DWARF MEETS GIANT

African Farmers in a Globalizing World

CDP 25 years in development

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Picture: Rice farming in Mozambique, Adri van den Dries

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INTRODUCTION

It is interesting to note that agriculture is back on the development agenda, most certainly in Africa, after an absence of 15 to 20 years. The World Bank's World Development Report of 2008 is devoted to the subject, and so are earlier documents from DFID, OECD, EU, etc. In the Netherlands a new minister for Development Co-operation has adopted 'growth and distribution' as one of his priorities, in light of disappointing results thus far in meeting the first Millennium Development Goal of halving poverty (and hunger) by the year 2015. This certainly implies renewed efforts to develop agriculture in Sub-Saharan Africa, after disappointing results with State interference until 1990 and with liberalized markets thereafter.

In this document we shall take a closer look at economic developments in Africa during the last decade, mainly Sub-Saharan, in order to facilitate a discussion about what types of foreign aid can be beneficial to African agriculture and the reduction of poverty. After a review of general economic trends and rural poverty agricultural issues shall be taken up. Thereafter, some global changes will be presented, which influence the way we have to look at Africa and its agriculture, and some historical illustrations of successful rural development in Holland and Taiwan. This should lead to some suggestions as to how African agriculture can develop and what foreign assistance might do.

1. ECONOMIC DEVELOPMENT IN AFRICA

Economic Growth

Sub-Saharan Africa (SSA) has a population of around 800 million people, with an annual population growth of 2.5%. Almost half of these people live in four of its 48 countries: Nigeria, Ethiopia, DRC (Congo) and South Africa. Most of the others have populations below 10 million inhabitants, some even below 1 million.

The overall size of the economy was USD 615 billion in 2005, with a GDP p.c. of USD 750. If South Africa is excluded, with 40% of SSA's GDP, SSA remains with around 700 million people with a GDP of USD 375 billion, i.e. per capita income USD 535. That is the size of the Belgian economy, or 60% of the Dutch economy with its 16 million people (GDP p.c. USD 32,000).

Value added for agriculture - output minus input value - averaged 17% of GDP in SSA, for industry 32% and for services 51%, but without South Africa the share of agriculture equals 30-35% of GDP, i.e. USD 120 billion. As a share of GDP it declined only marginally during the last 30 years, a clear sign of stagnation for a developing continent, as it ought to decline much in favour of industry and services, as happened in East Asia (from 35 to 15%) and South Asia (from 45 to 22%).

But of course there are large differences between various African countries. The share of agriculture is only 3% in the national income of South Africa (as in the Netherlands), but about 50% in the Central African Republic (CAR), Ethiopia, DRC and Tanzania. In many others this ranges from 20 to 30%. Therefore, (primary) agriculture matters much more in the wealth of some African countries than in others, as does its development for poverty reduction.

Although the continent is not yet the emerging market some claim it to be, it is gradually climbing out of the black hole it was during the 1980s. Economic growth averaged around 4% in SSA during seven years (1998-2005), and without Nigeria and South Africa growth was 6% in 2006 and 2007. This is largely due to strong global demand and high commodity prices (UNECA, 2008; UN, 2008). This led to a real growth in p.c. incomes of 4% over the last four years, twice as much as the period before.
Prospects for 2008 are less good in view of the global credit crunch and recession in the USA, and of high oil and food prices, but quite reasonable still (IMF, 2008; UNECA, 2008).

But averages mean little in Africa, apart from poor data, where countries in (civil) war heavily depress these figures. Oxfam recently estimated that Africa lost around USD 300 billion through armed conflicts in 23 countries during the last decade, its economies shrinking about 15% per year on average.
Whereas five countries grew more than 7% during the last decade, and nine between 5 and 7%, a quarter of SSA countries (13) still had an average (annual) growth below 3%, which means a stagnating per capita income. Real p.c. income for the entire region is still close to the 1970s.

The fastest growing economies (averages for the last 10 years) are: Equatorial Guinea (22% p.a.), Chad (10%), Mozambique (9%), Angola (8%), Botswana (6%), Sudan (6%), Rwanda (6%), Senegal (6%), Ethiopia (5%) and Burkina Faso (5%). The five main losers were Swaziland, Ivory Coast, Comoros, Seychelles and Zimbabwe (-5% p.a.).

Four of the 'winners' are oil exporters, which is now found almost everywhere along its West coast from Nigeria to Angola and contributing 10% to the world oil output. Soon the USA will import 25% of its oil needs from this source, which makes Africa a relevant political and economic entity for the first time in its history. Oil producing governments in SSA are expected to get oil revenues of USD 200 billion during the next decade (CRS). Natural gas is now also found, e.g. in Nigeria and Sudan. The Americans are keen on preserving access to those natural resources, having created a military unit (AFRICOM) for that very purpose. Africa also produces 90% of the world's cobalt, 80% of its coltan, 64% of manganese, 50% of gold, 40% of platinum and 30% of its uranium (FPIF).

But apart from natural resources a slow structural shift towards services is becoming visible, financial ones and tourism, accounting for an increasing share of growth. Africa received 41 million tourists in 2004, worth USD 25 billion, which is 4 to 5% of the world total (UNECA, 2007).
At least six non-oil producers are also performing well, two of which are post-conflict nations (Mozambique, Rwanda) coming from very far. While suffering from high oil prices, as importers, these countries were able to compensate for this with higher agricultural and mineral prices.
And the 34 least developed countries in Africa averaged 5% growth, more than the 4% average of SSA. This is a major improvement over the past, but still modest in comparison with the 7% growth needed to meet the Millennium Goal of halving poverty by the year 2015, but not all countries need this 7% average to reach that goal, e.g. Uganda and Kenya only half.

It is clear that the presence of oil causes a split in the continent: oil producers grew by an average 7% during the last decade, non-oil producers by 4%. The four most populous countries with 43% of its population hardly had any growth since 1960 and still account for only 3% of the region's income.
Other factors also contributed to the fact that compared to 1960, at the time of independence, 9 countries now have a lower p.c. income, whereas 13 saw an increase of 2-9 times. Botswana saw its p.c. income increase 9 times since 1960, Mauritius 5 times, the Republic of Congo, Lesotho and Cape Verde 4 times, and Seychelles and Gabon 3 times. The rest could not even double its income in 45 years, which is why its p.c. income is now only 1/5 of that in East Asia, having been the same around 1960. While SSA's income grew by 0.5% since 1960, growth in the other developing countries together was 2.5% (World Bank, 2007). Not only was SSA's growth much slower than elsewhere, it was also very instable, with many ups and downs throughout the period. At least some sustainability in growth seems to have been created now.

In general, high prices of raw materials (fuels, minerals, cash crops) explain part of the growth now and this trend is likely to stay in view of the high demand from China and India, as well as growing energy needs and the appearance of biofuels. During 2002-2005 the price-index (world market) for non-fuel commodities rose by 45%, the one for minerals, ores and metals by 100% and for crude oil 114%. This trend has not changed since (IMF, 2007 and 2008, UNECA, 2008; UN, 2008; World Bank, 2008; UNCTAD, 2008). FAO's food price index (wheat, rice, dairy, vegetable oil and sugar) rose by 40% in 2007, which means more than doubling since 2000, and by 57% in March 2008 compared to March 2007. Wheat and maize prices reached record levels in 2007, increasing over 100%. This is good for African surplus farmers, but a serious problem for the many more poor, buying most of their food, including many subsistence farmers. The first riots have already taken place on the continent and many governments and international organizations call for urgent aid to manage the food crisis. As a whole, the continent now imports 25% of its cereal consumption against 5% in 1960 (FAO, 2008).

So it seems that now half of Africa's countries are doing well economically, with the other half still remaining behind. Where the continent as a whole still suffers from severe geographical (climate, soil, fragmentation, landlocked) and demographic (high fertility rate and age dependency) constraints, it is clear that policy (reform) and governance can make a difference. Openness to trade, education and technical progress (innovation) are all important for increasing an extremely low labour productivity on the continent, and thereby fastening economic growth, and these factors can and have been influenced by correct policies in a number of countries. Yet, times are hard for net food and oil importers, with others benefiting from one or the other, including minerals and metals. It is a small wonder that, thus far, none of these double importers have collapsed under the heavy burden. A sign of some resilience against external shocks. Fortunately, since July 2008, maize and oil prices have started to decline again. Others may follow, reflecting economic worries in the US and Europe.

External Economic Relations

The external economic relations also look somewhat more favourable for Africa. African exports were USD 360 billion in 2006, an increase of over 20% for the fourth consecutive year, whereas imports exceeded USD 290 billion (Uneca, 2008). This will lead to a trade surplus of over USD 100 billion, good for financing development and monetary reserves. All over the continent (failed) import-substitution policies have now been replaced by export-promotion and with an export of about 30% of its production the continent is becoming an open economy. Trade matters much for its development, especially as domestic markets remain small for lack of people and wealth. It is therefore that a recession in its trading partners (USA) will hurt the continent.

Exports are growing rapidly, especially of oil, which now represents 55% of the total, followed by industrial exports (25%), food and beverages (9%) and raw materials (8%). Total SSA exports rose by just over 75% between 1985 and 2000, an annual rate of 5%. Since then they also grew by 75%, a tripling of the annual rate (IMF, 2007b). This means that as a % of world exports the African ones are gradually climbing back, having declined to 2% of world total during the 1990s. Its agricultural exports dropped from 8 to 3% of total agricultural exports in the last decade, but there are some promising non-traditional exports (vegetables, fruits, flowers, fish and wood), some even processed. The overall diversification in its export pattern is still limited, with a high dependence on a few primary commodities with limited expansion possibilities.

African imports are dominated by machines and chemicals (including fertilizer), and agricultural imports are 15% of its total imports. The continent is a net food-importer, in 42 of its 53 countries, despite the majority of people still being engaged in food production. Annual food and other agricultural imports exceeded USD 25 billion in 2005, and food imports doubled during the last decade (now 40 million tons), 15 to 25% of its food consumption (NEPAD).

More than half of SSA's trade is to and from South Africa or Nigeria, and its general direction is rapidly shifting towards the East. Trade with China is almost doubling every year, exceeding USD 50 billion now, and making China Africa's third trade partner after the USA and France. Trade targets for 2010 are USD 100 billion. Most of this is oil, Africa now supplying one third of China's oil imports, but agricultural commodities (cotton) are also increasing. Africa mainly imports manufactured goods from Asia, much from India too, but also rice and cereals. The import of cheap industrial goods makes African industrialization difficult (Collier, 2007; UNECA, 2008; UN, 2007).
Trade amongst other African countries is still small (10%), with poor transport and communication, fragmented markets and high tariffs. For most African countries the EU remains important, and the poorest don't face tariffs anymore as a result of the 'Everything-But-Arms' initiative, but complex non-tariff ones remain, such as sanitation requirements.

Foreign investments to Africa are rapidly increasing, largely as a result of the oil and mining boom, and also influenced by the privatization wave that swept over the continent, fuelling corruption, and leading to many mergers and acquisitions rather than 'Greenfield' (new) investment. The investments are primarily aimed at natural resources for exports rather than at local markets, with very few in manufacturing and a small but rising share in infrastructure-related services (transport, storage and communications) (UNCTAD, 2007).
Private capital flows to SSA increased five times since 2000, from USD 11 to 53 billion in 2007, mainly portfolio and private debt flows. Foreign direct investments remain rather stable around USD 15 to 20 billion, half of which in South Africa and Nigeria. Six other countries also received more than USD 1 billion each and foreign investment is now of some relevance in one third of SSA countries. South Africa is at this moment the largest investor in the rest of Africa and Asian investments exceed 10% of the total. Singapore, India and Malaysia are its main investors, followed by China, Korea and Taiwan (IMF, 2008; UNECA, 2008; UNIDO, 2008).

Private inflows to SSA exceeded net official aid for the first time, which may signal an approval of economic reforms on the continent. Unfortunately, domestic investments did not grow much during the last decade. Gross Domestic Investment for the whole continent remained at roughly 20% of GDP, which is still lower than during the pre-reform period 1975-85. In order to halve poverty by 2015 and reach 7% economic growth, 22-25% of GDP must be invested. Investment in non-oil producers stayed at 18%, with domestic savings even lower (15%), but there are also some improvements here (IMF, 2008; UNECA 2008 and 2007).

At the same time much private capital is still flowing out, estimates varying from USD 3 billion to USD 13 billion p.a., 3 to 8% of its GDP, especially from Nigeria, Ivory Coast, Angola and Cameroon. The continent is in fact a net creditor to the rest of the world, its private assets held abroad being higher than its official liabilities, total debt stock being around USD 300 billion (UNECA, 2007). This means that at least 40% of its wealth is held in foreign banks.
Obviously, such figures must be treated with care, as there are also high, unrecorded private inflows and quite large registered profit repatriation linked to foreign investment. Profit remittances during 1990-2000 exceeded foreign investments for a number of countries, like Kenya, but not for others, like Tanzania (UNCTAD, 2005b).

SSA now houses eight middle-income countries, in Southern Africa and some islands, and the seven oil-exporting countries can also take care of themselves. Equatorial Guinea is on its way to becoming one of the richest countries in the world with a GDP p.c. of over USD 40,000, however abominably distributed. Such countries are on their way to become full members of the global market and have become attractive enough to international business in view of their competitive environment. The rest of Africa is still lagging behind, although even there macroeconomic improvements (public finance, debt, inflation) are visible, as well as improved market efficiency, technological readiness, business sophistication and innovation, making foreign investments in the near future more likely. Some sustainability in economic growth also makes investment less risky.

It is clear that Africa is the last frontier market and that some integration in global financial markets is presently taking place. Cross-border investments in banking strengthen regional (financial) markets and so do joint ventures with foreign banks. Banks from South Africa, Nigeria, Kenya, Togo, India, China and Morocco all participate in this process. Togo and Gabon may even become Africa's new tigers, if they handle the liberalization of capital regimes without wrecking interest- and exchange rate policies (IMF, 2008; African Business, April 2008).
New private investment funds are also being created for Africa, like Renaissance Capital, Investec and Africap, a sign of optimism. Elsewhere the banking sector and capital markets are still weak, but governments are trying to make foreign investment attractive, its supervision and regulation lagging behind, however. Infrastructure and application of the rule of law are still major constraints, and with only 3,000 foreign affiliates SSA still has a long way to go, e.g. in comparison with the 43,000 in China (IMF, 2008; UNECA, 2008; UNCTAD, 2007; WEF, 2007b).

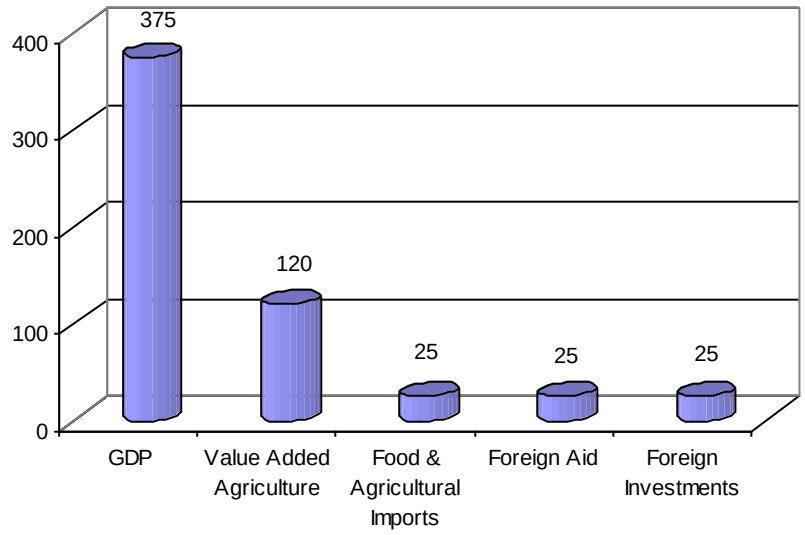
After a long stagnation foreign aid to Africa started to increase again after 1998, averaging USD 19 billion during the last eight years, reaching USD 26 billion for SSA in 2004 and remaining at that level thereafter. This is 40% of all ODA. For Africa this now means 5% as a percentage of GDP, compared to 6% in 1990. Most of the increase in aid went to debt relief and humanitarian assistance, and the promise to double aid by 2010 will be hard to keep (UNECA, 2008 and 2007).
Fortunately, governments themselves are now collecting much more revenue than before, up to 25% of GDP, and together with the relief of foreign debt this provides ample fiscal space for development.
US aid to Africa quadrupled since 2000 from USD 1 billion to USD 4 billion, making it the number one donor, followed by the EU, IDA, France, UK, Germany and the Netherlands (over USD 1 billion). Top aid receivers are Egypt (USD 5 billion), with a number of other countries receiving around USD 1 billion each annually: Kenya, Tanzania, Ethiopia, Mozambique, Angola and DRC. Aid covers over half of all government investments for a number of countries.

