

Impact of Asian Drivers on SSA agriculture and food security: Issues and challenges

Revised Draft

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1. Background

Africa is the only region in the world where poverty and hunger are on the increase. About 49 percent of the people in Africa lived below poverty in 2000, an increase from 47.7 percent in 1990 (Resnick, 2004). On current projections, Africa will be the only continent that is unlikely to meet the international community's targets to reduce poverty, hunger and disease - the Millennium Development Goals (MDGs) by 2015. The World Bank (2004) estimated that, on current trends, Sub-Saharan Africa (SSA) will meet the MDGs in 2147, more than a century off target. Resnick (2004) notes that meeting the MDG targets requires growth rates of 7 percent per annum, but only 10 African countries have achieved a growth rate of at least 5 percent per annum. GDP growth averages about 3 percent per year and the population has continued to grow at 2.7 percent per year. It is estimated that about a third of the African population is undernourished, representing about double the number of undernourished in the late 1960s (FAO, 2005).

Agriculture is by far the single most important economic activity in SSA and it remains key to achieving the poverty targets of the MDGs in Africa. Several studies have emphasized the importance of the agriculture sector in SSA (NEPAD, 2003; Haggblade et al., 2004; FAO, 2005). It is estimated that nearly 80 percent of the population in SSA lives in rural areas and 70 percent of this rural population are dependent on food production through farming or livestock keeping for most of their livelihood. Small-scale farming provides most of the food produced in Africa, as well as employment for 60 percent of working people. According to NEPAD (2003) for most countries in SSA, agriculture contributes an average of 30-60 percent of GDP and about 30 percent of the value of exports.

Except for countries with sizable populations of European descent – such as South Africa, Zimbabwe and Kenya – agriculture has been largely confined to subsistence farming and has been considerably dependent on rain and an inefficient system of shifting cultivation, in which land is temporarily cultivated with simple implements (such as hand-hoes) until its fertility decreases and then abandoned for a time to allow the soil to regenerate. In addition, over most of African arable land generally has been allocated through a complex system of communal tenure and ownership rather than through individually acquired title,

and peasant farmers have had rights to use relatively small and scattered holdings. This system of land ownership has tended to keep the intensity of agricultural production low and has inhibited the rate at which capital has been mobilized for modernizing production. The productivity in agriculture has been declining due to several factors including lack of access to capital, soil degradation, poor access to markets and new technologies, low investments in agricultural research, training and extension services.

Africa has also experienced more than its share of the impacts of climatic changes including extreme weather patterns in form of more frequent and prolonged droughts, floods and crop pests all of which have adversely affected agricultural production. There is also the problem of HIV/AIDS that is reducing life expectancy and productive capacity of farming households in SSA (Haggblade *et al.*, 2004). Eicher (2003) also notes that in some countries donor support towards agricultural development in SSA has been declining.

Farmers in SSA are struggling to adapt to these crises but support is declining. Whilst total aid of SSA remained stable during the 1990s, the proportion allocated to agriculture declined year by year. But even more worrying are the global trade rules that have been forced onto African governments whose own structures are not strong enough to protest these unfair and detrimental policies. The Uruguay Round of trade agreements, which began in 1994, are generally held as the turning point in global agricultural policy, and are called the Agreements on Agriculture.

Trade liberalization and tariff barriers have been just some of the areas that have been detrimental to African farmers. Structural adjustment policies and trade conditions have resulted in the collapse of agricultural support institutions, the elimination of subsidies and reduction in tariffs for most African countries. At the same time, highly subsidized European and American farmers undermine the African farmers in both domestic and export markets – leaving African farmers unable to compete in the global market. Furthermore, these subsidized goods lead to overproduction, which then results in lowered prices.

The growing importance of China and India in the global economy has generated a lot of academic research interest on their likely impact on African economies and poverty

reduction (among others Kaplinsky *et al.*, 2006; Kaplinsky and Morris, 2006; Jenkins and Edwards, 2005; Chen *et al.*, 2005). Both China and India ('Asian Drivers' or ADs) are recording higher growth rates in their economies and are increasingly engaging with African countries in various ways. These relationships are bound to have complementary and competitive effects on African growth and poverty reduction.

An important sector in Africa that could be affected by the growth of Asia Drivers is the agriculture sector. This paper, therefore, provides the framework for assessing the impact of the Asian Drivers on Sub-Saharan Africa agriculture. In particular, we review the performance of the agriculture sector in SSA and the challenges it faces to uplift the growth and poverty reduction potentials of African economies. We identify key issues of concern to SSA agriculture arising out of the emergence of Ads. We also identify key policy research questions, methods and approaches for investigating the impact of ADs as well as suggesting the selection criteria of countries to be included as case studies.

2. Sub-Saharan Africa (SSA) Agriculture and food security:

Performance, Issues and Challenges

2.1 Agricultural Production

The performance of the agricultural sector in SSA has been disappointing, and since the 1960s agricultural output has been declining. According to the U.S. Department of Agriculture (USDA, 1987), Sub-Saharan Africa is the only region in the world where per capita food production has not stopped declining over the past three decades. The disappointing performance of the agricultural sector in SSA has manifested in increased food insecurity and declining export earnings from agricultural produce. Others have noted that Africa is unable to feed its population and this situation has persisted over many years (NEPAD, 2003). Diouf (1989), for instance, notes that while agricultural production grew at an average rate of 2.4 percent per annum, population growth increased at 2.6 percent per annum between 1965 and 1973. Haggblade *et al.* (2004) notes that over the past 40 years or so, agriculture production has increased at a rate of 2.5 percent per year in Africa compared to 2.9 percent in Latin America and 3.5 percent in developing Asia. The index of per capita agricultural production shows a declining trend for African countries in contrast to the increasing trends in Latin America and East Asia.

The declining agricultural sector performance has led to increased food insecurity in SSA. Other studies show that the number of chronically under-nourished people increased from 168 million in 1990-92 to 194 million in 1997-99 (NEPAD, 2003). The performance of agricultural GDP shows that growth rates improved since 1995 but were not sustained due to variations in weather, conflict, diseases and insect as well as lack of good technology.

In the last four decades in Africa, less than 40 percent of the gains in cereal production came from increased yields. The rest was from expansion of the land devoted to arable agriculture (Runge *et al.*, 2003). In future, Africa must depend more on yield gains than land expansion to achieve food security. In the past two decades, cereal yield growth in Sub-Saharan Africa was virtually stagnant, whereas it grew by about 2.3 percent per year in West Asia/North Africa (Rose Grant *et al.*, 2001). The growth was however better for roots and tubers, fruits and vegetables, some cash crops and fisheries. Furthermore, there was better performance in 1961-1974 although Kenya and Zimbabwe failed to maintain maize revolution in 1960s and 1970s. There is still no sign of green revolution with respect to sorghum, rice and wheat.

Oil crop production was less than 2 percent in 1961-2004. However, South Africa performed better. SSA was negatively affected by the cheap import and monetized food aid. The pulses had a better performance except between 1975-1984 and the best performance was recorded in West Africa. The beans are both cash and food crops. The main obstacle in this sub-sector was limited support from research and extension.

With respect to tubers and roots, SSA's global share is insignificant and increased from 40 percent in the 1970s to over 50 percent in the 2000s. Their production fluctuated but annual growth is better than other food crops with cassava production increasing rapidly, hence ensuring food security but its contribution to the economy and income remains insignificant.

With respect to fruits and vegetable, output grew by 2.2 percent p.a. between 1961 and 2004. Exports increased at faster rate (5.3 percent). Important non-traditional exports item have performed well because of the favorable growing conditions and better marketing

opportunity. Kenya, South Africa, Zambia and Zimbabwe were among the successful cases.

In terms of agricultural trade, statistics show that the share in world agricultural exports declined from 8 percent in early 1960s to 2 percent in the early 2000 and SSA has fallen from a net food exporter to a net food importer (Haggblade et al., 2004). Based on agricultural trade balance, there is an increasing dependence on agricultural imports, with imported food replacing traditional food. Agricultural imports are growing at faster rates than agricultural exports.

There are a number of constraints that are responsible for the depressed food production performance in Africa. These include: declining productivity, poor mechanization, and weak research base, lack of incentives to producers, poor infrastructure and poor access to markets. For example, fertilizer use on food crops is about 5 kg per hectare, compared with an average of 30 kg per hectare for export crops (FAO, 1988). Agricultural research capability is inadequate and has often been confined to research stations with little or no on-farm experimentation or to cash crops. There is dearth of skilled researchers as the brain-drain resulting from unsatisfactory work and social conditions prevail at home.

Studies show that SSA agriculture has been experiencing declining productivity. Grain yield per hectare in SSA has remained constant compared to substantial increases in South and Southeast Asia (Otsuka, 2006). Generally, per hectare yield has barely increased since 1960 for the case of Africa. Of the total 1.6 per cent increase in food production, yield increased only by 0.1 percent. This means that the overall food production growth in Africa has been achieved mostly through expansion of area under cultivation. In other words, there has not been a significant technological change in African agriculture. Others have attributed the decline in productivity to increased soil degradation, underutilization of water resources, the low input use of fertilizers, limited use of improved soil-fertility management practices and weak support services -research, extension and finance- (Diagana, 2003; FAO, 2005). Otsuka (2006) notes that although some of the farmers have adopted high-yielding varieties, the impact on the crop yield is limited because of lack of application of fertilizers to food crops.

In addition to the increasing poverty partially engendered by the deteriorating food security, Africa's economic crisis has also been characterized by the disintegration of the productive and infrastructural facilities. Apart from the decline of food and agriculture, most African industries including agro-industries have also been increasingly operating much below their installed capacities and genuine, cottage agro-industries have been non-existent.

The physical infrastructure which was built during the aftermath of independence has, to a very large extent, deteriorated due to poor maintenance and lack of renovation while social services and welfare, especially education, public health and sanitation, housing, etc., have rapidly deteriorated and continue to decay.

Agricultural research and development (R&D) investments are one of the most crucial determinants of agricultural productivity growth, besides basic education. Investments in research to develop risk-reducing and productivity-enhancing technology are of critical importance. Others have argued that SSA has underinvested in research and development. NEPAD (2003) notes that spending on agricultural research in Africa has stagnated at US\$200 million per year in the 1980s and 1990s compared to substantial increases in Asia and Pacific countries. According to projections by Runge *et al.* (2003), trend investments in rural roads, irrigation, clean water, education and agricultural research also would have to increase by about 80 percent to achieve these outcomes. Such rates of increase occurred in Asia during the Green Revolution. Essentially, the decline in the real price of food - facilitated by crop yield growth from increased investments in agricultural research, infrastructure and environmental protection - drives increased access to food, with consequent reductions in under nutrition and especially child malnutrition. Science and technology can directly contribute to food security through improved crops and cropping practices, labor-saving technologies, better communications, and improved quality of food processing, packaging and marketing.

2.2 Market access

Market access also remains a critical problem for SSA agriculture. This is because, most of the tariff peaks are in agriculture, including processed products, and most post-Uruguay Round tariffs¹ have escalated between raw and semi-finished as well as between

¹ Data on tariffs are from the WTO Integrated Data Base (MFN Applied Tariffs).

semi-finished and finished products, with a greater impact on more advanced stages of processing². Coffee beans and final processed coffee, for example, are subject to tariffs of 7.3 per cent and 12.1 per cent respectively in the EU, 0.1 per cent and 10.1 per cent in the United States, and 6 per cent and 18.8 per cent in Japan. In the case of cocoa, tariffs at the raw, intermediate and final stages are 0.5 per cent, 9.7 per cent and 30.6 per cent respectively in the EU; and 0 per cent, 0.2 per cent and 15.3 per cent in the United States. Japan accords tariff-free treatment to raw cocoa beans, but cocoa products exported at the intermediate stage are subject to a 7 per cent tariff, while final cocoa products are levied at 21.7 per cent.

