

AfDB-IFAD Joint Evaluation of ARD in Africa

The Changing Context and Prospects for Agricultural and Rural Development in Africa

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Summary and Conclusions

We undertake this task in a period of optimism about the prospects for Africa and for African agriculture. Per capita economic growth is now above three percent, and per capita agricultural growth above 1 percent. Armed conflicts are down to five from 15 in 2003. Democracy has advanced significantly. Sub-Saharan Africa (SSA) now has faster progress in its business environment than the Middle East and North Africa (MENA) and Latin America (World Bank and IFC, 2006). Africa is in the process of strengthening its Regional and sub-Regional Institutions. Agriculture has returned as a priority on the International Development Agenda. Economic growth and higher international agricultural prices are creating opportunities in domestic, regional and international markets. The African Union (AU) in conjunction with the New Partnership for African Development (NEPAD) have developed the Comprehensive Africa Agricultural Development Program (CAADP).

The purpose of this context and prospects review for African Agriculture is to inform the ongoing joint evaluation of IFAD and AfDB policies and operations in Agriculture and Rural Development (ARD). The study: (i) identifies major ARD policy, sector, and sub-sector issues, from an African and a global perspective; (ii) drawing on lessons from the past three decades, it analyzes issues likely to be of relevance for future development assistance to the sector; (iii) indicates specific issues and regional priorities which are most relevant to IFAD's and AfDB's policies and operations, and makes recommendations for issues to be given further attention in the course of the evaluation.

This context paper comes at a time when many others have summarized the state of knowledge on food and agriculture, including FAO (2007), IFPRI (2006), Inter Academy Council (2005), and World Bank (2007). There are also recent studies on governance failure, conflict and natural resource dependence (Collier, 2007), governance and regional integration (Economic Commission for Africa (ECA 2006) and other relevant topics. The context paper harvests this rich knowledge.

Section 1 reviews the terrible legacy that past failure to grow has left behind in terms of poverty and hunger. Positive and negative trends are reviewed in sections 2 to 6, covering the changes that have occurred in the international and institutional landscape; Global Winds of Change that have altered the environment for agricultural development; the factors that have inhibited African economic and agricultural growth for so long but now are starting to contribute to the recent successes. In section 4 we focus on the plight of the "Bottom Billion" countries. In section 7 we turn to the institutional pillars that need to be in place for agricultural and rural development (ARD), including the respective roles of the private sector, communities, local government, central and sub-regional institutions. Section 8 covers all the remaining challenges for African agriculture.

The legacy of the past failure to grow

Except for North Africa, and selected countries in Sub-Saharan Africa that have joined the ranks of middle income countries, growth in SSA has been the slowest of all Regions in the World, characterized by low investment and productivity growth. Poverty, hunger, and HIV and AIDS are significantly worse in East, Southern and Central Africa than in North and West Africa. Where growth has recently been improved, it has reduced poverty, although it is only where agricultural growth has also increased that hunger has been reduced.

Landlocked, resource-poor countries have had the slowest growth rates. Slow growth was also caused by the delay in the demographic transition which led to very high dependency rates. Poor governance, macroeconomic instability, limited integration into global markets, and discrimination against agriculture

have sharply reduced growth and agricultural growth until the mid 1990s, but are now much less of a factor. Infrastructure (roads, electricity, water supply) is poor, transport costs are high, and the cost of doing business is much higher than in other parts of the World. Financial markets in general and rural finance in particular are very poorly developed, and savings rates are much too low.

African and Global trends

Sections two to six analyze major recent improvements in Africa itself, and the opportunities for Africa and its agricultural and rural populations arising from the following favorable trends: Since 2002, the number of armed conflicts has been significantly reduced; better macro-economic management has combined with accelerating improvements in the business environment and a more appropriate public-private sector division of labor; as a consequence fiscal deficits and inflation have come down and growth has accelerated. Significant advances in democracy, combined with stronger civil society, community and farmer's associations have made governments more accountable to their populations. Africa has built stronger regional and sub-regional organizations, both at the political level, as well as for agricultural research; new private and emerging economy donors are providing growing volumes of aid.

The agriculture specific positive trends include significantly improved price incentives for agricultural producers, as a consequence of unified exchange rates, lower industrial protection and sharply reduced export taxation; higher international commodity prices may be here to stay, and create growing opportunities for import substitution and regional agricultural trade; and finally African governments, the Regional Institutions, and development partners - at least in words - are showing increasing commitment for agricultural and rural development. All these positive trends have led to a significant acceleration of per capita economic and agricultural growth, and significant reductions in poverty headcount in the fastest growing countries. Unfortunately, - except in North and Western Africa - they have not yet translated into measurable reductions hunger and malnutrition.

Global winds of change provide both significant opportunities, as for example from the rising demand for agricultural products, as well as significant impediments and threats, as for example the failure of the Doha Round of trade negotiations to start dismantling OECD agricultural subsidies and trade barriers, or the expected negative impact of climate change on agricultural productivity. While the Bali discussions of climate change provide a promise of support to mitigation and adaptation in poor countries, the actual mechanisms and actual funding remain still far away. Dramatic changes are also occurring in the consolidation of private international agribusiness firms and the associated supermarket revolution that so far is driven by African players in SSA. The privatization of much of agricultural research as a consequence of the biotechnology revolution is a similarly dramatic change.

Areas where progress is less satisfactory are the persistent HIV/AIDS crisis; the several stubborn conflicts that have defied resolution; little improvement in governance and decentralization; slow regional integration with a persistence of under-funded regional and sub-regional organizations; inadequate fiscal commitments to agriculture and rural development by national governments; slow progress in the infrastructure linking land-locked countries and remote regions of coastal countries to the centers of demand and the harbors. Finally stagnant volume and quality of aid from the traditional donors combine with only slowly growing financial commitments for ARD from national governments.

Widely shared agricultural growth remains impeded by poor financial markets and rural finance institutions. Development of competitive output and input markets is limited. Services for smallholder agriculture remain poor. Competition for natural resources - soil, water, fisheries and forests -- is increasing, and management of these resources is improving only slowly, if at all. Progress in biotechnology is inadequate, and combines with persistent under-funding of agricultural research,

agricultural extension, and institutions of higher learning to condemn SSA agriculture to slow and inadequate technical change, thus contributing to a growing technology divide.

*From the above discussion it is clear that both AfDB and IFAD will have to focus sharply on growth in their future programs, and in particular on widely shared growth that includes rural areas. Ndulu et al. propose a medium-term growth strategy that hinges on taking action in four areas (characterized as the four “I’s”): improving the **investment** climate; a big push toward closing the **infrastructure** gap with other regions of the world; a greater focus on **innovation** as the primary motor for productivity growth and enhanced competitiveness; and **institutional and human** capacity.*

Opportunities and Constraints

The new Aid Architecture: The proliferation of new donors provides both many opportunities and constraints. Countries will have great difficulties in coordinating all the old and new donors. At the same time a way must be found to ensure that other donors and aid recipients conform to national development and sector policies and national strategies and plans. But their entrepreneurial drive and ability to raise and deploy resources without taxing government capacities should be encouraged, as it has for long been the case with donations from foreign religious institutions of all faiths. The burden of compliance with national policies could be put squarely on the recipient of the funds, combined with ex-post “audits” could to verify that policies have been adhered to. This would help reduce the donor coordination burden. Of course for the larger existing and new government and multilateral donors, including AfDB and IFAD, the coordination agenda of the Rome and Paris declaration remain fully in place.

The proliferation of new donors, together with the rising emphasis on the rural poor and on agriculture, should provide an excellent opportunity for IFAD to broaden and deepen its donor base, especially in light of its highly relevant mandate, strategy and policies. On the other hand, the AfDB would have to articulate a more clearly focused ARD strategy to be able to do so.

In terms of the Rome and Paris agendas, the two institutions should emphasize the following issues:

The overall ARD programs of AfDB and IFAD should derive from PRSP, and the analytical work on poverty, domestic institutions, programs and expenditures which is associated with them.

While it is tempting to think of joint AfDB/IFAD country ARD strategies, putting the countries in the driver seat and economizing on scarce analytical skills in both institutions suggests a different approach: Support to ARD strategies should be provided in coordination with the other donors, in particular EU, WB, US, etc.

Upgrading of national budgeting and fiduciary systems and use them as the framework for harmonization of procedures across donors, and eventual move to budget support

As emphasized in the IFAD policy paper on sector lending, this may be more difficult to do for ARD than for health and education. Yet progress still possible

Financing of sub-national governments and communities via scalable LCDD projects, and via the intergovernmental fiscal system

Focusing on the Bottom Billion: The enormous costs to the populations of the bottom billion countries and to their neighbors implies *that both AfDB and IFAD may need to focus more sharply on the countries, and on the roots of the problems themselves.* The enhanced focus on these countries, and especially the pre- and post-conflict ones, will require the relaxation of rigid lending allocation rules that may turn bottom billion countries into aid orphans. It will also increase the risk of the grant and lending operations of both Institutions. These risks can partially be offset by enhancing supervision resources, and therefore

supervision budgets may need to increase in these settings. The shift of IFAD to supervise more of its operations directly is therefore a most welcome change. Finally both institutions may need to time their operations more carefully, focusing on rapid provision of technical assistance following an incipient turnaround or conflict resolution, followed by a strong shift to investment lending. *Stronger coordination of the capacity building and investment lending with other major players will also be needed.*

The capacity of agricultural and rural institutions: Compared to 1980, the institutional environment for ARD has significantly improved. The space for the private sector, including producers associations, has dramatically expanded, even though the private sector response has not made yet entered input and output markets sufficiently to create a vibrant and competitive environment for small farmers. Communities and civil society organizations have much more opportunity to participate in development and are receiving domestic and foreign support. While most governments have decentralization initiatives under way, administrative and fiscal decentralization are lagging badly behind political decentralization. The sector institutions that should set and monitor policies and finance or provide service for small farmers remain largely ineffective, however. *It is now well understood that these four sets of institutions need to collaborate at the local level as co-producers of local and community development, including agricultural development, including in the form of public-private partnerships. Such collaboration needs to be led and fostered by the central government, which continues to have overall policy and financing responsibilities, and needs to drive further decentralization and public sector reform.*

While there are no studies that measure the impact of the improved institutions on agricultural growth, there is little doubt that these improvements, in addition to macro-economic stability and improved price incentives, are one of the explanatory factors for the recent acceleration of agricultural growth.

Capacity development of agricultural and rural institutions would flourish best in the context of a broader, national capacity development strategy and program. It cannot be done as a top down provision of capacity development services. Instead it involves learning by doing, in which communities, local governments, farmer's organizations and private sector actors are given opportunities and resources and can exercise control over their own development. Of course these actors should be provided with mandatory training, in particular in diagnosis and planning, financial management and reporting, procurement, and monitoring and evaluation. Other training should be provided largely on a demand-driven basis. Capacity development must build on the considerable latent capacities that are found in rural areas all over the World. To do so, rules and regulations for program execution must become much more participatory and empowering, and eliminate complex features that destroy latent capacity or hinder its mobilization. (Binswanger and Nguyen, 2005). Finally, the broader sector institutions involved in ARD need to become much more accountable to their clients.

The African Development Bank and IFAD have important opportunities for fostering the institutional environment for ARD. Influencing rural institutions should be part of the country and regional strategy development of both institutions. The AfDB has a full range of instruments to foster institutional development at a national level, both via policy change and capacity development. The impact of IFAD is likely to be more selective, such as building the capacity of local governments in rural development and to empower communities, farmers associations, and foster local public-private partnerships.

Innovation and scaling up: For IFAD, Innovation should be redefined "Innovation for scaling up of targeted programs for the rural poor". Rather than focusing on individual innovations, this would involve putting packages together using best international practices to reach their target group and improve their incomes and food security; with selective innovations in areas where international best practice is still not satisfactory such as rural finance. Innovation would then mean to test and perfect the integrated approaches on a sufficiently large scale so that they can be scaled up nationally. Its analytical capacity and work program should also be sharply focused on these tasks, rather than attempting to cover all

issues associated with agricultural and rural development. Collaboration with AfDB in these areas would be of great advantage to both institutions.

The remaining challenges of agricultural incentives: there are still a number of remaining issues to be resolved: A declining number of countries in the Region continue to pursue disastrous macro-economic policies, including especially Zimbabwe. But in other countries inflation remains stubbornly high, leading to high real interest rates that make it difficult for agriculture to compete for investment resources. While on balance protection rates are no longer negative, net protection rates remain below minus 10 percent in Ethiopia, Tanzania, Zambia, Côte d'Ivoire, and Zimbabwe. And compared to industrial products and importable agricultural products, agricultural exportables remain with zero or negative protection. Agricultural products and inputs suffer from excessively high transport costs on account of poor infrastructure, policy interventions and illegal road blocks. Agricultural also incentives suffer from barriers to inter-regional trade and poor phytosanitary capacities. Finally, while improving, business climates in most countries still remain far worse than in other developing countries, holding back private sector activities upstream and downstream from the farm. Improving the many dimensions of incentives for African agricultural producers should be pursued by both institutions as and when opportunities arise in their advisory or project work.

Rural Finance: Because of the extremely adverse environment for rural finance in most of Africa, it is not surprising that both IFAD and the AfDB have found it excruciatingly difficult to achieve success in rural finance. Yet both of them put rural finance high on their agenda in their agricultural programs. Instead we believe that the solution to the farm investment issues need to come from substantially improved agricultural incentives and profitability in general so that farmers can invest these back into their farms. This can be supported by easily accessible and low cost savings mechanisms, such as postal savings systems linked to rural savings clubs. A complementary approach would be to finance more agricultural and rural investments via matching grants, with the matches coming both from community contributions in kind, as well as individual savings.

Agricultural Science and Technology: In spite of good returns to agricultural research in Africa, the science and technology divide between SSA agriculture and the rest of the world is growing because of inefficient and underfunded science and technology institutions in SSA and because of rapid changes in the international research environment towards bio-technology and private agricultural research. Borrowing opportunities between from other regions and within the continent are constrained by the uniqueness and the heterogeneity of African agricultural environments. Combined with relatively poor climate and resource base and the large number of stressors on productivity, this will require more, rather than less research than in other Regions. The challenges of natural resource management and of climate change and growing climate risks only adds to this imperative.

Fortunately African leaders have started to respond to this challenge by creating consensus on what needs to be done, improving their national institutions of higher learning and research, building sub-regional and regional agricultural technology institutions, and developing bio-technology networks and institutions. Pillar 4 of the Comprehensive African Agricultural Development Program provides a vision and an action plan for African agriculture Science and Technology. Unfortunately, the significant institutional responses have not so far been matched by adequate funding from national government and international donors, especially in the areas of bio-technology and science education. While AfDB and IFAD are contributing financing at regional, sub-regional, national and project levels, it is clear that they will need to step up their contributions just like others will.

The Imperative of Regionalization

Throughout this paper there have been many critical issues that can best be, or only, solved by regional action, and more are yet to come; let's recall a sampling:

- Small countries dominate the African scene often lacking financial capacity for public goods investments;
- Small land locked countries generally do worse, and depend on regional integration to be able to do better
- Expanded regional trade in agriculture and food products is good for growth, farmer's income and regional foods security;
- This will be helped by the harmonization of standards and sanitary measures, and sub-regional and regional capacities to implement them;
- Freer borders and internal infrastructure should encourage private sectors traders;
- For these countries, regional infrastructure –roads, communications, ports – critical for access to each other and external markets;
- Reversing land degradation and desertification and preserving biodiversity require trans-boundary collective action;
- Managing crucial, but under threat, forestry and fisheries resources must be approached on a transnational basis;
- Defense against plant and animal disease epidemics require collective responses at sub-regional and regional levels;
- Success in agriculture crucially depends on indigenous scientific capacity to generate new technology; given small and poor countries is far better done on a regional or sub regional basis – FARA and the SRO's are on the right track but the effort needs to be greatly expanded;
- Bio technology research is expensive with a large critical mass therefore two or three regional institutes is far superior to 48 or 24 underfunded, under resourced national institutions;
- Indigenous scientific capacity requires trained people, again better done by regional institutions which have critical mass and necessary financial support;
- Regional approaches to rural financial architecture may increase potential deposits and loanable funds and spreads risk;

These examples hopefully are enough to illustrate that the potential for regional approaches and an overall regional strategy for rural Africa are enormous. Yet in all most of these areas institutional development programs remain massively underfunded. The main reason for this is that the regional efforts produce regional and sub-regional public goods, and therefore their financing is subject to the familiar free rider problem of financing public goods. Except the largest countries which have an incentive to supply themselves with these regional public goods, countries will seek to benefit from the investment of others. *It is precisely here that a Regional Development Finance Institution such as the African Development Bank has a major opportunity to step in, as it can both coordinate, as well as contribute to the financing of these essential regional capacities.*

While there is probably less of a role for IFAD in this area, it is already active in hosting the Global Mechanism Against Desertification, AfDB has fully recognized this comparative advantage in general, and can become much more active in the supporting cross-border agricultural collaboration. To effectively exercise a leadership role, it needs to develop the analytical and implementation capacity, as well as streamlined mechanisms for financing them that are not dependent on individual country borrowing decisions, to effectively exercise this leadership role.

