediction of adoption of e-marketing distribution strategies.

CONCLUSION

In a short period of time, e-marketing has become a facet of marketing that cannot be ignored. With some enthusiastic adopters of digital technologies such as Cisco, easyJet and IBM now achieving the majority of their sales and customer service on-line, many organizations are examining how they can best make use of this new medium. However, the medium is perhaps best known for the spectacular 'dotcom' failures such as Boo.com, Peapod, Clickmango etc. Consequently, marketers need to carefully assess the significance of e-marketing and integrate appropriately in all aspects of marketing from strategy and planning to marketing research, objectives setting, buyer behaviour, marketing communications and the marketing mix. The key phrase here is 'appropriately'. The impact of new technologies such as the Internet will vary greatly according to the existing product, market, channel structure and business model of each organization. This study assessed e-marketing strategies, within the context of selected agribusiness firms in Nigeria.

Based on the findings of this study, the following recommendations are made;

1. At the outset, it is important to decide what e-marketing strategy agribusiness firms wish to follow. If it is a small business, the most cost effective method to reach the target consumers would be through the Internet. However, if they have a localized target audience, they may explore e-marketing as a support tool for complimenting traditional advertising avenues such as print media or PR and events.
2. The three major factors that should govern e-marketing plan include:
 - The customers
 - The business objectives
 - The budget
3. Managers and operators of agribusiness should attend seminars on e-marketing. Electronic *marketing* seminar and workshop designed to teach internet *marketing* techniques, SEO, and web marketing should be attended for increased ranking and internet revenue.
4. E-marketing is particularly suitable for small businesses, as it offers the advantage of economies of scale in terms of reaching a large audience at nominal costs. With more and more people turning to the Internet for their daily source of news, entertainment, shopping and best bargains, agribusiness should have online presence.
5. Agribusiness firms should use e-marketing to provide personalized services to the customers. Based on consumer preferences, they can sell their products and services with the right messages at the right time to each individual shopper, something that is not possible with traditional marketing methods.
6. Having quality products and services to offer in the market is not enough; agribusiness firms need to identify their potential and existing customers in order to bridge the gap between demand and supply. This will help them build their databases so that they can target them individually, personalize their service and take their feedback for as-

assessment and improvement. This will also help them decide if they can totally depend on e-marketing tools or use them to compliment traditional marketing channels.

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A GAME-THEORETIC APPROACH TO AGRICULTURAL TRADE LIBERALIZATION STRATEGIES BETWEEN SSA & EU

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Abstract: This paper explores the Strategic interactions between the SSA group of countries and the EU, by analysing the impact of alternative agricultural trade liberalization scenarios by those two trading partners. The analysis is made based on the model of the Global Trade Analysis Project (GTAP), and its related version 7.1. The Strategic trade policies analysed are agricultural trade liberalization scenarios based on the negotiations underway by both the EU & the ACP group under the Economic Partnership Agreement (EPA), the Doha Round of negotiations at the WTO and on-going bilateral / plurilateral trade negotiations. Simulations are employed to study the possible strategies of the two groups-EU & SSA-on the basis of game theory, and to search for mutually advantageous possibilities. Results indicate that possible welfare losses by SSA in strategies examined and the possibility of inter-country compensations would allow, at least in principle, to reach an agreement.

INTRODUCTION

Strategic behaviour has been extensively observed in the negotiations on agricultural trade policy. Agricultural trade policy is a sensitive subject for many interest groups, and it has garnered even more attention than usual in recent years. Many Sub-Saharan African countries are highly dependent on the agricultural sector for the livelihood of the population. Agriculture is source of livelihood for 64 percent of the population in the region; the sector contributes about one-fifth of total gross domestic product, and about 12 per cent of the total export earnings for the region. These countries are gifted with abundant land, labour and natural resources indicating existence of comparative advantage in the agriculture sector. Agriculture is central to the development of SSA countries.

Governments in large, developed countries such as the European Union intercede in the markets for agricultural goods for various reasons. Starting with the political reasons for reconstructing long-term peace in Europe after the Second World War, “meddling” in agricultural production and trade continued for such reasons, as providing food security, protecting the farming community from natural and man-made shocks, preserving “rural life”, protecting the environment, or simply owing to the pressure of strong farmers’ lobbies.

Agricultural markets are interconnected to the high degree to which they are today; one country’s policies typically affect many others. Namely, with respect to agriculture, developed countries’ policies have profound effects on developing countries because agricultural production is one of the most viable options for economic activity in relatively low-income countries. Agricultural intervention by governments in developed countries artificially lowers costs for their protected farmers and forces others – often those who already struggle with poverty – to restrict production or leave their respective markets entirely. Further, some governments in the developing world may depend on the income generated by agriculture to maintain health, education, and other public services.

The negotiations on agriculture are of great importance to African countries because of the critical role of the agricultural sector in the region. Because of the sensitivity of the agriculture sector, the large number of issues and options, and the far-reaching but barely predictable consequences, the multilateral negotiations are very complex. Structuring of the negotiations seems to be necessary in order to exploit the possibilities of an agreement without endangering developing and less developed countries on issues such as food security.

An analysis of the agricultural trade policy agreements of the EU & SSA group will be conducive to understanding the role of game theory processes in negotiations overall. As bargaining and negotiating international trade negotiations becomes more strained, international negotiators are more apt to utilize some of Putnam's described strategies, such as playing internal demands off of international ones, and vice versa. This is because negotiators realize the improbability of stating preferences and expecting the other side's acceptance.

The Agricultural trade negotiations of these major trading partners are being dealt at various levels. Both the EU & SSA group is undertaking unilateral, bilateral & multilateral strategies. These strategies have important implications on the cooperation between the two groups and the agricultural trade liberalization between the two is modelled as a game-theoretic framework.

Agricultural trade holds indisputably a strategic position in development policies and poverty reduction programmes. While agriculture accounts for only a small portion of economic activity in industrialized countries, it represents a determining and critical factor for poverty reduction policies as well as for political and social stability. Through induced effects on infrastructure development, education and basic health services, agricultural production acts as an essential link within African countries' development strategies.

The objective of this paper is to explore the strategic interactions between the SSA group of countries and the EU, by analysing the impact of alternative agricultural trade liberalization scenarios by those two trading partners. The analysis is made based on the model of the Global Trade Analysis Project (GTAP), and its related version 7.1. Scenarios are run on a 2013 baseline, built by taking into account a number of events, that has affected (and will further affect) world agricultural markets up to that period. The policies analysed are agricultural trade liberalization scenarios based on the negotiations underway by both the EU & the ACP group under the Economic Partnership Agreement (EPA), the Doha Round of negotiations at the WTO and on-going bilateral/plurilateral trade negotiations underway. Simulations are employed to study the possible strategies of the two groups-EU & SSA-on the basis of game theory, and to search for mutually advantageous possibilities.

The paper proceeds in the following manner. First, the paper provides a review of the literature and empirical studies carried out in this field. The Second Section identifies the bargaining strategies of SSA & EU in the Agricultural Trade negotiations. Section 3 describes the methodology used for assessing the strategic outcomes and consequently in Section 4 the experiment design of Agricultural trade policy strategies is elaborated. Section 5 provides the empirical results and the last section concludes.

LITERATURE REVIEW & EMPIRICAL STUDIES

Game theory reflects calculated circumstances (games) where a person's success is based upon the choices of others (Myerson, 1991). Abbott and Kallio acknowledged the contributions of game theoretic analysis to research in international trade, citing a "revolution [...] driven by the failure of existing models to account for key observed trade practices, including the existence of and importance given by government policy to export subsidies" (1996).