The African Growth and Opportunities Act (AGOA) which was introduced in 2000 and Everything But Arms (EBA) in 2001 by the United States and the EU respectively have raised prospects for African countries as regards the issue of market access. However, an analysis of EBA in 2001 revealed little use of the scheme, owing in part to the fact that the beneficiaries continued utilizing Lomé protocols, which arguably have less restrictive rules of origin than the former (Brenton, 2003).

An assessment of AGOA has revealed that the additional benefits represent a modest expansion over the preferential treatment that SSA countries already enjoyed under the generalized system of preferences (GSP) (UNCTAD, 2003b: 2). On the other hand, other economists contend that, if it were not for the restrictive rules of origin governing market access under AGOA, its medium-term benefits would have been five times greater (Mattoo *et al.*, 2002).

In SSA per capita exports of goods and services vary enormously, from an estimated \$9 in Mozambique to \$3743 for the Seychelles, with median value of \$98. Service exports, especially earnings from tourism in a number of countries, play an important and increasing role. Merchandise exports have fluctuated in countries with the highest rate of growth in export earnings in the late 1970s and early 1980s. However, the commodity exporters experienced much higher degrees of fluctuations in exports earnings than mineral and oil exporters. Overall, for African countries there has been a general decline in world exports in all categories of resource –based exports: as percentage of total world

² Granting of preferences does not mitigate tariff escalation. Residual protection in developed-country markets, after accounting for preferences, is typically in the more processed products, as is discussed below. On the other hand, while preferential market access might lead to a general reduction in both national and international tariff peaks, in some cases national peaks may actually rise taking preferences into account, as a lower overall average would be used as a reference point (see WTO, 2003: 9).

exports, SSA's share dropped from 0.8 percent in 1970 to about 0.3 percent in 1995. African countries have thus seen a steady decline in their market share. To reverse this trend and assure a proper integration into the world trading system they need to identify and correct constraints to export activities.

The constraints for most SSA is the share of primary exports as a proportion of total merchandise remaining high, although some countries have experienced significant improvements in export diversification, not only do most SSA countries depend on primary commodity exports, their export earnings are also highly concentrated in a few primary products: some countries rely on as few as three commodities for as much as 90 percent of their total merchandise exports. Countries with very high export concentration are essentially mineral and oil exporters.

Furthermore, the current trend of price incentives favors the capital intensive production of hard commodities and disfavors labor intensive production of manufactures. Accordingly, there has been a substantial decline in the prices of key export commodities by the Sub-Saharan African countries leading to deterioration in the net present value (NPV) of debt to exports ratios. It is therefore envisaged that such a trend poses critical challenges to poverty alleviation and income distribution strategies.

NEPAD (2003) identifies several challenges facing agricultural development in SSA including:

- low internal effective demand due to poverty;
- poor and un-remunerative external markets (with declining and unstable world commodity prices and severe competition from the subsidized farm products of industrial countries);
- vagaries of climate and consequent risk that deters investment;
- limited access to technology and low human capacity to adopt new skills;
- low levels of past investments in rural infrastructure (such as roads, markets, storage, rural electrification, etc.) essential for reducing transaction costs in farming and thereby increasing its competitiveness in serving production, processing and trade; and
- Institutional weaknesses for service provision to the entire agricultural chain from farm to market.

A cross-country study by FAO in (2002) estimated that more equal access to land and increased tenure security would result in more rapid growth in GDP and reduce prevalence of undernourishment. Tenure security can be achieved by respecting decentralized customary tenure and does not call for centralized top-down land tenure and titling reforms. Land tenure security also provides the safety required for productivity-enhancing and longer-run technology investments to be made.

The near stagnant economies in parts of Africa are to a large extent a reflection of stagnant agriculture. Lower unit costs in production, resulting from productivity increases, would lead to lower consumer prices for food and higher farm incomes, which, in turn would promote economic growth through lower wage costs, higher investments, and increasing consumer demand outside agriculture. Smallholder-led economic growth could lead to dramatic improvements in food security and nutrition.

Projections to 2020 from the International Food Policy Research Institute (IFPRI) indicate that, as a consequence of poor growth in incomes, poverty is expected to remain pervasive in Sub-Saharan Africa (Pinstrup-Andersen *et al.*, 1999). Food availability should increase marginally but remain at the unacceptably low average of 2,276 calories per day (compared to 2,633 for South Asia; 3,008 for Latin America and the Caribbean and 2,902 for the world). The situation in many countries in Sub-Saharan Africa will continue to cause concern, with per capita food consumption reaching only marginally acceptable levels. The FAO predicts that of the 17 countries below the recommended 2,200 kilocalories per person per day in 2015, 12 will be in Sub-Saharan Africa (FAO, 2000).

2.3 Value addition chain

Evidence on commodity prices and commodity dependent countries reveals a mismatch between prices paid by final consumers and those received by producers, because of higher profits at later stages of the value chain. The stage in the value chain where concentration is largest tends to acquire a large share of the profits, with a smaller share of the final price going to the other stages. The underlying cause of this is oligopolistic markets in which intermediaries largely appropriate the benefits of productivity improvements. A case in point is where despite the fact that business in several commodities (such as coffee and tea) has been booming in recent years in the markets of consuming developed countries, this has only been reflected in higher prices for final

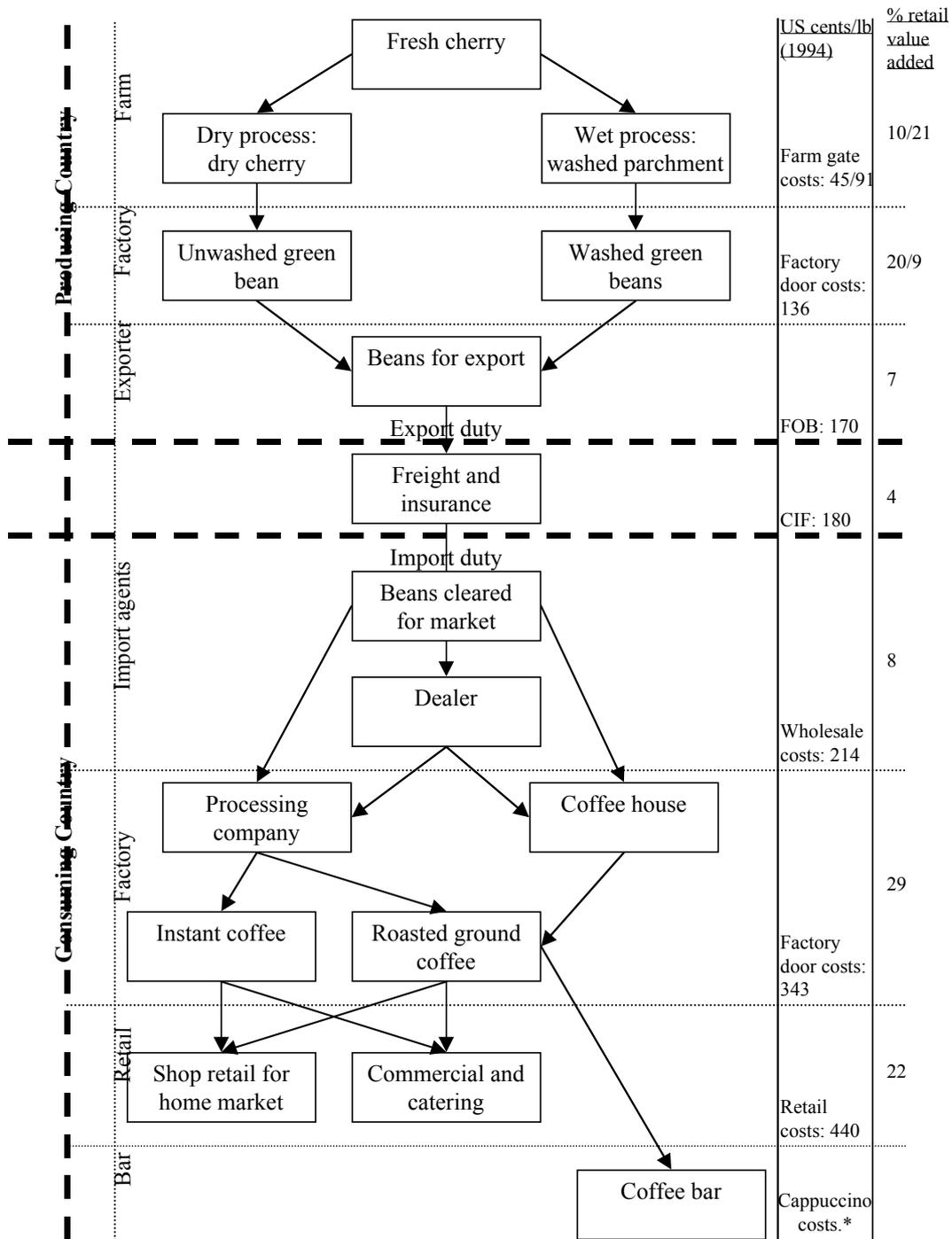
(processed) products, not in the prices received by producers in developing countries especially SSA.

While African producers have incurred income losses, traders and firms in the higher steps of the value chain have been reaping significant benefits. According to the International Coffee Organization (ICO), for example, in the early 1990s, earnings by coffee-producing countries (exports f.o.b.) were some \$10–12 billion, while the value of retail sales was about \$30 billion. Currently, the value of retail sales is \$70 billion, while producers receive only \$5.5 billion. World market prices for coffee have declined from about 120 US cents/pound in the 1980s to around 55 US cents, reaching their lowest levels in real terms in 2002 (Osorio, 2002). With an estimated 125 million people in the developing world dependent on coffee production for their livelihoods, the impact of such a price decline has been devastating in terms of social dislocation, including social exclusion and poverty.

A value chain analysis of the coffee market reveals that, since 1985, a growing share of total incomes in the chain has accrued to economic agents in the importing countries (see Figure 1). The asymmetrical character of power in the coffee value chain explains the unequal distribution of total incomes. “In the producer countries, farming is highly fragmented and the destruction of marketing boards further reduces the capacity of farmers to raise their share of value chain rents. At the importing end of the chain, there are three major residues of power – importers, roasters and retailers. They compete with each other for a share of value rents, but combine to ensure that few of these return to the farmer or producer country intermediaries or governments” (Fitter & Kaplinsky, 2001: 16).

Figure 1. The build-up of retail coffee prices (circa mid 1990s)

The Coffee Value Chain



* Costs variable but very high. Include: overheads, advertising, other products (i.e., milk), and the 'experience' of the coffee bar. (see breakdown of the price of a cup of coffee)

Source: Kaplinsky (2003)

From Figure 1, we observe that a striking feature of the coffee value chain has been the trend of inter-country income retention over the past four decades. The trend shows that the share of returns accruing to growers has remained consistently stable, while that of the producing countries has fallen just as the share of consuming countries has increased. This trend partly reflects the “unintended consequence” of the abolition of various coffee marketing boards as a consequence of structural adjustment policies. Although intended to provide the grower with a larger share of coffee incomes (by abolishing the “rents” accruing to the cooperative and marketing board agents), instead it transferred this income to parties in the rich countries. The damage was not only one of incomes but it also led to the destruction of the extension support required to maintain grower quality and education. As Gibbon (2001) shows, this can be directly traced to the decline in the quality of coffee and cotton grown in east and southern Africa.

Accordingly, it is more crucial for economies in Sub-Saharan Africa to shift from the ‘raw materials producer paradigm’ which have been their pre-occupation into the production of value added globalised products which are competitive in price and world class in quality. In this case, ‘world class’ takes the form of a retail-store-ready product for the North American (through the African Growth and Opportunity Act - AGOA) and EU (Everything But Arms – EBA – initiative) markets, Japan and, increasingly, Arab/Middle East ‘for sale’ shelf display. As such, export revenue can be raised not by increasing quantity exported but instead by raising price through greater value addition.