Issues for the Joint AfDB/IFAD review of ARD

A number of issues emerged as part of the review that would merit further analysis in the joint AfDB/IFAD review of ARD in Africa. These are listed with little comment in the following points:

- We have highlighted the considerable differences in the comparative advantage of the two institutions, in their commitment to ARD, and the level of development of their ARD strategies. How can the two institutions design a common overall strategy for ARD in Africa that combines their strengths, and how can such a strategy would be translated into country-specific and regional support. Such a strategy could explicitly reflect the 'Ndulu' priorities: investment, infrastructure, innovation, and institutions.
- How would a common overall strategy be translated into country support strategies in ARD that are led by the countries and that assist the countries in coordinating all major donors?
- What are the opportunities that arise from the recent upsurge in China's and India's involvement in Africa for ARD, and for AfDB/IFAD? How can resources from other new donors be harnessed and contribute to AfDB/IFAD financed programs?
- Given the proliferation of donors, the fragmentation of aid and the high transaction costs associated with current aid delivery mechanisms should AfDB/IFAD give higher priority to SWAPs and focus on capacity building for aid coordination and a reformed approach to technical assistance within the ARD sector?
- How can IFAD/AFDB expand their role in preventing states from failing and in helping the recovery of "bottom billion" states.
- How can AfDB and IFAD support the further development of the institutional environment for Local and Community-Driven Development? In particular, how can they foster the lagging administrative and fiscal decentralization; and scale their own financial support to local governments, communities and other local actors for their own ARD efforts. How can they merge their support in this area? Who do they need to collaborate with and how?
- How could AfDB support the wide variety of regional and sub-regional initiatives and institutions for ARD, and *in particular those that facilitate intra-regional trade in agriculture and for science education and bio-technology*? Who should they collaborate with in terms of analysis and technical support, and how should they structure their financial support to strengthen incentives of countries to co-finance these institutions at an appropriate level? How will AfDB have to change its own regional financing tools to enable it to take a leading role?
- How would AfDB and IFAD help build the local, national and regional mechanisms and institutions to take advantage of future opportunities arising in compensation and adaptation funds for climate change?
- How could AfDB best support advocacy for international and regional trade reform?
- How can IFAD/AfDB assist small farmers take advantage of growing opportunities in domestic and sub-regional markets for food? More specifically, how could AfDB and IFAD provide more support to the development of efficient and competitive input and output markets and supporting

systems, and the integration of small farmers into them? And should the institutions provide the support in terms of research and technical support, or also in the form of financial support?

- In light of the emergence of international supply chains and the revolution in food retailing what can IFAD/AfDB do to assist small farmers participate in the corresponding supply chains?
- Should the new development opportunities offered by the international fair trade and organic food movements be privileged in IFAD/AfDB operations?
- Given the adverse rural finance environment of much of Africa, how much emphasis should AfDB/IFAD place on strengthening rural financial institutions? How should they do it, and how should they collaborate in doing it between themselves and with other actors? To what extent can they expand the use matching grants to strengthen financial capacities of small farmers?
- How could IFAD/AfDB collaborate with others to protect Africa's coastal fisheries from the predatory practices of rich countries' industrial fishing fleets?
- What should be the role of AfDB/IFAD in promoting further reform in land and gender rights, institutions for land administration, and land redistribution? And how would they actually do it?
- How can AfDB/IFAD more effectively partner with other major players in ARD in Africa, particularly the World Bank and the European Union?

1. The past failure to grow has left an enormous challenge of Poverty and Hunger

Africa is second only to Asia in its size and heterogeneity. Its climates include Mediterranean climates in the North and in South Africa, subtropical and tropical highlands, the largest deserts, and vast stretches of arid, semi-arid, sub-humid and humid tropical areas. Of Africa's 900 million people, about two thirds live in villages and small rural towns. A higher proportion of countries are very small and/or landlocked than in any other Region of the World. There are significant differences in culture and historical backgrounds, education levels, and population trends. And economic growth has differed widely across countries and over time. These large differences across and within countries imply different development and growth opportunities. In this paper *we pay great attention to how these differences have influenced past general, and agricultural growth, performance, and prospects.*

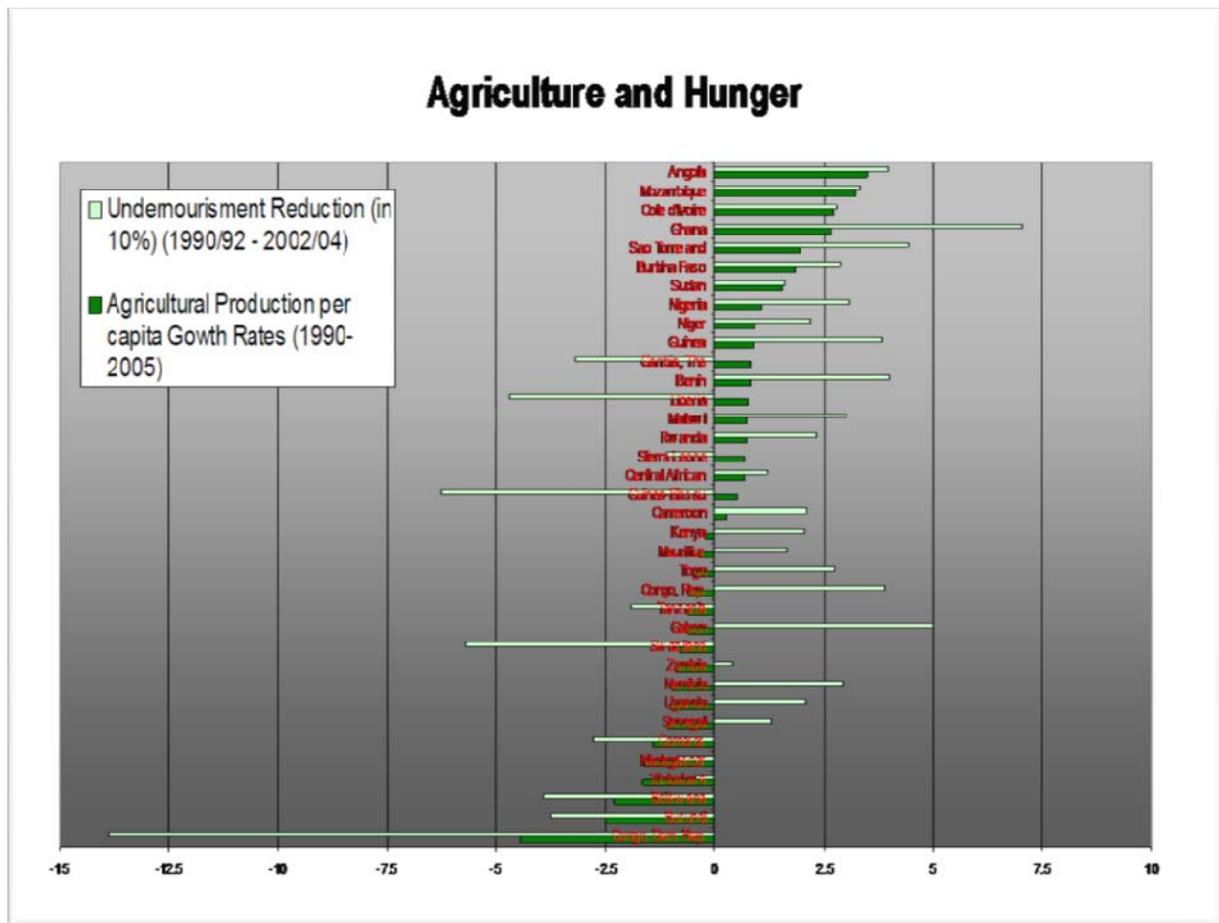
"[Sub-Saharan] Africa (SSA) has the highest incidence of poverty of all developing regions. It accounts for 10 percent of the world's people, but is home to 30 percent of the World's poor. ... Africa ... is at the bottom of the United Nations Development Programme's human development index, reflecting low levels of education, health, and economic welfare." (World Bank 2005, p. 1). Around 200 million of Africa's 900 million people are undernourished, and thirty-three million children go to bed hungry every night. Over the past 45 years, per capita income in SSA has grown at only 0.5 percent per year, compared to 3 percent in the 57 countries in the rest of the developing regions, (including North Africa). The slow growth in per capita income in SSA has meant that poverty has failed to decline between 1990 and 2003. While urban poverty is increasing, more than 70 percent of the continent's poor still live in rural areas. In addition, poverty rates in rural areas are still much higher than in urban areas. The rural poor include small scale farmers, nomads and herders, artisanal fishers, wage laborers, households headed by a woman, unemployed youth, entirely landless people, and displaced persons. The impact of growth on poverty reduction is well illustrated by 8 SSA countries that have seen per capita growth rates of 2.9 percent on average in the 1990s and have reduced poverty at an annual rate of 1.5 percent during the period (Ndulu et al, 2006).

On the other hand, poverty in stagnating countries has increased. Economic growth has been faster in North Africa than in SSA and was close to four percent in the ten years to 2005. (ECA, 2006a). Nevertheless in 2001 between 2 and 7 percent of the populations of Algeria, Egypt, Morocco and Tunisia were still suffering from hunger. The agenda for poverty and hunger reduction in these countries is to address the remaining poverty pockets in the countries, many of which are in rural areas (ECA, 2006a). On the other hand, economic growth and rural development have been the slowest in Eastern and Southern Africa. Of the 350 million people in the sub-Region, about 260 million live in rural areas, which account for 83 percent of extreme poverty. It is in this sub-region that hunger is the most pronounced. And this is combined with by far the highest HIV prevalence rates in the World. Of the 125 million poor people, in West and Central Africa, around three quarters live in rural areas.

Agricultural growth has a much more direct impact on hunger than general economic growth: Figure 1.6 shows that by and large the countries with faster agricultural growth have made more progress against hunger. While Hunger has significantly declined in West Africa, it has increased significantly in the conflict or coup countries -Liberia, Sierra Leone, Comoros, Burundi, Guinea Bissau, and most dramatically the DRC. Other countries with significant increases in hunger are the Gambia, and surprisingly Botswana.

To sum up: Past failure to grow has dramatically increased poverty and hunger in SSA while growth has contributed to poverty reduction in North Africa. Recent economic growth on the other hand has reduced poverty and the associated agricultural growth is a powerful factor in reducing hunger. It is therefore clear that both AfDB and IFAD will have to focus sharply on growth in their future programs, and in particular on widely shared agricultural and rural growth.

FIGURE 1.6: REDUCTION IN HUNGER AND AGRICULTURAL GROWTH



Source: Pingali et al 2007

2. The Mandates of AfDB and IFAD, and the Changing International Landscape of Development Assistance

The two institutions involved in this review are quite different. The African Development Bank (AfDB) is a regional multi-sectoral lending institution, while the International Fund for Agricultural Development (IFAD) is a highly focused global institution targeting only poor agricultural producers. The **African Development Bank (AfDB)** “...primary objective is to promote sustainable economic growth to reduce poverty in Africa” (Annual Report, 2006). Total Bank Group loan and grant approvals have

increased steadily over the past decade from under 2 Billion \$US annually to more than 3 billion \$US in 2006.

Agricultural operations made up a high of 32% of approvals in the period 1985-1988 but declined to 19% in the period 1989-1997 (Agriculture and Rural Development Sector, Bank Group Policy Paper-OCOD January 2000). As a share they have further declined since. In 2006 ARD loans and grants totaled \$US 362 million and made up slightly over 10% of total loan and grant approvals of 3,472 Million \$US (Annual Report, 2006). The Strategic Plan for 2003- 2007 2 says that within the broad focus of reducing rural poverty, the Bank will focus on adoption of modern technology, diversification of production systems, efficient management of natural resources and improvement of productivity of farm and non-farm activities. It will take a leadership role in the development of rural financial services and will support Bank wide efforts in rural infrastructure and water. (AfDB 2002). The most recent document is a Draft-Agric-Sector-Strategy-(AfDB 2007a) which concludes that while progress has been made, the Banks efforts have been too focused on production aspects "...with virtually no backward and forward linkages". Specifically identified weaknesses are agribusiness development, limited private sector engagement, and partnerships. The new Sector Strategy proposed is selective and focused more on agriculture rather than broad issues of rural development. It would see OSAN's interventions, in partnership with the Private Sector where possible, be largely concentrated in the following key areas: 1. Support to Rural Infrastructure; 2. Crop Production Productivity Growth; 3. Agro-Industry Development; 4. Livestock Production; 5. Natural Resource Management –particularly land, water, fish and forest resources; and 6. Climate Change Adaptation. Efforts in these areas would "...contribute to the Bank's Vision of poverty reduction through increased agricultural production and productivity, efficient marketing and expanded trade in its (RMCs), thereby increasing farm incomes and the welfare of rural populations in general, and agricultural produces and enterprises in particular." (p. 7).

We already note here that, within the confines of the strategies articulated so far, there are important opportunities for the AfDB to assist ARD by improving rural infrastructure, the road infrastructure connecting landlocked countries to the sea, agricultural technology, and in the strengthening of Regional and Sub-Regional Institutions for ARD. In later sections we will discuss the firm international consensus – reflected in the CAADP program of NEPAD -- that agricultural growth will be for the agricultural countries of sub-Saharan Africa, the most powerful tool to achieve poverty reduction. *A major question that the Bank will therefore have to answer in developing its future strategy will be whether the strategy and its planned magnitude will be in line with its intended focus on poverty reduction.*

The **International Fund for Agricultural Development's (IFAD)** annual loan and grant operations since 1992 have slowly increased from 300million \$US to over \$US 500 million in 2005 and 2006. It is a small and tightly focused global organization less than one fifth the size of AfDB. A few quotes from the Strategic Framework (2007a) paper are the best way to convey their strategy: "**IFAD's overarching goal is that rural women and men in developing countries are empowered to achieve higher incomes and improved food security at the household level. ... IFAD will aim to ensure that, at the national level, poor rural men and women have better and sustainable access to, and have developed the skills and organization they require to take advantage of (a) Natural resources (land and water)...; (b) Improved agricultural technologies and effective production services...; (c) A broad range of financial services...; (d) Transparent and competitive agricultural input and produce markets...; (e) Opportunities for rural off-farm employment and enterprise development...; and (f) Local and national policy and programming processes, in which they participate effectively.**" "**Selectivity and focus: IFAD ...will not work outside rural areas. It will not target the non-poor. It is not mandated to respond directly to emergencies and provide relief. IFAD will finance social service delivery – local water supplies, health and education facilities –only in response to the defined needs of local communities, where the facilities are limited in scope and critical for the achievement of project objectives, and where other financing sources are not available. IFAD's expertise is specific to the rural sector: it will engage in policy dialogue only in the**

*areas of its competence, and it will not use general budget support as a means for disbursing its resources. **Targeting:** ... Its target group is made up of extremely poor rural people who have the capacity to take advantage of the economic opportunities offered by IFAD engagements."All elements of IFAD's country programmes will be expected to be innovative. **Yet innovation without scaling up is of little value:**"(Strategic Framework for IFAD 2007-2010)*

IFAD has also produced several policy papers including on Rural Finance (2004), SWAP's (2006), Supervision and Implementation Policy (2007b) and Knowledge Management (2007c). The Private Sector Development and Partnership Strategy /Policy (2007 d) contains a very **wide and innovative definition of the rural private sector:** "IFAD's direct target group is the rural poor, who tend to be concentrated at the smaller end of the private-sector continuum. This group is considered part of the private sector because, in essence, it comprises agro- or rural-based microentrepreneurs who make their own economic decisions regarding what to produce and how to produce it, what to buy and sell, who to buy from and sell to, how much to buy or sell, and when." (p.6)

In sum IFAD has a highly focused, selective and well articulated vision and strategy as to what they will and will not do. And it has translated these into appropriate policies in a number of areas. It is therefore exceptionally well positioned to take advantage of the improving African and international environment on behalf of its well defined client group.