Standard trade models based on Ricardian comparative advantage typically support free trade and illustrate how interventions such as tariffs and subsidies introduce inefficiencies into trade. That is, trade models illustrate that interventions can redistribute resources from one group to another, although this cannot be done without a reduction in the overall resources available. By its nature, trade affects different parties – whether producers and consumers, or importers and exporters – differently.

The special interests of groups who stand to gain or lose from trade introduce strategic considerations into trade theory. John Nash's Nobel Prize-winning contributions to game theory, which formally model outcomes of strategic interactions among "players," therefore had a profound impact on the contemporary understanding of trade theory. After game theory began to take hold in economic analysis, Krugman argued, "[The] case for free trade is currently more in doubt than at any time since the 1817 publication of Ricardo's *Principles of Political Economy*" (1987). He suggested that this doubt rested within economic theory itself, though, and not merely within the arena of political influence. Models based on Ricardian comparative advantage assume "perfect competition," a system based on large numbers of small consumers who take prices as given, and large numbers of small producers who cannot unilaterally affect market prices. Perfectly competitive markets are efficient because they generate market-clearing prices that equalize supply and demand.

On the other hand, Krugman (1987) argued that the traditional constant returns, perfect competition models of international trade have been supplemented and to some extent supplanted by a new breed of models that emphasizes increasing returns and imperfect competition. These new models call into doubt the extent to which actual trade can be explained by comparative advantage; they also open the possibility that government intervention in trade via import restrictions, export subsidies, and so on may under some circumstances be in the national interest after all.

Under assumptions of imperfect competition, the "trade vs. no trade vs. protected trade" scheme is different from the scheme offered by models of perfect competition. As soon as the respectability of non-comparative-advantage models in international trade was established, international trade theorists began to ask whether the new view of the *causes* of trade implied new views about appropriate trade *policy*" (Krugman 1987). Krugman offered a scenario featuring Boeing and Airbus as competitors for a world jet market to illustrate that in a market with only a few firms, governments could intervene to shift profits from a foreign firm to a domestic firm, thereby increasing the national welfare (1987). Krugman assumed that there were no domestic consumers, so the national welfare could be equated with producer surplus, and that "economies of scale were sufficiently large such that there is only room for one profitable entrant in the world market as a whole; that is, if two firms were to enter they would both incur losses" (1987).

Brander (1987) covered similar conceptual ground. Advocating "a modest departure in the direction of realism from standard theory," Brander argued that imperfect competition, or any failure of markets to be efficient in general, could lead to different results for national welfare from typical models of perfect competition (1987). More specifically, Brander argued that appropriate interventionist policies could have desirable effects, including profit-shifting and home market protection (1987). Describing a situation similar to Krugman's two-player strategic game above, Brander reiterated that a subsidized firm rationally would expand its output, causing its rival firm to reduce its own output in a limited market. Thus, the subsidized firm realizes a savings in the form of a transfer as well as an increase in profits based on the change in the strategic environment. This "strategic effect" of an export subsidy "implies that profits to the domestic firm rise by more than the amount of the subsidy. The benefit to the firm exceeds the cost to taxpayers" (Brander 1987).

Beyond an environment of firms, Brander (1987) also considered strategic interactions between governments. That is, if one government pursues predatory trade policies, most governments would not passively allow that to happen. Unfortunately, the "home market protection" scenario breaks down into a basic strategic situation commonly known as the "prisoners" dilemma" (Brander 1987).

According to Brander (1987), international treaties usually aim to induce countries to cooperate so mutually beneficial outcomes can be achieved, but “the problem with such agreements [as the GATT, and now the WTO] is that individual countries have incentives to cheat or defect [...] In the case of GATT, success in getting tariff reductions has occurred simultaneously with major increases in other forms of trade intervention”. Indeed, the models advanced by Krugman, Brander, and others address concerns highly relevant to an understanding of controversial trade policies in agriculture as well as efforts to reform these policies through the WTO.

McCalla (1966) characterized wheat trade as a two-player interaction between the United States and Canada, and those others recognized that countries including Japan, the former Soviet Union, and Australia wielded market power in wheat trade (Abbott and Kallio 1996). However, since analysis of trade policy to that point rarely addressed imperfect competition, and even more rarely included game theory.

Abbott and Kallio (1996) aimed to adopt a framework similar to the one used by Krugman (1987) and Brander (1987) to assess the rationality of the GATT – the predecessor of the WTO – as it dealt with agricultural trade issues (1996). Abbott and Kallio pointed out that the institutional structures governing trade interactions greatly affected the outcomes, and that GATT, once established, changed the prevailing institutional structure (1996). More specifically, the authors noted, “A few large countries or regional blocs engage in trade of commodities; they are not „small countries“ as required in traditional trade theory”. Furthermore, “[Both] the United States and EU claim to be matching the other’s export subsidies, suggesting that mutual reform might be advantageous.

Kennedy, von Witzke, and Roe (1996) demonstrate that for wheat subsidies this interaction can be viewed as a classic prisoner’s dilemma game (Abbott and Kallio 1996). Abbott and Kallio’s own model “is utilized to illustrate under differing institutional arrangements [game structures] the levels of export subsidies [or taxes – the strategies], net exports, and the political payoffs for four regions [or players]: the United States, European Union, CAIRNS, and Importers” (1996). (The CAIRNS group is a group of developed and developing agriculture-exporting countries.) This model addresses the importance of special interests for the determination of agricultural trade policy captured by using a government payoff function that “is a weighted sum of producer surplus, consumer surplus, and government budgetary expense, and the potential strategic interactions among players, since their strategies [export subsidies] give rise to differing payoffs depending upon opponent’s strategies”.

Ashraf, McMillan, and Zwane (2005) highlighted the importance for trade outcomes of local characteristics of countries as well as income levels within countries. The authors conducted a macro-level study of the effects of the developed countries’ agricultural trade policies on the poorest developing countries, augmented by a case study of Mexico’s corn farmers. The authors found that developed country subsidies are positively correlated with average incomes for food-importing countries and negatively correlated with average incomes for food-exporting countries. Further, in Mexico, the authors concluded that – since the signing of the North American Free Trade Agreement, which reduced tariffs on trade between the U.S. and Mexico, but not U.S. subsidies – the poorest corn farmers have been largely unaffected because they consumed corn but did not sell corn in the market prior to NAFTA, medium-income farmers suffered a sharp drop in real income due to the fall in the market price for corn, and high-income farmers realized a gain in real income (Ashraf, et al. 2005).

Bargaining strategies of SSA & EU in the Agricultural Trade negotiations

In the context of African –EU trade relations, agricultural commodities have traditionally played a key role. Given the emphasis place by African countries on agricultural trade liberalization as the single most important global trade policy issue to address their development concerns, it is crucial to understand the issues at stake. This Section seeks to elaborate on the major negotiating strategies on agricultural trade undertaken by these two groups.

Sub-Saharan Perspective on Agricultural Trade

Like most countries, the SSA group have agricultural trade negotiating issues at the bilateral, regional & multilateral level. With regard to trade negotiations at the Multilateral Level, a number of proposals dealing with the main points of the negotiations were submitted and discussed between 2001 and 2011 and in spite on missed deadlines for any agreement to be reached, Draft Modalities text (TN/AG/W/4/Rev.4) has been produced to reflect the convergence that could be agreed pending the outstanding negotiations on the contentious issues.