Almost half of all aid to Africa is still directed at social sectors, only a quarter in 1990, but 25% is now channelled again at investment related activities. Agriculture received much less aid than in the past, both globally and for Africa. In constant prices (USD 2,000) agriculture in SSA still receives around USD 1 billion, as in 1975, but with a double population. This is 4% of ODA. Of course, quite some infrastructural aid is supposed to benefit agriculture as well.
Almost USD 1 billion is now for 'Aid for Trade ', mainly technical assistance. Debt relief has provided much relief for a number of African governments, and external debt for SSA without South Africa is now less than 30% of GDP, USD 250 billion, whereas it was 70% in 2000. Debt service payments are down to 12% of exports (IMF, 2007a).
China is now also providing aid to SSA, loans and credit lines valued at USD 19 billion, with a recent pledge of another USD 5 billion, mainly to oil-producers for projects in energy, telecommunications and transportation.

Finally, there are large remittances to Africa from its migrants in the rich and other African countries, much unrecorded again. Officially, these exceeded USD 20 billion in 2005, with two third going to North Africa. Some countries in SSA also receive sizeable amounts, over USD 1 billion, like Nigeria, Kenya, Sudan, Senegal and Uganda. Such flows are potential sources of investment as well (UNECA, 2006 and 2007; World Bank, 2008).

Figure 1 summarizes some key values for SSA during 2005, just to present an order of magnitude.

Figure 1: Some key data for Sub Saharan Africa (without South-Africa) around 2005 (in billion USD)



2. POVERTY IN AFRICA

Poverty in Africa has been depressingly stable during the last decade, at least in relative terms, despite the positive economic developments. 40 of the 50 poorest countries are still in Africa and 30% of the world's poor now live on the continent, with only 10% of the world's population. Head counts of those people with incomes below one dollar a day keep fluctuating around 40% since 1990. That means around 300 million people in SSA are still very poor, with nearly 80% of these (230 million) living in rural areas. Over half of the rural Africans are still extremely poor, half of these chronically, the other half moving in and out of the poverty zone (Von Braun).
Highest poverty rates (over 60%) are to be found in Ethiopia, Mali, Nigeria, CAR, Burundi and Burkina Faso.

The Millennium Goal of halving poverty by 2015, compared to 1990, will definitely not be met by most countries in Africa, for which this target seems to have been too ambitious anyway. Only eight countries may arrive there: Botswana, Burkina Faso, Cameroon, Ghana, Lesotho, Mauritius, Uganda and South Africa. Some progress is also visible in Sudan, Angola, Mali and Nigeria (UNECA, 2007; WDR 2008).
But it is clear that the recent food crisis may reverse many positive trends in poverty reduction, even though demographic and health surveys paint a less gloomy picture of the food (and hunger) situation than official statistics do. If people spend over half of their income on food, the prices of which rose by at least 20%, then many at the margin will drop below the one dollar a day level. It is estimated that this will apply to 100 million people in all poor countries combined. Poverty already increased by 3% due to rising food prices in a sample of eight countries, as even in very rural countries only 20% of households sell more food than they buy (World Bank, 2008; FAO, 2008).

But even in the successful countries it will take years before people start feeling the effects of annual increases in average incomes of 2 or 3%. Compared to Asia this is still peanuts. There rural poverty is now below 30% and urban below 10%. China has broken all records in poverty reduction by reducing poverty from 53% in 1981 to only 8% in 2001. That means almost 500 million people have been lifted out of extreme poverty within two generations, taking into account the mixed blessing of Maoist reforms since 1950 as well. This is comparable to the whole population of Europe and the US before, where general poverty reduction took at least two centuries.
Vietnam repeated this performance in the 1990s, also before foreign aid started to arrive, and even in India poverty is at last declining significantly (25% of population). The four Asian tigers (South Korea, Taiwan, Hong Kong and Singapore) showed the way during the 1950s and '60s, combining rapid economic growth with a reasonable income distribution, unheard of before, and others like Indonesia repeated this thereafter. Even the former 'basket case' Bangladesh is now doing well in this respect, manifesting Asia's capacity to take care of itself.

But the situation in Asia has always been very different from the African one, historically, with much longer period of State formation and independence, and politically, with permanent Communist threat around the corner in the 1950s and 60s, inciting all governments to take care of its peasantry and initiate pro-poor or shared growth. Even the Green revolution was an alternative to the 'Red' one, the new magic rice seed - funded by Ford and Rockefeller foundations - arriving at the right time to save capitalism (SIDA; Henley; Tirtosudarmo). After one success in a particular country, others wanted to follow the example of its neighbour, a clear ripple effect, one after another. Such favourable conditions cannot be simulated in Africa.

If one realizes that only those people with a regular and reasonable job - earning more than USD 2 p.d. - lift themselves out of poverty, with fewer, healthier and better-educated children, then almost 80% of SSA's population is still at risk (Banerjee; WDR, 2008). Therefore, employment is still a key problem, with only one in five Africans having a decent job.
Of the 300 million labour force in SSA, only 10% is formally unemployed (20% of the youth) (ILO, 2007; UNECA, 2005). An average 70% of those workers are informal ones in a broad sense, i.e. own-account and family workers in agriculture and the informal sector. Over half of the working people are the so-called working poor, earning less than one dollar a day, with much job insecurity.

Compared to 5% economic growth in the last decade, the labour force grew by almost 3% annually. This means that 8 million jobs are required annually to absorb the newcomers on the labour market. Employment grew not much more than the labour force, as much of Africa's growth is in capital-intensive sectors, like oil and mining, with few intersectoral linkages to the rest of the economy. The employment intensity of its growth is about 0.5, meaning that half of its growth is coming from a higher labour productivity, the other half from new jobs. This indicates a serious dilemma for the continent, as the very low and stagnant labour productivity must increase for economic growth and to pay workers better, yet a rapid increase in employment is also necessary to provide jobs for young people. A specific focus on employment is required, e.g. through labour intensive infrastructural programmes that did reasonably well in Asia, before a structural shift out of agriculture will occur to much more productive employment in industry and services.

A better use from rents on natural resources is also urgently required to create more remunerative employment and reduce poverty. Despite the fact that SSA governments can expect USD 200 billion in oil revenues during the next decade, it seems that this money is much easier put in Swiss banks than in domestic rural development, as capital flight figures show. Only few countries managed to use this wealth responsibly: Botswana, Indonesia, Malaysia and Chile (Timmer; Page; Stiglitz; Lewis). In other countries sectors like agriculture suffered, as a result of neglect (easy income elsewhere), corruption and Dutch disease, from oil and mineral exports, appreciating the currency and discouraging other exports and incentives.

Recent efforts by the World Bank to reverse this trend around Exxon/Mobil's pipeline (1,070 km) between Chad and Cameroon, the largest single private project ever in Africa (USD 4 billion), were not successful. The government of Chad did not even manage to transfer 5% of its revenues to social sectors and the Bank temporarily suspended its aid. Even though its income doubled, the Chad government of course remains a very small player in this game, its GDP being not even one tenth of Exxon/Mobil's profit of USD 15 billion. A frustrated chairman of Exxon complained that this pipeline should never have been called a development project (Boston Globe, 29 December 2005). Fortunately, Nigeria is now showing signs of improvement in the management of its economy, after years of neglect and waste of its oil revenues.

Much economic growth in SSA is accompanied by increasing inequality, as much takes place in capital-intensive and labour-extensive sectors (oil, mining). Income inequality in Africa is now almost as high as that in Latin America, its Gini coefficient (the higher the worse) of 44 coming close to the latter's 49, and much higher than in Asia with a Gini coefficient of 32 only in South Asia. The income share of the richest 20% in SSA is 50% and that of the bottom 20% 5% only (IAASTD).
But even the best pro-poor growth alone will not take away all poverty. Older and chronically poor people, whose survival does not depend on employment, will need some form of social protection or safety net (IFPRI; Von Braun; Wuyts).

3. AFRICAN AGRICULTURE

Around 70% of Sub-Saharan Africa's working population still has to survive from agriculture, often more as a way of life than as a purely economic activity. Arable land in SSA is 150 million hectares, only 8% of the total and 65% of this land is affected by degradation, with 25% of the soils being acidic and therefore deficient in phosphorus, magnesium and calcium (IAASTD).
There are supposed to be 70 million small farmers in SSA, which seems an underestimation. More than half of all rural households own less than one hectare, and are net food buyers regularly. Farm sizes are declining and cultivated land per agricultural person is now less than 0.5 ha. Only a quarter of farms are above 2 ha and 2% of farmers is responsible for 50% of marketed grain surplus (Jayne; NEPAD).

Around the year 2000 SSA produced about 70 milion tonnes cereals (including milled rice), 80% of which are coarse grains (maize, millet and sorghum) (FAO, 2003). The value of the domestic market for food staples (including domestic consumption) was around USD 50 billion, and of its food exports USD 20 billion (Staatz). Net food imports, however, reached 13 million tonnes at the time.
Since 1990 agriculture in SSA has been growing by a mere 3% p.a., half of what is needed to arrive at the 7% overall economic growth to meet the Millennium Goals. The 30-35% of GDP that it is contributing (without South Africa), around USD 120 billion, is being generated by 60-70% of its working population, a clear sign of low productivity, but average growth during the last years was 4%, some improvement.

In constant prices (USD 2,000) value added per agricultural worker in SSA kept on fluctuating around USD 325 since 1970, which is less than 40% of the average Asian level. There are even indications of a declining trend during the last 20 years, which compares badly with an average increase of 40% (from USD 400 to 580) for low and middle-income countries in general (Jayne; NEPAD; Von Braun). In the Netherlands value added per agricultural worker increased from USD 28,000 to USD 39,000 during the last ten years.

Low agricultural productivity is related to a very limited use of capital and modern technology, inputs, declining soil fertility and insufficient management. With a few exceptions, such as the Dutch-supported Office du Niger in Mali, there has not been a Green Revolution in Africa, which led to so much rural development and poverty decline in Asia.
An average African farmer uses only 10 kg/ha of manure and fertilizer, if at all, contrary to 140 kg/ha in South-East Asia. Because of low soil fertility (lack of nutrients, organic matter and manure), even the effect of that fertilizer is limited. The use of tractors is 25 times higher in South Asia. There is only 20% adoption of high yielding varieties in maize and 30% in sorghum, although micro research is a bit more optimistic about this (Harsmar). Only 5% of water resources are used to irrigate less than 5% of cropped land. More than half of all farmers have limited access to markets, mainly as a result of poor roads (IFPRI, 2003; IAC; Ruben/Kuyvenhoven; Kuyvenhoven).

Grain yields - a good proxy for productivity - hardly increased, to a little over 1 ton/ha, as compared to 3 in Asia and 5 in the rich countries, with yields in Asia increasing by 50% during 1980-95 (WDR 2008). As a result of this, food production did not keep pace with population growth. The low yields kept poverty also high, as 1% extra food yield tends to reduce poverty by 0.6 to 1%, similarly to 1% increase in labour productivity in agriculture. Equally 1% growth in p.c. agricultural GDP may increase the income of the poorest 20% by 1.6% (DFID; OECD 2006).

With so many poor people in rural areas and so much dominance of agriculture in most African economies, it is obvious that agricultural growth matters more for poverty than other growth. In fact, twice as much, according to the World Bank (WDR 2008). Though it is true that agriculture also requires growth in off-farm employment, often linked as the Asian experience shows, even in China and Vietnam agricultural growth was more important for poverty reduction than non-agricultural growth, the former preceding the latter. This was related to the very equal land distribution inherited from the socialist past. Elsewhere in Asia, as in India and Indonesia with much less equality, rural services - and rural non-farm growth in general - were as important for poverty reduction as agricultural growth, whilst urban development and non-agricultural activities took over everywhere after some point (WDR 2008; Von Braun; IFAD).

Even though there is quite some diversification in rural Africa today, with 25% of rural people working outside agriculture - more non-poor than poor - and earning 30-40% of its income, this is more a result of poverty and insufficient agricultural incomes than of positive developments (Ellis; DFID; IAC). African farmers are still more undifferentiated peasants, undertaking whatever comes along to survive, rather than commercial farmers specializing in what benefits most agriculturally and leaving non-agriculture to others, equally specializing. Even within agriculture, a rural household may grow up to 10 crops. This has much to do with spreading risks and food security in the face of continuous insecurity in the environment.

The liberalizations of the 1990s led to mixed results. On the one hand, farmers were relieved from bureaucratic and corrupt parastatals, which absorbed much of the marketing margins. The heavy devaluations of currencies took away a de facto taxation on agriculture, making exports much more profitable. The general urban bias was reduced, the price bias against farming, and price distortions among farm products because of government interventions.
But the disappearance of subsidies on inputs (fertilizer, seeds) and of credit and inputs providing state institutions led to a decline in its use, a lack of quality control and unfavourable input-output ratios. In Tanzania the ratio of average crop producer prices to farm gate fertilizer prices for maize dropped from 1.4 in 1985-89 to 0.4 in1998, from 2.2 to 0.6 for paddy and from 1.6 to 0.8 for wheat. No wonder few farmers are still using fertilizer there (Havnevik).

The private sector did not adequately take over these roles, except in concrete cases of contract farming, severely hindered by poor infrastructure in general (roads, power, communication etc.). In West Africa private food crop marketing and processing did increase somewhat, not in East, and not in input supply (IFAD, 2007).
Extension and research also suffered as a result of a withering State. Both foreign aid and government expenditure on agriculture declined to less than 5% of overall budgets, a reduction of funding in agriculture by 40% since 1980 (IFPRI, 2003). Only 20% of all agricultural produce is being sold as processed goods, a clear sign of insufficient private investment.
Farmers also do not invest in their land, as long as its environment remains so insecure and risky that this does not lead to direct income increases.
As a result of this African agriculture remains heavily undercapitalized and investment levels are too low to reach the 6% annual growth required to meet the Millennium Goal of halving poverty by 2015.

The value (turnover) of African agribusiness is a mere USD 70 billion, of which 15 billion in South Africa, about as much as that of one Asian country like Thailand. Yet, 2/3 of all value added in manufacturing is based on agricultural raw materials, showing the importance of agricultural processing for non-agricultural growth (IFPRI, 2003; Von Braun, 2007).
Agribusiness - in inputs, output and services - ranges from 15-30% of SSA's GDP, averaging 20%, and may even reach the share of (primary) agriculture (30%) if we include the many small-scale informal activities in this sector (Jaffee, 2003). So together with primary agriculture this takes care of 60% of SSA's GDP. Many loss-making parastatals disappeared after liberalization and remaining agribusiness units are often small traders and transporters, apart from a few large multinationals (like Unilever). Up to 25% of rural incomes in SSA come from employment in agribusiness, which has relatively strong linkages to other (rural) sectors. By increasing market security for farmers agribusiness helps to raise agricultural productivity. Lack of capital, organization and marketing skills and consumer knowledge limit the growth of African agribusiness, especially of small and medium firms.

But there are some positive signs as well in response to market developments and positive world market price trends. In some countries agricultural productivity increased over the last 10 years: Benin, Cameroon, CAR, Nigeria, Sudan, Namibia and South Africa (WDR, 2007; IAC; FAO, 2007).
And everywhere there are pockets of horticultural development, most noticeably in East Africa. Horticulture in Kenya grew by an average 6% p.a. over the last 30 years, exports reaching USD 170 million, half of which originating at the farms of 25,000 small farmers. Thirty fruits and 27 vegetables are now being exported, as well as millions of flowers, and returns per ha exceed those for maize by a factor 6-20. Groups of small farmers have invested in irrigation as a result of good prospects (IFPRI, 2004). Similar developments, though on a smaller scale, are taking place in Uganda, Tanzania, Ethiopia, Rwanda, Senegal and Mali.