We will frame our recommendation on the following understanding of the two institutions and their mandates: The larger African Development Bank has a broader mandate that allows it to finance or co-finance programs in support of poverty reductions such as large scale infrastructure and support to Regional Institutions that are beyond the capacities of IFAD, and have benefits for both poor and non-poor populations. As a regional Institution it also has voice and influence at the continental level that it can leverage in partnership with other Regional institutions such as the AU, NEPAD and sub-regional Organizations. The smaller IFAD focuses on empowering poor agricultural producers in all aspects of their agricultural and related development activities and organizations. Within this highly selective focus it has many opportunities to innovate and collaborate with others to scale up successful innovations.

The Changing International and Institutional Landscape for ARD 1980-2007

The 1970s and 1980s: Despite the path-breaking academic study by Johnston and Mellor (1961) which argued that agriculture had a very positive role to play in the early stages of economic development, since the 1950s the sector has been seen more as a source of resources for industrial development than a positive engine of growth and poverty reduction. The food price run up of the middle seventies, coupled with the recognition that poverty was a predominantly rural phenomena, made agriculture and rural development major items on the agenda in the 1970s. Rural development was approached via massive Integrated Rural Development Projects (IRDP's), and by free standing agricultural credit projects that created and supported specialized agricultural credit institutions that proved unsustainable in the long run, and rarely reached small farmers (World Bank 1996 a). Large scale irrigation projects built a lot of irrigation infrastructure but paid little attention to user-driven institutions and environmental and social sustainability (World Bank, 1995). Free standing research projects were fairly successful in building or strengthening agricultural research. In the early 1980's rural development represented the largest sector of lending for the World Bank. We shall see below, that other development agencies followed the same trends.

The early thinkers in rural development in South Asia, as well as the rural development strategy of the World Bank of 1974, favored a participatory, decentralized, approach to the uplifting of rural groups that was based on improved technology, investment in irrigation, and cooperative institutions for input supply

and marketing. However in practice, large rural development programs and integrated rural development projects quickly lost their ways. Participation was reduced to consultation, often poorly carried out. Rather than strengthening local governments and communities, implementation was delegated to centralized line agencies that had difficulty reaching the rural poor (Binswanger and Aiyer, 2007). Programs were often executed without good technologies on the shelf, and project-specific technology component were unable to bridge the gap. Coordinating the executing line agencies proved extremely difficult. Much credit was provided in these programs from agricultural development banks but most of the credit subsidies went to better off producers. The programs did best in the delivery of infrastructure, but sustainability of the created infrastructure remained a problem. But a few years after the project no institutional traces of the projects could be found. But the failure of the large scale rural development interventions of the 1970s and the 1980s were not only rooted in the poor program and project designs discussed above. They also were a consequence of the adverse macro-economic and agricultural policy environment facing agricultural producers and investors, a topic discussed in section 6. New approaches to the local institutional framework and the support of rural development are discussed in chapter 7.

By the early 1980s, the paradigms of development were in a state of change. The world trading system by the 1980's had substantially reduced barriers to industrial trade. GATT in 1994 brought agricultural trade under the general rules of the newly formed World Trade Organization (WTO), but with little impact on effective protection. Some nations in East Asia abandoned the inward looking import-substitution industrialization model and succeeded in growing rapidly by expanding exports. Thus export lead growth was a new competing paradigm for general economic development.

The early 1980's were also characterized by rapid inflation and slow growth, the fallout of the run up in oil and commodity prices in the 1970's. Project lending focused on poverty reduction was often not sustainable. Often the taking on of additional commitments made matters worse. Thus poverty lending gave way to structural and sector adjustment lending in the 1980's, and then policy lending in the 1990's. Structural adjustment programs focused on macro-economic stabilization, price and trade reforms, and on getting the state out of direct production and distribution activities. Privatization of loss making parastatal enterprises served both of these objectives. Fiscal stringency also reduced the fiscal space for health, education and other social services, as well as for smallholder services. In agriculture it was assumed that the private sector would step in rapidly into areas left by parastatal marketing agencies, an expectation that proved far too optimistic. The macro-economic adjustment programs put in place market-determined exchange and interest rates, the structural adjustment programs sought to bring down industrial sector tariffs, and agricultural sector adjustment programs sought to reduce or eliminate the taxation of agricultural exports. As we shall see in chapters four and six, these three measures combined to improve incentives for agricultural producers and gradually revive economic and agricultural growth. However, it often took a long time for these stabilization and adjustment measures to take hold and have an impact. And few of the programs were accompanied by adequate safety nets.

The Early 2000's: The international and institutional landscape of the early 2000's is radically different from the 1980's. The Cold War was over, replacing a nuclear stand-off with increasing numbers of national, and sub national conflicts. This has changed the rationale for international assistance and focused even more attention on the short run, making it more difficult to fund long term investments such as agricultural research in general, and the CGIAR in particular. The end of the Cold War also reduced competitive pressures to expand aid and support levels fell. Severe food emergencies and large numbers of refugees emerged with increasing frequency, placing demands on many traditional agencies for post-emergency assistance. Middle East conflicts continued to contribute to rising petroleum prices. The Millennium Assessment laid out 8 Millennium Development Goals (MDG's). Several, particularly # 1 on Poverty and Hunger, refocused attention on rural development and on Africa in particular. The rise of the environment and other social sectors, especially health, radically shifted lending and assistance portfolios of IFT's and bilateral Agencies. HIV/AIDS emerged as a huge health, labor and poverty issue. The World

Bank and other development agencies are now championing good governance and have declared war on corruption. The Doha Development Round focused (so far unsuccessfully) on trade liberalization of particular benefit to developing countries. The world's attention to agriculture and rural development seemed to wane even though rural poverty and 800 million undernourished people persisted. So the beginning of the new Millennium was characterized by great uncertainty, rising conflicts and increased competition for funds. Funding for agriculture and rural development hit a 25 year low in 2001. Recently however the rhetorical interest in agriculture seems to be rising. The CAADP program of NEPAD, the Inter Academy Council report (2005), the "Blair" report of the Commission for Africa (2005) and the World Bank WDR of 2008 all make forceful cases for the major role that agriculture has played in poverty reduction in Asia, and that it can play in Africa.

The current development paradigm is open economy, market driven, private sector lead economic development. The role of government is to set appropriate rules, provide necessary public goods and make sure the playing field is level, fair and open. Agricultural development paradigms continued to change also. Some countries had achieved rapid growth with agriculture exports leading growth. The long standing, but artificial distinction between food crops and market/export crops disappeared. Agricultural growth stimulated rural non-farm activities in many countries which provided for growth in employment and incomes.

Thus the 1961 Johnston- Mellor argument finally seemed to be back in vogue. It was finally recognized that agriculture in most countries was the largest private sector activity and that farmers would respond to incentives. Privatization, the end of central planning, and the rise of markets, re-focused attention on what contributed most to rural growth. For African farmers, most of whom are small, it meant technology that increased productivity and profitability; access to necessary inputs; and functioning fair and open markets at home and abroad. Thus trade liberalization became part of the rural development policy mix. For the rural sector it dictated needs for education, infrastructure, especially transport and functioning markets.

Accepted processes of development –the "Hows"- continued to be challenged and added to. The emergence of a wide variety, and burgeoning numbers of CBO's and NGO's at the local, national and international levels radically altered our perceptions of who were players and what needed to be done. Many became involved in the implementation of activities particularly in emergencies, and many have evolved to have sufficient capacity to be technical partners, especially in the rural, natural resources, and food sectors. The concept of democratization in the design and implementation of projects necessarily required participation of potential beneficiaries. This, and the adoption of the concept of subsidiarity - decentralizing decisions to the lowest (often community) levels- led to the concept of client ownership, a far cry from top down, complicated, complex, expatriate dominated integrated rural development projects (IRDP's).

Donor fragmentation and behavior

The number of players who claim a legitimate interest has exploded: "Estimates suggest that there are 233 multilateral development agencies; 51 bilateral donor countries (most with multiple official agencies); several hundred international NGO's; and tens of thousands of national NGO's, not including community-based organizations which could number in the millions." (Kharas, "2007, p 3). Kharas classifies the new players into two groups:

-- New bilateral donors from the South including large donors like China (2 billion \$US/annum), India and Saudi Arabia (over a billion each), several more in the ½ billion \$ range (Korea, Turkey, Kuwait and Taiwan) and a total of 21 more who have or are establishing aid programs. "*Estimates of aid from new players equaled or exceeded official development aid from traditional donors in 2005*" (ibid, p. 6).

-- Thousands of private organizations such International NGOs like World Vision International with a budget exceeding 2 billion \$US, 4 with budgets between \$500 million and \$900 million (Save the Children International, Care USA, Catholic Relief Services and Plan International) and thousands of philanthropic foundations who contribute to international causes. The largest of these in 2004 were Gates Foundation at 1.2 billion \$US and the Ford Foundation at 250+ million.

It needs to be underlined that new bilateral aid players like China, India and Brazil are also now major commercial development players in terms of markets, inputs, technology and finance. BBC News estimates that the most recent wave of Chinese migrants to Africa is "...*thought to total up to 750,000*". "*They are settling all over the continent, in rural and urban areas, are involved in agriculture, construction and trade*". (BBC News 2007/11/29).

In the United Nations sphere other agencies such as WHO, UNICEF, UNAIDS, FIVIMS etc. became increasingly engaged in issues of nutrition and health. Millennium Development Goal Task Forces, particularly Task Force One are new players. New conventions such as on Desertification and The Montreal Protocol to mention two have overlaps with FAO, and WFP and IFAD's roles are now more closely entwined in terms of emergencies, early warning and a renewed focus on Africa. African nations working through the African Union (AU) have identified joint action as critical and have created The New Partnership for Africa's Development (NEPAD), including the CAADP program for agriculture, and many other institutions for regional integration and specialized development tasks.

Homi Kharas (2007) shows that once you account for all the things that are not really for development, aid for development from the traditional donors in the rich countries has hardly grown: "*Of the \$100+ billion of official development assistance disbursed by rich countries to developing countries in 2005 only \$38 billion was oriented towards long-term development projects and programs. Of this \$38 billion, perhaps half reached the intended beneficiaries. The balance of the money is tied up in special purpose funds like debt relief and technical assistance, or in administrative costs incurred in both the donor and recipient country. Presumably some is lost to corruption, too. ...Traditional donors are splintering into many specialized agencies. His analysis regarding Africa is particularly sobering: "This same story is replayed on the ground in Africa. The rhetoric is one of progress: the G8 has an Africa Action Plan, with special representatives to keep a focus on the poorest continent. But so far, Sub-Saharan Africa (SSA) has hardly seen any funding increase at all. Astonishingly, our estimates suggest that only \$12.1 billion of the overall official development assistance takes the form of funds that SSA countries can use to invest in social and infrastructure development programs – one cent for every \$27 in rich country income.*

Easterly, based on statistical analysis of OECD DAC, comes to even more pessimistic conclusions: "*The record of the aid agencies over time seems to indicate weak evidence of progress due to learning or changes in political support for poverty alleviation. The positive results are an increased sensitivity to per capita income of the recipient (although it happened long ago in the 1970s), a decline in aid tying, and a decrease in food aid as a share of total aid. Most of the other evidence—increasing donor fragmentation, unchanged emphasis on technical assistance, little or no sign of increased selectivity with respect to policies and institutions, the adjustment lending-debt relief imbroglio—suggests an unchanged status quo, lack of response to new knowledge, and repetition of past mistakes*". (Easterly, p. 38)

Collier et al. come to somewhat more positive conclusions. They have estimated that aid on average has added one percent to the growth rate of the Bottom Billion countries, sometimes preventing it from becoming negative. Aid has been more successful than oil revenues in improving growth. Aid also reduces capital flight, because it makes private investment more attractive and keeps money in the country. Nevertheless, because of the fungibility of money, AID inadvertently helps finance about 40 percent of African military expenditures. Aid has been more successful where governance and policies are better. The allocation of aid is not poverty efficient. Far too much goes to middle income countries.

Of course these discouraging trends have not gone unnoticed: Calls for more harmonization and alignment of operational policies, procedures and practices of development institutions were articulated in the Rome Declaration on Harmonization and Alignment of February 2003. This was followed in March of 2005 by the Paris Declaration to which over 100 Ministers, Heads of Agencies and other Senior Officials committed. But progress on the ground has been slow.

ODA for agricultural and rural development in Africa in constant 2005 dollars rose from a little over a billion in the early 1970s to over three billion in the early 1990s, spiked around 5 billion dollars in 1986 and 1987. After falling back to around 2 billion in the 1990s, it fluctuated between 1.5 and 1.8 billion since then. Of the total a much larger share was for agriculture than for rural development, which since the early 1990s is relatively stable around 500 million dollars. Over the period 1974-2005 bilateral aid totaled just over \$US 40 billion while the full multilateral aid totaled \$US 37.7 billion. The largest bilateral donor over the period was the United States. Aid commitment of individual bilateral and multilateral donors varied considerably over the period, in particular for the US and the EU. IFAD and AfDB had a fairly stable pattern of commitments between \$US 100 and 300 million, except for two peaks in the AfDB in the 1980s. But overall the commitments of these organizations have been much less volatile than many bilateral donors and certainly more stable than for the EC and the USA.

3. Global Winds of Change

The topics discussed in this section include Globalization, Trade Liberalization, International Private Sector Consolidation, the Supermarket Revolution, Climate Change, Infectious Animal and Plant Diseases, BioTechnology, the associated Privatization of Agricultural Research; and BioFuels. It needs to be kept in mind that they impact farmers and consumers simultaneously rather than individually.

Globalization: The first wave of globalization started in the sixteenth century with the transatlantic silver, sugar, and cotton trade. It brought major new staple crops to Africa, such as maize, potatoes, sweet potatoes, cassava, and fruits and vegetables, including the ubiquitous tomato. By the first decade of the 19th century the transport revolution associated with steamships and railroads of the second half of the nineteenth century brought all of Africa into the international division of labor. After the interruptions of World War 1, the Great Depression, and World War 2 globalization started to flourish again in the second half of the 20th century, but was held back by restrictive trade policies that have now been reduced. The negative impacts of the successive waves of globalization included slavery, migrant labor systems, diseases, colonialism, unfair trade and taxation, war, the destruction of indigenous social systems and cultures. On the positive side it brought new modes of transport, goods, services, technologies, and institutions to Africa too numerous to list. While there were many losers, there were innumerable gainers as well.

How negative or positive will the current wave of Globalization be for Africa, and who will lose or gain? With stronger state and regional institutions, this is not just a question of what globalization will do to Africa, but also how countries and institutions will seize its opportunities and shape its impact. They are not nearly as helpless any more as they have sometimes been in the past. Over the past two decades, many African countries have clearly been benefiting from globalization via mineral exports, cheaper consumer goods, cheaper foods, agricultural market opportunities and associated technologies, with differentiated impacts across Northern Africa and SSA. There has been considerable transfer of global chicken and other livestock technologies, but less in crop technology.

While globalization opens up new opportunities in agriculture, the negative side of globalization is very stiff international competition in food grains, meats, horticulture, and processed products. For particular African fresh fruits, vegetables and horticultural products, competition from other developing countries

has become fiercer. The agenda of actions discussed in chapter 8 offers options on how to seize opportunities and deal with the challenges. *In order to assist countries in facing the increasing competition, IFAD and AfDB need to adopt an approach focused squarely on the market; AfDB could develop a niche in helping Regional Organizations and member countries in dealing with sanitary and phyto-sanitary (SPS) rules, standard setting, and quality assurance capabilities using its sub-regional and country-specific instruments.*

Trade Liberalization: Trade over the past 50 years grew very rapidly and now makes up a much larger share of world economic activity. Agricultural trade will become an even larger share as a consequence of increased South-South trade. Nevertheless, the constraints to trade in agriculture are the last bastion of protectionism in the real trade sector. As we will note again in chapter 8, African farmers clearly need more access to international, regional and sub-regional markets. African governments and institutions need to watch carefully how the Doha Round turns out. If it fails it is likely that the major trading nations will seek to gain access to closed markets, and to attack “unfair” barriers to trade, using trade litigation and the WTO dispute settlement mechanism. This will further disadvantage small African nations as the process is expensive both in terms of money and intellectual capital. Another likely consequence of failure would be a further acceleration of bilateral and multilateral preferential trading agreements (PTAs). There are already too many regional trade agreements in Africa and a further movement to bilateralism in Africa is clearly counterproductive.