For fairly obvious reasons, the multilateral trade negotiations under WTO's Doha Development Agenda are not expected to significant reductions in Africa's applied tariff rates. But negotiations of the Economic Partnership Agreements (EPA's) between the European Union (EU) and groups of African countries are a different matter. EPA's are made WTO – compatible partly by making market access concessions between the EU and participating African regional groups reciprocal, even though the asymmetry involved suggests that African market access concessions should be phased-in gradually over the transitional period of 10-12 years, starting from the effectiveness of the EPAs in 2008. In addition to opening to EU imports, the EPA objective of establishing fully integrated African regions suggests that African countries should also further open to both intra-regional and inter-regional imports. The basic EU demand on African EPA countries is likely to be the reduction of African applied tariffs against EU imports to zero by 2020.

The dramatic opening to EU imports envisaged in the EPA negotiations will obviously involve significant adjustment costs, particularly in terms of fiscal revenue losses and de-industrialization. However, the EPAs constitute an “aid and trade” package. Therefore, the negotiations should include the provision by the EU of appropriate adjustment assistance for both aspects of these costs

At the same time, the regional integration initiatives of the African continent are moving fast within the COMESA, SADC & EAC blocks. The Common Market for East and Southern Africa (COMESA) Customs Union was officially launched on 8th May 2009 at the heads of state summit in Zimbabwe. The Customs Union succeeds the Free Trade Area (FTA) which has been in existence since October 2000. Members hope the customs union will strengthen economic integration and eventually lead to a single currency (monetary union).

On the other hand, the signatories of the SADC Treaty agree that underdevelopment, exploitation, deprivation and backwardness in Southern Africa will only be overcome through economic cooperation and integration. The Member States recognise that achieving regional economic integration in Southern Africa requires them to put their full support behind SADC to act on behalf of all Southern Africans for their common prosperity, peace and unity.

In pursuit of this agenda, SADC has adopted milestones to facilitate the attainment of the SADC Free Trade Area (FTA) by 2008, the Customs Union (CU) by 2010, the Common Market (CM) by 2015, Monetary Union (MU) by 2016 and the Single Currency by 2018. The SADC Free Trade Area (FTA) was launched on August 17, 2008 at Sandton, South Africa during the 28th Summit of SADC Heads of State and Government.

The EAC has marked a number of significant milestones since its establishment – among which is the launch of the EAC Customs Union, the conclusion of a Protocol on a Common Market, and the entry into force of the latter Protocol on 1 July 2010.

At the Continental level, in order to avoid a situation where Member/Partner States of COMESA, EAC and SADC could take positions in terms of trade policy, trade facilitation or infrastructural development that could compromise the process of continental integration, COMESA, EAC and SADC agreed to work closely together under the COMESA-EAC-SADC Tripartite umbrella. One of the objectives of the tripartite initiative is to establish an FTA among the RECs in order to create a single market and a Tripartite FTA initiative has been launched since June 2011.

Regionalism and multilateralism appear as valid strategies for African countries to undertake a more liberal trading environment. SSA countries are currently promoting both strategies. The EPAs between SSA and the EU could be complementary with other liberalization schemes faced by SSA and push for a deep integration that includes an action programme for economic reform, and not only tariff liberalization. While agriculture remains essential to many African economies - - in terms of its contribution to GDP and employment, changing market conditions and preference erosion call for new strategies.

European Union Perspective on Agricultural Trade

The EU is currently embarking on reforms to its agricultural policies while facing serious budgetary constraints. The European Commission has just released its blueprint for the Common Agricultural Policy after 2013, and will submit formal legislative proposals in mid-2011. These reforms are linked to agricultural trade negotiations and alliance building of the EU with trading partners.

After the serious setback and the suspension of Doha Round negotiations in July 2006, the EU re-calibrated its trade policy to secure market access and improve the business climate in its major trading partners. This paved the way for an ambitious new generation of FTA negotiations with Korea, India and the whole ASEAN bloc.

The newest EU trade strategy being promoted to create bilateral agreements with several countries including India, Canada and Singapore. These proposed FTAs are expected to bring massive trade opportunities for consumers and the bilaterally participating countries. They will open up borders for greater trade flow between the EU and each respective Asian country thanks, in part, to lowered duty rates.

And if completion of the Doha Development round is difficult, much the same goes for these FTA negotiations. Getting a Korea deal was a tough undertaking for EU. Global Europe-type negotiations have proven to be no different from the rest of FTA negotiations: they consume time and resources. The FTA track has seen the EU run into the same differences of interest that have made the Doha round so complex, yet the EU's target still is to complete negotiations with India, Canada and Singapore. As some of these negotiations are now at a critical juncture, it's a tall order that has raised doubts among some member states. Is the timetable more important than the content, they ask? The EU appears ready to make far-reaching concessions, so it is argued that the price to be offered by these partners must be high as well.

The Mercosur negotiations were to have restarted in May of 2010 after being suspended for several years. But it is still too early to tell whether the decisive moves needed to conclude this saga have been taken. The stakes are high because the GDP of these Latin American countries is vast and the EU's direct investments there are bigger than those in Russia, China and India combined. The levels of protectionism are still relatively high in Mercosur, so the gains for European

business could be big. From an agricultural point of view, the negotiations will be extremely difficult as Mercosur is the world's agricultural powerhouse and a significant exporter to EU markets.

A glance at the rest of the FTA front reveals both pain and gain. On the pain side there are the Economic Partnership Agreement (EPA) negotiations with the African, Caribbean and Pacific countries. Negotiations with six of the ACP country groups were to have been concluded by the end of 2007, but so far the only full-scale deal has been with the Caribbean states grouped in Cariforum. Since then, there have been few positive developments, which is unfortunate as EPAs are not only about trade. The fundamental idea is to promote sustainable development and to integrate ACP countries into the global economy and its trading system. Trade creates opportunities and is a powerful tool for development and poverty eradication.

The decade-long Gulf Cooperation Council (GCC) negotiations also belong in the pain category, whereas with the Korea deal we have Peru, Colombia and Central America on the gain side. These "gains" are an important encouragement for pursuing the FTA avenue, but it's equally important to realize how serious the many difficulties are. Now that it is negotiating on such a wide front, the EU is right with its new trade strategy to see completing the current agenda as still its top priority.

Yet there are some important trade partners still outside the FTA arrangements. The big question is what to do with developed countries and Europe's strategic partners? The main focus was on those largely emerging economies where market potential was seen as the most promising. Since then, a further step has been taken with the CETA negotiations that started with Canada in 2009.

The importance of partners like the U.S., China, Russia, Japan, Brazil and India is fully recognized within the EU. However the pain and gain equation is particularly relevant when considering the launch of an FTA with these countries in the short-term or with other countries like the U.S and Japan in the long-term. An immediate question is whether Europe would resolve long-standing trade irritants like non-tariff or regulatory barriers by an FTA if these problems cannot be solved within existing mechanisms? Would the EU be able to liberalize agriculture with the U.S. through the FTA process, or would such negotiations be even more difficult than the ongoing ones?

The idea of launching FTA negotiations with other major trading partners raises lots of questions. How should such initiatives be interpreted in light of the EU's commitment to the WTO and the Doha Round? With the round's future more at stake than ever, how would this be seen among developing countries? If Doha is dead, the proliferation of FTAs may well see dwindling interest in multi-lateral trade liberalization. That means the EU's trade strategy has to make it clear that Doha is its top priority.