Also crucial to breaking Africa’s poverty trap, Sachs believes, is an agricultural revolution similar to that of the Green Revolution in India which helped double, triple, and even quadruple agricultural yields and generate income that now has India on a path towards sustained economic growth. High yield variety seeds created in the developed world were introduced through the 1960s and 70s in rural India and Southeast Asia and were responsible for historic gains in agricultural output. Sachs believes India to be a useful comparison because “places like India and others that were in extreme poverty only two generations ago have been able to develop out of extreme poverty substantially on their own resources, but I emphasize substantially and not entirely, because aid played a huge role in spurring this development.” Aid, in this case, came in the form of new seeds, fertilizer, and irrigation.

However, these high yield seeds were adopted at very low rates in Africa. “There has been only a 20 percent uptake of high yield varieties in Africa, but an 80 percent uptake in South and East Asia. African maize growers are planting open-pollinated varieties that

are not improved. They're using their own seeds for the next season. So the difference is you have farmers who don't use fertilizer, who don't use irrigation, who don't use improved seed varieties in these semi-arid environments and you put the package together and you get 1 ton per hectare and they're starving. And population in the rural areas is doubling every 23 years. And the environment is being degraded because when you farm a crop and don't fertilize it, don't put nutrients back, you're depriving the soil of nutrients. In traditional African agriculture when populations were lower, they used to slash and burn. But once you reach a population of about 70 per square kilometer in the rural areas, the fallowing system which takes 20 years to naturally restore the soil nutrients can no longer work. So what happens is that the situation is getting worse, not just staying steady". Sachs is describing a Malthusian crisis in rural Africa – where populations have run ahead of their ability to feed themselves, causing their hunger and poverty to worsen. Because these high yield seeds require irrigation and fertilizer Africans either cannot access or cannot afford, Sachs believes aid should be targeted towards distributing inputs to help increase agricultural productivity.

3 What Can We Learn from the Asian Drivers?

3.1 Food self-sufficiency policy

The Chinese food market is undergoing rapid change. On the demand side, these transformations include rising consumer incomes, urbanization, demographic changes (including an ageing population and increasing female labour participation rates) and the modernization of retailing. These trends will shift food demand towards meat, fish and horticultural products. On the supply side, there are also significant structural transformations and sources of uncertainty. These include, above all, the food self-sufficiency policies of the Chinese government, and also the changing balance of food production and exports, which increased production and export of high-value and value-added products, including meat, fish and horticultural products.

For over a decade, analysts have been arguing that China's comparative advantage lies in shifting agricultural production from grains, particularly wheat, and towards products which are labour-intensive, can be produced on marginal lands, and which require a higher level of processing (Lu 1998; Felloni et al. 2003, among many others). These include meat, fish and horticultural products whose exports have been increasing. In

contrast, there have been increasing concerns about the sustainability of grain production both on environmental grounds (land degradation and water shortages) and economic grounds. International bodies such as the World Bank and OECD have frequently argued in favour of China increasing its grain imports.

In spite of all these, the Chinese government has remained committed to a policy of the food self-sufficiency, which in practical terms means that domestic production of grain should meet at least 95% of domestic demand (Felloni et al. 2003). Since the mid-1990s, this policy has been pursued through a variety of policy measures, and its importance is frequently restated by government sources. This policy effectively limits agricultural trade, and as a result, the direct impact of China's trade in food products on SSA remains very limited. China's overall level of agricultural trade is relatively low. Exports of products for which it has a comparative advantage have tended to increase, while self-sufficiency policies limit imports of products for which China does not have a comparative advantage.

3.2 Food Production

The link between increased farm productivity and rural poverty reduction is compelling. East Asia's relatively successful fight against poverty and chronic malnutrition over the past several decades has been based from the start on productivity increases in agriculture. Farm production among the developing countries of East Asia has grown at an average annual average rate of 3.9 percent over the past two decades, well above the average annual population growth rate for this region of 1.4 percent (Paarlberg, 2001).

Much of this farm production growth came from successful adoption of new farming technologies, led particularly by the introduction of new high yielding seed varieties (especially for rice) accompanied by large new investments in irrigation, marketing infrastructure, and increased fertilizer use. New technologies and intensive input use were not the only key factors of success. After 1978, market-oriented policy reforms also played a significant role in stimulating farm productivity for the Chinese economy. Yet even in China 60 percent of the nation's significantly increased rice yields between 1975-1990 came from new technologies, including hybrid seeds developed by China's own scientists.

The success of China's agriculture with these new technologies has been remarkable: total grain production in China increased from a level of just 305 million tons in 1978 to annual average levels above 500 million tons by 1999. This farm productivity boom stimulated growth throughout China's economy which in turn reduced poverty.

Higher farm productivity in East Asia and South Asia have helped bring the growth of hunger into check in those regions, but in Africa the prevalence of hunger remains high, and the actual incidence of hunger remains on the rise. Unfortunately, most governments in Africa are not investing enough in this agriculture. In fact, African governments invest less than 5 percent of their annual budget in agricultural development, even though 75 percent of their citizens - and an even larger share of their poorest citizens - still depends on farming.

The situation has been made worse by international public sector investments in agricultural development in poor countries which have recently registered a steady decline. For example, annual World Bank lending for agriculture and rural development has fallen by 47 percent over the past dozen years, from \$6 billion in 1986 to just \$3.2 billion in 1998³. Annual foreign aid by governments to agriculture in poor countries has also fallen, by 57 percent between 1988 and 1996 (from \$9.24 billion down to just \$4.0 billion). The U.S. Agency for International Development (USAID) has unfortunately been a leader in this trend away from supporting poor farmers abroad. USAID spending for agriculture has fallen from \$594 million as recently as 1992 down to \$310 million in 2001.

Within the urban market segment in China, incomes vary greatly. An emerging middle class of relatively high-income consumers based largely in Beijing, Shanghai, Guangzhou, Shenzhen and other wealthy coastal cities. Other urban residents including many residents of inland cities, the unemployed and growing numbers of migrants from rural areas and retirees, have much lower incomes. High income urban residents consume more of most foods on a per capita basis, especially milk, fruits, beer, poultry, meat, fish, egg and vegetables.

³ Ibid.

Income growth may affect both the quantity and the mix of foods demanded in China. Demand analysis indicated that both rural and urban residents in China increased their purchases of all major food items as their incomes grew while holding prices constant. Income elasticities estimated by Chen illustrate how the response to income varies across food items. Price elasticities of demand indicate that China's consumers are sensitive to food prices, suggesting that realignments of prices could have important effects on foods demand.

As China has continued to develop and per capita incomes of its consumers have risen, dietary patterns have shifted away from staple grains and starches towards animal proteins and fish. Based on survey data collected by China's National Bureau of Statistics, per capita meat and egg consumption by urban residents increased an average of 1.5 percent annually from 1985 to 1999. Continued income growth and urbanization will further expand meat consumption.

China's dramatic increase in animal protein consumption would not have been possible without a rapid expansion of its domestic livestock industry. Since 1985, China's pork output has increased markedly, reaching over 40 mmt (4.7 times the level in the US) in 2000. China's beef sector has grown from an inconsequential output level in the 1980s to the third largest in the world. Likewise, China has moved into second place behind the US in total output of poultry. Overall per capita meat consumption in China however is still lower than in the US.

The Chinese and Indians demand for food products exhibits some caveats also. The most rapid phase of growth in Chinese demand for food is over. First the population growth in China is slowing and is expected to be a third of what has been in the past decades. Second, the gap between China and developed countries with respect to daily calorie intake is being bridged. Over the next three decades, Chinese per capita food consumption is therefore expected to grow at a quarter of the rate seen in the past three decades. The Chinese demand for food will continue to rise while this increase will go hand in hand with structural changes in food consumption patterns. The out come should be for instance a growing demand for meat. Increased demand for edible oils and sugar, products form aquaculture, fresh fruits and vegetables are also expected. As a result,

opportunities in the field of agro-business and related exports to China might be opening up in a near future.

In India, on the other hand, average food energy intake per person is 2500kcal and its population is set to grow at an average of over one percent a year over the next three decades.

3.3 Export orientation

In spite of having 20% of the world's population and 7% of the world's land, China has been, up to now, a net food exporter. The direct impact of this trade on SSA seems to be limited. The main markets for Chinese food exports are Japan, the US and Europe, and the richer Asian economies such as Hong Kong and Taiwan. There are some specific exceptions to this rule, such as Chinese garlic exports which have taken significant market shares in countries such as Vietnam and Thailand. One of the 'China effects' is that because of its size, exports which are not significant for total Chinese trade may have significance for importing countries.

Similarly, SSA countries are not the main suppliers of Chinese food imports. As is well-known, China is a major global importer of soya beans and animal feed more generally, but these are imported mostly from Latin Americas. Along with grains and feed, China also imports large quantities of oilseeds, fats and oils; it is the largest export destination for the palm oil industry of Malaysia and also a major destination for Indonesia. But while various authors have argued that China's rapid urbanization and industrialization will turn it into a net food importer, Lu (1998) argues that China can remain competitive in high-value agricultural production.

The indirect effects on SSA of China's food trade are harder to gauge. For example, China targeted the Japanese market in the 1990s, moving its market shares of fresh and frozen vegetables from the 5-6% range in the early 1990s to the 35-37% range in the late 1990s (Huang 2004). However, the main losers were not other Asian countries, but rather the US.

Based on the Asian drivers as markets for SSA exports, China and India's growing demand for commodities has not only resulted in higher commodity prices and in a

subsequent improvement of most African countries' terms of trade, but also brought about a redirection of African exports towards Asian markets away from OECD markets, yet the increase in SSA' trade with China and India has been essentially driven by the exports of agricultural/raw materials.

The Asian drivers' do impact the macroeconomic determinants of the price of raw material because India's contribution to global output is impressive, i.e. 20.6 percent and 7.1 percent respectively in 2004 based on IMF, World Economic Outlook (2005). Each year since 2001, their combined contribution to global output growth has been around 30 percent. China's contribution has been consistently higher than that of India by almost three times. Moreover, this contribution has helped to hold global output growth above the 4 percent threshold which is critical for improving the terms of trade for primary/agricultural producers. The sustainable high level of growth in both energy and metal use since 2000 has sparked China's (to lesser extent India) demand for commodities on a global scale.

Regardless of the currency regimes, any sustained growth differential to China and her main trading partners will imply trend appreciation of the real effective exchange rate. This will raise China's purchasing power, while it will negatively affect her export competitiveness. Africa's primary commodity exporters would be likely to benefit from real effective appreciation. Recent CGE simulations at Deutsche Bank (2005a) emphasized that the substitution effect of currency appreciation as China's demand for commodities would shift away from domestic suppliers to cheaper African supplies.

Many African economies are prominently linked to the world economy as important producers of raw materials and soft commodities. China's and India's emergence over the last decade as a key net importers of commodities means that global commodity markets are likely to be the main channels through which the impact of China and India's ascendancy has been (and will be) felt on the African continent. This evidenced by the correlation with the growth of its major commodity exports to China and India.

Africa is linked to the Asian drivers' demand for primary commodities via the Asian impact on the world prices of primary commodities that count in Africa's export mix and

the magnitude and speed at which African exports direct exports towards the Asian giants so as to satisfy their demand.

3.4 Agro Processing and Value Additions

With respect to cotton, China is not the only importer world over, but also a large scale producer. Sub-Saharan Africa countries that produce cotton have indeed been confronted with record low prices since 2004, due to a world record harvest in 2004. It is expected that China will account for 40 percent of the prospective fall in world production in 2005/2006, hence contributing to the expected rebound of cotton prices.