As this draft is being finalized there are signs of progress in the WTO negotiations generally, and in agriculture in particular. The Chair of the agricultural negotiations has signaled a major push in farm talks by the end of March. “By 31 March or earlier New Zealand Ambassador Crawford Falconer, who chairs the talks, will reconvene multilateral talks so that representatives of the full membership can negotiate the outcome and continue with other major issues, leading to a revised draft blueprint of the final deal.” (WTO, 14 March 2008). If the major elements of the deal already agreed to survive, there will be ample protection of the interests of poor developing countries through requirements for smaller, (in some cases no) reductions in support for “sensitive” and “special” products. There will also be safeguard and anti-dumping measures to protect against floods of subsidized products dampening prices in local markets. We see little opportunity for AfDB to add value to the analytical work or the negotiations. *However, AfDB could play a major role as a champion of freer trade and better access for its RMCs and via its grant window in building capacity for implementation of any agreements that are reached or in dealing with the consequences of a failure of the Doha Round.*

The AU and NEPAD have recognized the need to streamline the regional trade architecture. *Fortunately AfDB appears to be giving high priority to supporting regional integration.*

International Private Sector Consolidation: The small holder farmer in Africa and Asia is at the center of the food security and poverty challenge of the 21st Century. For her to succeed she requires interaction with a broad set of interfaces/markets: *for seeds and breeding stock*, increasingly supplied by the private sector and ultimately multi-nationals; *for inputs - fertilizer, chemicals, machinery and feed supplements* - again supplied by the private sector; and *for markets for primary products*, again primarily private sector including very large multinationals such as Cargill, ADM, Bunge, Louis Dreyfus and Con Agra. Once the primary product is assembled it has to be *processed, stored, and transported* again most likely by major multinational firms such as Nestle, Unilever, ADM, Cargill, Tyson, Con Agra, Pepsico, Coca Cola etc. Ultimately the food is *sold in retail shops/ stores to consumers* and it is here that perhaps the most active “supermarket” revolution is just now unfolding. The bottom line is that globally private Agri/Food multinationals are driving changes in the global food economy more than ever before.

Overall the process is characterized by increasing international consolidation of firms, involving both vertical and horizontal integration. Seeds, genetic improvements, and technology are dominated by six multinational firms. Many of these same firms are involved in providing agricultural pest control. Provision of fuels, fertilizers and other chemicals also come from industries characterized by enormous economies of scale and are similarly concentrated globally. As one shifts to the marketing side, major firms such as Cargill, ADM, Bunge, Con Agra, The Conti Group and Louis Dreyfus, generally identified as primary (grains, oilseeds) product handlers, are also variously engaged in seeds, feeds, fertilizers, food processing, sweeteners, biofuels and in a few cases in wholesale food distribution. Firms primarily identified with food processing such as Nestles, Unilever, Kraft Foods-Philip Morse, Tyson, PepsiCo, Heinz, and Sara Lee also are integrating forward to distribution and backward to primary product handling. Of course firms like Cargill and ADM are also important in the processing sector.

These trends have been going on for sometime in the OECD countries. What is new is that these same firms presence is now becoming very large in the rest of the developing world. In part this is being driven by what is called the “Super Market Revolution” which is *radically changing national, regional and global food supply chains*. “Supermarkets have spread extremely rapidly in developing countries after take-off in the early to mid 1990’s” (Reardon, Henson and Berdeque, p.1). In SSA the super market revolution started in the middle 1990s. As of 2003 already 55 % of food retail sales in South Africa were through supermarkets. The market was dominated by four firms. These same firms have then spread to smaller cities and other countries. For example Shoprite, the largest South African firm, in 2003 operated over 400 supermarkets in 14 countries (in 1979 it had 8 stores in South Africa). (Weatherspoon and Reardon, 2003) In their analysis they were particularly concerned about the implications for small local farmers. “Where medium-large growers are available in the country in which a chain is operating, the retailer draws as much as possible on these growers who are usually formed into associations that both export and sell to local supermarkets... (ii) Where the larger growers are not available, and where small farmers cannot yet meet the standards of the supermarkets, there is some reliance on importing produce to the stores in a given country from South Africa or other countries where the needs can be met; (iii) Where projects can be put in place to ‘upgrade’ the small farmers to meet the needs of supermarkets, the chains appear to be eager to participate in these schemes.” (ibid). Similar developments happened especially in Kenya after 2000 where two leading indigenous firms first became dominant in Nairobi retail sales and then expanded to other towns in Kenya.

Who benefits from this revolution? Neven, Reardon, *et al.* studied the socio economic status of Nairobi supermarket customers and find “...that contrary to the conventional image of supermarkets in developing regions – the place for the rich to shop – purchasing from supermarkets has penetrated the food markets of the poor and low income groups – in Kenya, already 56% of supermarket clientele. 60% of the Nairobi poor, buy some of their food in supermarkets each month.” (ibid, p.16). On the farmers side, Neven, Odera *et al.* present a clear finding: “We analyzed the farm-level impact of supermarket growth in Kenya’s horticulture sector.... The analysis revealed a threshold capital vector for entrance in the supermarket channel, which hinders small, rainfed farms. Most of the growers participating as direct suppliers to that channel are a new group of medium sized, fast-growing commercial farms managed by well educated farmers and focused on the domestic supermarket market. Their heavy reliance on hired workers benefits small farmers via the labor market.” (p.1)

Unlike in other parts of the world, so far non African multinationals have not penetrated the African market. Thus to date there is limited evidence of displacing domestic supply chains. In many small countries, it may not pay outside firms to invest in local wholesale and processing facilities and they may source outside. The critical question for Africa is: *To what extent are supermarket chains sourcing locally?* In order to compete, African supply chains, from farmers to wholesale, need to adapt. Farmer organizations could play an important role, especially regional and sub regional associations who could

form regional cooperatives or joint venture companies. The evidence seems to suggest that African firms prefer to source locally, especially in fresh produce so these developments offer opportunities as well as threats.

AfDB should pay attention to institutions, policies, and investments along the entire supply chain: A private sector interface. IFAD can assist small farmers in reaching the threshold of capital and skills and link them to the supply chains. This will also involve, strengthening of their organizations.

Global Warming and Climate Change: Africa has experienced enormous climate changes since it gave rise to mankind about 150,000 years ago. Ever since the onset of agriculture about 8000 years ago, climates have changed periodically. The most important evidence to this is found in the records of two periods of pastoralism that have covered almost the entire Sahara desert, only to retreat again since about (Reader, 1998). The adaptive capacity of African agriculture to these enormous changes in the past is well documented.

Except for a few diehards, there is now agreement that global warming is caused by human activity. The basic questions now are, can the process be slowed, stopped or even reversed. This is the issue of mitigation. The second issue is adaptation i.e. how will the world adjust to the outcome. Lomborg in his recent book “Cool It: The Skeptical Environmentalist’s Guide to Global Warming,” (2007), makes the case that we should do a serious cost-benefit analysis comparing the benefits of spending a lot of money on minimal reductions on CO₂, to spending the same or less money on pressing current development issues, on adaptation, and on research towards lower carbon technologies. SSA is the Region contributing the least to global warming. It has the most urgent economic and social problems. The case for putting less emphasis on mitigation in SSA (except for land use changes), and more on dealing with the pressing current needs, and with future adaptation is stronger here than anywhere else. The situation is different in North Africa where the case for mitigation is stronger.

A growing number of modeling efforts suggest that the temperature impacts will be greater in the higher latitudes, and that night temperatures are likely to increase more than day temperatures. Precipitation will increase in higher latitudes but will be reduced in areas such as the Mediterranean and Southern Africa. Adverse agricultural consequences are likely to be negative in the lower latitudes where temperatures are already high and precipitation is already limiting, and they may be positive in the higher latitudes closer to the poles (Cline 2006). For Africa the impacts are estimated to be considerably more adverse than predictions for the Developed World, but less alarming than for example for India and for Mexico. There is also a growing view that frequency and amplitude of extreme weather events may be increasing. All of these happenings will negatively affect farmers and increase their risks, and especially small farmers in rain fed agriculture.

Global warming implies changes in crops, cropping patterns, timing, agronomic practices and seed needs. It reinforces the need for stronger research systems capable of improving the resistance of crops and animals to biotic stresses, and investments in irrigation and water management. Farmers will be better able to adapt if agriculture is highly profitable and they have the required savings to invest.

African agriculture can also take advantage of opportunities: “*Climate mitigation through carbon offsets and carbon trading can increase income in rural areas in developing countries, directly improving livelihoods while enhancing adaptive capacity*”. (Gary Yohe, et al, 2007, p.1) “*Land use change (18.2%) and agriculture (13.5%) together create nearly one-third of greenhouse gas emissions... this represents potential financial flows of US\$130-260 billion annually, comparable to ODA of US\$100 billion, and foreign direct investment in developing countries of US\$150 billion.*” (ibid p.3).

Adaptation to climate change and the risks it brings should be part of overall development and coping strategies. Yohe et al. conclude... *"(t)he tendency has been to treat adaptation to climate change as a stand-alone activity, but it should be integrated into development projects, plans, policies, and strategies."* (ibid p.2). Howden et al (2007) make a similar argument ... *"We argue that achieving increased adaptation action will necessitate integration of climate change-related issues with other risk factors, such as climate variability and market risk, and with other policy domains, such as sustainable development."* The lessons for AfDB and IFAD are that responses to the challenge of climate change need to be integral parts of their individual and collective agricultural strategies and programs.

For AfDB the main opportunities arising from climate change are in assisting capacity development of national, sub-regional and regional institutions to take advantage of future carbon trading opportunities. The emphasis of both AfDB and IFAD on irrigation will also come in handy. IFAD already hosts the secretariat for the Global Mechanism to raise resources against desertification. In addition, it should mainstreaming adaptation to climate change into their programs, including the harnessing of local opportunities for carbon trading as and when come on stream.

Infectious animal and plant diseases have ravaged Africa from time immemorial. Reader (1996) describes a rinderpest epidemic around the turn from the 19th to the 20th century that may have killed off 9/10th of Africa's livestock herds and led to catastrophic population losses, and economic, social and cultural decline that paved the way for the exceptionally easy conquest of Africa by the European colonizers. Samuel C. Jutzi (2007) states: *"The impacts of infectious diseases and their control on the agricultural sector, on national economies, on rural development, on livelihoods, on regional and international trade, on food security, on agricultural biodiversity and on human health are actually and potentially massive. ... it has been established that 70% of all new infectious diseases of humans stem from animals."* The latest example is HIV and AIDS. What is new, however, is that modern science and appropriate management of the risks, by governments and regional organizations, can sharply mitigate, and in some cases, eliminate these risks.

This is yet another area where regional, transnational approaches are required. And again, AfDB is appropriately placed to assist in the financing of these regional and sub-regional efforts.

Biotechnology and the Privatization of Agricultural Research: Farmers have been genetically modifying plants and animals for 5000 years or more, and agricultural scientists have joined them ever since the Mendel revolution in the 19th century. The controversial issue is only whether it is appropriate to transfer genes from one species to another. Evenson and Raney (2007) address these political and scientific issues. Among the developing countries, China and Brazil, followed by India, have invested significantly in agricultural biotechnology. On the other hand, the CGIAR system is spending less than 10 percent of its overall budget on BT research, perhaps because of resistance of important European donors. The enormous success of BT cotton and the prospects of nutritionally fortified rice and other crops have taken some of the wind out of the sails of environmental critics. BT cotton has resulted in dramatic reductions in pesticides use wherever it has penetrated, as well as higher yields and incomes of small farmers, and no adverse environmental consequences.

The potential of rapidly expanding knowledge of genomics and our increased capacity to modify useful plants and animals can become an important factor in adaptation to and mitigation of climate change, desertification, increasing resource scarcity and threats from pests and diseases. Possibilities for building in stress resistance (drought, heat, and cold), immunity to pests and diseases, and improved nutritional values, as well as manufacturing pharmaceuticals in plants which 20 years ago were wild dreams, are now much closer to reality. For example Monsanto and BASF have just announced a \$1.5 Billion research and development partnership using biotechnology research. *"Focus of efforts will be on the development of*

higher yielding crops that are more tolerant to adverse environmental conditions such as drought.” (CropBiotech Update 23 March 2007).

But will these developments occur fast enough to offset continued population and income growth and rising stresses on natural resources? The answers will come mainly by private sector proprietary research with intellectual property protection. The fundamental question is how the benefits of biotechnology can accrue to small African farmers in a world of privatized research. But surely there remain major public goods issues. We list three:

- *Conservation of global genetic resources:* For the 64 plant varieties under the International Treaty on Plant Genetic Resources (ITPGR) we have made significant progress on issues of preservation, conservation, access, ownership and returns from genetic modification; but what about the rest of the rest of the plant kingdom, including forests, animals, fish and critical microbial life. Who is helping African countries deal with conflicts between TRIPS/WTO, CBD and ITPGR for the large number of non-traditional, little traded crops grown in Africa?
- *Bio-safety protocols:* Rules and regulation for development and testing of GMO's are ubiquitous and in a state of flux. Competing and conflicting paradigms between North America and Europe put small developing countries at the mercy of large trading blocks when they attempt to decide whether they want to develop, import or consume GMO's . Where is FAO in helping countries in developing necessary rules processes? What role could IFAD and /or AfDB play in this regard.
- *Access to Promising Genetic Materials and Techniques:* Molecular biology research is expensive. Six multinational firms dominate molecular genetic research on plants and animals: Monsanto, Syngenta, BASF, Bayer, Dow AgroSciences and Dupont. The challenge is find ways these firms can share promising technologies with developing countries without compromising their legitimate right to garner profits from their investments in discovery. The Danforth Plant Science Center and AATF are possible models. Clearly, regional research organizations must acquire the capacity to participate as peers as the molecular biology revolution plays out.

Even where gene technology is donated, there may be slow progress, despite there being at least three biotech initiatives in Africa: NEPAD has a biotech initiative; AATF; and AGRA. Carl Eicher et al (2006) reviewed biotechnology development for six food crops and cotton in Africa, and found unexpected scientific, legal, economic and political barriers to the development of GM crops and long delays in developing and implementing national bio-safety regulations and guidelines. They unfortunately concluded that with the exception of BT cotton, most GM crops are at least 10– 15 years from reaching smallholders in Africa. Can Africa afford to be left behind China, India, and Latin America. Should it adhere to complex regulations dictated by others?

Whatever the answer to the above questions, biotechnology approaches must be nested and integrated into plant breeding programs. Special attention should be given to raising public awareness of and political support for biotechnology, and commitment to strengthening African capacity in biotechnology, biosafety, food safety and IPR (Intellectual Property Rights), and the training of the next generation of African plant breeders and GM crop specialists.

Because of its greater political independence (even though significantly financed by the Europeans), the AfDB has a first class opportunity to invest in all aspects of biotech and could seek a partnership with China, India and Brazil; It could invest in Regional Centers of Excellence for research and teaching, laboratories, national and sub-regional capacity to manage regulation, etc. IFAD's role would be to disseminate packages of technology and assist with the spread of finished products.

Bio-Fuels: The use of biological material for energy production has a long history of the use of fuel wood, charcoal, manure, biogas, agricultural wastes and by-products. Brazil started producing ethanol from sugar cane for over 30 years and recently the United States has embarked on a massive subsidized program to substitute ethanol produced from corn for gasoline to power autos. The US has mandated an increase from 5 to 10 % of its auto fuel supply coming from ethanol (produced mainly from corn (maize)) by 2011. Europe has embarked on a program of promoting biodiesel as a renewable substitute for diesel using temperate oilseeds such as rape, canola and soybeans. Brazil has been in the business the longest now making up to more than 40% of its auto fuel supply with ethanol produced from sugar cane. In all these cases there are significant subsidies involved and clearly raise the question of sustainability if subsidy rates fall or disappear and petroleum prices fall.