As a result of this SSA's fruit and vegetables exports grew from USD 50 million in 1961 to USD 500 million in 2003, a tenfold increase (FAOSTAT).

As a result of the successful Office du Niger, aid and liberalization, rice production in Mali grew by 9% p.a. over the last 20 years, a tripling of output (IFPRI, 2003; IOB, 2007; Mutsaers, 2007). Cotton in West Africa is also quite successful, although severely hampered by US subsidies of USD 3 billion to its 25,000 cotton farmers. Micro research in SSA often shows results that are more encouraging than the (poor) macro data suggest.
New varieties in maize are successful now, on West Africa's savannah, there is a new and potential rice variety (Nerica), and disease control in a number of cases (cassava and livestock) has also been successful, although these need repetition to last. Soil fertility control in Zambezi region and in parts of the Sahel has also been successful, indicating that farmers pick up novelties if these are considered useful or profitable (IFPRI; IAC; Mutsaers).

Although poverty is changing, also rurally, the majority of the people will still live in rural areas until 2020, and it is expected that 3/4 of the poor will still be rural even in 2040 (WDR 2008). Population growth in Africa is not expected to decline until after 2020. Even though out-migration is transporting poverty to towns, faster in Africa than elsewhere, rural poverty is and will be still too large to do without rural development.

4. GLOBAL CHANGES

General

Africa is becoming a player in the world economy at last, thanks to its oil and other highly wanted raw materials, minerals and metals. This will influence the outlook of its governments and other players in the market, both trade and aid partners. At the same time the world economy is also rapidly changing as a result of increasing globalization. Constantly declining transport and communication cost make production processes ever more foot loose, leading to increased specialization and international division of labour. Ocean freight rates fell by 30% since 1985.
A small example may illustrate the process. In 2000 a pack of sanitary towels made in Kenya (by Procter & Gamble) sold at KSh 140 in Kenya; now that it is made in Egypt it costs only KSh 70 in Kenya.

Production processes are split up in smaller parts or processes, that each can be sourced out or transferred to countries with a comparative advantage for that particular step, within the limits of specific production characteristics (near source or market). As a result of this world trade and foreign investments have been growing rapidly during the last decades.
World trade increased 60 times during the second half of the 20th century, five times since 1980, and is now over 50% of world GDP (IMF, 2007c). During the last years merchandize trade grew four times as fast as world output, both in volume and value. Most of this trade is still between the rich countries, but developing countries, especially from Asia and Latin America, are becoming serious participants.

Asian companies are becoming large players in the international economy, also in Africa, especially Chinese and Indian banks and oil companies, often state-owned.
Latin American multinationals are also becoming visible, from Brazil, Chile and Mexico, while African ones mainly originate from South Africa: Sasol in chemicals, Tiger Brands in agribusiness, Sappi, MTN and Anglo Gold in mining. These companies look for emerging markets that grow fast, have low cost resources and are well capable of dealing with difficult local circumstances. SSA outside South Africa hosts over 2,000 foreign affiliates, mainly in Tanzania, Kenya, Ivory Coast, Nigeria, Niger, Angola and Cameroon (OECD, 2007; UNCTAD, 2005).

Each day USD 4 trillion is pumped around electronically within the global banking system, in money and securities, to keep the system alive and healthy and finance all this trade and investments (Greenspan). Yet, despite all this, four billion people on this globe have no access to financial services. Landlocked countries, as in Africa, which are too far away from markets or sources of raw materials, do not participate in this process. High transport costs severely limit Africa's competitiveness in general.
As a result of the bank crisis originating at the sub-prime mortgage market in the USA, one trillion dollars may be lost at bank level. It is striking that losses at that level are much easier shared by the world's tax payers, through their governments' generous support, than small subsidies for food for the world's poor.

There are signs that inequality in the world has risen as a result of globalization, except in poor countries like in Africa. This is more due to the fact that the rich (20%) get richer, at the expense of the middle classes, than that the poor get poorer. Thanks to Asia that is certainly not the case; on the contrary, more free trade seems to have contributed to a decline in poverty through more economic growth. Its equalizing effects are being neutralized by technological developments that are boosted by the same liberalizations and increase foreign investments. Especially highly skilled workers benefit from increasing scarcities that lead to inequalities within the wage sector. Everywhere the income of all groups rose during the latest globalization period, and that of the poorest 20% in Africa more than the rest (IMF, 2007a and c).

Most successful developers did not open up completely nor immediately to the global market. They developed behind trade barriers, which were only gradually reduced. Timing and sequencing are important in this respect. Liberalising capital flows without a good investment climate will lead to capital flight, as Africa is clearly showing. Liberalizing trade also requires promoting exports, industries and key institutions, like banks. The ideal of a completely free market can only exist in a world with perfect information, perfect risk markets and absence of external effects. This will never be realized, even though that is no excuse to protect inefficient industries. Paradoxically, the large companies themselves that benefit from freer markets everywhere, create monopolies and much intra-firm trade, thereby distorting the free market on which they built their empires (Stiglitz, 2002 and 2006; Soros).

Some African firms are also becoming large players in the globalized world. The largest companies in Africa are mining giants, like Anglo American, banks and financial service providers, with the top ones each worth over USD 10 billion. 55 of the top 100 firms are from South Africa, 19 from Egypt, 14 from Nigeria, nine from Morocco, two from Kenya, one from Mauritius and one from Ivory Coast. Apart from the breweries, like Sabmiller, and tobacco firms, there is only one real food processor in the top 100 (number 54): Dangote sugar refinery from Nigeria, owned by probably the richest African, Aliko Dangote, with a net worth of USD 3.3 billion officially. In general, Nigeria seems to catch up a bit with South Africa, especially with its drastically reformed banking sector (African Business, April 2008).

Agriculture

Similar trends are visible in agriculture and its related trade and investment. The share of agricultural commodities in total world trade declined below 10% during the last decades, though its value quadrupled since 1985 to USD 600 billion annually (OECD, 2007; LEB). High prices are related to this, and these are partly structural, a result of increasing demand, and partly temporary (drought in Australia). Emerging markets like China, India, Brazil, Argentina, Russia and Thailand are competing heavily with the rich countries as major players on this market, with much more South-South trade as well, although Nafta (US, Canada, Mexico) is still the largest exporter with its USD 100 billion.
This trade is heavily concentrated: the top 20 exporters control 75% of the trade. Asia, China in particular, is the largest importer with over USD 150 billion. Africa exports and imports around USD 20 to 25 billion annually, and it lost much of its very small market share in agricultural exports to other developing nations, as a result of its lower efficiency.

The least developed countries hardly control 1% of this trade, as they have a comparative advantage in bulk produce (coffee, wheat) which trade is hardly growing: 2% p.a. compared to 9% for processed goods. The share of SSA in global trade (exports plus imports) has declined from about 4% in 1970 to about 2% at present, indicating its declining relative competitiveness (IMF, 2007).
In general, only 10 to 15% of food is internationally traded, which indicates a strong home bias with most countries still producing most of their own food. For Africa to keep on doing that, with 85% self-sufficiency, it has to increase its own output heavily in 2015 to 118 million tons (NEPAD).

Agribusiness is very important in this respect, i.e. all agro-based commercial activities, from processing, storage, marketing to distribution, as trade (and value) in processed goods is much larger than in primary produce. Around 2000 the share of trade in processed agricultural goods in relation to commodities was 60%, while this was only 25% in 1970. This industrialization of agriculture is progressing rapidly, including a dominant role for transnational retailers. The food industry in Europe is its fastest growing sector.

The structure of agricultural trade is also changing, with tropical products rapidly losing its share. The latter halved from 40 to 20% of all food exports from developing countries during 1980-2000, with the share of horticultural products rising from 15 to 22% and that of fish and fish products (and sea foods) from 7 to 19%. As a result of higher incomes people's diets are changing, with much more demand for fats, meat and dairy products. This shift of demand starts to play a role with incomes above USD 5,000 per household, when basic necessities are satisfied, and the fact that over a billion people are expected to cross that threshold by the year 2015 indicates the tremendous shifts in the international food markets taking place.

These higher value products bring about more competition and exposure to international markets, with a high need for more efficiency in production, procurement and distribution. Reducing cost and increasing market share is the name of the game. With advances in transportation technologies the distance between food supplier and consumer is rapidly growing. Large firms move closer to their consumers, with detailed knowledge of their tastes and preferences, and therefore further away from farmers. They rather move their raw materials than the final products, where economies of scale are important. This also means that they are sensitive to consumer actions, as successful campaigns from NGOs in coffee, tea, cocoa and bananas have shown (Da Silva; Von Braun, 2005; Wilkinson; Jaffee, 2005)

Six billion consumers spend an annual USD 4 trillion on foods and beverages, mainly in rich countries, and 80% of this represents processed products. The 450 million farmers in the world, most of whom are very small (85% below 2 ha, 0.5% over 100 ha), are good for an added value of USD 1.3 trillion. The top 10 food processors and traders - Nestlé, Cargill, Unilever, ADM, Kraft Foods - realize annual sales of USD 363 billion, whereas the top 10 input producers - Syngenta, Bayer, BASF, Monsanto and Dupont - have annual sales of USD 37 billion. Again, a few giants control most of the production and trade in processed agricultural goods and the globalization of this industry is proceeding rapidly, through complementary trade and foreign investment. Growth in foreign investment since 1990 (10%) has been twice that in international trade (5%), both in rich and developing countries. So sales through foreign affiliates are outpacing exports, a reflection of the domestic bias in food consumption. Much concentration is taking place in the agri-food chain, with rapid foreign acquisitions also in retailing.

A few transnational companies dominate each of the following markets: pasta, beef, beer, tobacco, hides and skins, coffee, tea, cocoa, agro-chemicals, seeds, biotechnology, grain trade, grocery retailing. The 20 largest food firms control over half of the sector's value added, with much intra-industry trade. Everywhere giants play a more leading role as a result of their superior access to capital, technology, markets and skills. Everywhere people consume more processed and packaged food, even the poor. Unfortunately, many processed food items are not location specific and therefore are located near consumers. Yet, exports of processed fish, seafood, fruits and vegetables are rapidly increasing in developing countries, even in SSA (Van Berkum; Von Braun, 2005; Bunte; Rogers; Wilkinson; Da Silva; Somo, 2006; UNCTAD, 2005).

The Netherlands is a large player in this respect as well. It is the third largest agricultural exporter in the world, with USD 60 billion in 2006, largely through its agribusiness and mainly within rich countries. This export represents 65% of the value added in the agro complex, which is good for 10% of its GDP, and combines agriculture (2% of GDP) with inputs and service delivery to agriculture.
An increasing share of its exports (20%) is being processed, the foods and beverages industry, which is the largest industrial sub-sector of the country, also 10% of GDP, with a turnover of USD 70 billion in 2006. This industry is dominated by a few large players, despite the many small ones, operating internationally: meat processing, oils and fats, cattle feed, beverages, chocolate and processed vegetables and fruits. The 11 largest Dutch companies had a worldwide turnover in foods and beverages in 2005 of around USD 100 billion. Unilever, Heineken, Sovion, Friesland Foods, Numico and Campina are major players here. Together these companies invested USD 35 billion abroad in 2005. So far, little is directed at poor countries, certainly not Africa, but emerging markets like China, India, South Korea and Brazil are getting more attention now. Less than 10% of Dutch entrepreneurs are active in Africa, despite the high returns (average 40%). It seems that perceived risks are still higher than actual ones. Dutch trade with Africa is only 1% of its total trade (Sprout; DGIS; LEB; CBS).

Africa is still a marginal player in the international food market, except that it is affected by the higher food prices as a result of changing and increasing demand from Asia. Foreign investments in food and beverages of USD 50 million are still peanuts compared to the billions invested in Asia. That means that it is not yet capturing vast opportunities in attracting highly dynamic and labour-intensive industries with relevant forward and backward linkages.

Increasing market liberalization does confront African producers more with efficient producers from elsewhere, also food processors from Asia, with whom it is difficult to compete. Governments may have to move carefully here, protecting their small farmers at least temporarily against importers. Respective bargaining powers may be quite unequal, with a retailer like Wal-Mart having a turnover approaching SSA's whole GDP. While Joan Robinson was probably right in saying that there is only one thing worse than being exploited by capitalists, i.e. not being exploited by them at all, African governments should quickly shape up their act to face the international music.

There are so many internal factors that matter, like a good agricultural policy and rural infrastructure, as food is still mainly a domestic matter. More could be done with neighbouring countries too, in regional markets, especially since transport and processing eat up most of the margins on food (price).
Time for learning by doing should be claimed, and small Asian partners may be more relevant in the meantime, for accessing capital, skills and foreign markets, than Western giants. Opening up to regional markets may also be better in the beginning than completely to the world market.

World Trade Organization

Since the World Trade Organization (WTO) included agriculture in its deliberations, in 1995, that sector has become truly global. The WTO is becoming more and more important as a framework for trade and investment negotiations, and while trade is becoming ever more liberal with declining tariffs, for non-processed goods, non-tariff barriers like country of origin specifications and SPS (sanitary en phytosanitary) measures hinder sensitive exports from Africa, like the non-traditional ones in horticulture and fish. Moreover, large retailers (like Ahold) attach so many specifications to their food deliveries that these are hard to comply with by smaller players, like small African farmers. Fortunately, supermarkets form only a minor fraction (4%) of urban food supply in Africa, but a growing one (Jayne).

The Doha-round seemed to have failed for the time being, in July 2008, as China, India and Brazil did not want to open their agricultural markets as much as rich countries demanded in exchange for a decline of their subsidies on own produce. The demand for equal treatment of all goods except 'sensitive' ones that still may be protected for a while depends very much on which goods are allowed that sensitive status. The fact that rich countries want poor countries - except the very poor - to liberalize as much as they do, quid pro quo, with so-called economic partnership agreements (EPAs) with the EU to replace preferential treatment from the past, is amazing in view of the heavy protection of their own agriculture for so many years, costing at least ten times the aid they provide to Africa annually, with some of these funds even going to large companies (Nestlé etc.). At least Africa is participating now in the discussions and developing countries are operating as a group (G20 and G90). Its right to temporarily protect certain goods and sectors ought to be recognized more, certainly in view of the Asian success in guided trade policy.

A gradual withdrawal of subsidies in rich countries should also be a lot easier now, in view of high commodity prices on the world market.
More trade liberalization as a result of declining protection of agriculture in rich countries will be good for African exports and therefore for poverty reduction. Dumping of cheap products, like meat (poultry) in West Africa, also harms domestic industries. There are also problems, as a resulting increase in world market prices is not good for net food importers, while the lower domestic prices within rich countries make the present trade preferences for the poorest countries - at high prices - useless.
Furthermore, other indirect effects will happen, such as increased competitiveness, technical change and higher productivity, the effects of which will probably be like those of globalization mentioned before. In the end, trade in agriculture and food will be opened up significantly, with declining producer support in the rich countries, and likely cuts in presently very high import barriers in developing countries, stimulating South-South trade.

The WTO is influencing Africa's economic transformation in other respects as well. Despite a stagnating agricultural productivity, its increase being so necessary for gradually transferring labour towards industry, there has been some industrialization in the continent already. Much of this was a result of protection and preferential treatment, which even made Asian firms invest in manufacturing, like textiles, as one way to enter the EU and the US market, which allowed African textiles free entry through its African Growth and Opportunity Act. Since China joined the WTO and this organization cancelled the Multi Fibre Arrangement (in 2005), the Chinese (and Indians) overtook African textile exports to the US and flooded Africa with cheap textiles.

Yet, some of that industry is still surviving, while other industries like precious stones, silver and platinum are growing rapidly. The share of most non-manufacturing categories, especially coffee and cacao, declined, but not the non-traditional exports like fruits, nuts and fish (IMF, 2007b). In general, few African governments undertook the subtle play with import tariffs that was possible in the past to promote a gradual shift towards more domestic processing of raw materials and imported goods. Existing opportunities for labour-intensive manufacturing are still not used. Manufactured exports, so important in East Asia's success (90% of China's exports), are a sizeable share of all merchandize exports only in four SSA countries: CAR, Namibia, Togo and Senegal (WDR 2007).