Beijing's motives are clear, China's growing industries demand new energy and raw material suppliers; its exporters want markets; its diplomats require support in international organizations; and its propaganda still seeks support from allies to advance Chinese interests and when necessary, to counter United States.

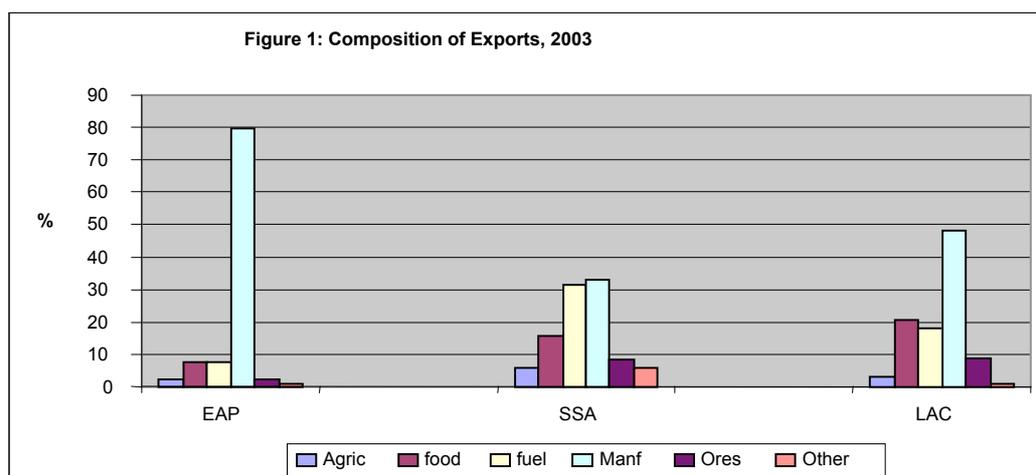
In 2004, Chinese exports to Ethiopia made up over 93 percent of the two nations' bilateral trade, and in the first half of 2005, Chinese purchases from Djibouti, Eritrea, Somalia were negligible, an imbalance that could alienate the Latin American states. In an attempt to ease the lopsided trade relationship, this year Beijing scrapped tariffs on 190 commodities from 25 African nations (Eisenman et al., 2006).

As Chinese investment in the continent has grown, some 80,000 migrant workers from China have moved to Africa, creating a new Chinese diaspora that is unlikely to return home. In some cases, this diaspora, along with imports of cheap Chinese goods, has sparked anger in Africa. Many African business people believe that Chinese goods are unfairly undercutting them, and fear the diaspora is remitting nearly all of its money back to China rather than reinvesting it into local economies. These are the kinds of concerns that once led to anger against Indian populations on the continent (Eisenman et al, 2006).

The Food and Agricultural Organization (FAO), lists 47 developing countries, 24 of them in Africa, which depend on agricultural exports. Many countries have set out to diversify their production but with less success. The relatively poor performance of Africa's exports can be attributed to a combination of a number of factors, including external barriers facing Africa's exports (market access issues), Africa's own trade barriers,

supply-side constraints, including inadequate trade related infrastructure and institutional capacities.

These factors have led to a heavy concentration of African exports in a few markets and products, principally agricultural products and minerals (Figure.1), which are growing relatively slowly in export markets, as opposed to dynamic products that have high global demand and high productivity potential. Even so, the share of food and agricultural products for the Sub-Saharan Africa (SSA) declined from around 50 percent during the 1960s to around 21 percent by the turn of the new millennium. The Hirschman concentration index⁴, which measures the relative importance of individual products in a country’s exports, was around 0.49 for SSA countries compared with 0.15 for middle income Asian countries and 0.11 for the OECD countries during the mid-nineties⁵. This clearly shows lack of diversification of African exports.



Source: ADB, 2006.

Exports from African countries to China particularly have been predominantly of extractive products, minerals, petroleum and timber. They are not likely to have had a significant positive impact on the poor. However, some types of exports which do offer potential for pro-poor impacts include fruit and cotton. Competition from China within the African countries is less of a challenge to the countries of the region than to those of South and South-east Asia which have specialised in exporting labour-intensive manufactures, particularly textiles and garments. The major exception to this is Lesotho,

⁴ The higher the Hirschman concentration index, the less diversified are a country’s exports, and vice versa.

⁵ Ng, F. and Yeats, A. (1996), ‘Open Economies Work Better!: Did Africa’s Protectionist Policies Cause its Marginalization in World Trade?’ World Bank Research Working Paper, No. 1636.

which over the last few years developed a significant garment industry which is threatened by the ending of the MFA (Multi-Fibre Agreement).

Angola, Cameroon, Democratic Republic of Congo and Sudan are significant exporters of crude petroleum to meet China's demand for energy. Cameroon and Congo, along with Mozambique and Tanzania are exporters of wood, while Ghana, Namibia and Zambia supply non-ferrous base metals, which are important raw materials for China's booming industrial sector. In all cases the exports involve very limited processing within the African countries. The only other product to feature significantly in China's imports from Africa is cotton from Cameroon, Sudan and Tanzania. This has been to supply the demand for cotton from the rapidly growing Chinese textile industry which it has not been possible to meet domestically because of the decline in the area planted to cotton as farmers switch to more profitable crops.

Exports from most African countries to China are predominantly extractive in nature, as reflected in the dominant share of minerals and petroleum and forestry in Chinese imports from the countries which have become important exporters (Table.1). Labour-intensive agricultural and manufactured goods do not feature significantly for any of the African countries. In terms of potential impact on poverty, the major effect of such extractive products is likely to be via the government revenue channel since employment creation is usually limited.

3.5 Global governance

China is becoming an important actor in multiple arenas of global and regional governance. This presents new challenges as it disrupts patterns of global governance established in the past few decades. These have been based around the dominance of Western countries, as expressed in the G7 club of industrialized countries. But, the global order is rapidly changing. By 2025-2030 at the latest, China and India, will join the US and possibly Europe to create four substantial poles of power in arenas of global governance. The way these countries interact will largely determine whether and how these problems are dealt with and what role SSA will be able to play in world politics and world economy.

For a long time China displayed reticence in global institutions, only making active interventions on issues it considered directly relevant to its security interests: notably disarmament and the status of Taiwan. However, China's willingness to criticize US policy in Iraq in 2004 and its increasingly active search for partnerships in Asia and SSA in pursuit of access to resources mark a new-found assertiveness.

The size and rapid growth of China and India, together with its increasing assertiveness, represent a challenge to the established order. Global governance has increased in complexity and scope in recent years. Up to the 1980s, global governance was largely confined to economic issues – GATT, WTO, the IMF, the World Bank- and the UN. The United States took the lead, followed by the European powers. Now more issues are subject to global negotiations (for example, climate change, intellectual property rights, humanitarian interventions, etc.). At the same time, the results of these negotiations have much greater impacts on developed and developing countries alike. For example, WTO agreements create obligations in areas such as subsidies and competition policy. The rapidly expanding area of food safety standards has clear and direct consequences both for access to developed country markets and domestic food production. International financial agreements have consequences both for capital flows and for the regulation of domestic financial systems. Policy conditionalities link aid, loans and domestic policies. The impact of the global on the national has been extended further through use of conditionality in bilateral or plurilateral trade agreements – AGOA, EU Economic Partnership Agreements and US bilateral treaties.

Developing countries have had limited effectiveness and participation in both multilateral negotiations and global standards setting bodies. Even in trade negotiations, where developing countries have had more than two decades to develop capabilities, the clearest impacts on framing agendas and staking out positions occurred as recently as the negotiations for the Doha Round.

The voice of developing countries in global governance is increasing led by countries such as India, China, South Africa and Brazil. They often articulate the views held by broad groups of developing countries and their size and political sophistications make them less subject to coercion by the industrialized countries.

4. Asian Drivers' Policies towards SSA Agriculture

4.1 Chinese Policies towards African Agriculture

According to the Chinese Government (2006), China intends to promote agricultural cooperation and exchanges with African nations at various levels, through multiple channels and in various forms. These channels and forms include land development, agricultural plantation, breeding technologies, food security, agricultural machinery and the processing of agricultural and side-line products. China also intends to intensify cooperation in agricultural technology, organize training courses of practical agricultural technologies, and carry out experimental and demonstrative agricultural knowledge projects in Africa and speed up the formulation of China-Africa Agricultural Cooperation Program.

China is potentially an important global trader of agricultural commodities, a role that will become more pronounced following the country's world trade organization accession. At various times during the 1990s, China imported as much as 17 percent of the world's traded wheat, 25 percent of its fertilizers and 28 percent of its Soya bean oil, while exporting as much as 10 percent of the world traded corn. China's role in agricultural trade has been modest and the country has run small annual agricultural trade surpluses in recent years.

China still maintains many barriers to agricultural trade, but it has liberalized trade considerably in a sector in which protection is high in many other countries. A shift towards freer trade may provide added side benefits from scale economies and increased domestic competition. With an abundant rural labour force relative to its land base. China has a comparative advantage in labour intensive agricultural products, such as fruits and vegetables, and manufactured agricultural products.

China's policy emphasis on grain self sufficiency may have impeded the shift towards comparative advantage in trade. In the 1990s, as China's lack of comparative advantage in grain production became more apparent, the target for domestic grain self sufficiency was lowered to 95 percent of total grain consumption needs. During the 1990s, China initiated a number of policy and institutional reforms to improve market efficiency,

including consolidating exchange rates, eliminating most government-determined prices among other policies.

What we need to know is

- (i) Will China increase imports of grain and other bulk commodities in accordance with its comparative advantage and if it can't then what opportunities does SSA have?
- (ii) Will increased competition in trade improve domestic efficiency and transparency and reduce farm processor price spreads?
- (iii) Will non tariff barriers remain important after WTO accession?

Other observers noted the “profound impact”, both good and bad, that China’s demand is having on African economies. The procurement process is not always open; the footing of both sides is not always even. All over Africa you will see Chinese construction firms building railroads, highways, telecoms, enormous dams, even presidential palaces.

The sheer power of a big actor like China raises four challenges that, while negative, could be turned into opportunities for growth and stability on all sides.

- Chinese infrastructure investment often mean importing thousands of Chinese workers to the competitive disadvantage of Africa’s struggling domestic firms
- There is no such thing as avoiding mixing politics and business, especially if China engaged in arms transfer to unstable countries, which has ramifications for the region as a whole
- The new partnership for African development (NEPAD) adheres to values of transparency, accountability and good governance, but China doesn’t always operate on these principles
- China’s interest is resource-intensive, half are in extractive industries that pose higher risks in labour, safety and the environment

Therein lies the greatest long-term opportunity in trade: capacity through collaboration, concluded Donald Kaberuka, President, African development bank (ADB), Abidjan. “Some welcome the emergence of China because it is a major donor and is less intrusive in domestic politics. But we can learn from them how to organize our trade policy, to

move from low to middle income status, to educate our children in skills and areas that pay off in just a couple of years”.

4.2 Indian Policies towards African Agriculture

In India, on the other hand, even though overall economic growth was high, it is clear that slower growth in agriculture was the major reason behind the slower poverty reduction. Prompted by macroeconomic imbalances, India's reforms began with macroeconomic and non-agricultural policy changes. The reforms led to impressive rates of economic growth in the 1990s, but since reforms were largely focused on the non-agricultural sectors, they had limited impact on poverty reduction. Agricultural policy changes occurred only at later stages, and even then were only partial. Therefore, the evidence suggests that successful agriculture-led reforms reduce poverty faster.

SSA could learn from the experience of India and seek to encourage agricultural growth in the future while at the same time avoiding the large inefficient subsidies provided to its agricultural sector. This issue is of increasing relevance given the recent introduction of the direct transfer program to farmers and the emphasis placed by many scholars and government officials on increasing government support to agriculture and rural areas.