There are also very serious issues of how much net energy savings there really are from using corn produced with high fossil fuel inputs –petrol, fertilizers, pesticides and other petroleum based inputs-, processed into ethanol by a high energy using process and at very high costs. Further there are significant differences the energy yields from different feed stocks. For example one hectare of sugar cane yields 6,000 liters of ethanol compared to 3,000 from corn, 2,500 from wheat and 1,000 from barley. One hectare of palm oil yields 4,500 liters of biodiesel compared to 2,000 from jathropha, 1,100 from rapeseed and 500 from soybeans,(World Watch Institute,2006). At some time in the future, still uncertain, a process using cellulosic feed stocks (Grass, waste products, trees) to produce ethanol will become commercially feasible which should provide a higher product yield, at lower cost. The problem is in breaking down the cellulose to free the carbon; it can be done by enzymes but it is hard to scale up. It is an engineering not a science problem.

What are the consequences of using agricultural production for energy rather than food? IFPRI and the CGIAR have produced a series of Issue Briefs (IFPRI , December 2006). The Worldwatch Institute, in partnership with GTZ, published a major study on Biofuels for Transportation in June 2006. For Africa these developments will have multiple often competing impacts. Returns to small farmers rise with rising prices but so do foods costs for the urban poor and the landless. IFPRI IMPACT projections suggest that biofuels expansion could increase the number of malnourished preschool children in SSA by 1.5 million in 2020, compared to the baseline projections; and that a drastic biofuels expansion could double that number to more than 3 million.

But beyond these obvious concerns there are opportunities. Sugar and palm oil are the most efficient sources of bio-fuel so far. This could open opportunities for certain African countries to produce for the global market without subsidies. Production of bio-fuels from cellulose could open huge potentials in the future, especially for the many areas of medium quality crop land that are not yet intensively farmed, and for the humid tropics. In all cases, decisions to engage in the production of bio-fuels should not be made on a political basis, as often done in the developed World, but on the basis of careful benefit cost analysis. Unlike in the developed World, neither African governments nor its consumers and producers can afford to subsidize the production of inefficient bio-fuels.

The AfDB should invest in its capacity to analyze the entire supply chains surrounding these opportunities and ultimately to develop these sectors as more economic technologies and opportunities become available. As and when the opportunities come about, IFAD should assist smallholders to participate, as they have already done with funding of an ICRISAT pro poor biofuels project focusing on sweet sorghum for ethanol and jathropha for biodiesel. (CropBiotech Update, ISAAA, December 14, 2007.)

4. Economic Growth, its Sources and its Constraints

This section summarizes the key findings of the report on “Challenges of Economic Growth in Africa” (Ndulu et al. 2007). The report is based on an impressive body of SSA growth research. The section includes additional information on North Africa and information from other sources.

Growth in 41 SSA countries for which data for the full 45 year period is available was only 0.5 percent, compared to 3 percent in 57 countries in the rest of the developing regions, including North Africa. The growth performance has been quite diverse: Six of 47 SSA countries have more than tripled per capita incomes between 1960 and 2005, nine countries have per capita incomes at the same level where they started or below, and the remaining 32 have seen modest growth in per capita income, but not enough to make a significant dent into poverty. As a consequence the number of middle income countries has risen from 2 in 1960 (Mauritius and South Africa) to 13 in the region. Seven of these acquired their middle income status largely because of mineral wealth.

The prolonged period of economic decline between 1975 and 1994 started with shocks to energy and tropical commodity markets and ended with a wave of democratic reforms between 1989 and 1994. During 1994-2004 there was more rapid per capita income growth, during which 20 countries grew more rapidly than the average of the rest of the developing world. New entry into this high growth club was associated either with natural resource exploitation (Angola, Chad, Equatorial Guinea and Sudan), or with strong reform movements (Benin, Ethiopia, Ghana, Mali, Malawi, Mozambique, Senegal and Tanzania). Economic growth further accelerated in all of Africa between 2004 and 2006, fueled by strong global economic growth and higher raw material and energy prices (ECA 2007). In 2007, economic growth in SSA reached 6.1 %. In North Africa it accelerated from 3.8 and 4 percent between 1995-1999 and 2000 to 2004 to 5.2 and 6.4 percent respectively in 2005 and 2006 (ECA, 2007 and 2006). The only sub-Region that is not participating is West Africa, where growth slowed down from 5.4 percent in 2005 to 4.6 in 2006, (ECA 2007), perhaps associated with higher oil prices and the appreciation of the FCFA. The likely slowdown in global growth could of course threaten these gains.

Over the long haul, slightly less than one half of the lower growth in Africa relative to the rest of the developing World is associated with lower growth of physical capital, and slightly more than half with lower productivity growth. The share of investment in GDP has been only about half as high as elsewhere, and for given investment, Africa has only achieved about two thirds of the productivity growth. To understand the “why” Ndulu et al. look at constraints to investment incentives and returns to investment, or conversely to what are the sources of growth that could be activated.

Poor Resource endowments are a major negative factor: The over 90 percent of SSA that lie between the Tropics suffer from much higher incidences of diseases that impact negatively on life expectancy, human capital and labor force participation. This compares to 3 percent of OECD countries and 60 percent for East Asia. SSA has 48 small economies with a median income of only 3 billion US dollars. Forty percent of the population lives in landlocked countries, as against only 7.5 percent in other developing countries, and none in North Africa. This combines with a road density of only .13 km per sq km, versus .41 km in other developing countries. Twenty six percent of the SSA countries are both landlocked and resource-poor, while six percent are landlocked and resource-rich. Coastal resource-poor countries make up 43 percent of the countries, while coastal resource-rich ones make up 26 percent.

Resource-rich landlocked countries did much better than their resource-poor land-locked counterparts, especially in the 1970s and since 2000. Coastal resource poor and coastal resource-rich countries did

about the same over the long haul. Oil revenues are still poorly invested, and the recent rate of growth of the African countries benefiting from the oil bonanza has not been higher than that of the other African countries that suffer from the higher oil prices. Clearly it is not just the presence of resources that counts, but the use of the money that is made from them. Interestingly, except for the 1960s, coastal resource-poor countries fared no better than land-locked resource-poor countries. Again, geography and natural resources are not complete destiny. Geographic isolation and poor management of natural resources may explain about one third of the growth gap in SSA compared to the rest of the developing world.

Rapid Demographic Change: The demographic transition in Africa began later than elsewhere and is slower than in the rest of the World. The delayed demographic transition in Africa consistently predicts two thirds of the difference in growth performance with the rest of the developing World. Lower life expectancies are also shown to contribute to the poorer growth performance, and the AIDS epidemic has made this factor much worse, especially in Eastern and Southern Africa. The current situation results in a high level of age dependency, which reduces saving, reduces investment in human capital, slows the growth of the labor force, and therefore slows growth. Declines in fertility rates are linked to income growth, urbanization, girls' education, and reduced infant and child mortality rates, all of which have been delayed in Africa because of slow growth, thus contributing to a vicious cycle. Thus, as growth begins to accelerate, declining age-dependency ratios can accelerate per capita growth rates by 1 percent or more. It would be well to revisit the relative priority of investments in family planning.

Poor Governance and Policy: As discussed in his book on the "Bottom Billion" (see section 5), Collier shows that three quarters of the bottom billion countries have suffered from prolonged periods of poor governance and poor policies. Poor governance can ruin the most promising prospects, as for example in Zimbabwe. These countries are not able to provide essential services required for growth. Resources get eaten up in corruption. Poor governance and poor policies create a trap because powerful vested interest benefit from them and oppose reforms. In addition, correcting them requires skills which often have out-migrated or fled the country. Donor conditionality cannot substitute for the lacking political will and lacking skills. Failing states have stayed in their trap for a very long time over which huge costs accumulate: The cumulative cost of a failing state to itself and to its neighbors is about \$100 billion. The benefits of helping turn around a failing state are therefore enormous (Collier 2007).

Controlling for differences in opportunities, the impacts of poorer governance and policy contribute between 25 and 50 percent of the difference in growth performance between SSA and the rest of the developing world (Ndulu 2006). Greater integration in the world economy consistently is associated with higher growth performance. This factor operates not only at the country level, but also at the firm level.

Policies have significantly improved over the last decade: unweighted consumer price inflation sharply fell within a decade, from 27 percent in 1995, to about 6 percent by 2004. *In a median SSA country, government spending as a proportion of GDP also fell sharply in the past decade, as it has in other developing countries in the world, and the average fiscal deficit was halved to 2 percent of GDP by 2000. Except in a few countries, black market exchange rate premiums now average just 4 percent. Through unilateral trade reforms, SSA countries have also compressed tariff rates; the average rate is currently 15 percent. As a consequence of the major policy reforms initiated in the continent since 1990, growth has resumed, and the impact of poor policies on growth may have waned (Ndulu et al 2007).*

Deficient Infrastructure and business environment: In addition to low road densities, transport costs are among the highest in the World, and can reach as high as 77 percent of the value of exports (Economic Commission for Africa, 2004). And SSA farmers have to pay up to three times the price for fertilizer than farmers in Thailand, India or Brazil. But it is not just the state of infrastructure which counts. Before the 1980s most transport businesses in SSA, including railways, bus and trucking

companies, airports, seaports, and civil aviation, were publicly owned and managed, and heavily regulated. These enterprises charged low tariffs, and their reduced viability imposed heavy costs on both users and the national economies. Since the 1990s the transport businesses have mostly been deregulated and privatized. Concessions for operating railways, ports, and airports, have become common. Remaining public enterprises have been given more autonomy, and arbitrary regulation has been replaced by regulation through consensual performance contracts. In the highway sector, setting up of more sustainable institutions — autonomous road agencies and dedicated road funds — has become the norm, and has started to show positive results (World Bank, Africa Transport Unit website).

A serious problem in Africa is the extractions and bribes imposed by the police and others at border posts and road blocks. “*Along the West African road corridors linking the ports of Abidjan, Accra, Cotonu Dakar and Lomé to Burkina Faso, Mali, and Niger, truckers paid \$322 million in undue costs at police customs and gendarmerie checkpoints in 1997, partly because the Inter-State Road Transport Convention had not been implemented.*” (Economic Commission for Africa, 2005). Well organized producer organizations are needed to ensure that governments crack down on these practices.

Energy costs are higher and power outages are more frequent than in any other Region of the World, and in particular compared to China. Firm-level data from a major cross country study show that all the indirect costs of infrastructure, security and unofficial payments imply that indirect production costs (other than for materials, capital and labor) are a larger share of total costs in SSA than elsewhere: In China, Nicaragua, Morocco, India, Senegal and Bangladesh they are close to 15 percent of total production costs, whereas in a sample of SSA countries they vary between 27 and 19 percent. (Ndulu, 2001). The higher costs reduce investment incentives and the returns.

Inadequate Capacity: A World Bank report on “Building Effective States and Forging Engaged Societies” (2005) concludes that a capable state requires an engaged society that holds governments accountable. Only five Sub-Saharan countries were rated above the global average on state effectiveness—Botswana, South Africa, Mauritius, Namibia, and Mauritania. A further 7 were rated above the global average on societal engagement—Cape Verde, São Tomé and Príncipe, Ghana, Mali, Benin, Lesotho, and Senegal.

Capacity development is a learning process engaging existing capacities and providing them with better incentives and checks and balances. It is a process not amenable to shortcuts. The earlier technocratic approach ignored the links among governance, policy and capacity development. It therefore requires effective political leadership from the highest level of government as illustrated in the 12 countries with better state capacity studied by the task force that produced the 2005 report. *Therefore, state capacity development (often including decentralization) is rarely amenable to a gradualist and incremental approach but may require large-scale, nationwide, multi-sectoral, and demand-driven programs of capacity development and devolution of power and resources to local governments. The countries own systems for allocating and managing money need to be used and strengthened, rather than using parallel systems. The share of technical assistance funding going to capacity building activities must increase. This is best done by pooling the fragmented financing arrangements into a basket to fund prioritized capacity development activities or filling country-identified short-term needs. This means untying and pooling funding for technical cooperation. (World Bank 2005).*

While Africa has made significant improvements in basic education, progress in skills development has been distressingly slow. The sheer scale of what needs to be done to achieve growth, basic health care and improved government dwarfs the capacity on the ground. And the pandemics of AIDS, Malaria and TB add to the losses. African countries should expand tertiary education enrollment and achievement. After decades of decline, many African universities are reforming themselves, pursuing self-sufficiency in

finance, and partnering with the private sector. Private Universities are mushrooming. *We will take up the opportunities that arise in these areas for AfDB and IFAD in sections 7, 8, and 9.*

Underdeveloped Financial Sectors and Low Savings: SSA financial sectors are the least developed in the world. Because of high operating costs, risks of policy instability, high concentration and lack of competition, the median spread of interest rates is 13 percent in SSA as against between 5 and 10 percent for the other developing Regions. The lending environment across Africa is characterized by a poor credit culture, poor contract enforcement, and lack of protection of creditor rights. Access of small firms to loans is low, and costs and collateral requirements are very high compared to China and India.

While South Asia and SSA both had savings rates of around 10 percent in the 1970s, in South Asia, between 1991 and 2003, they have climbed to more than 20 percent compared to a mere 9 percent in SSA. Excluding the resource rich countries brings the average savings rate further down to 3 percent. Both public and private savings rates are below that of other developing Regions. Reasons include low incomes, low interest rates paid by banks on deposits, and the scarcity of savings infrastructure. In addition, much savings in the rural areas is in the form of trees, livestock land improvements, dwellings, and investment in children's education. In rural Ghana, for example, the median household saved over 30 percent of its annual income. Mobilizing this savings capacity for agricultural development is both a major opportunity and a challenge. But poor people are kept out of formal financial systems by very high balance requirements, complex administrative procedures, and astronomical transactions costs in the formal banking sector. Micro-finance institutions have only managed to mobilize a small pool of savings, have limited coverage and narrow areas of operations. High management costs have been the norm and lead to negative net worth and high probability of failure. For micro-finance to fulfill its role as a complement to formal finance, the institutions will need to become much more efficient. At the same time the formal sector will need to reach out to poorer segments of the population, including via technological and process innovations.

*Based on the analysis in the report, Ndulu et al propose a medium-term strategy that hinges on taking action in four areas (characterized as the four "I's"): improving the **investment climate**; a big push toward closing the **infrastructure** gap with other regions of the world; a greater focus on **innovation** as the primary motor for productivity growth and enhanced competitiveness; and **institutional** and human capacity. The African Development Bank Strategy already includes three of these areas.*

5. The Bottom Billion

Professor Collier and his collaborators have divided the developing world into the rapidly growing countries in which the 'middle four billion' of people live and the 58 small countries in trouble with about a billion people. Of these, 73 percent live in countries that are or have recently been through civil war, 29 percent live in countries dominated by natural resources, 30 percent are land locked, resource-poor countries, and 76 percent have gone through a prolonged period of poor governance and poor policies. (Because these countries often suffer from more than one problem, the percentages add up to more than 100 percent). "As a result, while the rest of the developing world has been growing at an unprecedented rate, [these countries] have stagnated or declined. From time to time they have broken free of the traps, but the global economy is making it much harder to follow the path taken by the majority." (Collier, 2007, p. 99). In the trapped countries, life expectancy is much lower, infant mortality much higher, and hunger is much more prevalent. And missing prospects for development shroud their populations in despair. Most of the bottom billion countries are in SSA, but they also include countries such as Haiti, Laos, Cambodia, Yemen, Burma, North Korea and Central Asian Republics.

Collier et al. use a large cross-country data set from 1960 to the early years of this decade to statistically estimate the impacts of different conditions and variables on the likelihood of falling and emerging from these traps, and the contributions to growth of resource income and policy interventions in the countries on the likelihood of achieving higher growth.²

Conflict: For SSA, Ndulu et al 2007 provide the following data: Over 15 percent of SSA countries remained in conflict at the beginning of the 21st century. The proportion of Africa's population in conflict was always much higher than the proportion of countries, reaching a much earlier peak near 60 percent in 1984 and another near close to 50 percent in the early 1990s. Conflict therefore was a more important determinant of the collapse of growth in the 1980s than usually recognized. Since 2000 progress has been made with the cessation of conflicts in Angola, Sierra Leone, Liberia, and Southern Sudan. *Conflicts in which a warring party was the government declined from 15 in 2003 to 5 today.*

Collier et al. show that civil war is more likely where income is low, stagnates, or declines; in countries dependent on oil, diamonds, and other primary exports; but interestingly not where inequality is high. Civil wars last ten times as long as international wars (which last an average of six months). Once they are over, they are alarmingly likely to restart. Civil wars reduce growth on average by 2.3 percent. They sharply increase disease incidence. The end of civil war ushers in a boom in homicides. As a consequence of these factors, nearly half of all costs arise after the war is over. These costs spill over to neighboring countries and the rest of the world. Overall cost per civil war is estimated at \$ 64 billion.