New opportunities have arisen for biofuel and carbon (emission) trade, both of which can become important for the continent. Brazil - through its national oil company Petrobas and research institution Embrapa - is investing heavily in biofuel in Angola, Mozambique and Ghana, while others are doing the same in SSA.
Biofuel prospects will certainly lead to shifts in the market, and may conflict with food production and industrial use of similar crops, grains, oil seeds and sugar, but not necessarily. The present hike in food prices is at least partly caused by increasing interest in and subsidy of biofuel production in the US and EU, a subsidy that seems to be ignored by the WTO (World Bank, 2008). High food prices are not in the interest of net-importers (poor countries and households) and may harm the industrialization process in other African countries as well, as this always depends on cheap food to keep wages down sufficiently for labour-intensive manufacturing. It is also for that reason that much more use - technically feasible - should be made of non-food items for biofuel production, like maize stalks, sugar starch, alga (seaweed) etc.

The carbon (emission) market is growing rapidly, and in 2005 374 million MT of carbon dioxide equivalent were exchanged through projects, up 240% with 2004. Big business is also interested in this potentially lucrative business and companies like Ford, Toyota, BP and BA already got together on climate change (through the G8 Climate Change Roundtable). Poor countries can benefit from this market and from further carbon dioxide emission reduction policies, but again there are potential trade-offs between energy security policies and food security objectives.

Biofuel could be used to stabilize international food prices, as long as food demand does not decline rapidly enough to depress food prices, although that process is already taking place. Scarcity of raw materials, fuel in particular, should also lead to more search for alternative energy sources. As in the related case of high food prices, international market mechanisms ought to be improved anyway to provide rational responses to price hikes (Keyzer et al.).

Investment Climate

Incentives guide economic decisions, where and how to make a living or a profit, for farmers and businesses. Institutions structure these incentives, such as property rights, rule of law, corruption, governance, financial services etc. When the institutional framework is right, investments will follow. That is precisely what did not happen in Africa for a long time and certainly not in agriculture, which remained heavily undercapitalized for so many years.
African countries score very low on indicators of institutional quality, but the situation is improving. Many African countries have undergone a lot of macroeconomic reforms, often forced by IMF and World Bank, and the business environment is rapidly improving. Ghana and Tanzania are amongst the top ten reformers in the world, Egypt number one, and even Nigeria shows signs of amelioration.

The cost of doing business is still highest in SSA, as most countries came from very far. Starting a business cost 163% of p.c. income (5% in OECD countries, 43% in East Asia); a license cost 1000% p.c. income (72% OECD, 200% East Asia); time to export is 40 days in SSA (10 in OECD, 34 in South Asia) and tax is 71% of profits (OECD 48, South Asia 45).
Labour cost and indirect cost are still high in Africa, at least 50% of the total, against 20% in China and 30% in India. This reflects the very low labour productivity in Africa, in general and in agriculture in particular (UNECA, 2007; Uganda conference; Berlin Forum).

Reducing the cost of investment and its risks, while improving competition and the quality of labour and capital, will generate the technical progress necessary for the economic transformation of Africa. It is nice that foreign investment rates are up, but much of this is in primary resources which is less sensitive to stability and governance than other investments. Domestic ones are still stuck at 18 to 20% of GDP, and this limits Africa's competitiveness and productivity. Factors that drive up non-labour cost and keep productivity low should be further controlled: macroeconomic stability, infrastructure, financial and other services, market structures, management and marketing skills, security and business regulation.

Horticultural successes in a growing number of African countries show that all this can be done, especially when processing is involved. In fact, agribusiness is the key link between agriculture and industry and the way forward towards economic transformation, one way of connecting farmers with markets and the global world.

Dutch farmers already understood this message a long time ago. Speaking about the success of Sovion, the largest meat processor in Europe and owned by the Dutch farmer union (ZLTO), its chairman Anton Vermeer said: 'We as farmers want to link the primary sector with agribusiness to safeguard the farmers' interests'. (EFAS).
The question is whether African dwarfs, tied to their soils, can do the same and survive in the midst of all this creative destruction by footloose giants. Their present survival is more based on the lack of development, poor infrastructure and communications acting as a buffer, than on any positive change.

5. SUCCESSFUL RURAL DEVELOPMENT IN HISTORY

Holland

Holland - including parts of Friesland, Zeeland and Utrecht - was the first modernizing agricultural economy in the world in the 16th century, having prepared its agricultural revolution by land reclamation, dikes, drainage, canals and windmills much earlier (De Vries; Israel; Slicher van Bath). Rural transformation was generated by increased demand for agricultural products, as a result of a remarkable population growth, doubling in one century, and rapid urbanization (over 50% of population), making Holland the most densely populated and most urbanized region in Western Europe. High prices in general, fuelled by massive gold and silver imports from Latin America, encouraged this process, as well as international trade. A flexible supply response was possible because of relatively free peasants and few remaining feudal institutions, contrary to the East (Gelderland, Overijssel, Drenthe) where subsistence peasantry persisted for lack of urban dynamics and population pressure.

Dutch peasants responded to the new opportunities by rapidly commercializing and intensifying their agriculture. They became commercial farm entrepreneurs, producing largely for the market, leaving their former non-agricultural peasant activities to others. Real specialization within agriculture spread later, in the 17th century, when economies of scale shifted industries to towns.
Farmers started to improve their land productivity by heavy fertilization (manure, crop and urban waste) of their soils, new rotation systems, thereby increasing their labour intensity. A declining labour productivity, a crucial bottleneck for intensifying peasants, was compensated by benefits of trade creation and specialization, with population growth acting as a push factor. More and better cattle was introduced, pastures improved, which made these more profitable than crops when subjected to a more international demand and supply as a result of increased trade. Grains were increasingly imported from the Baltics, despite high yields that already reached levels of 10:1 (seed) in 1600, which took the rest of Europe until 1800. Grain imports (from the Baltics) increased until 1650 when it fed half of the population of Holland. While rise and fall of grain prices definitely influenced the changes, redefining profitability, a structural shift towards crops with a comparative advantage took place, such as industrial crops (madder, hop, flax), horticulture (cabbage, onion, garlic, carrot), flowers and towards dairying.

The State and private entrepreneurs and traders also invested in rural areas, apart from the farmers themselves, thereby helped by a prolonged low interest rate (3%). The State invested in rural infrastructure (drainage, canals), returning some of the tax on agriculture, and urban investors in trade, transport, shipping and marketing. Rural industries and services started to flourish, as farmers left non-agricultural activities to others, e.g. sub-contracting dike maintenance and drainage, manure and fodder. Soon half the rural population in Holland worked outside agriculture.
Increased wealth by farmers, high wages (twice the level elsewhere) and a doubling rural population (in-migration) increased demand for consumer and other goods that could be locally met: agro-processing (textiles, leather, beer, and lime), furniture, clocks, salt and stones. Despite much urban sabotage, trying to monopolize various trades, rural industries and services flourished. Local markets were important intermediaries between farmers and the outside world, with mixed effects from increased rural-urban relationships.

How this boom ended is another story. Stagnation occurred during the 18th century, with a rapid de-urbanization and de-industrialization (except for jenever and prostitution), even in de Zaanse Schans, the first industrial area in the world with its more than 500 windmills. Industry and services did not respond to the changing circumstances, increased competition and protection by England and France, and the technical edge (wind, water, peat, mills) could not be maintained. A typical example of the dialectics of progress, the penalties of the pioneer. Agriculture, which surplus had not sufficiently been invested in industries, did not suffer, although its response became rather passive. Its increasing dominance of the Dutch economy, and that of trade, paradoxically hindered the industrial revolution, which only started late in the 19th century, long after England and others.

Yet, until late in the 18th century Holland remained the richest place in the world. Poverty, which was still around 25% rurally, mainly non-agricultural workers, and 40% urban, at least in Holland around 1550, declined during the boom, with remarkably high wages and employment, until a severe increase took over during the 18th century. Its unique system of caritas, for the poor, old and mad, was then put under heavy strain.
At that time poverty was less in the Eastern parts of the country, where no developments had taken place similar to Holland, as a result of the feudal structure, and the absence of population growth and urban dynamics with its increased demand, and therefore the lack of much labour and heavy fertilization so necessary for commercialized and intensified agriculture. Even during the Golden Age, the 17th century, an undifferentiated peasantry persisted in the East. So within one country a truly dual economy could persist until late in the 18th century: a kind of Asia in the West and Africa in the East. Less market dependence and therefore risks, and more safety nets - common lands, rights and duties, extended family - in the East made this a safer place to be, in times of trouble.
Dutch expertise of land and water had been exported ever since the 16th century, not always successfully as a result of very different circumstances elsewhere in Europe (the Balkan).

Taiwan

An almost ideal process of rural development took place in Taiwan during the 1950s and '60s. Rapid economic growth was accompanied right from the start by an improving income distribution, something unheard of until then (Fei et al.; Ho; Lee; Abthorpe).
A very special political situation contributed to this, where the political elite (from the Mainland) was not connected to the rural landlords, and where Japanese colonialism with its focus on food production (rice and sugar) had built a useful rural infrastructure before. A drastic land reform (in 1953, financed by US aid), making tenants owner of the land they tilled, and much government control thereafter - of prices and farmers' associations - set off a rapid and equally spread growth of agricultural productivity of 5% p.a. This was largely due to increased demand from growing cities, including a large influx of Mainland Chinese after Mao's revolution; and to technical progress, a rapidly spreading Green revolution (irrigation, fertilizer, seeds) which started already much earlier, and less so to increased working capital (credit) and extra land area. Around 1960 more than half of the land was irrigated, with 60% of the farmers owning less than one hectare. Rice yields increased by 50% and there was a rapid diversification to other crops as well (cotton, vegetables, fruits) and to livestock. Increases in land productivity preceded those in labour productivity, a labour-using technical change, so that much more labour could be absorbed in agriculture at first. Smallest farms showed the highest intensification (mushrooms, asparagus) and the number of working days per hectare increased from 170 to 260 during the 1950s.

These impressive agricultural developments were accompanied by an equally remarkable process of rapid rural industrialization, including small towns. At first food processing (rice mills, sugar) grew, already present before, a fairly normal process in view of high transport cost of unprocessed produce. This was then followed by other agro-industries (vegetable and fruit canning, wood, bamboo), textiles, furniture, metal, machinery, electricity and transport equipment. Non-agricultural rural establishments grew by more than 500% during the 1950s, more so than in urban Taiwan.
Rural industries were very diverse: small, large, informal, side activity, old and new technology, in or outside factory, etc. Most of these rural industries (except foods and textiles) were very labour-intensive, more so than urban ones, and increasingly so. Their growth derived largely from increasing demand by farmers, both for consumer and production goods, a close link between agriculture and industry therefore, and by an increasing rural population (despite some migration). Poor farmers in particular were able to increase their income by off-farm employment.
A very smooth and gradual shift from agriculture to industry could so occur, via part-time (and seasonal) work in both sectors. Off-farm income increased from 13% of total rural income in 1952 to 43% in 1975, when the poorest 80% of the rural population already got more than half of their income outside agriculture.

Geographic (mountains, ports) and demographic (high population pressure) conditions assisted this unique spatial distribution of modernization, and economies of scale that usually move industries near larger cities only started to arise much later. An early concentration on agricultural productivity, of land followed by labour, provided additional income to rural families, which then encouraged rural non-agricultural activities. All conflicts between economic growth and income distribution, so present in most countries, were thus avoided. Taiwan could have its cake and eat it too.

6. THE WAY FORWARD

Africa

These two examples illustrate what can be and has been done to start economic progress, given the right circumstances. While maybe not directly relevant to Africa, hints towards more agricultural and rural development can be derived. Of course, African countries lack the strong State that Taiwan and other Asian countries have, a result of a long history, and the peculiar anti-communist setting prevailing at the time that made peasants important for all policy makers. The global market is very different too now, as Dutch or Taiwanese peasants did not have Unilever and other giants at their doorstep, nor the WTO with its strict rules.
Paradoxically, Africa lacks the population pressure, which led to so much creativity in early Holland and late Asia, in agricultural intensification. This is becoming visible in some African regions, like Rwanda, where the early advantage of a fairly easy life in view of plenty of land and nature has already turned into a major disadvantage, but the challenge is being confronted right now.
The egalitarian structure (landownership) so conducive to Asian success is also not quite present in Africa, although most farmers are small and poor, yet without land title, whilst rural Africa generally lacks the complicated class structures so present in less successful Asian countries (like India). It has at least 1000 different ethnic groups, no joke either as far as co-operation is concerned.

Yet, a comparable process of structurally transforming the rural economy and peasant households still has to take place in Africa, although some steps have been taken. The major problem is still how to turn vicious circles of poverty, especially rural ones, into virtuous ones of development. It seems that the crucial role of demand factors, as shown in the preceding cases, cannot be overestimated. Demand from external trade and urban dynamics, to boost agriculture, and demand from wealthier farmers to stimulate rural, non-agricultural activities, with a clear role for small 'rural' towns as well.
Agriculture has to grow by at least 6% p.a. to get near the MDGs and that growth has to be reasonably distributed and lead to non-agricultural development as well.

Distribution

Although agricultural growth is much better for poverty alleviation than growth in other sectors, other factors matter as well. While land distribution is not very unequal in many African countries, the fact that only 2% of farmers produce half the marketed surplus indicates that at least access to markets - of inputs and output - and technology is unevenly distributed, to say the least. Therefore, institutional changes are required here, as well as investment in education and health of poor people.
In general, investment in people largely influences the relation of any given growth rate to poverty reduction. The more equitable this investment, the greater the impact on poverty reduction (World Bank, 2000). As labour is the main asset of the poor, this should be made more productive and used intensively. The demand for labour must exceed its supply, which is not easy in view of high population growth.

But distribution of the benefits of economic growth is also political, apart from economic. Pro-poor growth requires a political coalition that can overcome vested interests that are partly responsible for the present inequitable growth pattern in many African countries. For rural development to succeed, farmers need to get organized for political power as well. Competent technocrats or economic planners need to be protected from these vested interests by higher political powers, if these exist, as happened in a number of Asian countries in the 1960s and 70s, but failed in Kenya in the 1990s.
Shared growth is as much a matter of politics as it is economic and people's mobilization through civil society is also required. Obviously this is much easier for a model whereby all groups benefit than for an elitist approach. Moreover, domestic equality has always been a much more relevant parameter than a growing gap between nations, despite much political rhetoric to the contrary on both ends of the globe.

Gender issues also influence distribution, as a rigid division of labour hinders its mobility and a shift to more optimal uses. Moreover, there are legal matters at stake here, such as unequal access to land and services Female education is particularly good for crop yields and for declining fertility rates. The latter is important, for SSA's population growth is still too high, twice Asian levels, and the 800 million people now could be 1,840 million in 2050, 2.3 times as much.
But these issues should not be exaggerated, as all donors did in the past, as the distinction between poor and rich is much more relevant than that between poor men and poor women. In many African areas it is more a matter of discrimination in service delivery and market access against all poor people than one of gender. In general, female-headed households are not really worse off than others, despite many claims to the contrary. Millions of Asian women were lifted out of extreme poverty without any specific gender policy (IFAD, 2001; ILO, 2008).

Informal redistribution of income is always taking place as well, largely within extended families. This often escapes formal statistics, just as the sizable amounts that young people in towns transfer to their parents in rural areas. These act as a safety net, especially in marginal areas, and some of this money is used for agricultural investment. IFAD estimates that roughly 20% of the USD 100 billion remittances to rural areas in Africa is invested.

Agricultural Growth

Africa does have a comparative advantage in agriculture, with much unused land and resources (water), and a vast supply of young and cheap labour, growing faster than anywhere in the world. Small farmers still have an advantage too over large ones, in view of lower labour cost (family), if their access to assets, technology, markets and services improves (WDR 2008).
Potential crop yields are 5-10 times actual ones and technical solutions are available (IAC). A 1% increase in yield could reduce the number of poor Africans by 6 million (IFPRI, 2003).
The issue is to generate the required investments, by farmers, business and governments, and therefore to improve the necessary incentive structure.