Over the next 15 years, there is probably a greater possibility of India developing a distinct foreign policy with political interests toward Africa. India has the relative advantage of geography and of speaking English. India also has a strategic interest in the Indian Ocean. Indeed, it is more likely that India will have a foreign policy toward the Indian Ocean littoral than to Africa in general, as evidenced by the development of the IBSA (India, Brazil, and South Africa) forum. For example, official statistics show that in 2005, trade between India and South Africa stood at \$1.9 billion. Indian exports to South Africa include vehicles, rice medicines, cotton, leather goods, machinery and hand-made carpets – while South Africa exports a range of goods and commodities such as chemicals, gold, iron, steel, fertiliser and precious stones to India.

5. Impact of Asian Drivers on SSA agriculture

The impacts of ADs on SSA agriculture can either be categorized as competitive or complementary. We can also distinguish effects as direct or indirect on African agriculture.

The issue of the impact of Asian Drivers on African economies is a recent phenomenon in the literature compared to considerable work on this issue in Latin America (Chen et al., 2005). The literature on the impact of the ADs on developing economies has mostly focused on trade and particularly trade in mineral and oil resources and manufactured products. Jenkins and Edwards (2005) develop a framework for analysing the impact of the ADs growth on poverty reduction in African economies, focusing mainly on trade issues and foreign direct investments. Similarly, Kaplinsky and McCormick (2006) focus on trade related issues and the foreign direct investment channel of the ADs' influence on developing countries while Kaplinsky and Morris (2006) focus on the implications of quota removal on trade in the clothing and textile sector. Chen et al. (2005) focus on the global macroeconomics, implications on raw commodity markets, trade links and policies, foreign direct investments and governance issues. Kaplinsky et al. (2006) find that China has predominantly imported limited number of commodities, especially oil and hard commodities, from a limited number of countries.

There is therefore a considerable research gap in understanding the channels through which the ADs engage in SSA agriculture and the resultant impact on growth and poverty reduction in SSA. The existing literature on the impact of ADs on developing countries identify several channels including trade flows, foreign direct investments and technology transfer, aid flows, general and governance channels (Chen et al., 2005; Kaplinsky et al., 2006; Jenkins and Edwards, 2005). Within these channels the impact of ADs can be direct or indirect complementary but also competitive with different implications on welfare and growth of developing countries.

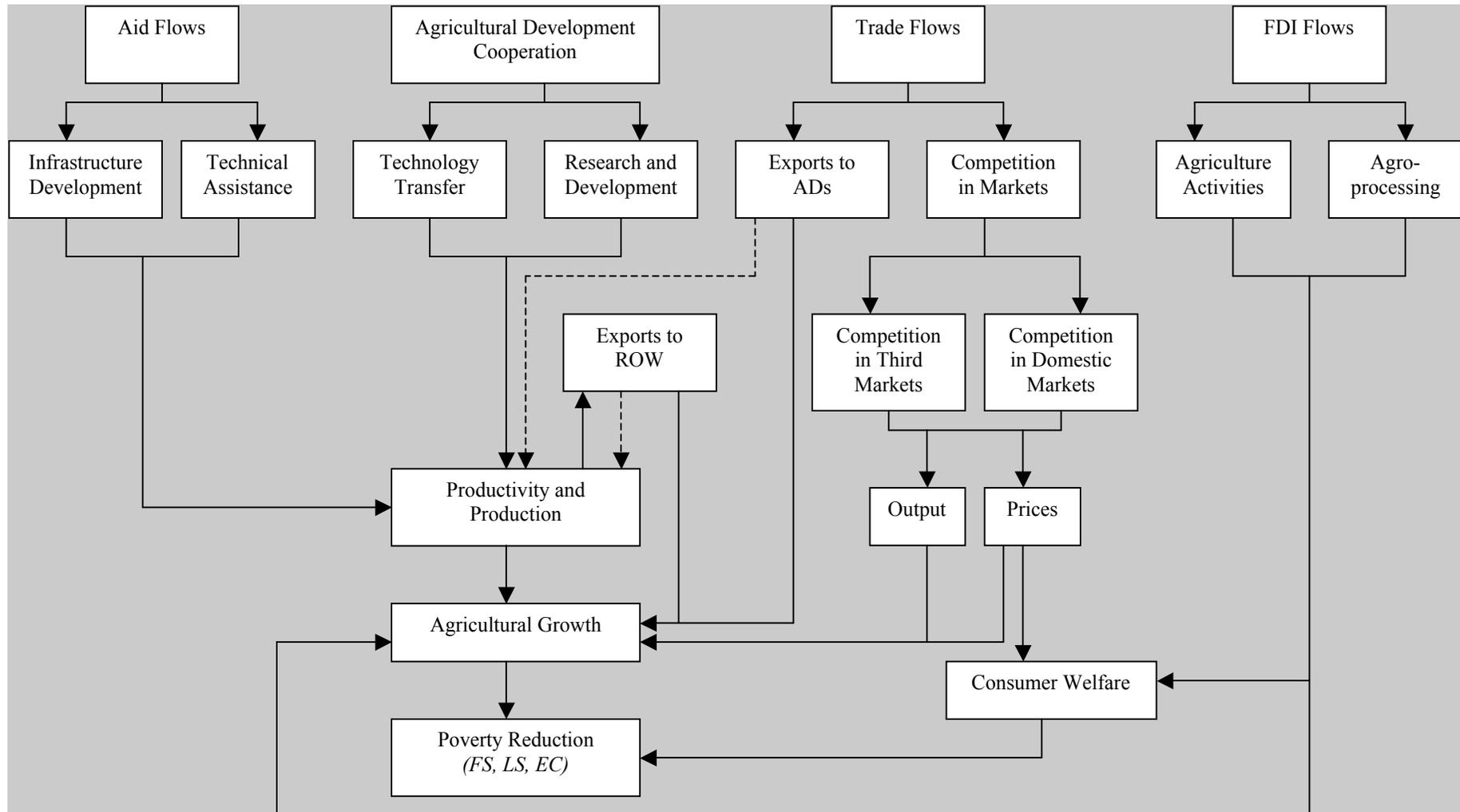
There are several pathways which need to be investigated on the impact of ADs on SSA agriculture. Figure 1 presents a simplified framework of analysing the impact of ADs on the agriculture sector in SSA. We identify four particular areas through which ADs can

affect SSA agriculture. These pathways include aid flows, agricultural development cooperation, trade flows and foreign direct investment flows. The agricultural development cooperation channel is critical in delivering growth and poverty reduction effects through productivity improvements, as a large proportion of people in SSA derive their livelihoods from agriculture.

5.1 Financial flows Channel

Not much is known about ADs' aid to SSA. However, Kaplinsky et al. (2006) note for instance that most Chinese aid to SSA is directed towards broader strategic objectives of developing links with resource rich countries in SSA. Aid to SSA has been in the form of assistance to key infrastructure investments, limited debt-relief, training of Africans in various fields, technical assistance in education, health and agriculture, tariff exemptions and through peace-keeping forces in SSA (Kaplinsky et al., 2006). Aid from developed countries to SSA agriculture has recently been declining (Eicher, 2003) and increased aid from the ADs to SSA may help to somehow reverse such a trend. In this case aid is likely to have direct complementary effects on SSA agriculture.

Figure 1 Framework for Analysing Impact of Asian Drivers on Sub-Saharan Africa Agriculture



With respect to SSA agriculture we envisage two ways in which aid flows can affect agricultural development as presented in Figure 1. First, through assistance directed to agricultural-productivity enhancing infrastructure investments such as roads and transport networks, education and health facilities. For example, assistance provided to the TAZARA railway linking Zambia and Tanzania (Kaplinsky et al., 2006) facilitates the flow of goods including agricultural products. CCS (2006b) notes that the TAZARA railway currently handles exports and imports between Tanzania, Zambia, Malawi, Congo, the Great Lakes region, South Africa and Zimbabwe. Secondly, aid through technical assistance in agriculture can directly contribute to agricultural development through increased productivity.

There are several examples of the ADs involvement in SSA agriculture through technical assistance. According to CCS (July, 2006) the Sierra Leone and Chinese governments signed an agreement to support agricultural development through the fielding of technical assistance and expert services by China for the identification, designing and implementation of the special programme for food security including water control, sustainable intensification of crop production systems and the diversification of production. In Malawi, the Chinese have been involved for a long time in irrigation rice farming through demonstration schemes, working with the local communities on how to improve rice production. Different from the technical assistance from the developed countries that concentrates at policy level in the Ministry of Agriculture, the Chinese technical assistance in agriculture is provided at the community level through the demonstration rice schemes. Although, there is no documented evidence on the impact of these demonstration schemes, such activities have the potential to raise agricultural productivity in SSA agriculture.

5.2 Agricultural Development Cooperation Channel

The development cooperation between SSA and ADs has the potential to enhance the production capabilities in SSA agriculture through improvements in the productivity. There are two pathways through which the agricultural development cooperation with ADs is likely to benefit SSA agriculture: transfer of technology and research and development (see Figure 1). These pathways are likely to have direct and complementary effects on SSA agriculture; particularly given the failure of the Green Revolution in the past. The direct effects may be in form of cheaper technologies and low cost production systems. First, the transfer of agricultural technologies from ADs to SSA agriculture can be in form of farming systems,

agricultural inputs and machines, and introduction of high yielding varieties. In Malawi, some farmers use composite manure, and more recently smallholder farmers have been introduced to what is known as ‘Chinese’ manure. Secondly, research and development activities can be inform of development of new crop varieties and new farming technologies. These activities are particularly important in improving productivity in SSA agriculture that has been declining. Improvements in agricultural productivity have the potential to enable SSA countries achieve critical thresholds and scales to compete effectively in international markets. In turn increased participation in international trade can provide further incentives to improve productivity. Improvements in productivity will be critical in promoting pro-poor growth in SSA agriculture with implications for food security, livelihood security and employment creation. Elsewhere, it has been shown that pro-poor agricultural growth has occurred in situations in which average farm productivity have increased (Ravallion and Datt, 2002). Similarly, East Asia’s relative success in the fight against poverty and chronic malnutrition over the past several decades have been attributed to productivity increases in agriculture. Farm production among the developing countries of East Asia has grown at an average rate of 3.9 percent over the past two decades, well above the annual population growth rates for this region of 1.4 percent (Paarlberg, 2001).

The success of the Green Revolution in ADs provides potential avenues from which SSA agriculture can benefit through ADs cooperation in agriculture. FAO (2005) notes that increase in agricultural production and productivity in India has been brought about by expanding cultivated area, developing irrigation facilities, promoting the use of improved high yielding varieties and of better crop husbandry techniques developed by agricultural research, improved water management, and plant protection. The Indian experience also reveal the importance of improving coordination and management of education, research and extension; ensuring public distribution of subsidised inputs and supporting agricultural prices through a system of administered prices (Dorward et al., 2004).

Much of the farm production growth in East Asian countries came from successful adoption of new farming technologies, led particularly by the introduction of new high yielding seed varieties (especially for rice) accompanied by large new investments in irrigation, marketing infrastructure, and increased fertilizer use. New technologies and added input use were not the only key factors. After 1978, market-oriented policy reforms also played a significant role in stimulating farm productivity for the Chinese economy. Yet even in China 60 percent of

the significantly increased rice yields between 1975 and 1990 came from new technologies, including hybrid seeds developed by China's own scientists. The success of China's agriculture with these new technologies has been remarkable: total grain production in China increased from a level of just 305 million tons in 1978 to annual average levels above 500 million tons by 1999. This farm productivity boom stimulated growth throughout China's economy which in turn reduced poverty.

China, for instance, has signed a number of agreements with SSA governments focusing on the development of the agricultural sector including cooperation in technology transfer and research and development. Examples include the Agricultural Development Project in Nigeria focusing on cooperation in agricultural machinery, seedlings and technical experts and transfer of Chinese technology in rice, fruits and vegetable production; supply of high-tech farming equipment in support of the agrarian reform programme in Zimbabwe (CCS, 2005b); and the agreement bolster Kenya coffee exports through value addition (CCS, 2005a).