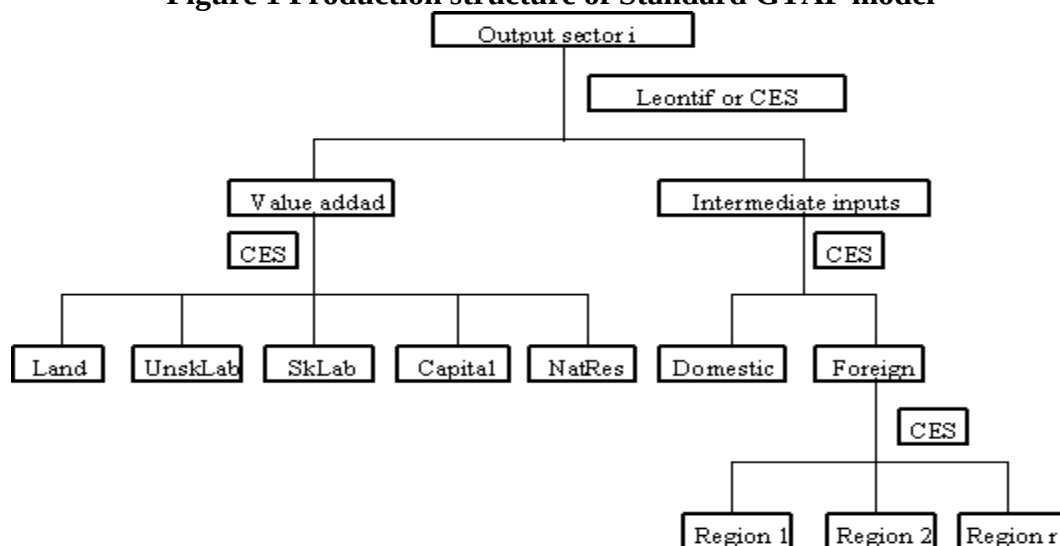
METHODOLOGY

Our simulations use the GTAP multi-sector multi-region AGE model; see Hertel (1997) for a comprehensive documentation. GTAP was initiated with the goal of supporting high level quantitative analysis of international trade, resource, and environmental issues in an economy wide context. The GTAP project is supported by the leading international agencies in trade and development policy, as well as a number of national agencies with active research programmes on these issues (see www.gtap.org for more information on the consortium).

Model characteristics

There are basically two strands of quantitative modelling in policy analysis. One approach is to build issue-specific models, depending on the question at hand. These models will usually be capable of capturing many relevant aspects of one specific policy question, but are of less use in a different policy context. The other approach sets out to construct more general and flexible models, which do not necessarily attempt to capture all detail but are flexible enough to allow elaborations in face of specific policy questions. Such a modelling framework is provided by the Global Trade Analysis Project (GTAP).

Figure 1 Production structure of Standard GTAP model



The standard GTAP model is a multi-region, computable general equilibrium model, with perfect competition and constant returns to scale. In the standard GTAP model each single region is modelled along relatively standard lines of multi-sector AGE models. All sectors are producing under constant returns to scale, and perfect competition on factor markets and output markets is assumed.

Firms combine intermediate inputs and primary factors land, labour (skilled and unskilled) and capital. Intermediate inputs are used in fixed proportions, but are themselves Constant Elasticities of Substitution (CES) composites of domestic and foreign components (see figure 8.1). In addition, the foreign component is differentiated by region of origin (Armington assumption), which permits the modelling of bilateral (intra-industry) trade flows, depending on the ease of substitution between products from different regions.

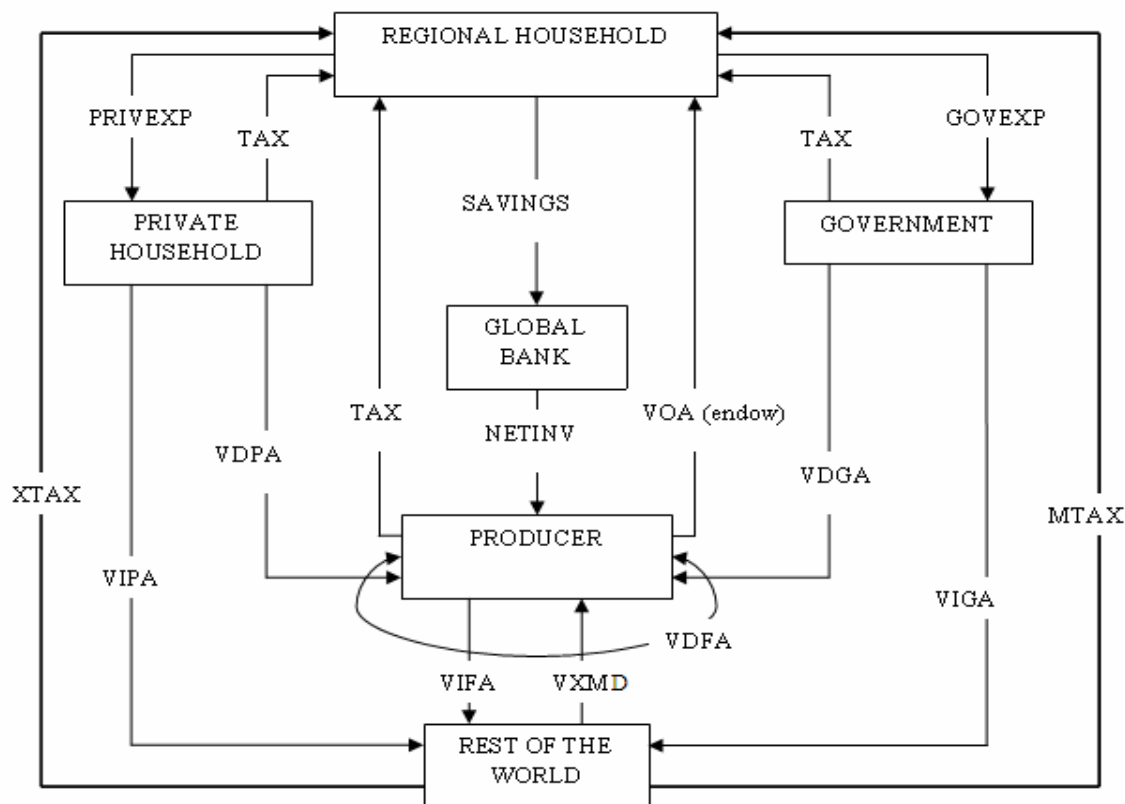
Primary factors are combined according to a CES function. Regional endowments of land, labour and capital are fixed. Labour and capital are perfectly mobile across domestic sectors. Land, on the other hand, is imperfectly mobile across alternative agricultural uses, hence sustaining rent differentials. Each region is equipped with one regional household, which distributes income across savings and consumption expenditures according to fixed budget shares. Consumption expenditures are allocated across commodities according to a non-homothetic Constant Differences of Elasticity's (CDE) expenditure function. Furthermore, there is an explicit treatment of international trade and transport margins, and a global banking sector, which intermediates between global savings and consumption. The standard model also gives users a wide range of closure options (i.e. which variables are treated endogenous or exogenous in the model), including a selection of partial equilibrium closures, which facilitate comparison of results to studies based on partial equilibrium assumptions. This model is documented in the GTAP book (Hertel, 1997).

Various issues relating to the model are regularly discussed on the GTAP-I mailing list. The model is implemented using the GEMPACK software suite.

Adaptations of the standard model have been developed by various GTAP users. Such elaborations include increasing returns to scale and imperfect competition, dynamic equilibrium formulations and incorporation of non-continuous policy instruments such as formulated in GATT commitments.