Most recent studies offer little new in this respect (WDR 2008; DFID; OECD; IAC; IFPRI 2003). Probably there are no shortcuts to progress, as Hyden said long ago (1983). The government will have to put its house in order, create macroeconomic stability, fiscal discipline and a generally enabling environment for private investment by adhering to the rule of law, control of corruption and regulatory quality (good governance). The cost of doing business has to decline, as well as the risks, particularly in agriculture, and sound financial services should be available. The government will have to invest in the necessary infrastructure, roads in particular, and correct market failures that became so visible during the 1990s.

In that respect, there is something new, as even the World Bank now (again) acknowledges some role for the State in agricultural development, like a temporary subsidy on inputs (fertilizer) or restructuring rural credit. The market alone simply cannot do this and the private sector needs more incentives to respond properly. Countries like Malawi and Tanzania have already gone back to subsidizing fertilizer again (vouchers) with a remarkable response. More government control of so-called improved seeds is also necessary. As long as private banks find agriculture too risky, and micro-credit institutions are too urban and service oriented, other solutions must be found to complement savings and credit societies (insurance, guarantee). This certainly requires organization of farmers, not easy after the failure of State-controlled co-operatives in many parts of Africa, but necessary in view of efficiencies and reductions of cost of inputs, credit and output services.

Much has improved already, largely as a result of adjustment pressure by the World Bank and IMF, which sometimes overdid it by enforcing too strict a fiscal and monetary policy and excessively limiting the role of the State. The general investment climate has clearly improved everywhere, even though more needs to be done, especially in agriculture, both in price and institutional incentives.
Africa's own private sector, still weak, should be encouraged to become more competitive by increasing productivity and decrease costs, especially the indirect and non-labour ones. More competitive financial services should become available, reducing interest rates (spread), and higher domestic savings mobilized (also through tax). Discrimination against domestic investors in favour of foreign firms should be minimized.

The commitment - under NEPAD - by African governments to channel 10% of their (increased) revenues to agriculture, is a step in the right direction, of which rural infrastructure should directly benefit. Rural roads are particularly important, as at present the majority of small farmers is not connected to good roads, and therefore not to markets. Benefits from rural roads are particularly high, as Asia has shown (WDR 2008). Marketing margins in Africa are much higher than in most of Asia, as a result of poor roads, and much value added in exports - up to 50% - can be lost to high transport cost (NEPAD). Bulky goods are highly sensitive to transport and often have to cover large distances, especially in land-locked countries. Inputs like fertilizer also become very expensive.

But the private sector itself should also get more involved in infrastructure, as is already happening in telecommunications, energy, transport and water, as public means will never be enough. Much Western infrastructure in the past was also funded privately, like dikes, polders and canals in Holland and the UK. Again, for this to happen, risks should go down and better feasibility studies will be necessary.
Rural public works to improve infrastructure should also involve the people themselves more, e.g. to offer employment during the dry season through food or cash-for-work schemes. This was done reasonably successful in Asian countries and worked sometimes in feeder road improvement and maintenance in East Africa.

Competitiveness of small farmers should be increased by making available good quality seeds, fertilizer, credit and other technology (tools), and by arresting declining soil fertility.
Land productivity should increase before labour productivity to create the extra necessary employment. Food prices should be kept low, to finance non-agricultural activities and keep wages low, not an easy task right now in view of pressure on food prices by high demand and many supply constraints. Even many rural poor are net food buyers.
Only by reducing his cost (more than prices) and selling more will the farmer be able to benefit from this increased productivity. All this requires a subtle balance, between tapping the agricultural surplus for further economic development outside agriculture, without diminishing incentives to invest in it. That balance was certainly not there in the past, when heavy taxation of agriculture was not compensated by enough public investment in return (e.g. in infrastructure, research and extension). Indirectly, industrial protection also made agricultural inputs and capital goods very expensive, thereby raising effective taxes on agriculture (FAO, 2003; WDR 2008).

For small farmers to invest in their land, to restore and improve fertility, better incentives will be necessary too, as no extra efforts will take place without the right income prospects, certainly not if higher risks are involved. That is why increased market access is so vital, linking farmers to urban markets.
Often the demand is there, as urban populations are growing rapidly, but the right connection is missing, because of lack of roads, transport, knowledge, management, intermediaries (dealers and markets), or because of a mismatch. Much food is imported in towns, wheat and rice, which African farmers cannot easily supply, certainly not if so high a share of their produce is sold unprocessed. Therefore, more matchmaking between demand and supply is necessary, also to overcome existing supply constraints.

Agricultural growth is a necessity in Africa, even though there are many bottlenecks to overcome and much failure from past efforts. More market orientation is a must for intensification, soil fertility regeneration, yield, income and employment increases. There is a lot of potential, in food staples, horticulture and livestock, once economic aspects turn favourably. More than half of the rural Africans live in areas with good potential but poor market access, mainly due to poor roads (Kelly and Byerlee).

Agricultural growth matters more for rural development than anything else, as its linkages to the other sectors are higher than the reverse, e.g. promoting trade and transport. Consumption linkages are even more important than production ones, as wealthier farmers consume more locally produced goods and services.
There are some successes to learn from, as examples in all the literature show, although even the World Bank recognizes that good luck is needed too for sustained growth (Pender; Harsmar; Staatz et al.; Da Silva). The first step is political commitment, a coalition for pro-poor growth with emphasis on rural development and agriculture.

Contract Farming

Contract farming is one way for small farmers to get connected to markets, and receive knowledge, technology and credit. It can help to overcome market and organization failures and link farmers with agribusiness. Intermediaries can play a useful role here, like the State and NGOs, and some form of organization of farmers may be essential to benefit from some type of contract, short or long-term, in marketing or production. This will reduce their disadvantage in higher transaction costs.

Successful contract farming depends on an appropriate enabling environment, minimization of contractual hold-ups, organization of participating farmers for countervailing power and reduced transaction cost, and a careful consideration of production risks in contract design (Da Silva).
Examples of successful contract farming are to be found in asparagus in Lesotho, coffee in Sudan, cotton in Zimbabwe and Ghana, milk in Kenya, oil palm in Ghana and Cameroon, peanuts in Senegal, poultry in Zimbabwe and Kenya, etc. (Da Silva; RTI; Bijman).

Structurally, more supply chain co-ordination is already happening by increased contacts between farmers, traders and processors, outgrowers' schemes and through formal contract farming. The horticultural successes in Kenya and other countries, including Ethiopia now, are largely due to contracts between farmers and the private sector. Cotton, tobacco, tea and sugar are often also produced and sold under such conditions in Zambia, Mozambique and South Africa, and small farmers are often beneficiaries too. Inputs, credit and extension are often part of the deal, which substantially reduces the general insecurity of small farmers with respect to such supply and distribution channels, especially after the collapse of many State services.

In order for small farmers to benefit from globalization, such linkages to markets are a 'must'.
These are especially relevant in high value crops and animal products, often exported, the so-called non-traditional exports (NTE), which have shown spectacular growth, but food crops are likely to be organized similarly in future. Legal and institutional frameworks still have to be improved to spread contract farming successfully, such as enforcements and certification schemes. Small farmers must be supported to be able to guarantee a regular quantity and quality, as otherwise large traders return to own production on plantations, e.g. the large horticultural exporter Homegrown in Kenya. These large entrepreneurs have an advantage over farmers anyway, as there are always few of the former - often foreign - and many of the latter.

Large exporters and farmers have an advantage over small farmers in power, knowledge, facilities and money and there is a tendency towards concentration in successful horticultural development schemes, like in Kenya and Senegal. These large farmers also contribute to poverty reduction by offering employment to landless workers, an important indirect effect (McCullock and Masako; Maertens and Swinnen).
And the shift in vertical co-ordination of supply chains from the State to private companies, taking place everywhere in poor countries, leads to higher product ivy and higher farmers' incomes and less risks. Farmers in particular like the security of contracts, stable income, prices and inputs.

Promising NTEs should not be subjected to so many restrictions in rich countries, like sanitary barriers, as such exports are dynamic, offering diversification and growth linkages to other sectors, and promising potential adding of value by processing (Bol, 1998). Exports are necessary to overcome the small domestic markets and gain some economies of scale and cost reductions. Shifting to higher value goods is important in view of insufficient growth prospects in traditional exports, like coffee, tea and tobacco.

Much is to be gained by improved access to other African countries, as regional unions - like the East African one - are demonstrating. The Asian markets offer vast possibilities, especially once labour cost start to rise there. This South-South trade is also beneficial for African farmers, as Asian traders often have access to the Western markets and are relatively small and therefore operate with a different technology than Western giants. High demand in Asia with rising incomes offers good prospects to exports of agricultural produce from Africa. The domestic private sector clearly responds to the market opportunities, as traders and (small) farmers showed with horticulture in Kenya and elsewhere.

A problem with these sectors is that huge retailers have entered the game, trying to restructure, organize and control the vertical chain, not trusting the market or the producers enough in view of their high quality and delivery standards. Up to 80% of all fresh fruits and vegetables exported by Africa are now controlled by a few supermarkets. Yet, surprisingly, some small farmers survive, possessing the right skills and resources to meet the complex standards, and maintaining some advantages in terms of proper care for vulnerable produce. High quality requirements can be met with proper assistance, e.g. EurepGAP training, pineapple processing in Ghana.
Moreover, despite the ongoing re-structuring of many supply chains, small farmers survive as there are still buffers in the market protecting them, like specific trade structures and regulatory constraints. Within domestic markets there can be margins of 200% between the centre and the periphery, which offers a natural protection much higher than official import tariffs can provide and can therefore not easily be undone by trade liberalization. Even in rapidly changing rural areas in Asia the farm sector itself is often not yet re-structured, although there are instances where the small farmer is losing its typical advantages, like greater efficiency in view of greater availability of family labour etc. (Dolan; Huang; Reardon; Hazel; Harsmar).

A focus on non-traditional exports is certainly not possible everywhere and successes are not easily replicated, with many location-specific factors. Horticulture in Kenya was partly successful because of an ‘Asian‘ connection, Kenyan nationals of Asian origin in Nairobi connected to British citizens of similar origin (often relatives) in London, exporting Asian vegetables for a start.
Moreover, now and in the past intensification of agriculture depends on the availability of a high demand, much labour and much fertilization (Slicher van Bath). Horticulture depends on closeness to transport routes, ports, urban markets and rising incomes. Therefore, other areas should focus on food crops, and livestock, where a lot of improvements can be captured as well. In terms of value added potential and food security a maize mix, cereal/root crop mix and tree crops seem to score well (IAC). It might be good to start with a few strategic goods like maize, rice, oils and fish.
Fish and seafood production and export have expanded tremendously in many developing countries and still offer great potential elsewhere. As people get richer, consumption patterns are changing and so are food diets. Small farmers in SSA should be able to capture more of the growing demand for fish, meat, dairy, fruits and vegetables (Shepherd; Narrod).

Green Revolution

The Green revolution in Asia was a very successful political move. A magic seed (HYV) was introduced at the right time, together with other inputs like fertilizer and irrigation, to present peasants with an alternative to a red revolution. One of the reasons that this succeeded was a relatively straightforward cultivation of rice and wheat in many Asian countries. Yet, in spite of the complexities of different African farming systems, and a completely different political setting, a Green revolution seems possible in Africa as well. A number of micro-successes attest to this, even though not sharing all its components.
In a number of West African countries there were some successes with the production of rice, maize and cassava. Per capita output of root and forest crops, like cassava, yams and plantains, increased remarkably over the last 30 years, e.g. by 60% in Ghana and by 75% in Nigeria. Yields of rice, maize, millet and sorghum did similarly well in Ghana, but not elsewhere, with cowpeas growing fast in Niger (Harsmar; Mutsaers).
A new upland rice variety, called Nerica, a result of crossing Asian and African seeds with help from biotechnology, is easily doubling yields in a number of West African countries and in Uganda, without complementary inputs or irrigation, and reaching 4 tons/ha with those inputs (Mutsaers, Otsuka).

Soil and water conservation did remarkably well in Burkina Faso, where yields of millet and sorghum increased by 50% after 15 to 20 years of hard work on poor soils. Severe land degradation was halted on over 100,000 ha (Rey). Elsewhere, such conservation has also been proven successful if population density is reasonably high as well as closeness to markets (Burger).
Fertilizer use increased dramatically in Kenya as a result of supportive policies, subsidy etc., especially on its high potential maize zones in the West (Morris et al.). Tea and dairy are also success stories in Kenya.
In Southwest Uganda the production and yields of bananas increased noticeably with the adoption of intensive land management practices, such as mulching and composting.

Probably the best example of a successful Green revolution in Africa with all its aspects is the Office du Niger in Mali, well analysed by now (IOB; Mutsaers). After a lot of foreign (Dutch, French) aid and domestic political support rice production grew by 9% annually for 20 years. An area of 60,000 ha is well irrigated, with thousands of actively participating and organized farmers, proper land ownership arrangements, with training, credit and extension. A tripling of paddy yields took place, to 4 to 5 ton/ha, accompanied by processing in farmers' hands as well, with much vegetable production on the side. Serious poverty reduction has taken place therefore, affecting at least 250,000 people.

This was a special settlement scheme, started in colonial times, with many settlers from outside the area and the country. It needed a lot of money - at least USD 100 million - and commitment from donors and government to keep up the irrigation infrastructure. Without the economic reforms in the 1980s, with a drastic devaluation of the CFA franc and liberalization of the rice trade, this scheme might still have failed.

Yet, this points out the possibilities of a Green revolution, if only the environment and the support are right. It also shows that small farmers can participate in this, even though an often observed fact is, that large farmers are more productive than small ones, in the same village, as a result of much better market integration (Djurfeldt et al.). 70% of small African farmers potentially have a reasonable market access, whereas only 10% live in really unpromising agricultural environments. Much success depends on other factors as well, such as a reasonable degree of population density and a clear demand for agricultural surpluses. Sometimes a success is reversed, as in the case of Ethiopia where good introduction of HYV maize in the 1990s led to overproduction and collapsing prices, so that farmers lost interest (Wiggings, 2005 and 2007).

Small farmers do have a lot of possibilities in cereals, roots, tubers and cattle, to be exploited with proper support. Again, the linkages with small towns, so neglected during earlier rural development programmes, should be strengthened to offer the right incentives.

For the time being, many domestic food markets in Africa will remain somewhat insulated from the global world market, as a result of poor transport and communication and specific local food staples and varieties, a kind of natural protection. This offers small farmers some breathing space and time to adapt to the new circumstances. Recent increases in fuel prices give them even more time.
For some there is no future in agriculture, as soils are too poor and locations too distant from markets. Food security will have to be assured in other ways, as young migrants to towns show, supporting their families by regular cash transfers. These might be supported with human skill training for employment opportunities outside agriculture.

The USD 50 billion domestic staple market is the key arena for State support and poverty reduction, as most poor are active there. A 1% growth here is as good as 10% growth in non-traditional crops, in view of relative output shares. The other agricultural markets in SSA, like traditional exports and non-traditional crops, value only USD 20 billion. As domestic food demand is growing by an annual 3%, some of this must be captured by domestic small farmers, which requires better market access, trade, transport and processing. This means linking small farmers to small entrepreneurs, as well as public infrastructure provision. In the East African region, staples are amongst the sectors with the highest regional demand too, followed by livestock, oil seeds and fruits and vegetables (IFPRI, 2006).

High commodity prices for food, fibre and feed (and fuel) should lead to supply responses, so supporting price interventions by the State are not necessary anymore, except maybe a temporary subsidy on very expensive fertilizer. The State must intervene in other ways, as no successful private sector or small farmer development has taken place without it. For poverty reduction reasons this should focus on the food crops, semi-tradables in particular, where the State must push up investments beyond critical thresholds. Even though their efforts often failed in the past, there is no alternative to correct market failures and reduce the risks for investment and overcome low-level equilibrium traps, especially during early phases of development before the market can take over (Dorward).

Some measures are fairly easy, like reducing marketing margins in staples by increasing competition in processing and trading, as was successfully done in a number of West African countries and in Uganda. This way farmers are better connected to markets as well as benefiting more from positive price movements there like at present. Others are more difficult, like getting small farmers organized and move away from atomistic arrangements whereby they are always the losers.