5.3 Trade Flows Channel

According to the FAO (2005) the share of SSA agricultural exports in world agricultural exports has been declining while that of East and South Asian economies has been increasing. Agriculture still plays a dominant role in the ADs economies. Lu (2006) note that China is one of the top producers in agricultural products particularly grains (rice, wheat, soybeans and corn), cotton, peanuts, canola seeds, fruits, vegetables, tobacco, meat, poultry, eggs and aquatic products in which it ranks first in the world. Although agricultural production has increased over the years in ADs, the ADs are also significant importers of agricultural products. FAO (2005) notes that although agricultural development occurred in India, it is not sufficient to eradicate hunger; India has the highest number of undernourished people. Similarly, China, in spite progress in agricultural development, it is a net importer of food and imports of sugar, cotton and vegetable oil have also been on the increase recently (Lu, 2006). Trinh et al. (2006) estimate that China's commodity hunger of commodities such as agricultural products (mainly meat, soy and wood) will continue in the next 15 years.

The economic growth in the ADs has the potential to stimulate increased trade in agricultural exports from SSA through the increased demand in food and non-food agricultural products.

However, SSA will have to compete with countries that are major exporters of agricultural products to ADs with comparative advantage such as United State of America, Brazil, Argentina, Malaysia, Australia, Thailand and Russia (Lu, 2006).⁶ The growth of ADs has implications for SSA agriculture through the trade flows. There are two pathways in which ADs impact on SSA agricultural trade: through increased exports to ADs and through competition between ADs and SSA products in third and domestic markets. Thus, the impact of trade can be both complementary and competitive.

The growing incomes in the ADs have generated increased demand for agricultural products in which domestic supply in ADs can not meet domestic demand. Most studies show that the growth in the ADs is creating demand for some commodities from SSA. Lu (2006) notes that the increase in urbanisation and increases in incomes in China have lead to the demand for improved diets and new and different foods. Income growth may affect both the quantity and the mix of foods demanded in China. Demand analysis indicated that both rural and urban residents in China increase their purchases of all major food items as their incomes grow while holding prices constant. Price elasticities of demand indicate that China's consumers are sensitive to food prices, suggesting that realignments of prices could have important effects on foods demand.

As China has continued to develop and per capita incomes of its consumers have risen, dietary patterns have shifted away from staple grains and starches towards animal proteins and fish. Based on survey data collected by China's National Bureau of Statistics, per capita meat and egg consumption by urban residents increased an average of 1.5 percent annually from 1985 to 1999. Continued income growth and urbanization will further expand meat consumption.

China's dramatic increase in animal protein consumption would not have been possible without a rapid expansion of its domestic livestock industry. Since 1985, China's pork output has increased markedly, reaching over 40 million metric tonnes (4.7 times the level in the US) in 2000. China's beef sector has grown from an inconsequential output level in the 1980s to the third largest in the world. Likewise, China has moved into second place behind the US

⁶ The only SSA country that appear among the top 25 exporting countries of agricultural products to China is Gabon, ranked 24th in terms of volume of agricultural exports (Lu, 2006).

in total output of poultry. Overall per capita meat consumption in China however is still lower than in the US.

The ADs' demand for food products also exhibits some caveats. The most rapid phase of growth in Chinese demand for food is over. First, the population growth in China is slowing and is expected to be third of what has been in the past decades. Second, the gap between China and developed countries with respect to daily calorie intake is being bridged. Over the next three decades, Chinese per capita food consumption is therefore expected to grow at a quarter of the rate seen in the past three decades. The Chinese demand for food will continue to rise while this increase will go hand in hand with structural changes in food consumption patterns. The outcome should be for instance a growing demand for meat. Increased demand for edible oils and sugar, products from aquaculture, fresh fruits and vegetables are also expected. As a result, opportunities in the field of agro-business and related exports to China might be opening up in a near future. In India, on the other hand, average food energy intake per person is 2500 kcal and its population is set to grow at an average of over 1 percent per year over the next three decades.

Whilst there is currently greater demand for hard commodities and oil from SSA, the continued growth and rising incomes in ADs is likely to generate demands for different types of agricultural products for which SSA may have comparative advantage. In some SSA countries the growth of exports to ADs has increased both in terms of the share of exports to ADs in SSA export and the growth rate of in exports (Jenkins and Edwards, 2005; Chen et al., 2005). Nonetheless, there are variations across countries in the increases in exports to ADs. For instance, on the top end exports to ADs as a proportion of total country exports accounted for 43.9 percent in Sudan and 17.3 percent in Somalia and on the lower end only accounted for 0.1 percent in Botswana and 0.4 percent in Uganda (Jenkins and Edwards, 2005). In terms of growth of exports as a proportion SSA exports to ADs between 1998 and 2003, Sudan registered 209.3 percent growth while Sierra Leone registered 85 percent growth. Kaplinsky et al. (2006) also find that between 1990 and 2004, SSA exports to ADs increased from 1.8 percent of SSA exports to ADs in 1990 to 10.5 percent in 2004.

Existing studies, however, show that most of the exports to ADs, particularly to China are hard commodities and oil. Nonetheless, there is also evidence that trade relations between SSA and ADs have extended to traditional and non-traditional SSA agricultural exports. For

example, Chen et al. (2005) and Kaplinsky et al. (2006) single out the increased demand by ADs for cotton from SSA. Both China and India are not only net importers of cotton, but net imports of cotton are also increasing. The increase in the demand for cotton may also lead to improvements in international markets. Such increased demand for cotton offers hope to SSA cotton farmers that have found it difficult to break into major markets such as USA due to subsidies given to cotton farmers in USA. Increased demand for SSA cotton, may offer opportunities for countries such as Malawi that are trying to revive cotton production. The increased demand in SSA cotton by the ADs is likely to generate pro-poor agricultural growth, since cotton is mainly grown by smallholder farmers in SSA.

Agricultural products exported to ADs by some SSA countries include cassava (Nigeria), fruits and nuts (Mozambique, Ghana, Tanzania, Nigeria), cotton (Sudan, Ghana, Cameroon), cocoa (Ghana), oil seeds (Congo), edible vegetables (Ethiopia, Ghana, Tanzania) (Jenkins and Edwards, 2005; Chen et al., 2005). In some cases, the ADs have opened opportunities for SSA countries to export to ADs non-traditional exports and to expand their traditional exports. Some of the agricultural products that are less tradable such as cassava for instance are becoming more tradable. For instance, CCS (2006a) notes that many Chinese firms have been placing orders for Nigerian cassava above what Nigeria could supply. Such demand for non-traditional agricultural commodities grown mainly by smallholder farmers in SSA is likely to have enormous potential for agricultural growth in SSA agriculture and poverty reduction. The major challenge for SSA agriculture, however, is how to gain the competitive edge in agricultural exports to ADs markets where agricultural trade is currently dominated by developed countries, East Asian economies and Latin American economies. This will require productivity improvements in SSA agriculture. Hence, there is therefore a possibility that competition for ADs' markets may provide incentives for productivity improvements in SSA agriculture, hence generating further impetus to pro-poor agricultural growth in SSA.

There are, however, questions about market access to ADs for SSA agricultural products. China is undertaking economic reforms and with its strategic positioning in the global political and economic spheres it is opening up its market to countries in SSA. For instance, in 2005, China announced a zero-tariff treatment of particular products from all of the 39 least developed countries that have diplomatic ties with China (CCS, 2005b). Kaplinsky et al. (2006) notes tariff exemptions on 190 products including food from 25 countries in SSA. However, what is not known is whether there are other non-tariff barriers that may restrict the

export penetration of SSA countries into the Chinese market. The benefits of China's and India's rising global demand for African commodities are nevertheless, attenuated by the volatility of demand of the Asian giants, partly due to cyclical variations but importantly also to arbitrage between home production and imports. The rising raw material demand from China and in India is not necessarily an unfettered blessing for Africa.

The second pathway through which trade stimulated by ADs impact on SSA agriculture is indirectly through competition in third markets and directly through competition in SSA domestic markets in form of competing imported products from ADs. These have both complementary and competitive effects on agricultural growth and poverty reduction in SSA.

The effects on competition from ADs in third markets and domestic markets in agricultural products will depend on the similarity of commodities traded by ADs and SSA in these markets. Competition in third markets may have indirect impact on SSA agriculture through lower global prices, leading to declining agricultural incomes. It is, however, also possible that such competition in third markets can provide incentives for productivity enhancement in SSA agriculture. Competition in domestic markets through imports from ADs may have indirect and competitive effects by displacing domestic products and complementary effects through productivity enhancement effects of competition. Both competition in third markets and domestic markets have output and price effects. Jenkins and Edwards (2005) assert that a higher export similarity index between ADs and SSA is likely to have negative effects on SSA exports and domestic production and may lead to depression of prices. This argument is particularly reinforced by the fact that ADs has made significant strides in productivity gains that have emerged from the success of the Green Revolution. However, such negative effects may be moderated in the long-term by the productivity gains in SSA agriculture that may result from ADs/SSA agricultural development cooperation in specific crops.

Many SSA economies are prominently linked to the world economy as important producers of raw materials and soft commodities. The ADs' emergence over the last decade a key net importers of commodities means that global commodity markets are likely to be the main channels through which the impact of ADs' ascendancy has been (and will be) felt on the African continent. This evidenced by the by the correlation with the growth of its major commodity exports to China and India. SSA is linked to the ADs' demand for primary commodities via the Asian impact on the world prices of primary commodities that count in

Africa's export mix and the magnitude and speed at which African exports direct exports towards the Asian giants so as to satisfy their demand.

There is evidence from disaggregated data that shows the potential impacts. Jenkins and Edwards (2005), for instance, find that 64 percent of exports from Malawi compete with China in third markets with 52.7 percent being agricultural exports. Similarly, 54.4 percent of exports from Namibia, 26 percent of which are agricultural exports compete with Chinese products in third markets. This presents a potential threat to SSA agriculture, and the challenge is how such SSA countries maintain or increase their exports to third markets with such competition.

Competition in the in domestic markets of SSA economies from agricultural imports from ADs may also have implications for SSA agricultural development. This is particularly the case in situations in which ADs' agricultural imports are cheaper in SSA domestic markets compared to domestically-produced agricultural products. There is growing anecdotal evidence already on the impact of ADs imports of manufactured products on SSA domestic industries. Thus, if ADs have comparative advantage in the production of such products, this is likely to displace domestic products in domestic markets. This may in turn lead to reduction in the domestic production and agricultural growth with consequences on income distribution. Jenkins and Edwards (2005) argue that if imports from ADs displace local production in agricultural products which employ large numbers of unskilled worker, there may be negative effects on the poor. This is also true if displaced products are mainly produced by smallholder resource-poor farmer. In addition, increased imports from ADs in agricultural products that compete with locally produced products, may lead to depressed prices which will offer further disincentives to local farmers.

Nonetheless, from a welfare point of view, the overall effects will depend on the extent to which the negative effects on domestic production outweigh the positive effects on depressed consumer prices. This is also particularly the case where imports from ADs compete with imports from third countries in SSA domestic markets (Jenkins and Edwards, 2005). Kennan and Stevens (2005) carried out a preliminary review of the impact of imports from China to African consumer welfare and local industries' competitiveness. With respect to the many sectors of exports, households are set to gain as consumers of Chinese final goods and local producers as users of Chinese imported semi final goods.