To facilitate the understanding of GTAP's structure, a model displaying the performance of an economy and its interaction with the Rest of the World while considering the presence of taxes and subsidies is provided (Figure 2). A glossary of terms is included with the figure. In this model, regional income is comes from payments by firms to purchase the primary factors of production, these being land, capital, labor and natural resources. This income corresponds to the flow of the Value of Output at Agents' Prices of Endowment Commodities (VOA), plus added taxes (TAX), and is allocated to four different categories: private consumption by regional households or families (PRIVEXP); consumption by the government (GOVEXP); the demand for savings (SAVINGS); and a bundle of income for the payment of taxes. Taxes in the model are defined by the difference between the value of output at market price and at agent's price. This computation of income variance allows the model to calculate change in regional income that is then used as an indicator of regional well-being. (Hertel & Tsigas, 1997).

Figure 2: GTAP Structure



Where,

VOA (endow): Value of Output at Agent's prices of endowment commodities

VDFA: Value of Domestic purchases by Firms at Agent's prices

PRIVEXP: Private expenditure

GOVEXP: Government expenditure

VDPA: Value of Domestic purchases by Private households at Agent's prices

VDGA: Value of Domestic purchases by Government household at Agent's prices

NETINV: The sale of investment goods to satisfy the regional household's demand for savings

VXMD: Value of Exports at Market prices by Destination

VIPA: Value of Import payments to Rest of the World from private households

VIGA: Value of Import payments to Rest of the World from government households

VIFA: Value of Import payments to Rest of the World from Firms

XTAX: Export tax, converts to fob values

MTAX: Import tax

Source: Hertel and Tsigas (1997).

The revenue the producers receive is spent on intermediate consumption (VDFA), since firms must combine commodities and intermediate goods to produce goods for the final demand, on payments for imports from the Rest of the World (VIFA), and on payment of taxes (TAXES) to government. In this way, all generated revenue is spent on the purchase of intermediate factors and services from primary factors; therefore, satisfying the zero profit condition, an important assumption for the model's closure, as demonstrated in Figure 2.

To better understand the multiregional model in an open economy, two economies are considered. One of them represents a regional economy and the other the Rest of the World. An open economy gives all agents the opportunity to pursue commercialization, allowing the domestic economy to spend part of its income on an outside financial system (VIPA and VIGA). Tax is the source of income for both the exporting country (XTAX) and the importing country (MTAX). The production sector also interacts with the remaining portion of world economy, represented by the variables VIFA and VXMD.

The current GTAP database, version 6.0, encompasses 87 regions and 57 sectors. The GTAP staff makes the database available to anyone who requests it, regularly updates it, leaves it open to additions by those who identify an area that may need improvement, and establishes that all data is replicable and documented.

Data

The GTAP database contains detailed bilateral trade, transport and protection data characterising economic linkages among regions, linked together with individual country input output data bases which account for intersectoral linkages among the 57 sectors within each of 113 regions. All monetary values of the data are in DUS millions and the base year for Version 7 is 2004. The bilateral trade data are derived from United Nations Trade Statistics and support- and protection data from various sources (e.g. UNCTAD TRAINS database for tariff information, OECD's PSE database for agricultural support). Version 7 is fully documented in "Badri Narayanan G. and Terrie L. Walmsley", Editors (2008). *Global Trade, Assistance, and Production: The GTAP 7 Data Base*, Center for Global Trade Analysis, Purdue University.

EXPERIMENT DESIGN OF AGRICULTURAL TRADE POLICY SCENARIOS

In this Section, model simulations are employed to study the interactions between their respective possible strategies on the basis of game theory, and to search for mutually advantageous agreements

Formal representations of games are defined over a set of players, a set of strategies available to each player, and a vector of functions which map the strategies of players into a payoff for every player. We employ a two-player, normal-form, non-cooperative game to a single period within which we search for the presence of a Nash equilibrium and the strategy space of possible agreements.

In the situation where two main (group of) countries negotiate with one another, no agreement will be reached or kept unless both (group of) countries are made at least as well off as they were prior to the agreement. Strategies satisfying the previous condition are called “agreement actions”. Apparently, in order to achieve an agreement in which both countries are made at least as well off as prior to negotiations, the settlement must lie within the agreement action space, i.e. the set of all agreement actions (Kennedy, von Witzke, Roe, 1996). More in general, the successful resolution of trade negotiations requires that: (1) there must exist at least one strategy which leads to values of the payoffs which are greater than their values at the status quo; (2) if many such strategies exist, then negotiations must ensure that just one is chosen; and (3) there must be no incentive to deviate from the terms of the agreement (Johnson, Mahé, Roe, 1990).

The policy strategies analysed are the two liberalization scenarios described in section four, plus the agricultural free trade scenario. Each player i has strategy choices which are:

- the status quo of the baseline (sq);
- the “weak” liberalization scenario described in the previous section (w);
- the “strong” liberalization scenario described in the previous section (s);
- the “free trade” in all agricultural commodities (ft).

Let $S_i = (a_i^{sq}, a_i^{sq}, a_i^{sq}, a_i^{sq})$ represent the set of all possible strategies, which can be employed by agent i . Each player i choose some strategy $a_i \in S_i$ in order to maximise its payoff given the strategy of the other. A similar set of strategies S_{i+} exists for the other main player (denoted by $i+$). In modelling the negotiating process of interdependent (group of) countries, a Nash equilibrium occurs where each country (or group of countries) chooses policies that maximise its (their) EV, given the policy choice of the other (group). This equilibrium is defined using a best response correspondence. For a given a_{i+} , government i chooses a_i^* one possible best response to a_{i+} , such that $EV_i(a_i^*, a_{i+}) \geq EV_i(a_i, a_{i+})$ for all $a_i \in S_i$. A Nash equilibrium is defined as the set of strategies (a_i^*, a_{i+}^*) where a_i^* is a best response of a_{i+}^* for country (or group) i , and a_{i+}^* is a best response to a_i^* for country $i+$.

Based on the analysis carried out in Section 1.2 above, we can now define the various agricultural trade liberalization scenarios for the SSA group and the EU.

A “Weak Liberalization Scenario” (w) would be defined as the focus of both the SSA group & EU being on bilateral and/or regional negotiations. Given the World economic situation with the risk of global recession, it is quite improbable that WTO members undertake trade distorting reduction commitments. We assume the SSA would all have an EPA with EU and Full-Fledge FTA in their respective regional blocks. On the EU side, besides the EPA with African countries concerned, based on negotiations underway, FTA is predicted in the short-term with the following countries: India, Singapore & Canada.

A “Strong Liberalization Scenario” (S) may be defined as the conclusion of the Doha negotiating based on the modalities mentioned in the Draft Modalities text TN/AG/W/4/Rev.4. We foresee, the Tripartite FTA to be in place with regard to the regional integration initiatives of re-

gional blocks in Africa. In addition, we assume full-fledge FTA to be in place in COMESA & SADC. In the long-term, the EU would have EPAs with all African countries and established FTAs with regard to India, Canada, Mercosur, and ASEAN as discussed in Section 1.2 above.

However, the proviso of Sensitive products is maintained given the acceptance of WTO members on this issue and the flexibility of developed countries to maintain protectionist interventions for strategic commodities.

EMPIRICAL RESULTS

We model national governments as if they focus on domestic welfare. The payoffs, as a matter of fact, are money metric measures of utility change from a base period. Our procedure is to solve the world trade model for different trade liberalization scenarios. The model allows EVs attributed to various policy scenarios to be computed. The difference in EVs under alternative scenarios versus those in the baseline is used to determine the amount of money available for compensation across countries.