Natural resources contribute to the risk of civil war. Paradoxically, even at peace natural resource exports reduce growth. The "resource curse" arises from "Dutch Disease," the fact that resource exports lead to an appreciation of the exchange rate that makes domestic products uncompetitive in international markets as exports or as import substitutes. Sharp price fluctuations of the natural resources also lead to a boom and bust cycle. But resources also mess up the politics by making it easy to finance patronage politics and reducing the restraints on political power that are so important for a functioning democracy: an independent central bank, judiciary and press, financial transparency, competitive bidding and the likes. The reason is that governments do not need to raise taxes from their people and can therefore ignore their wishes. Where restraints can nevertheless be put in place, they improve investment decisions and reduce corruption.

Landlocked with poor neighbors: Around 30 percent of SSA's population lives in landlocked, resource-scarce countries. Their transport costs depend less on distance, but on how much their neighbors had spent on transport infrastructure. Because they have not focused on serving neighboring markets, if their neighbors grow by an extra one percent, African landlocked countries grow by only an extra 0.2 percent (against 0.7 percent for non-African landlocked countries). To increase these multipliers, these countries need to focus on their own *and their neighbor's transport infrastructure*, including transport to the sea; on *regional integration, and on reducing external trade barriers of their entire region*. They must be interested in *good economic policies of their neighbors*. And, based on the analysis in this paper, *they*

² For a number of those relationships they have to overcome endogeneity issues which could bias the estimated coefficients. They do this via instrumental variable techniques. While the underlying papers have been published in peer reviewed journals, a number of econometricians believe that it is hard to estimate stable structural parameters from cross country regressions, and that instrumental variable techniques are a relatively ineffective tool to overcome endogeneity problems. There is therefore still a lively debate about the reliability of the resulting estimates, especially where subtle effects are being estimated with relatively poor data. However, the policy conclusions presented by Collier not only rely on the statistical evidence, but also on other bodies of knowledge and evidence.

need to focus on agricultural and rural development. Growing urban, sub-regional and international markets can provide many opportunities for their agriculture].

Aid: In post-conflict countries the security benefits of the higher growth coming from aid implies that large aid programs are economically justified. While Technical Assistance (TA) does not have a positive impact on growth prior to a reform effort, in post-conflict situations and incipient turn-arounds, TA can help provide the huge amount of skills needed to make up for lack of skills that have been lost. Collier et al estimate *a positive effect of TA in the first four years of an incipient reform*. TA packages should be large, and create the conditions for productive use of subsequent aid. After that, TA should be phased out, as the usual objections to technical assistance re-emerge. *Technical assistance should be reorganized to look more like emergency relief, not like a pipeline of projects.*

Other aid money early in a reform is counterproductive: it makes it less likely that reform will be sustained. After a few years of reform, the statistical effects of aid and technical assistance reverse themselves: Technical assistance becomes useless, while other aid starts reinforcing the reform process in an environment of better governance and policies. Of course aid remains highly risky in such contexts. But given the enormous cost of reversals, the risks are well worth taking.

In failing states, project implementation is poorer than elsewhere. Collier et al. showed, however that *money spent on project supervision in these states had been differentially effective*. Therefore in the environments in which aid agencies should be increasingly operating, they should allow for higher operational costs and budgets, especially for supervision. This recommendation contradicts the conventional pressure on operational budgets of aid agencies. *Low operational cost in failing states is the opposite of what the aid agencies should allow for. Donors need to adapt to these insights.*

Clearly action to help the bottom billion *cannot be done by aid alone*. The overall agenda includes changes in aid policy, in military interventions, in OECD laws, via the promulgation of International Standards and Charters, and changes in international trade policies. Progress on all these four pillars is needed to change the fate of the bottom billion.

The enormous costs to the populations of the bottom billion countries and to their neighbors implies that both AfDB and IFAD may need to focus more sharply on these countries, and on the roots of the problems themselves. The enhanced focus on these countries, and especially the pre- and post-conflict ones, will require the relaxation of rigid lending allocation rules that may turn bottom billion countries into aid orphans. It will also increase the risk of the grant and lending operations of both Institutions. These risks can partially be offset by enhancing supervision resources, and therefore supervision budgets may need to increase in these settings. The shift of IFAD to supervise more of its operations directly is therefore a most welcome change. Finally both institutions may need to time their operations more carefully, focusing on rapid provision of technical assistance following an incipient turnaround or conflict resolution, followed by a strong shift to investment lending. Stronger coordination of the capacity building and investment lending with other major players will also be needed.

6. Agricultural Growth and Poverty Reduction

Most of the World's 2.1 billion people who live on less than 2 dollars a day live in rural areas and depend on agriculture for their livelihood. The number of rural poor has increased in Africa and South Asia, and reduced in East Asia and the Pacific. The WDR of 2008 summarizes an extremely large literature which demonstrates the enormous power of agricultural growth for poverty reduction. Over the past 10 years global poverty with a 2 dollar a day poverty line declined by 8.7 percent in absolute numbers. *This decline was caused entirely by rural poverty reduction, with agriculture as the main source of growth.* At the

same time urban poverty has increased. *Migration is not the main instrument for rural (and global) poverty reduction. Improved rural conditions are the main cause.*

As Mellor and Johnston (1961) showed nearly 50 years ago, agricultural growth reduces rural poverty:

1. By raising agricultural profits and labor income
2. By raising rural non-farm profits, employment and labor income via linkage effects
3. By causing lower prices of (non-tradable) foods, especially beneficial for the poor
4. Lower food prices reduce urban real wages and accelerate urban growth
5. Tightening urban and rural labor markets raise unskilled wages economy-wide.

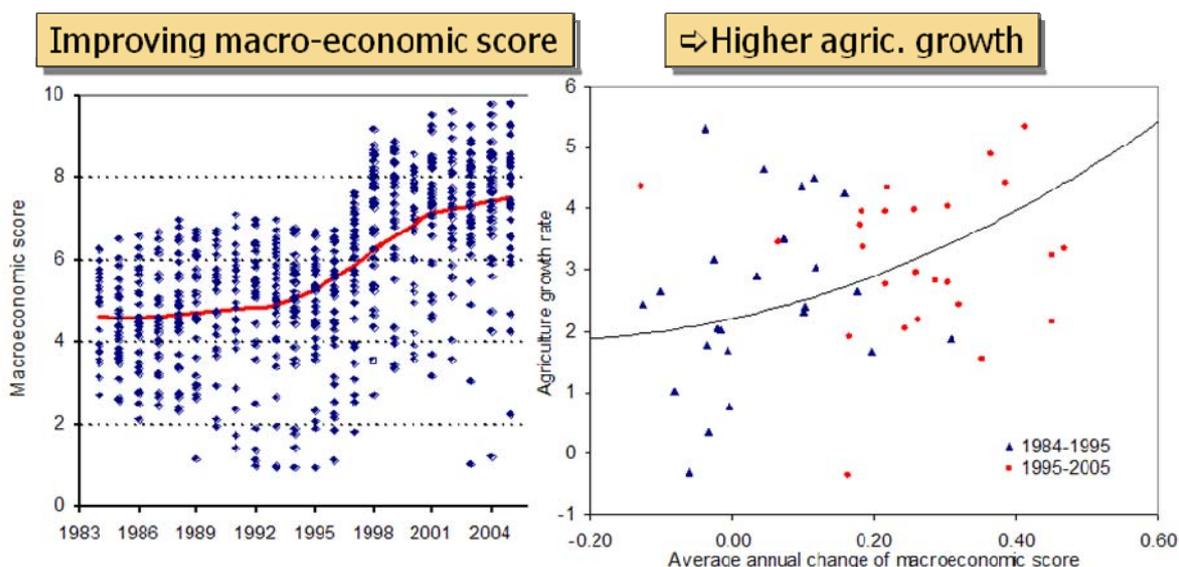
The WDR divides developing countries into *urbanizing countries* mostly in Latin America, (but also South Africa) with 255 million people, *transforming countries* mainly in East Asia and MENA with about 2.2 billion rural people, and *agricultural countries*, mostly in SSA, with 417 million rural people. It is in the agricultural countries in which agriculture can contribute most to poverty reduction; but it is also in these countries in which it has lagged the most and confronts the biggest barriers to growth.

The InterAcademy Council (2005) cites the following unique features of SSA agriculture that represent special challenges to agricultural performance: (i) Dominance of weathered soils of poor inherent fertility; (ii) predominance of rain-fed agriculture, little irrigation, and very limited mechanization; (iii) heterogeneity and diversity of farming systems; (iv) key roles of women in agriculture and in ensuring household food security; (v) poorly functioning markets for inputs and outputs; (vi) large and growing impact of human health on agriculture. Unlike in Asia, the growth was primarily achieved by area expansion rather than growth in productivity. The improving agricultural growth was clearly a consequence of improving macro-economic conditions (Figure 6.1.)

Adverse policy environment in the developed world: Average nominal rates of assistance in the developed World peaked at over 50 percent between 1985 and 1989. They have declined only slightly since then, to a little less than 40 percent. The impact of this protection on world prices and trade shares are severe: The prices of cotton, oilseeds, dairy products and cereals are reduced by 21, 15, 12, and 7 percent respectively, and the trade shares of developing countries in these commodities by 27, 34, 7 and 5 percent respectively. In processed meats and sugar the impacts on developing country trade shares are 19 and 9 percent respectively. (WDR 2008). The universally common practice of tariff escalation, under which processed goods are charged higher tariffs than raw products, further aggravates the impact of these policies on the prospect of agro-industrial development. With unilateral trade reform in Africa alone, African agriculture trade would change little in the aggregate, as the barriers imposed by the developed World and other developing countries would remain enormous. But with multilateral reform of all goods globally, African agriculture and food exports would increase by 38 percent while imports would increase but 29 percent. Clearly African agriculture stands to gain the most from multilateral trade reform. (Anderson et al.2006). Moreover, in the absence of a breakthrough in the Doha round of trade negotiations, China and India could follow the developed world, Korea and Taiwan in protecting their agriculture to close the rising urban-rural income gap. This would close the major future export opportunity for African agriculture. African countries have of course recognized the adverse consequences of these trade restrictions in agriculture and have become active participants in the trade negotiations. *The African Development Bank is well placed in supporting them in their advocacy role.*

Discrimination against Agriculture via domestic policies: After the end of colonization, African countries started to discriminate sharply against agriculture via overvalued exchange rates, industrial protection, and direct agricultural taxation. A major study now has measured the combined effects of these three interventions on the net rate of agricultural assistance and compares them across the developing and developed World. A negative rate of protection is a rate of taxation, sometimes called disprotection. As shown by the black line in figure 6.2, for Africa as a whole, the net protection rates have improved from about -20 percent in 1975-1979 to less than -10 percent in the first half of the present decade; and to near zero since 2005 (Figure 6.2). *Undoubtedly these policy improvements were major contributors to the agricultural recovery.* However, protection remains higher in other parts of the World.

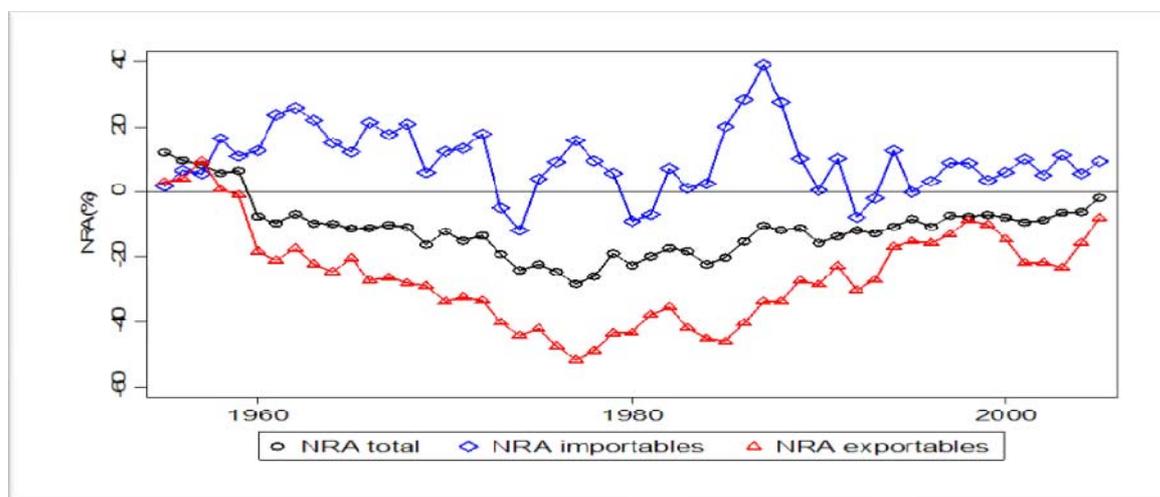
FIGURE 6.3 MACRO-ECONOMIC CONDITIONS AND GROWTH



Source: WDR 2008

As Figure 6.2 also shows, the bias against agriculture was concentrated on exportable commodities, which in the late 1970 were taxed at around 50 percent, whereas importables were almost always slightly protected. The figure also shows that disprotection of exportables has further declined in the last two years. Among the agricultural commodities, in the first half of this decade, the Nominal Rates of Protection (NRAs) for tobacco, soybeans, groundnuts, cocoa, cotton, beans, beef and tea remained at between -60 (for tobacco) to -20 (for tea) percent across Africa (not including South Africa). Clearly there remain important opportunities for improvement in the incentive regime of African agriculture.

FIGURE 6.2: NRAs IN AFRICA OVER THE PAST 50 YEARS



Source: ibid

Are Higher Food Prices Here to Stay?

The price of maize (corn) in March 2008 is more double what it was less than two years ago. Over the past three years prices of oils, cereals and dairy have increased sharply, the dairy prices for the first time in 45 years. Meat prices are now beginning to reflect higher cereal prices. The *Economist \$food index* is higher than any time since its creation in 1845 (Economist Dec 8, 2007). At the beginning of April, skyrocketing rice prices prompted export bans or controls in major exporters. The World Bank reports that around thirty countries are at risk of unrest related to these price rises

Are these price rises here to stay? Between 1961 and 2002 the real international prices of meat, dairy, and horticulture products have barely changed. Not only was there, on average, a significant erosion in field crop prices, but also a major shift in relative prices from field crops to the higher value commodities of meat, dairy and horticulture. Another feature of the period was high volatility in prices, with staggered peaks of all prices (other than dairy and horticulture) in the 1970s to levels not seen since.

Increases in food demand have been the main driver, with biofuels adding to the pressure. The drivers of food demand are *population, income growth and urbanization*. The latter two change demand patterns away from coarse cereals towards rice and wheat, meat, dairy, fruits and vegetables, and convenience foods. Population growth for the World remains at around 1 percent per year. It remains much higher in the developing world than the developed world where it is falling fast to zero. It still is at around 2 percent in Africa and other least developed countries. Clearly *the main impetus of population growth on demand will come from Africa itself, followed by other developing countries, and particularly Asia*. Most population growth will be in urban areas. This suggests that Asia and Africa will be the major source of changes in food demand patterns and the resulting opportunities for African agriculture.

The so-called population dividend already discussed in section 4, coupled with the wider processes of globalization, technological change, information and financial integration, lead to prospects for global income or GDP growth that have rarely been brighter than they have been since the beginning of this century. Global income growth per capita has been at nearly 3 percent per year. Even in Africa it is projected to remain at or exceed the 2 percent rate. Again this bodes well for domestic and regional

agricultural demand in Africa. However, from a global perspective the extremely rapid per capita income growth of Asia and the Pacific will be the dominant feature of the World food economy. FAO expects food demand to continue to grow very rapidly, but perhaps at a somewhat slower pace on account of the slower population growth. Growth will continue to be very high in income-sensitive commodities, such as milk and bovine meat. Other commodities with very rapid demand growth will be poultry and vegetables oils. *On the other hand demand for cereals for direct human consumption has stagnated since 2006, and will continue to do so until 2015.* Rising cereal demand will instead come from their use as feed grains, or in the production of bio-fuels, which have not yet been included in these projections.