Kennan and Stevens (2005) further offer a typology of African winners and losers. Countries that are “winners” are those for which the number of sectors recording trade gains associated with lower costs of imports or higher prices for exports exceeds the number of sectors undergoing losses due to increased Chinese competition on third markets or higher prices for imports attributable to higher Chinese demand for a given product. Those countries are Angola, Nigeria, Sudan, Tanzania and to a lesser extent Benin, Burkina, Cameroon, DRC, Ghana, Mali, Mauritania, Mauritius, Niger, Senegal, RSA, Togo, Uganda and Zimbabwe. The impact is neutral for Chad, Ethiopia, Kenya, Madagascar, Mozambique and Zambia and negative for Malawi only. However, they do not reckon the adverse effects of cheap Chinese imports on local producers either, with its potential trail of lay-offs and subsequent revenue losses from local households. Cheap Chinese imports are merely regarded as a source of welfare gain associated with lower costs of imports. Therefore, and as acknowledged by the authors, they provide a very preliminary and partial assessment of China’s impact on African countries.

5.4 Investment Flows Channel

With growth in ADs, there is increasing flow of direct foreign investments from ADs to other developing countries including countries in SSA. The extent of such flows of investments is difficult to measure, as some of such investments are in form of small scale trading investments (Kaplinsky et al., 2006). Nonetheless, available studies point to increasing investment flows from the ADs to SSA (Jenkins and Edwards, 2005). Literature also suggest that most of the investments from ADs into SSA are in energy and resource sectors and small scale trading activities (Jenkins and Edwards, 2005; Kaplinsky et al., 2006; Chen et al., 2005).

There are two ways in which FDI from ADs can affect agricultural development in SSA. First, investments in agricultural activities can directly lead to development of commercial agriculture thereby leading into agricultural growth. If such agricultural investments are labour intensive, agricultural growth resulting from direct investments may also lead to employment creation for unskilled workers, with implications on poverty reduction. Secondly, FDI in agro-processing manufacturing activities may create backward linkages with the agricultural sector which may lead to the growth of the agricultural sector. The FDI

in agricultural and agro-processing activities may also lead to consumer welfare through lower prices for agricultural products (as supply increases) and due to the availability of high value processed food products.

However, FDI from ADs may also have negative effects especially with respect to environment, work environments and conditions of service and product standards. The negative environmental and social effects of FDI from ADs have been of concern in the literature (Jenkins and Edwards, 2005; Kaplinsky et al., 2006). For instance, in Malawi, the authorities have had to close two Chinese oil processing companies due to poor hygiene and workers have complained of poor working conditions and low wages (*The Daily Nation*, 13 September 2006).

The evidence on the extent of foreign direct investments in SSA agriculture and in agro-processing manufacturing activities, is however scanty. Kaplinsky et al. (2006) note that foreign direct investments in agriculture only accounted for 7.1 percent of FDI of the top 20 countries in SSA that received Chinese FDI between 1979 and 2001. Other studies show that ADs are increasingly investing in agro-processing activities with linkages to local agricultural sectors such as in Nigeria (textiles) and Ghana (food and beverages) (Jenkins and Edwards, 2005), and oil processing industries in Malawi (*The Daily Nation*, 13 September 2006).

6. Research Issues and Method of analysis

6.1 Research Questions

The framework for analysing the impact of the ADs on SSA agriculture points to several unknown areas through which ADs interact with SSA countries and how such interactions impact on SSA agriculture. As noted earlier, there exist studies on the impact of ADs on developing countries and countries in SSA, but no study has specifically focused on the impact on SSA agriculture. In most SSA economies, agriculture plays a dominant role and the poverty reduction efforts in many development strategies of SSA, look at the agricultural sector as the one with the highest potential for achieving pro-poor economic growth. The relations between ADs and SSA countries are opening up areas of opportunities and threat for agricultural development in SSA. The broader research question to ask in country case

studies is: how do ADs interact with SSA agriculture and what are the implications of such interactions on agricultural development in SSA?

The main challenges for SSA agriculture are how to increase production to achieve scale and threshold for exports and to meet the continued flow of materials to support agro-processing industries; the low adoption of appropriate technologies and extensive methods of farming; the weak supply response and the underutilization of preferential markets; and the challenge of providing appropriate support for agricultural development in SSA. The framework for analysing the impact of ADs on SSA agriculture developed above, reveal that ADs may help in addressing some of these challenges. The framework developed above reveal complexity of various interactions that occur through several channels through which ADs engage with SSA countries. Nonetheless, as the framework shows, the ultimate output of the assessment of the impact of ADs on SSA agriculture is to identify impact indicators and how these have changed or are likely to change with SSA's increasing engagement with ADs. More particularly, we need to know the impact on addressing the main challenges of agricultural development in SSA and the potential for poverty reduction.

The country case studies should therefore attempt to provide answers to the following research questions:

- 1. In what ways do the Asian Drivers engage in SSA agriculture? What motivates the ADs in various channels through which they interact with SSA countries in the agricultural sector?***

The country case studies should bring out the economic, political and social factors that facilitate or hinder ADs engagement in SSA agriculture.

- 2. What are the modalities of aid from ADs to SSA agriculture? How different are such modalities from the major donors that support the agricultural sector in a particular country?***

The country case studies should consider the forms of aid (tied or untied, grants or soft loan, technical assistance) that comes from the ADs directed at the agricultural sector directly or indirectly. It will also be important for case studies

to political economy of aid, the motives, the conditionalities of aid and the relative importance of Chinese aid in the country's total aid over time. It will be important to undertake a comparative analysis of aid modalities between China and India and between the ADs and a selected sample of major donors that support agricultural development in the country. The direct and indirect impacts of aid have to be identified. The specific questions under this theme are:

- a) Is there foreign aid from ADs directed at the agricultural sector in the country?
In what form is such aid?
- b) What types of assets are being created with aid from ADs that have implications for agricultural development?
- c) Is aid from ADs to SSA agriculture any different from that of other donors in SSA agriculture?
- d) At what level do ADs and SSA countries interact with respect to technical assistance? Is it at central government or policy level, local government and local communities?
- e) Are the modalities in technical assistance any different from other donors in agriculture?
- f) What is the impact of such technical assistance on agricultural productivity?

3. *In what ways have ADs influenced SSA agriculture? How do ADs interact with various stakeholders in agricultural development cooperation?*

The country case studies should investigate the various ways in which ADs interact with SSA countries in agricultural development. Some of the SSA countries have specifically signed agreements with ADs on agricultural development cooperation. The country case studies need to analyse these agreements and document the progress that has been made. The framework for analysing the impact of ADs in SSA agriculture identifies two broad areas of agricultural development cooperation: transfer of technologies and research and development. In some countries, the ADs have demonstration fields and it will be important to undertake comparative case studies of farmers that have adopted ADs' technologies and those from other countries. The following are the specific research questions:

- a) Has the country entered in a formal agreement of cooperation in agricultural activities? What stakeholders were involved in such agreements?
- b) What are the types of technologies (inputs, seeds, equipment and machinery, and farming systems) that are coming from the ADs?
- c) What are the scales and conditionalities of access to agricultural technologies, the scale of the technologies?
- d) To what extent do the technologies from the ADs serve the smallholder farmer needs in SSA?
- e) Are there specific crops that are being promoted and what are the motives behind targeting such crops?
- f) What is the nature of research and development cooperation? What crops are being promoted and whether new crops are being introduced to farmers?
- g) To what extent are technologies from ADs adopted and how they are introduced to the farmers?
- h) How do activities in agricultural development cooperation impact on productivity and agricultural growth and poverty?

4. *What is the impact of ADs on SSA in agricultural trade?*

The impact of ADs on SSA with respect to trade has been studied with a general context. The research issues here should focus on agricultural trade and this is the area in which the impacts are likely to be complimentary, competitive, dynamic, direct and indirect. The direct and complementary impact of ADs in agricultural trade will emerge from exports from SSA. The main question is what is the impact of increased trade relations and increased demand of commodities by ADs on SSA pro-poor growth, employment and poverty? Country studies should investigate the direct effects and complementary nature of agricultural trade. The following are specific questions:

- a) What is the composition and trend of agricultural trade between ADs and SSA? Has increased trade promoted non-traditional exports?
- b) Has increased trade with ADs provided incentives for productivity improvements in SSA agriculture?

- c) What are the factors that are important in gaining access to ADs' markets? To what extent do SSA countries negotiate with ADs on market access? To what extent do SPS standards are impeding trade in ADs?
- d) Are ADs' markets better markets for SSA agricultural products and what are the prospects of growth in agricultural exports to ADs?

The other channel through which trade in agricultural products can affect SSA agriculture is through competition in third markets. This will involve identification of the destination of SSA agricultural exports and determining the extent to which such exports compete with exports from ADs in those economies. In such products and markets, there will be need to assess the trend in exports and determine the extent to which such trends can be explained by the impact of competition from ADs. The specific questions include:

- a) What agricultural products from ADs compete with SSA agricultural exports in third markets?
- b) To what extent do competing exports from ADs displacing SSA agricultural exports?
- c) What have been the trends in international prices of such products?
- d) How are various categories farmers in SSA affected by the competition with ADs in third markets?
- e) Has increased competition in trade improve domestic efficiency and improve farmers' returns from agricultural activities?

Country case studies should investigate the extent to which imports of agricultural products from ADs are competitive or complementary in the domestic markets. Specific questions include:

- a) Are ADs dumping agricultural products in SSA countries?
- b) How competitive are agricultural imports from ADs?
- c) What are the welfare implications of increased imports of agricultural products from the ADs?
- d) To what extent are various groups of domestic producers affected or likely to be affected by the import competition from ADs?

5. ***What is the nature and impact of foreign direct investments from ADs in SSA agriculture?***

The ADs are increasing engaged in foreign direct investment in SSA in various forms. It will be important for country case studies to document the extent of foreign direct investment in agricultural activities and agro-processing activities. FDI can have both direct and indirect effects. Direct effects may result from direct investments in farming activities while indirect effects may result from investments in agro-processing activities which may generate additional demand for agricultural products. Specific questions include:

- a) What is the trend in FDI from ADs into the agricultural or/and agro-processing sector?
- b) What are the types of entrepreneurs from ADs that are involved in FDI in the agricultural sector (private, state or multinationals)?
- c) To what extent do investors from ADs engage in joint ventures with SSA entrepreneurs?
- d) Are these investments vertically integrated in the value chain?
- e) To what extent are agro-processing investments utilizing domestically produced agricultural products?
- f) What are the environmental and social consequences of such investments? Are there any mitigation measures in place?
- g) How does FDI in agriculture and agro-processing feed into agricultural growth?

6.2 Selection of Country Case Studies

The selection of country case studies can be based on the specific crops demanded by ADs or indirectly affected by ADs through competition in third markets, the importance of agriculture and the recent growth of the agricultural sector. However, selecting country case studies on the basis of traded agricultural commodities is a bit problematic. First, SSA agriculture is diverse in the number of crops grown and exported to ADs and the rest of the world. Very few crops are known to be exported to ADs. Secondly, the channels through which ADs affect SSA are many and selecting countries based on commodities exported to

ADs may mask the need to look at some of the channels. Thirdly, there is very little information on the agricultural produce imported by ADs from SSA. The available evidence is scanty and would point to the following commodities: cassava (Nigeria), fruits and nuts (Mozambique, Ghana, Tanzania, Nigeria), cotton (Sudan, Ghana, Cameroon), cocoa (Ghana), oil seeds (Congo), edible vegetables (Ethiopia, Ghana, Tanzania).

6.2.1 According to importance of agriculture in the economy

The selection of countries should be guided by share of agriculture GDP, the growth rate in agricultural GDP and the growth in agricultural exports which the ADs are also competing in producing and exporting to the same markets. We also look at the imports by ADs from SSA. In the first country selection criterion, the primary factor in the selection is the contribution of the agricultural sector to gross domestic product. The agricultural sector should contribute more than 20 percent to GDP. The country case studies should include countries that have recently achieved high growth rates and low growth rates in agricultural GDP. It will be important to study the role of the ADs countries with varying growth rates. The third variable in the selection of countries in the study is the growth agricultural exports. Here too, it is important to study low achievers and high achievers.