Much higher crop yields will be necessary to reduce output prices again to more realistic levels than at present. These are good for farmers, as they will produce and sell proportionately more output; but also for net food buying poor and for real wages in agriculture and industries.
Risks must be reduced at all cost, as food insecurity prevents farmers from entering more beneficial market arrangements, like non-traditional crops.
Some experiments with risk insurance, e.g. against the weather, are promising too, as well as borrowing against warehouse receipts, although - once again - small farmers must be grouped together in order to obtain sufficient volume.

Intensification of agriculture will increase employment opportunities hand in hand with productivity growth, highly needed until such time as more employment will become available outside agriculture.
Employment is of course the key factor in the relationship between economic growth and poverty reduction in general and therefore needs addressing explicitly, but productivity growth for small farmers is immediately translated into higher incomes of the poor.

Improved dairy cows have been successfully introduced in a number of countries, especially Kenya, where over half a million small farmers have become competitive milk producers, despite dumping of milk powder by the EU, adding USD 500 to their annual income. Other benefits are also important, like manure, security, savings, cash when needed, and additional employment in milk trading. Much is still to be gained here, especially in the least-intensive systems, if constraints like access to markets, quality of feed stuff and co-operation amongst farmers, can be overcome (DFID, 2006; Thorpe).

Diversification

Agriculture alone can never do the trick and even agriculture needs non-agricultural activities to grow for its own sake. The rural non-farm sector is often a catalyst to growth of agricultural productivity, especially the vast majority of rural non-farm activities that are linked to agriculture: trade, transport, credit and input services, processing industries and local consumer goods. So in principle there is no contradiction between the two sets of activities, both needing eachother. The idea is to change vicious cycles of poverty into virtuous ones of development. What is needed therefore, is a growth of agriculture and other rural activities, mutually reinforcing each other. As so often, rural infrastructure is key in this respect, linking the various sectors and linking rural with urban areas.

Economic transformation needs productivity increases in agriculture and the absorption of superfluous labour elsewhere. A rise in productivity requires savings for investment and technical progress through an increase in quantity and quality of labour and capital. Agricultural growth should induce the much needed rise in industries and services, as diversification is essential for sustainable economic growth, employment and spread of risks, vulnerabilities and opportunities. Agriculture also needs trade, transport and processing.
There are multipliers at work that spread income and employment from agriculture to other sectors. Every dollar generated in agriculture causes an increase of 50 to 80 cents in non-agriculture and sometimes even more, depending on factors like the size of the economy (DFID; WDR 2008).

Some structural shift to other sectors is already taking place (UNECA, 2006). Services like tourism and financial ones are growing rapidly all over the continent, with much foreign participation, also in energy and information and communication technologies. While most foreign investment was in the primary sector, oil, metals and precious stones, almost half of the Chinese ones (until 2000) were in manufacturing (textiles etc.). Much of this has been urban, with not enough response by African investors. More rural industries and services are necessary to connect farmers better to domestic and foreign markets and more African owned ones to increase domestic linkages, employment and incomes as well.

Thus far, there is little industrialization in SSA. Only ten out of all 45 countries have a manufactured value added of over USD 1 billion and only a few have an industrial share in GDP over 10% (Unido, 2004; UNCTAD 2005b; Collier). Small markets, low incomes, no break into export markets, too much protection, too little competition, too high wages, and too low productivity all hinder its industrial performance. Non-labour cost, like infrastructure and utilities, are extremely important, as labour cost is only 15% of the total. So even if low productive Africans were to work for free, they would still not be competitive.

Prospects for a rapid industrialization are not good in view of highly competitive low-cost labour-intensive goods from Asia and of present high food prices pushing up African wages even further. Recent trade liberalization contributed even to some de-industrialization in various countries, like Kenya and Tanzania. This means that the shift of labour from low productive agriculture to higher productive industry is not really taking place, and that more labour will have to be absorbed in agriculture itself for the time being. This happened quite well in Uganda during the 1990s, but not thereafter (Besley). It may also mean that creative solutions must be found to keep industrial wages low, despite high food prices, e.g. by subsidizing health and education as was done in Malaysia, Singapore, etc.

There are reasonable prospects in agro-processing industries, both food and beverages, like meat, dairy, fish, coffee, tea, juices and alcohol. Western companies are already shifting part of their processing activities to emerging markets in Asia, to the extent that these are foot loose and not tied to sources of raw materials. As wages rise in Asia, both Western and Asian companies will enter Africa more. From there they can serve the European and Asian markets as well.
Africa has more interest in agro-processing factories than in higher access of unprocessed commodities to European and American markets. As domestic markets for processed food are still small in much of Africa, but rising, exports are necessary. Competition from cheap imports is high for the time being and high commodities prices on the world market may reduce the competitiveness of African industrial exports, the Dutch disease effect (IMF, 2007b).
Possibilities for agro-processing are also demonstrated by the textile boom in some Southern African countries thanks to the US preferential treatment (AGOAP). While not so labour-intensive, such industries are very intensive in purchased inputs, so providing good linkages with the rest of the economy, agriculture in particular, as long as transaction cost can be reduced.

Rapidly expanding economic relations with Asia offer good diversification possibilities for Africa, both in trade and investment. Technology patterns are often also more interesting than with Western firms as the Asian ones are usually smaller (World Bank, 2004; UN, 2007; Unido, 2008). These smaller firms invest in SSA also in trade related and financial services. They may have problems finding good local partners and credit and producing for a local market, but they bring experience in exports and overseas connections, useful in view of industrial upgrading in Asia and rising wage costs there.

There is quite some rural non-farm employment in SSA, more than the statistics show, but as a result of poverty rather than of progress (Unido, 2008; Ellis; Khan; Oya; Sender). Still, the way out of poverty for many rural poor is in diversification, obtaining non-agricultural sources of income, more regular than agricultural ones. Such cash generation is critical for security and may have to build up necessary assets. Rural taxation regimes should not frustrate such efforts at diversification, e.g. by taxing non-farm activities higher than agricultural ones. Locally consumed goods, so-called non-tradables like processed food, trade, construction and small-scale manufacturing, are usually the ladder to climb to better jobs. Their growth depends on more purchasing power from agriculture (Besley). Small domestic markets are dominated by food purchases, often 70% of poor people's income.

An average 10% of the rural work takes place outside agriculture, more or less equally divided between manufacturing, trade and transport services, financial and personal services, and construction, mining and public utilities. Most of this work is in the informal sector and, therefore, not much visible in official records. Over a third of rural incomes are earned outside agriculture and each household usually has one member active in off-farm employment.
Agro-processing, food in particular, stands out as an important and productive activity, also in the poorest countries. There is much scope for improvement here, also for small and medium enterprises, especially to capture part of the growing urban markets. Post-harvest processing and preservation are key to consolidation of rural-urban circuits and packaging and pre-processing (at farm level) technologies from richer developing countries can be transferred to poorer, also cold stores and chains.

African small entrepreneurs usually suffer from the same problems as small farmers: lack of credit, market access, management skills, planning, raw materials and procurement (Bol, 1999). Just like small farmers the focus is often on survival rather than commercial viability. Despite similar problems there is often not enough understanding for each other's problems and needs. Small traders, hawkers, retailers and wholesalers are as much in need of support as small farmers. Their networks and informal organizations may also be useful for pushing agricultural marketing.
Scaling up of small family enterprises is not easy and there is a clear 'missing middle 'of medium enterprises everywhere in Africa, especially rurally. Innovation is often not honoured by clients and it is hard to face the competition of cheap Asian imports.

A number of NGOs are involved in training and credit for entrepreneurs and civil society can act as a useful intermediary between farmers and entrepreneurs (Royal Tropical Institute, 2007, 2008). More business services are needed, also accessible to African small entrepreneurs, as they have to take care of almost everything themselves. Facing the same problems their general obstacles should be addressed rather than detailed services per target group: enabling environment, level playing field and efficient bureaucratic services. They all need skill training and support from intermediary organizations like training bureaus, consultancies, business associations and NGOs (Triodos).

In general, more education, trade and foreign investment are required to accelerate technical progress and labour productivity, and joint ventures with foreign companies are also a way forward for capacity building, technical change and market access, especially if these are small enough to be equal partners (World Bank, 2007). The standards and quality of small and medium enterprises (SME) must go up for them to be able to play a role once globalization proceeds, also regional integration. Within rapidly developing financial markets in countries like Kenya, Uganda, Tanzania, Zambia, Ghana and Nigeria, there should be more scope for financial services to small rural entrepreneurs, without which they cannot access new markets.

Once again, the role of small towns in rural areas cannot be overestimated. There 'rural 'markets can link to larger regional ones and key sectors, like trade and transport, usually operate also from there. Most urban people in Africa live in the smaller towns anyway and its rural industries and services offer the best employment prospects as well for rural people, often on a part-time basis (like in Taiwan). Typical rural traders and dealers should also be supported, with credit, for agricultural growth as well. Skill upgrading can also improve the performance of rural labour markets, as well as providing young rural migrants with a higher income earning capacity in towns.

In general, the State must lead the process of creating a more enabling rural environment. This involves a better legal and regulatory framework, safety and quality standards, information systems and rural infrastructure. The latter is crucial in linking the various rural sub-sectors, improving market access and labour mobility, passing on better world market prices to farmers, reducing the costs and risks of doing business and creating the necessary employment, especially of the one third of the labour force that is young.
Even though the role of the private sector in rural infrastructure development must be increased, through Public-Private-Partnerships, much public investment will still be necessary. African financial markets do not have much capacity to finance infrastructure, due to weak banking sectors and capital markets, and thus far the private sector is not eager to invest in it (World Bank, 2006). Yet, most countries will have to invest 10% of their GDP if they want to maintain the 7% economic growth that is now within reach.

Infrastructure and public services, like water, power and security, take care of over half of all indirect costs of business in SSA, 25% of total cost and more than labour costs (World Bank, 2007). Without a drastic improvement in infrastructure, no competition with the outside world will be possible. Without much more rural electrification many industries may not even exist there.
Infrastructure, through rural public works, is also an important channel to provide more employment and thereby link economic growth more to poverty reduction. The only way the poor can benefit in this process is by getting jobs. The government must do this by stimulating private investment, the enabling environment, but also through its own investments. Jobs must come before higher productivity, in agriculture and other rural development. While the direct effects of public investment are quite significant, in terms of jobs and spending on local resources, indirect or multiplier effects on private investment are also strong (Oya; Khan). The employment-poverty link is also good, especially for investment in agriculture.

The demand for labour must be drastically increased in many poor countries and their rural areas. While most of this must and will come from economic growth, public policies should also try to increase the labour-intensity of that growth (ILO, 2007, 2008). Capital should not be subsidized and artificially high labour cost should be reduced by improving labour mobility, especially between rural areas and towns. Wage differences between towns and rural areas are too high, just as those between large and small companies and industries and other sectors. All this results from lack of mobility of labour to move freely between the various sectors and areas, from low to higher productivity, and of different transaction costs and access to resources (credit) for small and large actors. Such labour market irrationalities must be addressed, also within rural areas.

Agriculture can also be assisted to absorb much more labour, by intensifying the process, and only after creating more jobs the case of the working poor can be adequately addressed, those working hard in vulnerable jobs, but earning very little. Their employment must become more productive and their higher productivity must then be reflected in higher earnings. That requires much more investment, access to resources, improvement in terms of trade for afflicted groups and structural change in the composition of employment (Oya; Khan; ILO 2007, 2008).

Much infrastructural investment can be labour intensive: feeder roads, irrigation schemes, land reclamation, erosion control, dams, reforestation, etc. That labour must be subsidized by the government, otherwise it will not come forward. The ILO has some experience in stimulating such works in Africa, successfully imitating employment guarantee schemes in India and other Asian countries, e.g. through feeder road programmes in Mozambique and East Africa, micro health insurance schemes in West Africa, entrepreneurship training in East Africa, tourism in South Africa, trade unions organising informal sector workers in West Africa etc. (ILO's Success Africa).
There are also many non-agricultural activities with great employment potential in rural areas, such as brick making, carpentry, tailoring, and shopkeeping. All these need improved skills, requiring investments in training, entrepreneurship, and other measures to improve access to market opportunities in rural areas. Using more abundant unemployed labour itself will induce economic growth and by guaranteeing 100 days of work to rural people, huge indirect effects are generated through expenditure of that extra income on local goods.

Several countries are responding creatively to the new search for diversification and employment. Kenya just launched a Vision 2030, which includes labour-intensive rural public works, rural electrification, Public-Private-Partnership in roads (toll), many rural ICT centres and much more development of port facilities at Mombassa. Its Export Processing Zone already provides 40,000 jobs for many young people, women in particular. Other coastal countries could follow this example, just as Nigeria is doing also with a new industrial and port zone.

Finally, large farmers should not be ignored in efforts to create more rural employment and diversification. They offer employment to rural landless workers, as in horticulture in Kenya, Senegal etc., and so contribute to poverty alleviation as well. They also meet quality requirements for export more easily than small farmers and have more easily access to credit and technology. While support to small farmers is definitely a win-win situation, in terms of growth and poverty reduction, the employment creating effect of large farmers cannot be ignored.

Moreover, large farmers are becoming more efficient and productive everywhere, as other factors than size also matter: intensity of land use, land fertility, management and irrigation and other inputs. As agriculture becomes more science-based, small farmers with their family labour may lose part of their advantage, as becomes clear in some Asian countries. Even small farmers can gain by part-time employment at larger farms and so are non-agricultural services and consumer goods.

7. FOREIGN AID

New Directions

Billions of dollars in foreign aid did not lead to a take-off of African agriculture in the past. This was largely due to a neglect of demand factors, missing links with the private sector and a hostile environment for investment by farmers and entrepreneurs as a result of poor governance, adverse macroeconomic conditions and worsening terms of trade. Many donors left the rural scene as a result of frustrations and with the conviction or hope that the market should try to succeed where the State (and aid) had failed.
The whole environment has changed now. Macroeconomic conditions have improved, and so has governance, largely as a result of reforms rammed down their throat by the World Bank and IMF, even though the response by domestic entrepreneurs and farmers is not yet encouraging. Bilateral donors are also much keener on private sector promotion, even though they cannot yet show much success in stimulating the domestic private sector in many countries, in distinction to their own private sector.
However, increased prices of food and other raw materials have created much better incentives than in the past for farmers, entrepreneurs and traders. *Now is the time to promote agriculture and rural development again.*

This does not mean that all development aid should focus exclusively on rural development. Every African country remains with several options to promote its own development, depending on its history, location and comparative advantage, and has to take care of the rising number of town dwellers as well. Paradoxically, the move to town may make the poor less dependent on agriculture and give more space to farmers at the same time, as happened in Asia too.
Some countries, like Ghana and Kenya, could follow the example of Mauritius and opt for more manufactured export-led growth. Oil-rich countries could imitate Botswana's equitable growth and export diversification based on natural resources and the Sahel could opt more for labour export and high value service sectors (World Bank, 2007).
Coastal nations could develop their ports more to create employment and serve the hinterland adequately. Tourism is a dynamic sector in Eastern and Southern Africa and there is a shift towards services in general, also financial ones. Even a small but rising share of foreign investment is directed towards infrastructure-related services, such as transport, storage and communications, which improve the chances for a more employment-intensive pattern of growth, away from natural resources.

Most countries will have to do something about their rural areas and agriculture in order to promote pro-poor growth and make their respectable economic growth much less inequitable than at present. Agriculture also deserves much focus as the structural transformation of people out of it, towards more productive industrial and service sectors, is certainly not an automatic process, nor progressing as fast as once in the Western world even in rapidly growing Asian economies.
Political forces need to be created or mobilized to assist the process of more rural and agricultural growth in Africa, a nice task for civil society organizations (CSOs).

Agriculture and other rural sectors will have to be developed simultaneously, as all are interrelated, and as much sounder diversification is needed for poverty reduction. In the end, the way out of poverty is outside agriculture, but in the meantime Africa should use its comparative advantage in agriculture much better, with its underutilized resources like land, water and young and cheap labour. Its intensity should go up to absorb much of this youth that has no place yet elsewhere. High investments will be needed to raise its productivity (yields) at last, the technologies being on the shelf, which means improving producer incentives and an attractive rural investment climate. The high and growing demand for food in towns offers good possibilities, provided farmers can be connected to this market. Demand factors then create the required dynamics rurally, external and domestic demand for agricultural produce and local demand for non-agricultural consumer goods and services. Without proper market outlets short-term successes will die, as happened with many supply-led changes, recently again with increased maize yields in Ethiopia. The role of rural towns cannot be emphasized enough in this context.
In order to avoid misunderstandings: some areas may be better off in promoting cash crops rather than food staples, if the latter are comparatively expensive and therefore uncompetitive.