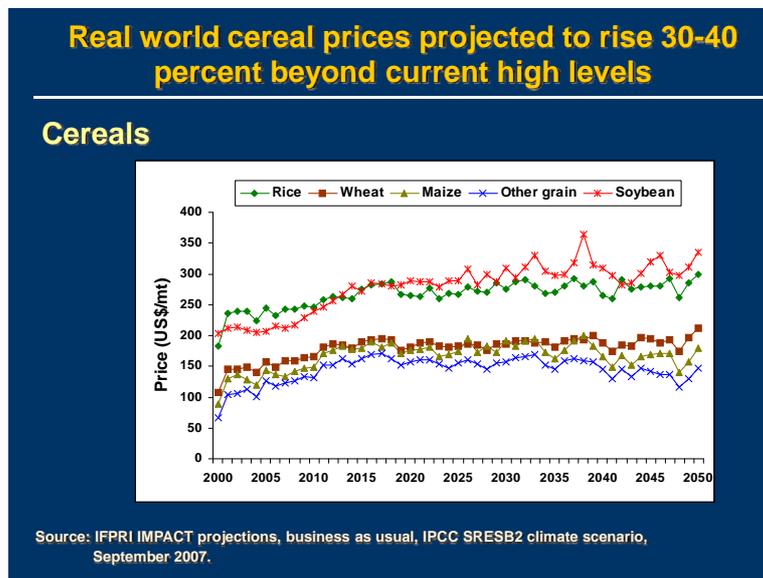
Projecting prices is perilous especially for long term predictions. In addition to the demand factors, there are many factors on the *supply side: little progress in reducing agricultural trade barriers and subsidies in rich countries; slowing yield growth; constraints on the use of bio-technology; little investment in irrigation; deterioration of existing irrigated areas; environmental constraints; loss of land to competing uses- urbanization, infrastructure, environmental set asides; and water constraints.* But before jumping to the conclusions that higher prices will persist, we need to review a bit of history. Since the 1870's real grain prices have declined substantially. Except for prices run-ups in 1910-1914, a spike in 1972-74 and another brief blip in 1996-98, the long run rate of supply increase has been greater than the rate of demand growth. Malthus is still waiting for the opposite. Thus the historical record is clear: A long term decline with sharp peaks, followed by even lower trends. Historically farmers have always invested excess profits into capacity and output has always expanded to put long run downward pressure on peak prices. While the declining trend stopped in 2000 the current sharp nominal price increase is likely to be a bubble similar to past peaks. It is not clear whether it will settle at the same, slightly higher, or slightly lower level. However recent IFRPRI analysis using their IMPACT Model projects that, under "business as usual assumptions," neither crop nor meat prices will decline from current levels and will show a modest increase through 2050. Figure 6.3 shows those projections for the grains. This is the first study to support the proposition that the long term secular decline in cereal prices may be over.

In the interim, higher prices are a double-edged sword. The implications for farmers are higher profits and incomes which will allow them higher rates of savings, investment and input use. Higher domestic prices will make import substitution more attractive. But there is always the other hand. High world prices will hurt all net food purchasers, including the African rural poor. We have already commented on the likely rise in child malnutrition that could come from higher prices associated with biofuels. To some extent this may be offset by the higher farm labor wages. Communities and local governments will also have more money for their own development. There will be important positive non-farm linkages. The price increases should be good for rural areas, so let us take advantage of them while they last.

FAO (2007) also analyzed where the increased supplies of the agricultural commodities could come from. Because changes in agricultural policies, OECD countries, and particularly in Europe, are likely to further reduce the stimulus to supply growth, it expects most supply growth to come from the developing World, in particular Latin America. It also expects domestic processing capacities in emerging economies to grow rapidly, and trade in processed foods may not grow as rapidly as it has in the past.

The major opportunity that rising prices would bring to AfDB and IFAD is that their programs could be particularly powerful to help the rural poor, either as farmers via higher profits, or as workers, via higher wages. Of course there would also be losers among the poorest of the poor who will be hurt by the higher food prices. We will return to the safety-net implications of this in section 8.

Figure 6.3: Crop price projections



Where are the short and medium term market opportunities for Africa? The bright international market outlook for food does not necessarily mean that the best opportunities are in global markets (Poulton et al, 2007, World Bank, forthcoming,). Since Africa has become a major food importer, African producers compete in these markets at the import parity price rather than the lower export parity price. In addition, quality standards are not as high and phytosanitary barriers lower than in international markets. The combined value of domestic and regional markets for food staples within SSA is considerably in excess of its total international agricultural exports (Diao *et al.*, 2003). Africa's demand for food staples is projected to about double by 2020. Moreover, an increasing share of output will become commercialized as the continent becomes more urbanized. Bottlenecks in road and export infrastructure in SSA are likely to be removed only gradually, reinforcing the opportunities in domestic and regional markets. Nevertheless, as a recent analysis of IFPRI of prospects in East and Central Africa shows "*among agricultural sub-sectors for which there is large and growing domestic and regional demand, staples loom large as a group. Production and sale of these "poor man" crops can be pathways out of poverty for millions of citizens of ECA.*" (Omamo et. al. 2006).

The fact that domestic and sub-regional markets for food crops present the best opportunities does not mean that there are no opportunities in international markets. Unfortunately SSA has yet to record any significant global export success in low value commodities (e.g. cereals, cassava, soybeans) that can be grown in a wide range of locations, including by mechanization (Poulten et al. 2007). With appropriate policies and investments, including in transport infrastructure and technology, the past need not repeat itself.

This discussion does of also not imply that Africa should not seize opportunities in export commodities in general, horticultural products or fair trade and organic agriculture. While not as large as the opportunities in domestic and regional food markets, they are significant and have considerable direct and indirect employment impacts. They are being seized by an increasing number of countries in addition to Kenya. Similarly there are numerous examples of benefits arising for African producers from fair trade

initiatives, as for example in coffee. And African producers use no or limited inputs that should give them many niche opportunities in organic agricultural products.

Sub-regional trade could be a relatively efficient way of smoothing out the impacts of droughts on production and prices at country and sub-regional levels. There are many physical and institutional impediments to cross-border trade within Africa, including differences in food safety requirements, rules of origin and quality and product standards. More importantly, trade in food staples was for long discouraged by national food policies that placed a high priority on self sufficiency, and vestiges of these policies still prevail in many countries. One of the biggest impediments to large-scale private investment in cross-border trading capability – particularly in Southern and Eastern Africa - is the unpredictable behavior of governments in imposing export bans whenever they fear food shortages in their own markets.

That domestic and regional markets are the most promising area for agricultural growth means that small farmer participation, despite the supermarket revolution and rising international quality standards, will be better plaed to seize them, a good thing for most of IFAD programs. At the same time these conclusions mean that both institutions will need to focus more on improving access and trade in regional and sub0regional food markets.

7 The Institutional Pillars for ARD

In order to seize the opportunities discussed in the previous chapter, Africa will face serious challenges. In this section we focus on the institutional challenges for ARD, including the role of government, the private sector, communities and civil society, as well as the division of labor among different spheres of government. These are the institutions that have to respond to the new opportunities, and that have to work together and to change to implement new programs and support systems for ARD. It is also these institutions that have to jointly and individually take on greater responsibility for providing services to small farmers. This chapter therefore deals with the “how” of ARD. Well developed and collaborating institutions are a necessity to tackle the “what” of ARD, i.e. the programs that will have to be strengthened and/or developed . These we will discuss in section 8.

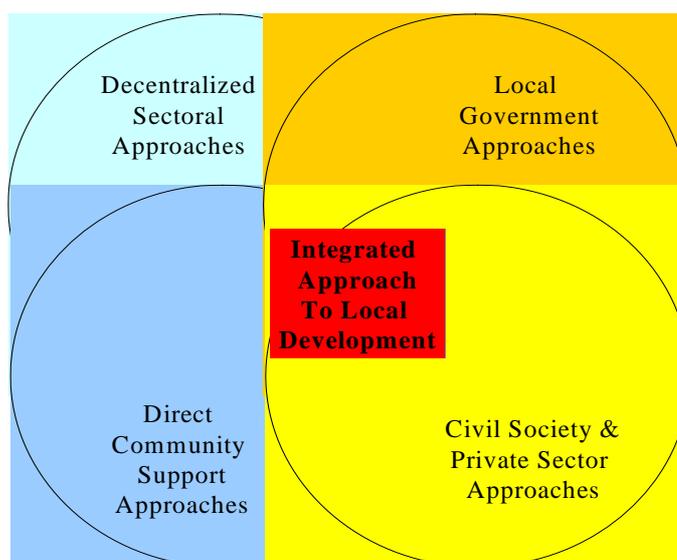
In 1980, in a typical country in Africa, a young rural women (or man) who wanted to help develop her community, found herself almost completely disempowered. Three of the five pillars of the institutional environment for rural development discussed below were poorly developed: The first pillar, the private sector, was largely confined to small scale farming and the informal sector. Much of the marketing, input supply and agro-processing was in the hands of parastatal enterprises. The second pillar, independent civil society, community organizations, and traditional authorities were highly constrained or suppressed. In the wake of decolonization, central governments had suppressed the third pillar, local government, or starved it of fiscal authority and resources. Since none of these three pillars were providing much opportunity for the young woman or man, s/he had to join the central government if s/he wanted to contribute her community. But the central institutions failed the rural sector miserably.

Well structured institutions can tackle all the components of rural development, from health and education to infrastructure, agricultural services, social protection, resource management, and more. Not only does the institutional environment determine who can contribute to development and how successful it will be, it also is the most important determinant of the distribution of the benefits. More specifically, where institutions are dis-empowering, they can be used by strong individuals and groups to direct the benefits of development to themselves, via elite capture. (Binswanger, 2008).

We first focus on local development that is a core component ARD, although the latter also involves non-local components such as transport, processing and marketing activities. No institution by itself can carry the burden of local development. Instead the new paradigm that has emerged gives equal weight to the private sector, communities and civil society, local government, and the sector institutions such as health, education and agriculture (World Bank 2004). A broad consensus has been reached that local development (and therefore rural developments) has to be viewed as a co-production by all these four groups of actors. They need to take account of their comparative advantage, delegate functions to the other partners in co-production, and reform themselves to be able to function under this new paradigm. How such an integrated approach would be fostered in a particular country should depend on past history, what currently exists and can be built on, the prevailing traditions and cultures, and past history, and a diagnosis of the existing capacities and dis-functionalities. Figure 7.1 illustrates this emerging consensus. One can think of the capacities of each of the sectors by the size of the circles in a country-specific variant of figure 7.1. Different countries would have different diagrams with some having small circles for local governments while others would have small circles for their communities. Only country-specific analysis can reveal where the greatest weaknesses are and the best opportunities for improvements in the institutional environment. There are no universal magic bullets.

Pillar 1: The private sector: We have already analyzed changes currently occurring in the agricultural private sector in section 3. Here we note that the World Bank’s agricultural adjustment programs identified the suppression of the private sector, the underperformance of parastatal enterprises, and the fiscal black holes they created as the root cause of the underperformance of agriculture. While this view was partially correct, it was a too narrow. As discussed before, the withdrawal of the parastatals did not lead to spontaneous and rapid growth of private replacements. As we have seen above, too many other problems existed in the “business environment,” including corruption, over-regulation, poor infrastructure and services. The sluggish entry of the private sector into input supply, marketing, rural finance, and technology development and dissemination in Africa has been particularly harmful to the development of the small farm sector, and how to provide these services remains a major challenge of ARD in SSA to which we return in section 8. Suffice it to say that the government will have to play a role in financing a number of these services, without necessarily returning to the failed approaches of government provision. It will also have to create conditions suitable for public-private partnerships, not only with central government institutions, but also lower level tiers of government.

FIGURE 7.1: AN INTEGRATED APPROACH TO LOCAL DEVELOPMENT



Pillar 2: Communities, Civil Society and Social Capital: In the 1980s the development community woke up to the important role of communities, civil society and social capital, which activists and academics had emphasized much before then. A broad range of NGOs started to sharply criticize donor financed projects, policies and structural adjustment programs (Mallaby, 2004). The focus on communities came from two additional sources: Sector specialists in water supply and natural resource management had started in the 1980s to involve communities systematically, and found this to enhance project performance significantly (World Bank 1996b). The other source was social funds, which quickly discovered the power of communities to assist in project design and implementation. In some of the early Social Funds, NGOs were used as intermediaries to substitute for the presumed lack of capacity at the community level. From letting communities participate in the design, finance, and maintenance of micro-projects, Community-Driven Development Programs (CDD) have moved on to truly empower them to chose, design, and execute a large range of micro-projects, by transferring both the responsibility and the co-financing resources for these projects to them. IFAD has been a strong champion of such community empowerment. At about the same time social scientists discovered the merits of social capital and traditional institutions, and they are now often systematically assessed and integrated into policies and programs (Economic Commission for Africa, 2005 a, b, World Bank 2003b).

Social, local and community funds have greatly expanded across SSA, often as part of externally financed projects, in particular those of the World Bank. IFAD puts community empowerment center stage in the projects it finances. A recent review of the Africa portfolio such projects is Serrano-Berthet (2008). Between 1989 and 2007 the World Bank has lent or granted US\$ 3.5 billion for 102 operations in about 40 countries of SSA. Unlike integrated rural development, these projects have a high rate of satisfactory project completion, even though their sustainability ratings are more problematic. *From being enclave projects they have become more integrated into the decentralization architecture of countries and become an important instrument for fostering decentralization along with community empowerment. Such funds have also been very useful in assisting communities to recover in post-conflict and other emergency settings (ibid).* How to adapt them to such settings is discussed in Cliff et al (2003).

While NGOs have become a player in ARD all over Africa their capacity as service providers in Africa has been more limited than in South Asia. In the low population density countries they tend to concentrate around major cities and find it hard to operate in remote rural areas. Using NGOs as implementers and intermediaries in CDD program proved to be costly and has increasingly been abandoned in favor of direct empowerment of communities with knowledge and resources. NGOs of course remain important facilitators, sources of knowledge, innovators, and advocates for change in ARD-relevant sectors.

For agricultural development, a particularly important development is the formation and progressive development of independent farmers' organizations, and micro-finance institutions (World Bank, 1991). They are increasingly replacing or complementing cooperatives that were often created by the state, and did not really lead to empowerment. The growth and development of communities, NGOs, and social capital is not only important for the implementation of development programs, but the diversity and strength of these organizations is also a defense against elite capture of programs and project benefits.

A recent review compared the development of producer associations in Mozambique, Nigeria and Zambia to the Brazil and Thailand. *“Effective producer associations thrive in a democratic environment that provides a favorable climate for civil society organizations in general. A really active role in defending smallholder rights, including those to land and favorable contracts, has emerged in Brazil and Thailand but in Africa is still poorly developed. Although a significant start has been made, few African associations have been able to develop themselves and their commercial linkages sufficiently to take on a major role in service delivery. And many continue to be heavily dependent on donor support. While farmer's organizations have become significant stakeholders in discussions of agricultural policies, they*

have not yet been able to generate the strong political will in favor of agriculture which has propelled development of the CERRADO and of North East Thailand.” (Binswanger, 2007).

Pillar 3: Local government: During the late 1980s democratization in Latin America, and later in other parts of the World, led to the restoration or strengthening of local governments. Another factor was the inability of central states to deliver services in widely heterogeneous environments. But decentralization was often viewed as a dangerous development because provincial and state governments were perceived to be fiscally irresponsible. Fortunately by the mid 1990s, the negative views on decentralization had given way to a more balanced assessment. (Faguet, 1997, Piriou-Sall, 1997, World Bank, 1995).

Equal emphasis on political, administrative and fiscal decentralization is needed. Unsuccessful decentralization programs are almost always characterized by inadequate allocation of fiscal resources to the local level (Manor 1999, Shah 1994). Successful decentralization is often pursued by strong leaders in relatively strong states, and puts a lot of emphasis on accountability at all levels, (Manor 1999). Local governments can of course become an instrument for elite capture and corruption. To prevent that, they must be democratic institutions, but that in itself is not enough. Without strong communities and civil society, and a strong private sector, local governments will not be subject to the scrutiny and the bargaining processes that are needed to make local development inclusive and efficient.