FOA (2005) provides a good summary of the performance of SSA countries in agriculture based on these three indicators. On the basis of the primary indicator, the agriculture in the following countries contributed more than 20 percent between 2000 and 2004: Tanzania, Cameroon, Ethiopia, Malawi, Uganda and Kenya. Using the latest figures on agricultural growth and growth in agricultural characteristics, these countries are presented in the matrix in Table 1. Kenya and Ethiopia had low growth both in agricultural GDP and agricultural exports. Malawi and Uganda had high growth rates in agricultural GDP but low growth rates in agricultural exports. Finally, Cameroon and Tanzania had high growth rates in both agricultural GDP and agricultural exports.

Table 1 Matrix of Potential Country Case Studies

Indicator	Low Growth in Agricultural GDP (less than 3 percent)	High Growth in Agricultural GDP (more than 3 percent)
Low Growth in Agricultural Exports (less than 2 percent)	Kenya Ethiopia	Malawi Uganda
High Growth in Agricultural Exports (more than 2 percent)		Cameroon Tanzania

6.2.2 According to SSA exports to China

Based on the trade statistics criterion, we shall target which exports from SSA are competing with the exports from ADs. A good example is the cutflower products where the Chinese are heavily investing in to become the world leader in the production. We also look at the imports by ADs from SSA. For example, both China and India are not only net importers of cotton, but net imports of cotton are also increasing. For example, Sudan, Ghana and Cameroon export cotton to ADs. This has been to supply the demand for cotton from the rapidly growing Chinese textile industry which it has not been possible to meet domestically because of the decline in the area planted to cotton as farmers switch to more profitable crops.

The increase in the demand for cotton may also lead to improvements in international markets. Such increased demand for cotton offers hope to SSA cotton farmers that have found it difficult to break into major markets such as USA due to subsidies given to cotton farmers in USA. Increased demand for SSA cotton, may offer opportunities for countries such as Malawi that are trying to revive cotton production. The increased demand in SSA cotton by the ADs is likely to generate pro-poor agricultural growth, since cotton is mainly grown by smallholder farmers in SSA.

Some other agricultural products exported to ADs by some SSA countries include cassava (Nigeria), fruits and nuts (Mozambique, Ghana, Tanzania, Nigeria), cocoa (Ghana), oil seeds (Congo), edible vegetables (Ethiopia, Ghana, Tanzania) (Jenkins and Edwards, 2006; Chen et

al., 2005). In some cases, the ADs have opened opportunities for SSA countries to export to ADs non-traditional exports and to expand their traditional exports. Some of the agricultural products that are less tradable such as cassava for instance are becoming more tradable.

Cameroon and Congo, along with Mozambique and Tanzania are exporters of wood to China.

China is a major global importer of soya beans and animal feed more generally, but these are imported mostly from Latin Americas. Along with grains and feed, China also imports large quantities of oilseeds, fats and oils; it is the largest export destination for the palm oil industry of Malaysia and also a major destination for Indonesia.

6.3 Fields of Expertise

The framework for analysing the impact of ADs on SSA agriculture proposed above has revealed that the engagement of ADs with SSA countries occur within a political economy. Hence, the study of such interactions requires diversity in the Country Research Team compositions. The framework raises issues relating to the processes of interactions and the political economy of ADs and SSA relations in agriculture. Such issues can be able handled by expertise in Political Science. There are also issues that relate to agricultural production systems requiring the expertise of an agricultural economist and trade-related issues requiring the expertise of an international economist. The country study teams should have the following expertise:

- a) Agricultural Economics
- b) International Economics
- c) Political Science

6.4 Approaches to Analysing Impact of ADs on SSA Agriculture

6.4.1 Methods of Analysis

The focus on ADs is quite new and there is not much evidence on how ADs interact with SSA and the impact of such interactions in agriculture. The various channels through which ADs interaction with SSA countries is likely to affect agriculture require a diverse methodology. The analysis can range from descriptive to more quantitative modelling

approaches. It will therefore be important for country case studies to use both qualitative and quantitative research methods. The case studies should focus on the following areas:

- a) Description of the nature of interactions between ADs and SSA agriculture in the country, including the various channels of interactions and the motives that drive such relationships, the pros and cons of such relationships;
- b) Analysis of trends in key economic indicators that would indicate the extent of the economic relationship between ADs and SSA countries in agriculture. These indicators should include amount of ADs aid of various forms towards agriculture, agricultural trade (imports and exports) and foreign direct investments, and should be analysed comparatively with aid or investment flows from other donor partners.
- c) Analysis of various channels on agricultural production and productivity at national and household level, and the extent to which such improvements can be attributed to the ADs effects. This should include identification of commodities affected and trends in productivity and production.
- d) Analysis of the trade effects including identification of exports and imports to and from ADs and the competing products in third markets and domestic markets and analysing their effects on SSA agriculture.
- e) In all cases, analysis of the dynamic issues – what if the international environment and bilateral AD and SSA countries relations change what are the likely implications for SSA agriculture.

6.4.1.1 Descriptive and Qualitative Analysis

The approach here should be more qualitative based on key informants interviews with key stakeholders such as AD investors and experts in SSA agriculture, policy makers, non-governmental organisations that interact with AD investors and experts, and local farmers. Such qualitative work will enable us better understand the ways in which the ADs engage SSA in the agricultural sector, the modalities of aid, motives behind the aid, associated benefits and disadvantages of such aid to recipient countries, their interactions with policy makers and the levels at which the ADs interact with SSA agriculture ministries. Such interactions involve process issues and political economy issues that can be best studied using qualitative approaches. Such descriptive analysis should analyse macroeconomic indicators that show the extent of ADs engagement with the case study country agriculture over the

most recent five years similar to existing studies on impact of ADs on SSA trade and investment (Jenkins and Edwards, 2005; Kaplinsky et al., 2006).

6.4.1.2 Micro Modelling

There is also need to undertake micro level economic modelling especially in understanding the impact of the ADs in agriculture through the agricultural development channel at household level. This will require modelling household responses and behaviour in agricultural production. However, such modelling may be more demanding in terms of the primary data requirements. Small sample studies may be justified as exploratory studies. The major issues to investigate at household level include the impact of technical know-how, research and development and technology transfer on the performance of the agricultural sector. The approach would be to interview farmers that have been exposed to ADs interventions and a control group that has not been exposed to such interventions. Micro studies may therefore analyse the improvements in productivity, technical efficiency, production growth and food security.

6.4.2 Stakeholder Interactions

The rise of the ADs and their increased relationships with the SSA countries has implications for different stakeholders. It is therefore important for researchers to engage with policy makers and other stakeholders of throughout the research activity. These stakeholders should include the Ministry of Agriculture, Ministry of Finance, Ministry of Foreign Affairs, Investment Promotion Agencies, Parliamentary Committee on agriculture, Non-governmental Organisations, Farmer Organisations at national and sub-regional level. It will also be important to interact with other donor partners, particularly those that support the agricultural sector in the country. Some of these stakeholders will prove to be vital key informants for the country case study.

6.4 Method of Analysis

Both quantitative and qualitative approaches will be applied. Based on secondary data sources, the trend analyses of production and price levels of agricultural products (exports as well imports) will reveal the impact of ADs entrance in the world market. Of great concern

will be similar exports from ADs as well as SSA to the same markets and imports by ADs from SSA region.

The qualitative analyses will be based on selected case studies in a given country. A structured questionnaire will be administered to the target firms/farmers to obtain the relevant information on the perceived effects of ADs in their operations (eg economies of scales), profit margins and export potentials to ADs.

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ANNEX

1. Country choice scenarios through dependency on agriculture

(a) Countries that are heavily dependent on agricultural GDP

Table A1: Share of Agriculture in Total GDP, 2000 – 2004 (%)

Less than 20 percent	20-39.99 percent	40 percent and above
Botswana, Seychelles, South Africa, Mauritius, Gabon, Angola, Congo, Namibia, Swaziland, Eritrea, Zambia, Cape Verde, Zimbabwe, Lesotho, Senegal, Equatorial Guinea (16 Countries)	Guinea, Mauritania, Madagascar, Kenya, Côte d'Ivoire, Sao Tome and Principe, Mozambique, Gambia, Burkina Faso, Malawi, Chad, Nigeria, Benin, Ghana, Uganda, Niger, Mali. (17 Countries)	Togo, Tanzania, Sudan, Cameroon, Ethiopia, Rwanda, Sierra Leone, Burundi, Central African Republic, Comoros, Guinea-Bissau, Dem. Rep. of Congo, (13 Countries)

Source: FAO (2005)

(b) Countries that have achieved low or high agricultural growth

Table A2: Performance of agriculture: growth rate of agricultural GDP, 1995 - 2004 (%)

>5.00 percent	3.00-5 percent	1.00-3 percent	<1.00 percent
Rwanda, Sudan, Angola, Malawi, Equatorial Guinea, Cape Verde, Gambia, Cameroon, Mozambique, Comoros, Benin (11 Countries)	Central African Republic, Guinea, Nigeria, Ghana, Uganda, Tanzania, Mauritania, Mali, Sao Tome and Principe, Côte d'Ivoire, Niger, Swaziland, Lesotho, Burkina Faso (14 Countries)	Seychelles, Togo, Zambia, Djibouti, Chad, Ethiopia, Madagascar, Zimbabwe, South Africa, Senegal, Congo, Rep. of, Namibia, Burundi, Kenya, Guinea-Bissau, Mauritius, Gabon (17 countries)	Sierra Leone, Congo, Dem Rep. of, Botswana, Eritrea (4 countries)

Source: FAO (2005)

© Countries that have experienced decline or growth in agricultural exports.

Table A3: Growth of agricultural export in SSA countries, 1995 - 2004

More than 3 Percent	From 3 to 2 percent	From 1 to 2 Percent	less 1.00 percent
Gambia, Nigeria, Côte d'Ivoire, Niger, Togo, Mozambique, Tanzania, Senegal, Guinea-Bissau, Rwanda, Congo, Republic of (11 countries)	Benin, Cameroon, Burkina Faso, Ghana, Swaziland (5)	Madagascar, Seychelles, Comoros, Congo, Dem Rep, Kenya, Namibia, Zimbabwe, Angola, Ethiopia, Uganda, Sudan, Guinea, Central African Rep (13)	Botswana, Gabon, Sao Tome and Principe, Malawi, Chad, Mali, Mauritius, Burundi, Lesotho, Mauritania, Sierra Leone, Djibouti (12)

Source: FAO (2005)

2. Country choice scenarios through trade – SSA exports to ADs

Countries could be chosen according to the exports of agricultural commodities that China is also producing or planning to engage in. For example the cut flower sub-sector. China's drive to dominate the world cut flower export market will be at the expense of leading developing countries producers such as Kenya, Ethiopia and Uganda. In the Yunnan province where development of the flower industry is taking place, 12-lane highways are already under construction, and the local government is offering interest-free loans for greenhouse construction. Refrigerated trucks are being offered free or at big discounts to farm groups so that flowers do not wilt in transit.

At the equivalent of a \$25 a month, impoverished rural Chinese are also reportedly providing a more competitive labour force than in more politically open countries like Kenya where labour and human rights activism has pushed average salaries closer to around \$100. depending on the time of year, Chinese roses cost as little as half the price of roses in other developing countries, excluding air freight.

Agricultural products exported to ADs by some SSA countries include cassava (Nigeria), fruits and nuts (Mozambique, Ghana, Tanzania, Nigeria), cotton (Sudan, Ghana, Cameroon), cocoa (Ghana), oil seeds (Congo), edible vegetables (Ethiopia, Ghana, Tanzania) (Jenkins and Edwards, 2006; Chen et al., 2005)