Table 3: Game-Theoretic Results of Alternative Agricultural Trade Liberalization Strategies

SSA	EU	
	Weak (a_{EU}^w)	Strong (a_{EU}^s)
	Weak (a_{SSA}^w)	Strong (a_{SSA}^s)
	(-2213.52 , 8451.8)	(-2530.43 , 12659.05)
	(-1192.81 , 7819.5)	(-1506.08 , 12022.76)

Source: Computed

The EV functions reflect changes in producer and consumer welfare and budget savings from policy changes. The Equivalent Variation (EV) associated to each player with the simulation scenarios as a measure of welfare change was considered here both as total variation, and in its components arising from the changes in the terms of trade and resources allocation, following the decomposition proposed by Huff and Hertel (2000). The base solution to the non-cooperative game is presented in the following table below.

The results indicate that in contrast to prior expectations, the Sub-Saharan Group experience Welfare loses from agricultural trade liberalization within a general equilibrium framework and taking into account simultaneous negotiations by its major trading partner.

The EU, on the other hand enjoys welfare gains irrespective of the trade strategy adopted by the SSA. Several possible explanations can be provided for that. In the first instance, it could be observed that EU's imports from SSA are quite low compared to total imports. Secondly, the current level of tariff protection against SSA imports is quite low and not much welfare gains from tariff reduction are expected.

Decomposition of Welfare reveals some interesting insights into the causes of change (Table 4). It can be observed that the SSA group experience welfare loses mostly due to the changes in its Terms of Trade. Overall welfare gains for the EU result from removing support to farmers so that taxpayers benefit from reduced subsidy expenditures, and tariff reductions, which lead to lower consumer prices.

Table 4 : Welfare Decomposition

	Allocative Efficiency	Terms of Trade
SSA (Weak)	-432.24	-1905.34
EU (Weak)	1964.87	6429.51
SSA (Weak)	- 503.4	4215.5
EU (Strong)	8138.7	-2168.4
EU (Weak)	-73.33	-1213.89
SSA (Strong)	1751.27	6004.62
EU (Strong)	-146.18	-1470.64
SSA (Strong)	7924.95	3786.45

Source : Computed

For this reason liberalisation in the EU is welfare enhancing but producers are a little better off if others liberalise as well. The overall welfare in the EU is also higher in a Strong liberalisation scenario with SSA having a Weak liberalization, although the difference is negligible where both countries liberalize strongly. However, the SSA has much more to gain from multilateral liberalisation because it gains more from improved market access than from domestic reform.

Apparently, these results are not consistent with the actual negotiating positions. In the case of the EU, the results are driven by the fact that allocative efficiency gains from trade liberalization are not very high, given the rather low levels of present trade barriers. On the other hand, they could reap the benefits of the improvement in the terms of trade, if the SSA countries accepted to liberalize unilaterally.

If this game were realistic, one would expect an agreement in the present negotiations to be much more difficult than it is actually the case. The difficulty of obtaining an agreement during the Economic Partnership Agreement negotiations provides a confirmation that economic efficiency is not the (only) criterion motivating government behaviour. The game played in the present trade negotiations, then, cannot be explained only on the basis of classical welfare analysis, which would predict the implementation of free trade and/or strong liberalization strategies due to efficiency gains.

In fact, the more realistic and sophisticated analyses of trade negotiations do not assume (any more) that governments care only about aggregate social welfare, but allow them to be concerned with any number of internal or political-economy objectives. The conventional neoclassical trade analysis where alternative trade compromises are based on net social welfare gains in each country is almost surely inconsistent with the balance of political power within the countries.

CONCLUSION

Agricultural trade is an important means to address the concerns of the Sub-Saharan African Countries to promote economic development. Unfortunately, Brander (1987), Abbott and Kallio (1996), and others found similarities between markets for agricultural products and the classic prisoners' dilemma game, in which players rationally protect their own interests at the expense of a mutually beneficial outcome. In imperfectly competitive markets, as well as in the prisoners' dilemma scenario, countries have an incentive to "cheat" – to employ subsidies or tariffs – to raise their own national welfare, at the expense of rival countries and firms. However, most of the factors determining the decisions of the governments involved either are personal perceptions or transfers subject to public policy. Changing assumptions about the importance of these factors

to the governments involved changes the nature of the interaction, and may even eliminate its prisoners' dilemma characteristics.

The analysis proposed in this paper is based on Strategic trade negotiations of the SSA group & the EU by analysing the impact of alternative agricultural trade liberalization scenarios by those two trading partners. The strategic trade policies analysed are agricultural trade liberalization scenarios based on the negotiations underway by both the EU & the ACP group under the Economic Partnership Agreement (EPA), the Doha Round of negotiations at the WTO and on-going bilateral/plurilateral trade negotiations underway.

We attempted to build a "realistic" setting, allowing insulating the effects of trade liberalization from those of the other major policy changes which are affecting and will affect world markets within the time horizon of the supposed implementation of any agreement eventually reached in the current trade negotiations.

Simulations are employed to study the possible strategies of the two groups-EU & SSA-on the basis of game theory, and to search for mutually advantageous possibilities. The analysis of the interaction between the strategies of the two player shows that there seems to be no reasons, from an economic point of view, for confrontation within the negotiations in terms of expected total economic benefits.

The SSA group faces tremendous challenges in the face of liberalization by the EU. The EU is a major trading partner for the SSA and benefits from long-standing preferences. While "strong" trade liberalization would be the dominant strategy for the EU. At the same time, this result in welfare losses for SSA as the latter face erosion of trade preferences as a result of this strategy. However, the potential for SSA to increase agricultural production and maximize on its comparative advantage is still there.

The results are consistent with economists' expectations about the effects of a reduction in border protection, and for many countries confirm the notion that liberalization is positively related to the overall potential economic benefits that should arise from the increased role played by comparative advantages in shaping market prices and returns to primary factors.

The welfare effects shows that most countries throughout Europe, may finally gain from improving their resource allocation after agricultural tariffs and export subsidies reductions by changing their agricultural production mix, or by moving labour and capital outside the primary sector. The same, however, does not apply to a number of African countries, whose possibilities to benefit from incentives toward relocating resources inside and outside agriculture are limited by the extent and the diversification of the economy; and whose terms of trade may deteriorate in a more liberalized environment.

The general equilibrium approach adopted here highlighted the difficulties for poorer and the less diversified economies of SSA to capture the opportunities arising from a more liberal trade environment. Potential losses arising from changes in the terms of trade for some of the more fragile economies considered here, imply the presence in these countries of far more limited possibilities to switch toward competitive activities. As mentioned, this calls for ad hoc measures to counteract negative effects for these countries, although such measures should be designed in such a way to minimize interference with on-going efforts toward increasing the ability of such economies to exploit the opportunities arising from the more liberalized world trade environment; therefore their design is not straightforward, and should most probably not be based on simple border protection.

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LAND AND WATER: THE TRANSVERSAL CONSEQUENCES OF LAND GRABS IN AFRICA

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Abstract: This paper explores the current surge of land acquisitions or land grabs by foreign countries, sovereign wealth funds and private cooperations, as well as domestic investors. In particular, the paper investigates the nexus between land and water and the inextricable relationship between land, water, energy, food and energy security especially in the context of climate change. More specifically the paper deals with climate change and its multiplier effects on land degradation and forced migration.