More solid diversification outside agriculture is also possible, to locally consumed consumer goods, so-called non-tradables, like processed food, trade, construction and small scale manufacturing, growth of which depends on more purchasing power from agriculture, and less dominance of food purchases. Moreover, there are reasonable prospects in agro-processing industries, both food and beverages, like meat, dairy, fish, coffee, tea, juices and alcohol (banana beer). The fact that presently only 20% of all agricultural produce is being sold as processed goods is a clear sign of insufficient private investment. There is much scope for improvement here, also for small and medium enterprises, especially to capture part of the growing urban markets. Post-harvest processing and preservation are key to consolidation of rural-urban circuits and packaging and pre-processing (at farm level) technologies from richer developing countries can be transferred to poorer, also cold stores and chains.
There are also many non-agricultural activities with good employment potential in rural areas, such as brick making, carpentry, tailoring, and shopkeeping. All these need improved skills, requiring investments in training, entrepreneurship, and other measures to improve access to market opportunities in rural areas. Using more abundant unemployed labour itself will induce economic growth.

Rapidly expanding economic relations with Asia offer good diversification possibilities for Africa, both in trade and investment. Technology patterns are often also more interesting than with Western firms as the Asian ones are usually smaller. These smaller firms invest in SSA also in trade related and financial services. They may have problems finding good local partners and credit and producing for a local market, but they bring experience in exports and overseas connections, useful in view of industrial upgrading in Asia and rising wage costs there.

African States have done a lot to put their own house in order and create macroeconomic stability, fiscal discipline and a generally enabling investment climate, but they still have to shape up their act and lead the process of creating a more enabling rural environment. This involves a better legal and regulatory framework, safety and quality standards, information systems and rural infrastructure. The latter is crucial in linking the various rural sub-sectors, improving market access and labour mobility, passing on better world market prices to farmers, reducing the costs and risks of doing business and creating the necessary employment, especially for the one third of the labour force that is young. Infrastructure and the rule of law still are key constraints to more foreign investment.

Aid and Growth

Although the final verdict on aid's contribution to economic growth is still out, its economic activities - 25% of the total - do seem to promote economic growth (Collier; UNECA, 2006; De Kemp). The other 75% deals with debt relief, humanitarian and social matters, and may have an indirect effect on growth. It seems worthwhile to shift that balance more towards economic investments, including infrastructure, and focus more on economic growth in rural areas. Again, conditions for its success are now better than in the past, in Africa and in the renewed commitment of donors to tackle aid effectiveness more seriously (Paris and Accra Declarations). Annual aid has increased to USD 120 billion in the meantime.

There are, however, limits to increasing aid, as too much of it can lead to diminishing returns, a threshold reached in a number of African countries, in view of Dutch disease effects, leading to a switch to more capital-intensive exports and to non-tradables and to postponement of much needed reforms. Its volatility also remains a big problem for growth effects, as does fungibility and leakage into unproductive public expenditure.
Dutch disease effects, whereby the appreciation of the exchange rate as a result of more aid hurts other exports, may be partly neutralized by trade liberalization, which increases the demand for imports, by importing more aid goods and by investing in reduced transaction cost for trade. Too much and too fast trade liberalization, enforced by the WTO, may have to be resisted, however, in view of Asian experiences with guided State policies. Fortunately, high fuel prices do offer some more natural protection in the meantime, as does poor rural infrastructure.
Fungibility need not be a serious problem in poor countries with little public investment anyway.

In short, aid can work, to paraphrase present gurus like Sachs, Collier and Easterly, if it is focused on taking away crucial bottlenecks for market development, learns from its mistakes and is willing to allow for a fair degree of trial and error.

An increasing amount of aid will now be directed at agriculture again, in conjunction with other aspects of rural development, in an effort to create the right infrastructure and institutions for rural development. That is an important correction of the past, also the recognition that state interference is necessary to compensate for market failures, as the private sector can never do it alone. The many public failures in the past should also be avoided now and new aid should certainly not be the same as before. The famous micro-macro paradox, whereby results at micro level did not survive at macro level, may be less of a problem now, as macro-conditions have improved.

Much more aid is also required, and NEPAD earlier asked for an extra annual USD 17 billion until 2015, for investment in rural infrastructure, land and water (irrigation), research and safety nets. Jefffrey Sachs then pleaded for an extra USD 25 billion in order to meet the MDG targets by 2015, an amount that was raised to USD 30 billion at a recent FAO/OECD summit discussing the present food crisis. These seem unrealistic targets, as it would more than double present aid commitments to Africa, even though the rich countries waste more on their own food than this, spend USD 100 billion on arms now and USD 370 billion on their own agricultural support, with billions more readily available to bail out bankrupt banks.
A good start would be to shift more foreign aid to economic investments and to rural areas, even though investments in education and health must have benefited a large number of rural Africans as well. African governments have also agreed to spend more of their own (meagre) funds on agriculture, as this was also peanuts in the past. More equal negotiations between donor and recipient, with quid pro quo, are now also possible as a result of the increasing South-South trade and their foreign reserves, making African governments less dependent on the Western world.

A first requirement for new rural aid is to build upon what is going on, both within the aid sector itself and within the economies that are supported, and not invent the wheel again. After all, there is economic growth and investment, mainly in primary activities, oil and minerals, but some in agriculture and rural industries as well, and in infrastructure-related services. These do have some spread effects and usually an infrastructural component upon which can be built. Some rural growth poles may have resulted from this or could be created with complementary investment, e.g. to make farmers benefit from new consumers nearby or more accessible urban markets at a distance. Complementary aid investments do not exist in a vacuum and should be aimed at achieving maximum benefits in relation to its environment. Giants like South Africa and Nigeria, at last, do create their own regional momentum that may also be exploited by foreign aid and so do new technologies that have already been introduced, like mobile phones and ICT. The rapid growth of cities increases the demand that agriculture so desperately needs and that everywhere has been a pull-factor in promoting rural development.

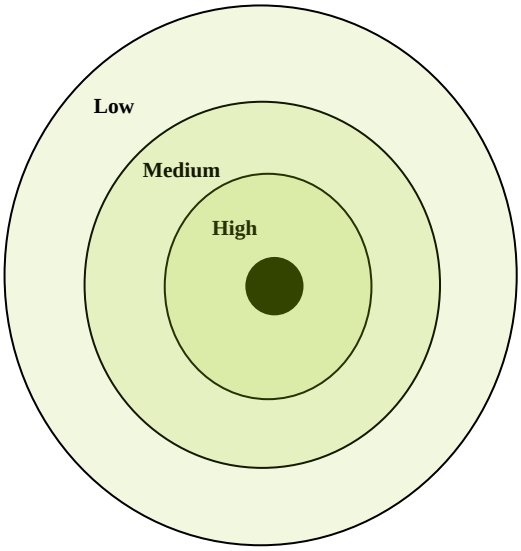
The PRSPs that have been developed with donor assistance, to map ways out of (rural) poverty, are useful guidelines, even though they do not seem to be used much, despite all the efforts and rhetoric about ownership. Moreover, the role of the commercial private sector and the public services they require (energy, power, transport, telecommunication, courts) have neither been sufficiently acknowledged, nor have employment and labour market issues received enough attention.
While new employment will mainly have to come from economic growth, public policies should try to increase the labour-intensity of that growth. Broader and more flexible macroeconomic frameworks and sectoral policies may assist a better targeting of employment creation. Capital should not be subsidized and artificially high labour cost should be reduced by improving labour mobility, especially between rural areas and towns. A higher mobility will reduce high wage differences between towns and rural areas and between large and small companies and industries and other sectors.

In general rural aid still needs a better focus, going beyond PRSPs, hereafter translated into a Two-pronged approach: Area Approach (AA) and a Target (group) Triangle (TT). These may neither be very original, nor exhaustive, but they point towards an overall concentration and orientation of rural aid that has been lacking in most of the recent literature on the subject. There is still a danger of too fragmented aid, achieving too little in too many different areas and directions.
Much more public aid has to be directed at rural infrastructure, roads in particular, but also electrification, waterworks etc., to open up rural areas, connect them to the world and allow them to realize their dormant potential. Much is to be gained, if this is done in a concentrated and systematic way, in particular areas, to overcome fragmentation and critical thresholds.
Much more private aid should be directed at small rural producers, farmers and entrepreneurs, processors and traders, with an effort to include unemployed youth as well. Connecting these three target groups is an uneasy marriage, therefore, a tricky triangle, to be handled mainly by NGOs.

Area Approach

Distance is a powerful variable in explaining area development, as the German economist, Von Thunen, identified in the early 19th century. He therefore created concentric circles around development centres, cities or other growth poles, explaining land use and agricultural development in relation to distance to the market.
The following figure is derived from that, be it in a slightly different and more general way.

Figure 2: Potential Zones of Development



High potential zones are those nearest to towns, medium ones a bit more distant and low ones far away. This is schematic of course, not always applicable, and says little about factors like soil fertility, variation in topography, price influences and differences in kind of transport (sea, river, road, rail). It is largely based on agriculture, not taking into account non-agricultural activities or corrective government policy.
It does, however, indicate a potential of products in terms of transport intensity, relative to production elsewhere, distance to markets. It helps to explain why certain areas specialize in particular types of production, like zones near towns in very labour-intensive agriculture, horticulture and dairy, and medium ones in more extensive crops, like grains, or timber and firewood, not perishable but maybe heavy and expensive to transport. The low potential zones survive on poor subsistence agriculture and ranching, having only a limited economic future.

Spatial patterns in the economic developments of Holland and Taiwan, described before, do reflect this general pattern, and so do more recent developments in other Asian countries. Because of high transport cost in landlocked countries in Africa, over 50% beyond that elsewhere, trade volumes are choked off and so is development. Industrialization, service development and government policies do interfere in this classic pattern, which therefore should be no more than a guiding principle for Area Approach (AA). Yet, the Industrial Revolution in the Western world during the 19th century was preceded by a transport revolution too, an exceptional reduction in transport cost as a result of railways, steamships and improved road networks.

Specific areas need to be selected for more effective rural aid, and huge investment in infrastructure will have to be derived from SWOT (Strength-Weakness-Opportunity-Threat) analyses, many of which may already be on the shelf (under some dust). The economic strength of a particular area depends on distance, transport intensity of produce, but also on other resources, like land, and relative factor intensity of goods in terms of land, labour and capital, in relation to other produce in other areas. Specific sub-sectors in agriculture and industry also may make use of such SWOTs to identify their comparative advantage in the specific location and UNCTAD's 'blue books' may be used to derive a good strategy for specific sub-sectoral support, like in Tanzania.

The area approach is reminiscent of the now vilified Integrated Rural Development Programmes (IRDPs) of the 1970s and '80s, but differs in a few important aspects. This AA focuses on 'grey' zones, the medium ones where the State and aid must assist the proper development of the market, and not on the poorest (low) areas as IRDPs tried in vain.
Needles to say that the high potential zones do not require any specific assistance, as their main actors are taking care of themselves. The low potential ones will have to depend on social safety nets in cash and/or kind - including remittances - to complement their poor economic prospects, with a higher labour mobility and more structured migration of its youth to better-of locations.

Moreover, this AA is much more focused on a few activities and sectors, taking away major bottlenecks, and not trying to do everything like the IRDPs did in a too fragmented and therefore ineffective way. The focus is on infrastructure and investment climate for productive sectors, in a big way to overcome critical thresholds and induce large spill over effects. The whole investment rates should increase drastically, especially in rural areas, as little will be achieved with levels below 25% of GDP. Public investments must pave the way for private ones, in infrastructure and public services like water, power and security, the cost of which presently are far too high to make rural business profitable enough for much expansion. Without much better and more rural roads, depressing transport costs to more normal levels, rural producers will never become competitive and without rural electrification there is little rural industrialization either.

Finally, this AA allows large cities and rural towns the central role they have to play in rural development, as the markets and demand are there, and not be so fundamentalistically rural that towns were ignored, which happened in many IRDPs. Just as linking rural sectors is important, for growth and diversification, so is linking rural towns with their hinterland essential for change.

Much infrastructural investment can be labour intensive: feeder roads, irrigation schemes, land reclamation, erosion control, dams, reforestation, etc. and this may be the only way in the near future to do something about the dangerously high levels of youth unemployment: 20 to 40%. If idle youth starts to rebel, as Kenya showed recently, total chaos is nearby (Kariuki).
Asian countries showed the way with their Rural Works Programmes from the 1960s onwards, which worked reasonably well in upgrading rural infrastructure and providing rural people with much needed complementary income during the slack season. The ILO proved that this could be done too in Africa, with its programme of feeder roads in Eastern Africa in the 1970s, recently followed up by others in Mozambique. Governments in Rwanda and Ethiopia have also re-started their own RWPs.
It is clear that such labour must be subsidized by the government, otherwise it will not come forward. Old ideas to force people to contribute 50 or more days annually to rural works, as some kind of tax, do not work anymore. On the contrary, it might be some kind of social insurance to guarantee rural people such a number of days, annually and rewarded. This would also create sizeable indirect effects through expenditure of that extra income on local goods.

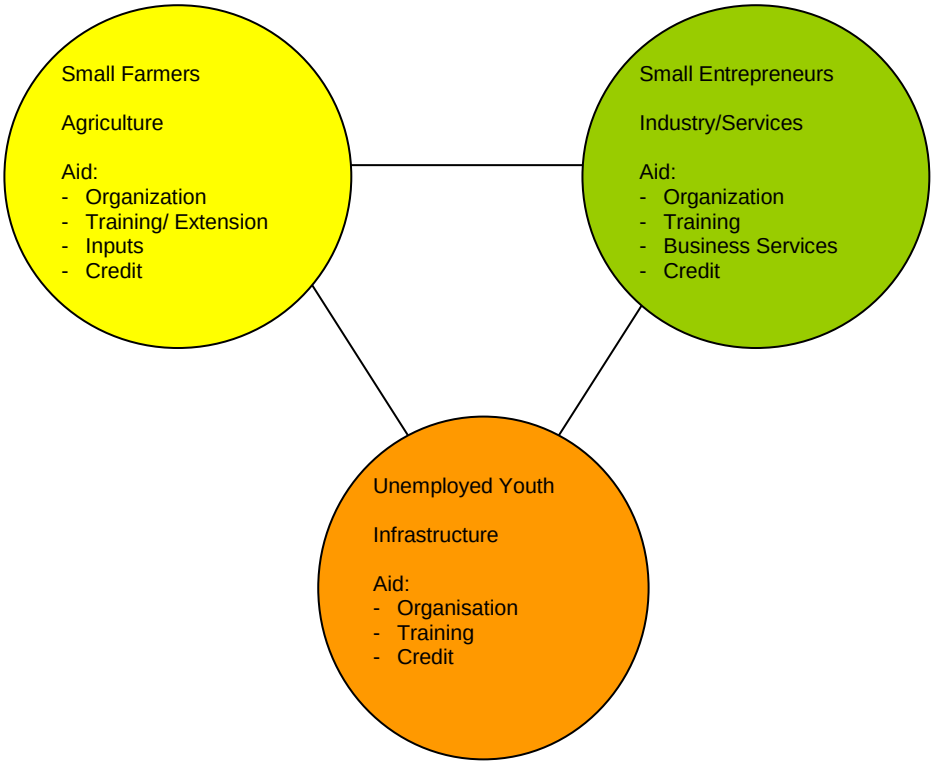
Of course, a sizeable amount of aid already goes to infrastructure, like road programmes by the World Bank, Japan and the EU. More could be done rurally, and more systematically, selectively and labour-intensive. Bilateral donors also have a larger role to play here and more creative efforts should be undertaken, through Public-Private Partnerships (PPPs), to bring aboard the private sector with much needed additional funds, just as was done in the history of Western European countries and the USA. Globalizing banks from South Africa and Nigeria can play a useful role here, strengthening Africa's banking sectors and capital markets. There have been useful donor initiatives to identify private investment in rural infrastructure, including feasibility studies, with some credit guarantees to reduce private risks, with an eye on poverty reduction as well.