INTRODUCTION

International land investment in Africa for the production of food and bio-fuel is a trend that has increased in recent years, not the least after the food price crises of 2007-2008. (Oakland Institute, 2011). The rising cost of food, coupled with water scarcity in countries in the Middle East, parts of Africa, Asia and Europe motivated a number of countries dependent on imported food to lower their vulnerability to future food price hikes by investing in agricultural land in foreign countries where they could produce food and agricultural goods and send it back home. This has led to an increased international and domestic interest in farmland, primarily in Africa, but has also raised a serious concern. Some (Akinyemi, 2012; Atkin, 2009) claim domestic food security in host countries may be under threat, while others fear that local populations with customary access to land are often evicted or excluded when large-scale agricultural development projects are ushered in. It would seem that as land rights are being put into question, water rights are also coming to the fore. In many instances, the investors (whether government or private sector) need reliable access to water to grow crops on the “legally” acquired land. In such circumstances, the irrigation of land becomes an imperative. Moreover, irrigation also requires energy. Potential conflicts around land and increased water utilisation in the countries where investments are being made can influence relationships within the country and across boundaries (IIED, 2011). The major aim of this paper, therefore, is to explore how the current surge in land acquisitions or land grabs by foreign countries, sovereign wealth funds and private corporations, as well as domestic investors, affects the inextricable relationship between land security, water security, energy security and the multiplier effects of climate change, for example, on land degradation and forced migration.

CONTEXTUALISING AFRICAN LAND GRABS, CLIMATE CHANGE AND THE LAND-WATER-ENERGY-FOOD SECURITY CONNECTION

According to Ferrando (2012), land Grabs have a profound impact on the inextricable relationship between land, water energy and food security, especially, in the context of climate change

which is best viewed as a threat multiplier that exacerbates existing trends, tensions and instability.

In this section it will be shown how land grabs within an era of climate change threaten to overburden states and regions which are already fragile and conflict prone. It is also important to recognize that the security risks engendered by land grabs are interlinked requiring comprehensive policy responses.

Biney (2009) notes that the recent acceleration of land acquisition in Africa has its origins in a number of factors related to global food security concerns, particularly the increase in world grain prices between 2007-2008 which led to food riots in over 20 countries around the world, including Haiti, Senegal, Yemen, Egypt and Cameroon. Other factors include failure to deal with environmental trends such as climate change, which has led to water shortages and drought in several places around the world. Contributing to this state of affairs has been the volatility of food prices in the international market and speculation on future food prices. Consequently, the food growing nations imposed tariffs on staple crops to minimize the amounts that left their countries and this escalated the situation further.

Middle Eastern States, such as Saudi Arabia, Bahrain, Oman, Qatar (which control 45 per cent of the world's oil), are finding that they can no longer rely on regional and global markets to feed their populations. They have rushed to grab land in Africa and are the pioneers of this "agri-colonialism" to secure food supplies for their own populations. The geopolitical ramifications of this situation are that food is likely to become the next coveted commodity like oil. Additionally, these global developments have led countries such as China, India, South Korea, Saudi Arabia and Kuwait, which are short of arable land, to seek agricultural investments in Africa. They are joined by Malaysia, Qatar, Bahrain, Sweden, Libya, Brazil, Russia and the Ukraine (BMZ, 2012).

Others (Biney, 2009; Fig *et al*, 2011; Jagerskog, 2012) have also referred to it as 'the new colonialism' and 'agrarian colonialism'. The reality is that in the last year millions of hectares of land have been leased for biofuel and agricultural production by countries such as Ghana, Ethiopia, Mali, Tanzania, Kenya and Sudan. The cause for alarm among Africans is justified when the trend is being dubbed a 'neo-colonial system' by the head of the United Nations Food and Agricultural Organisation (FAO), Jacques Diouf. There is a danger that host countries, particularly the more politically sensitive and food-insecure, will lose control over their own food supplies when they need it most.'

According to the Transnational Institute (2012), there are three major characteristics of land grabs in Africa. They are:

- Firstly, the scale of the land deals that have been transacted. The Washington DC think-tank, the International Food Policy Research Institute (IFPRI) estimates the deals to be worth between US\$20 - \$30 billion and involving between 15 - 20 million hectares of farmland in poor countries in Africa, Cambodia, Pakistan and the Philippines. According to the FAO report, such huge deals could be 'the tip of the iceberg'. Already 2.5 million hectares (6.2 million acres) of farmland in five sub-Saharan African countries have been bought or rented in the last five years at a total cost of \$920 million;
- Secondly, these land acquisitions are focused on staples (e.g. wheat, maize, rice, jatropha) or bio fuels. For example, in 2002 Sudan signed the Special Agricultural Investment Agreement with Syria. It involves a 50-year lease by the government of Sudan to the government of Syria. According to the FAO paper, 'the Saudi Arabia company

HADCO reportedly acquired 25,000 hectares of cropland in Sudan with 60 per cent of the project's cost coming from the governmental Saudi Industrial Development Fund.'. In Ethiopia, the government has recently accepted a deal of US\$100 million for farmlands permitting Saudi Arabia to cultivate barley and wheat; and

- Thirdly, in the past, foreign farming investment was pursued by private investors. Now, several new deals are government-to-government. At times the investors are foreign companies. The sellers are host governments. For example, in 2008 the Sudanese and Qatari governments set up a joint venture in Sudan. The land is usually leased or made available through concessions but sometimes bought. Adding to the complexity of the land buying deals is the fact that 'there is no single dominant model for financial and ownership arrangements but rather a wide variety of locally specific arrangements among government and the private sector.

It is a fact - the world is experiencing a land rush. With increasing frequency, wealthy, food-importing countries and private investors are acquiring farmland overseas. These transactions are highly opaque, and few details have been made public. What is known, however, is quite striking—particularly the scale of these activities. The Woodrow Wilson International Institute (2009) estimates that 15 to 20 million hectares of farmland have been subject to negotiations or transactions over the last few years. This represents the size of France's agricultural land and a fifth of all the farmland in the European Union. One of the largest and most notorious deals is one that ultimately collapsed: an arrangement that would have given the South Korean firm Daewoo a 99-year lease to grow corn and other crops on 1.3 million hectares of farmland in Madagascar – half of that country's total arable land.

UNDERSTANDING LAND- WATER-ENERGY-FOOD SECURITY THREATS AGAINST THE BACKDROP OF LAND GRABS

The security threats and risks of the effects of land grabs, especially in the context of the land-water-energy-food and climate change relationship are varied (Oxfamblogs, 2010). The following are some of the threats that may occur:

Land Grab and Resource-based Conflicts

Loss of arable land, widespread shortage of water, diminishing food reserves, increased flooding and prolonged droughts are already happening in many parts of the world. A drop in agricultural productivity will lead to, or worsen, food-insecurity in least developed countries and an unsustainable increase in food prices across the board. Water shortage, in particular, has the potential to cause civil unrest and to lead to significant economic losses, even in robust economies. The consequences will be even more intense in areas under strong demographic pressure. The overall effect is that climate change will exacerbate and fuel existing conflicts over depleting resources, especially where access to those resources is politicized.

Land Grabs and Environmentally induced Migration

Land grabs and loss of land could trigger a vicious circle of degradation, migration and conflicts over territory and borders that threaten the political stability of countries and regions. Those parts of the populations that already suffer from poor health conditions, unemployment or social exclusion are rendered more vulnerable to the effects of land grab and also climate change, which could amplify or trigger migration within and between countries. The UN predicts that there will be millions of "environmental" migrants by 2020. Some countries that are extremely vulnerable to climate change are already calling for international recognition of such environ-

mentally induced migration. Such migration may increase conflicts in transit and destination areas

Land Grabs and Situations of Fragility and Radicalisation

Land grabs and forced migration may significantly increase instability in weak or failing states by over-stretching the already limited capacity of governments to respond effectively to the challenges they face. The inability of a government to meet the needs of its population as a whole or to provide protection in the face of land grab induced hardship could trigger frustration, lead to tensions between different ethnic and religious groups within countries and to political radicalization. This could destabilize countries and even entire regions.

Land Grabs and Threats due to Energy Supply

One of the most significant potential conflicts over resources arises from intensified competition over access to, and control over, energy resources. That in itself is, and will continue to be, a cause of instability. However, because much of the world's hydrocarbon reserves are in regions vulnerable to the impacts of climate change and because many oil and gas producing states already face significant social economic and demographic challenges, instability is likely to increase. This has the potential to feed back into greater energy insecurity and greater competition for resources.

Land Grabs and Pressure on Political Governance

The multilateral system is at risk if the global community fails to address the threats outlined above. Land grab impacts will fuel the politics of resentment between those most responsible for land grabs and those most affected by it. Lack of policies protecting the rights of peasants will drive political tension nationally and internationally. The potential rift not only divides North and South but there will also be a South - South dimension particularly as many emerging economies like China, India, Korea and Saudi Arabia share in the crises. The already burdened international security architecture will be put under increasing pressure.

Land Acquisition: Risks and Opportunities

This section aims to provide information about how Risks and Opportunities inadvertently unfold as a result of land acquisition. It reflects on the challenges associated with land grabs and on its possible implications for the peasantry, both in terms of risks and opportunities. It suggests, through a "pros" and "cons" tabulation some options for good practices that could enable small-holder farmers and rural communities in particular, poorer people – to actually benefit from the growing global demand for food, feed and agro-fuel and to partner with private and public stakeholders in the food and energy sectors without alienating their rights to and control over their land and territories. .

Although there has been a rash of media reports and a splurge of published research, land grabs and their impacts remain little understood. The World Bank, IFPRI, IIED, FAO and IFAD, GRAIN, the Oakland Institute and the Widrow Wilson International Institute have attempted to show the key trends and drivers in land acquisitions, the contractual arrangements underpinning them and the way these are negotiated, as well as the early impacts on land access for rural communities in recipient countries.

Primary and secondary data on land acquisitions in Africa is scarce and often of limited reliability. This means that evidence and the conclusions drawn from more recent studies need to be treated with caution. Nevertheless a picture is emerging of large-scale land acquisitions in Africa. However, for people in recipient countries, this new context creates risks and opportunities. Increased investment may bring macro-level benefits (such as GDP growth and improved gov-

ernment revenues), and may create opportunities for economic development and livelihood improvement in rural areas.

But as governments or markets make land available to prospecting investors, large-scale land acquisitions may result in local people losing access to the resources on which they depend for their food security. Table 1, below, outlines these opportunities (pros) and risks (cons).

Table 1: The Pros and Cons of Land Acquisition

Pros	Cons
1. General a) Given that a large percentage of African countries are food insecure and that Africa has not experienced a “green revolution”, there is now international consensus amongst the developed nations that investments are needed to make agriculture more sustainable in Africa. b) Generally it is argued that subsistence agriculture is largely rain-fed and given the recent and impending excesses of climate change, African agriculture needs to invest in irrigation systems in order that basic crops are produced for both local and international consumption. c) One of the most restraining factors in agricultural trade in Africa is that infrastructure (roads, railways, ports and waterways, processing plants) is not adequate. The need for investment in infrastructure for agricultural development, therefore, is an imperative. 2. Infrastructure and Job Creation As financial transfers per se are not a main host government benefit, investor commitments on investment, employment and infrastructure assume an importance they would not otherwise have in purely monetarised outright purchases. This is a key area where international land deals may constitute a development opportunity in recipient countries – by bringing capital and know-how, creating employment and developing infrastructure. Commitments on infrastructure development seem prominent in some deals – whether under the terms of the contract or applicable national legislation This approach seems in line with the common practice of bundling land deals, other business transactions, loans and development aid. These bundled arrangements may be attractive to governments, but carry the risk that if one component falters, the entire package will fail.	3. General d) Given that a large percentage of African countries are food insecure and that Africa has not experienced a “green revolution”, there is now international consensus amongst the developed nations that investments are needed to make agriculture more sustainable in Africa. e) Generally it is argued that subsistence agriculture is largely rain-fed and given the recent and impending excesses of climate change, African agriculture needs to invest in irrigation systems in order that basic crops are produced for both local and international consumption. f) One of the most restraining factors in agricultural trade in Africa is that infrastructure (roads, railways, ports and waterways, processing plants) is not adequate. The need for investment in infrastructure for agricultural development, therefore, is an imperative. 4. Infrastructure and Job Creation As financial transfers per se are not a main host government benefit, investor commitments on investment, employment and infrastructure assume an importance they would not otherwise have in purely monetarised outright purchases. This is a key area where international land deals may constitute a development opportunity in recipient countries – by bringing capital and know-how, creating employment and developing infrastructure. Commitments on infrastructure development seem prominent in some deals – whether under the terms of the contract or applicable national legislation This approach seems in line with the common practice of bundling land deals, other business transactions, loans and development aid. These bundled arrangements may be attractive to governments, but carry the risk that if one component falters, the entire package will fail.

Source: Reports published by the following Organisations: The World Bank ,IFPRI ,IIED, FAO,IFAD, GRAIN, The Oakland Institute and The Widrow Wilson International Institute.

CONCLUSION

A critical review of the contents of Table 1 indicates that there seems to be more risks rather than opportunities involved in land acquisition or “land grabs” as critics of the process prefer to call it. There are, however, two issues, which stand out clearly; the first is that every land acquisition has a sinister motive of also acquiring free water with the purchase or lease of land; and the second, is that the trend for land grabbing increased after the global food and fuel crisis of 2007 – 2008. There are, indeed, champions for both causes. There are those (the United Nations

Food and Agricultural Organisation and the World Bank) who suggest that land acquisition can provide equal opportunity for all stakeholders, i.e. those who acquire the land and those whose land is lost - the peasantry. Then, there those (Civil Society and Human Rights Groups, Small Holder Farmer Associations and Agricultural Scientists) who disagree and are of the firm opinion that “land grabbing” threatens food security and the human right to food, land and water. They, instead recommend investment in smallholder farming systems.

The next paper (also included in this journal), as part of a two part series, exemplifies the excesses of land grabs on three case studies, namely, Mozambique, Congo-Brazzaville and Ethiopia.

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The Genesis

Organization development activities intervene in the interactions of human resource systems such as formal and informal groups, work culture and climate, and organization design to increase their effectiveness using a variety of applied behavioural sciences. Organizational development is an ongoing, systematic process to implement effective change in an organization. Organizational development is known as both a field of applied behavioural science focused on understanding and managing organizational change and as a field of scientific study and inquiry. A peer-reviewed International Journal of Strategic Organization and Behavioural Science (IJSOBS) is interdisciplinary in nature and draws on sociology, psychology, and theories of motivation, learning, and personality and other related issues.

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Edited Books:

Sarkar, S. (2005), Natural Resource Environment, Pollution and Women Health, In: T. Sabanna (ed.), *WTO and the Agriculture*, Serials Publications, New Delhi.

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