Target Triangle

A careful and subtle approach towards small producers should be followed, in connexion with an area approach. Within areas and sub-sectors an effort should be made to support small producers in particular, as large ones can take care of themselves. Supporting small farmers means linking them to markets and that means connecting them to preferably small traders, transporters and processors or to medium Asian or Western firms. New infrastructure will open new avenues for these relationships, which historically have been characterized by mistrust and antagonism. Therefore, the following figure is expressed as a target (group) triangle, not easy to achieve or work with, especially since unemployed urban and rural youth is also brought into the equation.

Three target groups ought to receive the attention within areas to promote infrastructure, sectoral growth, intersectoral relationships, innovation and pro-poor growth. Within each box desired types of aid activities are summarized.

Figure 3: Three Target Groups



The hard core of rural inhabitants in SSA, 70 million small farmers with usually less than a hectare of land and a food deficit, face a number of bottlenecks preventing them to take full advantage of the new opportunities and high commodity prices. They lack resources for complementary investments, with little access to credit or agricultural inputs, with high transaction cost and an absence of economies of scale.
Small farmers still have an advantage over large ones, in view of lower labour cost (family), but this is diminishing and it requires improved access to assets, technology, markets and services. As a result of globalization small African farmers face an increasingly tilted playing field, which was not there for Asian farmers.

Only if organized and properly educated can African dwarfs survive and compete in this new world. There are no more chances for atomistic individuals, despite the claims of theories of perfect competition. Farmers' organization can bring some bargaining power and a reduction of transaction costs with respect to access to inputs, credit and markets. Support to these organizations can bring about the technological revolution in African agriculture that is needed, and complementary rural infrastructure will connect farmers to markets and benefit from the demand-pull.
With enough focus and concentration this can be done, as more than half of all African farmers live in areas with good potential but poor market access, mainly due to poor roads. These are the 'grey' medium zones on which aid should focus. Only a small minority inhabits really unpromising agricultural environments.

The SWOTs per area will indicate which groups of small farmers are or can be connected to promising crops or sub-sectors and therefore deserve main focus. Through infrastructure and better investment climate in general, their incentive structure is and will be improved, generating more on-farm investments and investment by private entrepreneurs. Reduced transport and logistics costs will induce supply responses, if these are backed up by sufficient public and private research, extension and financial services. Creative efforts at reducing huge risks are also warranted, certainly in view of expected climate change consequences.

Selected sub-sectors will indicate which supply or value chains need particular emphasis in linking farmers to traders and processors. To some extent the market will take care of this, as improved roads have always led to more trade and interaction, but for these linkages to be productive and sustainable, external support is needed too.
In principle, small (and medium) African entrepreneurs suffer from the same problems as small farmers: lack of credit, market access, management skills, planning, raw materials and procurement. For them to react properly, they should get organized as well and then get the same aid as farmers do. That will also reduce the mutual suspicion between the various groups, and allow entrepreneurs also to take advantage of the heavily reduced transport cost as a result of infrastructure, with increased chances for agro-processing and rural diversification.
Some Asian and European firms already show what can be done with proper access to finance and markets, applying formal contracts with farmers as well as informal arrangements. Regional integration also offers more chances for domestic producers, allowing for some economies of scale and specialization in a larger market. Even producers for the local market should benefit from opening up areas and increasing the size and integration of markets, but all are in dire need of appropriate business services.

Horticultural and dairy successes in some countries show that all this can be done, especially when processing is involved. Ethiopia gives a good example too of what can be done if macroeconomic conditions are favourable and the right incentive structure is there. After investing heavily in roads and electricity, average economic growth has been 12% for the last five years, with much agricultural and rural development, a rapid diversification into higher value and more labour intensive goods, and booming exports of flowers and leather goods, soon to be followed by textile and garments. It will reach the MDGs in 2015, thanks also to its high investments in education and health.
Agribusiness is the way forward towards rural transformation, one way of connecting farmers with markets and the global world. Processing of food must also be done if urban demand is to be met domestically.

The third party in the triangle has thus far been the missing link: unemployed youth. Far too little efforts have been undertaken at labour-intensive rural works, creating at least part-time employment for the local population, including small farmers and their underemployed children. Most of these have left to towns in the meantime, but their rural connection remains, through remittances and new ideas and technology. For some farmers this is the only way to get improved seeds and learn about the outside world. These linkages ought to be exploited, actually those between unemployed youth and farmers, more broadly.
There is no reason in planning for off-season rural works, that migrated youth should not be included. Improved infrastructure will increase labour mobility anyway, blurring the differences between local and non-local. Extra income for local farmers could go hand in hand with extra jobs and income for unemployed youth, if properly planned.

Once in the picture, unemployed youth could qualify for the same aid as small farmers and entrepreneurs: organization, training and credit. Labour groups or gangs in search of work are well known in many parts of Asia and this could happen in Africa too with enough attractive rural infrastructural jobs and some encouragement. Obviously, deals or contracts with contractors ought to be made to make this worthwhile, a linkage between unemployed youth and entrepreneurs.
Some efforts at organizing informal sector workers, like what the ILO is doing in West Africa, could be aimed at unemployed youth too. These groups could receive some skill training for infrastructural jobs at least. Credit should also be a possibility, with labour contracts in the pocket, to acquire some necessary tools for road works etc. This should make such work more attractive even to urban youth, which has few alternatives anyhow.

The art of connecting people belongs mainly to civil society, a growing sector in Africa and an important intermediary between State and market, both of which also have their parts to play, of course, with the market doing everything automatically.

Ongoing Activities

Notwithstanding much formal neglect of agriculture in past aid, a number of interesting small initiatives have been going on to boost agriculture and rural development. These vary from Public-Private Partnerships (PPPs), especially after the World Summit on Sustainable Development in Johannesburg in 2002, promotion of contract farming and chain development, to promotion of farmers' organizations and civil society involvement.

A number of aid agencies and NGOs are involved in supporting (small) farmer organizations and linking these to markets and commercial firms (Boselie; RTI, 2007 and 2008). Foreign companies can offer African farmers and entrepreneurs market and technology access, with specialized services and knowledge in fields like horticulture, e.g. management, plant breeding, disease resistance, biotechnology, and also in food safety issues relevant to entering foreign markets.
Agri-ProFocus, a co-operation between 21 Dutch organizations involved in agriculture and small farmers support, acts as a broker between farmers (organizations) and firms, e.g. in cotton in West Africa, oilseeds in Uganda and cocoa in Cameroon and Liberia. Some members, like Agriterra, help to organize small farmers or support their organizations, also linking them to Western farmers unions, and trying to overcome the mistrust about co-operation and organization amongst African farmers as a result of collapsed State-co-operatives in the past.

USAID supported a large outgrowers' scheme in Uganda for hybrid sunflower, through its Agricultural Productivity Enhancement Program (APEP), thereby increasing incomes of over 30,000 farmers and guaranteeing a market and price, with a domestic firm (Mukwano) investing in a large oil plant in the North. Dutch and other NGOs are doing the same in Uganda and other African countries.
There are also PPPs in market information, credit, extension and research for farmers, e.g. in Uganda and in Kenya (through AATF) and in Ghana (cassava for industrial use), and farmers field schools everywhere.
Promotion of financial services, also for domestic firms and farmers, is a useful part of aid too and of some private banks' activities, which recognize their corporate social responsibility (in Holland Rabo, Triodos, FMO). These include risk-reducing initiatives like (price) guarantee and credit schemes and some crop insurance and crop management, e.g. coffee in Tanzania.

Some NGOs are successful in challenging multinational giants in their home markets by advocating fair trade in organic produce. Utz-certified coffee is already claiming 30% of the market in the Netherlands, having convinced Ahold and Sarah Lee to join the ride. Worldwide this is less than 2% and the supply of certified coffee exceeds its demand by far (Koffie Coalitie).
Agrofair is another successful organization, co-owned by 15 farmers groups in Ecuador, Burkina Faso, etc., acting as a wholesaler of Oké bananas with a network of 20 producer organizations in 11 countries. Its turnover in 2006 was Euro 80 million, from imports and distribution of 80,000 tonnes of fruit, which now also includes mangoes, oranges, pineapples and grapefruits.
Global demand for fair trade fruits rose to USD 5 billion in 2004, up 50%, and organic fruit sales are also growing by 10% p.a. It seems that giant companies can be better tickled at consumer than at producer level, and value chains better pulled through consumer demand, than pushed by producers.

In general, value chains act as an organizing principle for NGO action, with crop specialists improving farmers' skills, their market orientation, upgrading them as chain actors, adding value through vertical integration (joint processing, marketing), developing chain partnerships (alliances with buyers) and developing ownership over the chain (direct linkages with consumers). Good examples are cashew nuts in Mozambique, vanilla in Uganda, pineapples in Ghana, dairy in Kenya and Jathropa herbal soap (RTI, 2007, 2008). There is also a sustainable horticultural export chain in Ghana and a sustainable agro-food chain programme elsewhere, supported by the University of Wageningen, including a research component on value chains.

Dutch official PPPs for better market access of tropical products in the Netherlands, like in palm oil, horticulture and shrimps, have not been successful yet. Linking the giant retailer Ahold to mango exporting co-operatives in Mali and Burkina Faso proved a success, through pre-cooling facilities (transport by sea) and progress in meeting requirements for certification through Euro-retailer Produce Working Group's Good Agricultural Practices (EurepGAP), a must for all European supermarkets.
Exporting small African farmers need intermediaries to become more consumer friendly, to approach different segments of the EU market, with different price and quality demands, and to overcome lack of cold storage (post-harvest losses) and small volumes (high transport cost). NGOs also act as intermediaries between Western firms and African farmers, like in Uganda and Tanzania.
All such NGOs could learn from South Africa that is branding, packaging and marketing the image of Africa in a superb way, varying from African chips, beans and nuts to African sports, holidays and Miss Africa. Apparently there is a niche for Africa in 'pure nature'.

Ongoing funding of international agricultural research has also been useful, e.g. leading to some new and drought resistant seed varieties like the one for rice (new rice variety Nerica) from Africa Rice Centre (WARDA) in Benin, supported by CGIAR. There have also been other research activities, like the ones from the non-profit International Centre for Soil Fertility and Agricultural Development (IFDC), ongoing scientific research and capacity building in support of the MDGs, and of course much private (commercial) research, not available to others (yet).
But new efforts to support research should learn from the failure to promote farming systems research (FSR) in the 1980s and '90s (Mutsaers). Millions were spent to relate research closely to farmers' practice, by initiating on-farm trials, yet, researchers did not really manage to arrive there after ever more sophisticated and multi-disciplinary diagnoses and inappropriate scientific concerns (about samples etc.). As social scientists became more and more involved, farmers adopted precious little new technologies.

Yet, scientists contributed to African agriculture through plant breeding, disease and pest control.
Today, farmer field schools are good vehicles to reach farmers and exchange practical information on best practices, including improvement of conventional plant breeding techniques, even though experts still are not sure what precisely makes a good farmer so different from the rest.
In any case, history proved that farmers respond to good ideas, as long as these are presented in a simple way, like the early introduction of cash crops in West Africa: maize, cassava, potato. Unfortunately, a number of the successes could not be sustained for lack of adequate support, or other reasons like the oil curse in Nigeria.

A number of organizations are also involved in trying to bring Africa the much needed Green Revolution. Kofi Anan's Alliance (AGRA) and NEPAD are addressing various aspects, for instance through the Framework on African Agricultural Productivity (FAAP) and Forum for Agricultural Research (FARA). Appropriate research is promoted and better access for small farmers to seeds of newly bred modern varieties, like the Nerica rice variety. The Bill Gates Foundation spends USD 300 million on improved agriculture in SSA. There are also good experiments in improving poor African soils through organic fertilizer, like manure from stall-feeding, in East Africa, and in increasing access to chemical fertilizer through the re-introduction of some State subsidy in Malawi, Zambia and Tanzania.

Kenya shows how politics matter in fertilizer application too, through subsidies and highly fixed maize prices, leading to a fertilizer use on maize in its Western provinces comparable to Asian levels. Low transport cost, small packages, stable fertilizer marketing policy, high private investment in retailing and profitability of horticulture intercropped with maize, all mattered for this remarkable success (Morris et al.). In that country half a million tea growers also benefit from fertilizer provided by the KTDA Ltd. (tea development organization), with successful contract farming going on in horticulture, sugar and tobacco as well.
Through IFAD small farmers are also linked to agribusiness via credit and inputs provided by the companies and there are also formal chain finance experiments like the warehouse receipt system, trade finance in contract farming.

The verdict on the sustainability of many initiatives is still out, as some are too young, and few overall evaluations have taken place. One would still like to know how successful aid bureaucracies can be in mobilizing the private sector, especially the African one. Such reviews are useful, as were the ones on the Office du Niger in Mali and horticulture in Kenya.
Success breeds success and one has to learn from past successes as well as mistakes, something not often done in foreign aid. Political fashions with donors too often shift attention to 'new 'areas before 'old 'ones have been thoroughly exhausted. There is an urgent need now to know more about the reasons behind successes in African rural development, like in horticulture, in Ethiopia, in the seven countries (Benin, Cameroon, CAR, etc.) where agricultural productivity increased, so as to avoid new disasters in rural aid.

What is Missing

With so much going on only a few things are still missing in the aid architecture, mainly in the overall focus. Much larger and more concentrated efforts aimed at taking away crucial bottlenecks in particular rural areas and sub-sectors are still required to make a decisive impact. Rural infrastructure still needs much more emphasis, as well as its labour-intensity. Very concrete strategies should still be derived from SWOTs and feasibility studies, readily applicable by African governments. Connecting small farmers and entrepreneurs requires much more focus too, as well as the inclusion of unemployed youth. In order to recreate some of the egalitarian rural structures that characterized East Asian countries, communist and capitalist alike, which facilitated a process of pro-poor or shared growth, land reform and improved property rights can no longer be neglected in Africa either. The economic growth is there at last, but the growing inequalities make this less fruitful for poverty reduction, especially in rural areas.

In the end, development is a matter of *Yin* and *Yang*, as the Chinese discovered more than 4000 years ago and described in their Book of Changes, the I Ching. A fertile intercourse between *Yin* and *Yang* is needed, whereby the active masculine principle *Yang* represents technical progress and the receptive feminine principle *Yin* the social environment. The technologies are there, but the social organization in many rural areas is not yet innovative enough. By introducing more infrastructure and organizing, linking and upgrading small producers, the conditions are created to introduce technologies that are now economically feasible, with more efficient supply being linked to market demand, the dynamic pull-factor. Only then can African dwarfs survive in agriculture in interaction with approaching global giants, or step out gracefully into another occupation.

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Africa is at last becoming a serious participant in the world economy thanks to its natural resources oil, minerals and agricultural raw materials. These are in high demand, especially from emerging economies like China and India, leading to high prices. This is good for Africa's economic growth which - South of the Sahara - averaged 5% in this century, after a dismal performance before. That is creating new dynamics with vast opportunities for real development.
Unfortunately, much of this economic growth is not well distributed and not contributing enough to a much-needed reduction of poverty, which still affects at least 40% of the population. High food prices also may have made matters worse for the vast majority of Africans who need to buy food, even when growing it on their own farms.

This shows the need for agricultural and rural development, to spread the benefits of economic growth and contribute to poverty reduction. Crop yields should be rapidly increased through a technical revolution affecting the millions of small farmers in particular. Infrastructure should connect farmers to urban markets and non-agricultural activities should also contribute to more income and employment, especially for the vast numbers of unemployed youth.
A reasonable world market outlook, better macro-economic conditions and investment climate, as well as improved governance in many countries, have created better conditions for a renewed effort at rural development, provided enough foreign assistance is forthcoming.

This rural aid should be focused on specific areas with a reasonable potential, to create a maximum impact and overcome the many barriers to growth. Much public investment should be directed at rural infrastructure, roads in particular, to make private investment by farmers and entrepreneurs remunerative and connect them to markets. Specific efforts should be made to include and connect small producers, farmers, traders, other entrepreneurs and unemployed youth. Civil society organizations have shown an ability to undertake such action effectively.

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