In the early 1990s the World Bank first discovered the power of local governments in its Community-Driven Development Programs in Mexico (World Bank, 1991b), and later in North East Brazil. The innovation spread from there to Indonesia and East Asia, then to Africa and the rest of the world. Social funds started to build the capacity of local governments, and entrust them with coordination and some implementation functions, and eventually the distinction between community-driven development and social funds disappeared. A research program on Decentralization, Fiscal Systems and Rural Development in the mid 1990s strengthened our understanding of this nexus of issues (McLean et al., 1998, Piriou-Sall, 1998). It analyzed the level of decentralization of rural service delivery in 19 countries (or provinces thereof) across the World. Four African countries had the lowest decentralization scores, while Jianxi province in China had the highest one. Latin American countries scored in the upper half, while Karnataka state of India ranked ninth and Punjab, Pakistan 13th. The recent Governance Report of the Economic Commission for Africa (2005) shows that not much progress has been made - in the past decade and a half: Decentralization, along with corruption, still receive some of the lowest scores of a whole series of governance indicators studied in 28 countries of Africa.

In most OECD countries and in the high performing China, local governments perform functions in education, health, social protection, environment, agriculture, land, local and community infrastructure, and promotion of private sector development. They are a multi-sector coordination tool, even though their coordination capacity is always imperfect. There are powerful reasons for using the lowest level of local government for coordination and execution of rural development. At the local level people have direct knowledge of the local conditions. Transparency is relatively easy to achieve, since people can often verify the result of expenditures with their own eyes. Given the heterogeneity of rural space, coordination, of the sectors involved in rural development at the central level is almost impossible. Empowered and properly resourced local governments can mobilize latent capacities in communities and at the local level. And finally, local governments do exist in remote areas where neither NGOs nor the organized private sector usually operate.

Pillar 4: Sector institutions: Despite their shortcomings in rural development, until 1980 sector institutions were the main focus donor financed programs. There has been a growing realization that the

sector institutions should delegate implementation to the private sector, to communities, civil society organization, and to local governments, using the principles of subsidiarity³ and comparative advantage. Instead of providing services and implementing programs they should formulate policies, set standards, and enhance and control quality (World Bank, 2004). Far from a withdrawal from R&D services, such a change would strengthen the capacity of the overall system to provide these services, including the public and quasi-public goods so badly needed by small farmers.

The sector institutions specifically associated with agriculture and natural resources have often performed particularly badly. Agricultural credit institutions not only achieved little for small farmers, they also were fiscal black holes benefiting primarily the better off farmers. Ministries of Lands have lacked an effective constituency to ensure proper budgets for them, are often highly centralized, and corrupt. Ministries of Agriculture are usually weak and politicized, and poor providers of small farmer services. They have great trouble in performing important public good functions, such as collecting the necessary data, monitoring sector developments, analyzing sector policy issues, and designing and implementing appropriate agricultural policy regimes and programs. As discussed in section 4, efforts to reform individual sectors one by one have had little success. Transformation and de-concentration of the sector institutions is probably better done via cross-sector governance and public sector reforms.

Pillar 5: The Central government: Despite the changing development paradigms discussed in section 2, the central government still has the ultimate design, oversight and coordination role of national development programs, including those for rural development. They also finance public and quasi-public goods, such as much of education, health, ARD services, including services that small farmers need to prosper. But central government is less and less in a direct service delivery and executing role, except in defense, taxation, management of expenditures and of the intergovernmental fiscal system, and the electoral processes. The Central Government has a particularly important role to play in bringing about the changes needed for successful co-production among the four institutional pillars discussed above, including public-private partnerships. It has to drive forward the process of community empowerment and decentralization of functions, resources and accountability mechanisms to local governments and to the end users, and to ensure that the sector institutions transform themselves. It has to ensure that the business climate for the private sector improves, and that communities and civil society are free to take on their co-production functions.

Today the young lady about whom we spoke at the beginning of the section can operate much more freely in the private sector in a steadily improving business environment. In most countries and commodities she can join a producer association. She can also help her community by engaging in a wide variety of community-driven initiatives for which funding is becoming available more systematically. She can work for one of many NGOs and either use her technical skills in NGO-facilitated development programs or her advocacy skills in advocacy NGOs. In countries such as Senegal or Uganda a number of former functions of ministries of agriculture are either being privatized, or performed by producer associations, often partially financed by the state, and the young lady may operate in one of these services. Finally most countries have pursued decentralization initiatives, and the young lady may work for her locality either as a staff member of a local government, or as an elected counselor. Unfortunately, however, progress in decentralization has been slow in most countries other than Uganda, South Africa, Burkina Faso and a few more. Elsewhere the process of administrative decentralization, i.e. transferring functions to local governments has been slow. And even where it has proceeded more rapidly, fiscal decentralization has

³ The principle of subsidiarity states that functions should be allocated to the lowest level capable of effectively performing them while at the same time minimizing adverse spillover effects to neighboring units at the same or higher levels.

been lagging badly, leaving most local governments with little resources to execute their mandated functions, let alone taking a leadership role in local development.

The capacity of agricultural and rural institutions: *Compared to 1980, the institutional environment for ARD has significantly improved. While there are no studies that measure the impact of the improved institutions on agricultural growth, there is little doubt that these improvements, in addition to macro-economic stability and improved price incentives, are one of the explanatory factors for the recent acceleration of agricultural growth.*

As discussed in section 4. Capacity development of agricultural and rural institutions would flourish best in the context of a broader, national capacity development strategy and program. It cannot be done as a top down provision of capacity development services. Instead it involves learning by doing, in which communities, local governments, farmer's organizations and private sector actors are given opportunities and resources and can exercise control over their own development. Of course these actors should be provided with mandatory training, in particular in diagnosis and planning, financial management and reporting, procurement, and monitoring and evaluation. Other training should be provided largely on a demand-driven basis. Capacity development must build on the considerable latent capacities that are found in rural areas all over the World. To do so, rules and regulations for program execution must become much more participatory and empowering, and eliminate complex features that destroy latent capacity or hinder its mobilization. (Binswanger and Nguyen, 2005). Finally, as emphasized in the WDR of 2005 on service delivery, the broader sector institutions involved in ARD need to become much more accountable to their clients.

The African Development Bank and IFAD have important opportunities for fostering the institutional environment for ARD. Influencing rural institutions should be part of the country and regional strategy development of both institutions. The AfDB has a full range of instruments to foster institutional development at a national level, both via policy change and capacity development. The impact of IFAD is likely to be more selective, such as building the capacity of local governments in rural development and to empower communities, farmers associations, and foster local public-private partnerships.

8 Current Opportunities and Challenges for African ARD

In this Chapter we look at the immense remaining challenges of further accelerating ARD in Africa and make it relevant to poverty reduction and food security. We do so under four broad headings: Demographic, Social and Health; Agro-climatic and Bio Physical Resources; Economic Incentives and Investments; and Agricultural Technology.

Demographic, Social, Health and Safety Net Challenges.

Demography and employment: Despite HIV and AIDS, and declining fertility the general population trends in Africa are still around 2 percent per year. In section four and six we discussed the possible population dividend and in chapter 7 the demand for agricultural products implications. Despite rapid rural-urban migration, the high population growth rates mean that the absolute number of rural people will continue to grow in SSA, and poverty will remain concentrated in rural areas for a long time. In the Middle East and North Africa the absolute number of youth will peak in the next 25 years.

SSA is home to over 200 million young people who are between 12 and 24 years old. The demographic transition to reduce the proportion of young people in the population has barely started, and a decline in absolute numbers will only come in the distant future. The poor quality of primary education severely

limits their opportunities: in many countries fewer than half of women aged 15-24 can even read a simple sentence, and their drop-out rates are very high. Young adults are at greatest risk of HIV/AIDS, and the more so, the less they stay in school. In Kenya the probability that a 20 year old may die before age 40 is 36 percent while it would only be 8 percent in the absence of HIV/AIDS. Many young people become combatants and lose future opportunities as a consequence: They number 100,000 in Sudan alone. (WDR, 2007).

As in all Regions, unemployment is concentrated among the young. In most countries the share of unemployment of youth is more than 50 percent, and employment is the key concern among them (WDR 2007). Among women, including the young ones, a low labor force participation rate persists. Schooling for both young men and women has increased, but is yet insufficient to ensure gainful employment of the young generation.

Both IFAD and the AfDB already emphasize generating productive employment and improving the domestic investment environment. Since agriculture has a high employment intensity, both directly and via its linkage effects, a greater focus on agriculture in AfDB strategy would reinforce their focus on employment.

Migration, Remittances, and the Brain Drain: According to IFAD et al.(2007), Africa has over 30 million people in the Diaspora. However, it's most predominant migrant flows are within the Region, usually from poorer countries to less poor countries. As a consequence the average share of migrants in total population is 7 %, a share that rises to 20 % in countries with a population of less than a million. There is also significant international migration to former European colonial powers such as France, England, the Netherlands, and Italy.

“Remittance flows to and within Africa approach US \$ 40 billion, North African countries such as Morocco and Egypt are the continent’s major recipients. East African countries depend heavily on these flows...For the entire region, these transfers are 13 percent of per capita income...” (ibid, p. 9). Annual average remittances are 83 \$ per capita, and remittances per migrant are 1358 dollars. Clearly remittances are a major opportunity for Africa. *“Rural remittances are significant and predominantly related to intraregional migration, particularly in Western and Southern Africa...”* (ibid, p. 9). Transfer costs are higher than for other Regions of the World, partly because of financial restrictions imposed by most African governments. As a result there is both the emergence of informality in money transfers, as well as the emergence of monopolies. *“In West Africa, for example, 70 percent of payments are handled by one money transfer operator”* (ibid).

Over the past ten years, developed countries have selectively dismantled barriers to immigration of the highly skilled. Therefore the proportion of educated has increased among migrants across the World (Kapur and McHale, 2007). In Eastern Africa the percentage of skilled workers living in OECD countries has risen from around 18 percent in 1990 to around 20 percent in 2000, while for West Africa the corresponding numbers are 20 and over 25 %.

While the effect on the welfare of the migrants will generally be positive, Kapur and McHale distinguish four effects of migration on the welfare of those left behind in the origin countries: The *prospect channel* of migration increases the incentives of those left behind to get more education and get education in areas that will increase their prospects for migration such as nursing or accounting. Countries that invest sufficiently in their higher education infrastructure could therefore valorize education as an export and benefit from remittances. As we shall see in the agricultural education section, while there are many institutions and graduates, quality remains a serious issue for both potential migrants as well as for agricultural development at home. Without sufficient skills at home, on the other hand, the *absence channel* measures the economic loss to the country of the person actually leaving: the difference between what the emigrant was adding to the economy and what he or she was being paid. In addition, absence

might reduce a country's capacity to reform and build its own institutions. The *Diaspora channel* focuses on the impact of the Diaspora. Many African countries, including South Africa and Senegal, are both host to Diasporas from other countries, as well as contributors to Diasporas in more advanced countries. They may therefore both benefit from remittances as well as be a source of them. And they may receive skills as well as sending them. Finally the *return channel* looks at how emigrants returning with enhanced human and financial capital are contributing to their home countries. Clearly, the impacts of the brain drain are not all negative, and can be improved by judicious policies and actions.

Kapur and McHale show that solutions to brain drain problems involve actions the part of the developed as well as the developing countries: In developed countries improved human capital planning should help avoid skills shortages in health and education, while higher education reforms in developing countries would enable private sector higher education institutions to offer more education in the skills in high international demand. Other possible measures focus on controls and on compensation.

While the AfDB does have instruments to affect education policies and capacities in the Region, IFAD can help improve the local agricultural investment environment so that recipients of remittances find it more attractive to invest them in agriculture.

Gender Equity: In many parts of the developing world women are a majority of the agricultural labor force, and in Sub-Saharan Africa, they are the majority of the farmers. Ambler et. al. argue that *“Poverty and hunger cannot be conquered without meeting the specific needs of poor women. Like poor men, they lack the assets and income necessary to exit poverty, but poor women and girls are also subject to a confluence of gender-based vulnerabilities that keep them trapped in poverty. Women have fewer benefits and protections under customary or statutory legal systems than men; they lack decision making authority and control of financial resources; and they suffer under greater time burdens, social isolation, and threats or acts of violence.”*

While the issues of gender inequalities seem now better understood, the international establishment still seems slow in responding. Holmes and Slater compare the 2008 World Bank WDR, **Agriculture for Development** to the last Bank WDR, **Agriculture and Economic Development** published in 1982 and conclude... *“Comparing how gender equality is analyzed in the recently published 2008 report to the 1982 report indicates that much progress has been made. Nevertheless, significant gaps remain in the 2008 report”*. (Holmes and Slater, 2007, p. 1). *“For all its merits, there are also substantial areas in the 2008 report that lack important gender analysis. The report focuses very little on the impacts and implications for the global economy, such as the impact of deregulated and liberalized economic policies, and global agricultural trade markets, on gender equality and subsequently, for growth and poverty reduction. ...The report also lacks a rigorous analysis of some key gender-specific constraints — for example, women's reproductive responsibilities or cultural barriers — when identifying mechanisms for increasing the role of efficient and equitable labour markets in enabling agricultural growth and poverty reduction. Furthermore, at both the household and community level, the 2008 report does not discuss the economic constraints to improving women's participation in farmers' organizations or community committees.”* Ibid. p.2.

The Independent External Review of FAO (2007) finds that while gender is given greater prominence at high levels it has not yet been fully main-streamed at the program and country level. Johanson and Saint in their analysis of agricultural education in Africa conclude that *“Although women play multiple roles in agriculture and account for more than half of agricultural output in the continent (and three-quarters of food production) they have continuously received a less-than proportionate share of investment in agriculture, particularly in terms of interventions relating to education, extension, capacity strengthening, empowerment, and market access.”* P.26 Finally The Commonwealth Secretariat notes that

regarding climate change “*It is clearly evident that there has been very little attention to gender issues in the international processes concerning the development of climate change, whether in protocols, treaties or debates around them.*”(Commonwealth Secretariat, 2007).

Changing gender norms in a society is a difficult historic process that is far from complete in the developed world. Growth and economic opportunities for women have been a main factor in driving such change, again putting the emphasis back onto achieving higher growth. We noted earlier that in many countries fewer than half of women aged 15-24 can even read a simple sentence, and their drop-out rates are very high. Thus the basic challenge of gender equity in terms of access to education and health care remains huge. *As both IFAD and the AfDB have recognized, proactive fostering of change in gender norms and opportunities requires mainstreaming of the gender agenda into all the activities of domestic and external development actors. Since there is no magic bullet, this is the only way to make progress. IFAD’s external evaluation (2005) and recent annual report (2006) recognize the need for even greater proactive engagement on this agenda.*

Security of Access to Resources: Farmers will rarely invest in fixed assets unless they have secure land rights. While traditional tenure systems have often provided secure inheritable usufruct rights, in many parts of Africa they have come under pressure from rising population density and increased market access (World Bank 2004, Economic Commission for Africa, 2005c). They also often failed to provide secure tenure rights to women, and to manage the potential conflicts which arise when immigrants need to be accommodated and enclosure of pasture threatens the livelihood of herders. Assisting these systems to evolve is therefore an important priority. This has been a topic of intense interest in Africa in recent years. DFID sponsored a workshop in 1999 which resulted in a valuable compendium of information published as **Evolving Land Rights, Policy, and Tenure in Africa** (Camilla Toulmin, (ed) 2000) Deininger’s recent book **Land Policies for Growth and Poverty Reduction** (2003) contains a major chapter on Africa and most recently the CGIAR’s Systemwide Program on Collective Action and Property Rights (CAPRI) has released a set of 12 policy briefs in a volume **Land Rights for African Development : From Knowledge to Action** (2006). Ngaido argues that “...ensuring access to and control over land for poor and marginalized rural households, women, and groups(equity) are critical policy objectives for promoting agricultural growth and combating poverty in Africa”(2004)

Excessive inequality of land ownership tends to reduce access to land and efficiency of its use (Binswanger, Deininger and Feder, 1995). Large scale farms from Brazil to the Philippines, Zimbabwe and Namibia have under-utilized their land, and have depended on subsidies to reduce their dependence on hired labor via mechanization. Small farms on the other hand have inadequate access to capital to make their operations more efficient and improve their profits. As a consequence, both farm sectors suffer an efficiency loss. For these reasons, the World Bank has become a major player in land reform programs in the countries that still have an important land reform agenda (Binswanger and Deininger, 1995). However, a lot of controversy still surrounds the best way of implementing land reform, and this has slowed down progress in the countries most in need of it. (van den Brink et al, 2006).

For all these reasons IFAD has made land rights systems a priority in its programs. It is hosting the secretariat of the Global Coalition on Land and is therefore well placed to exercise strong leadership in this area. Developing the capacity of the land administration institutions could be an area for the AfDB.

Rural HIV and AIDS and agriculture: Following the wave of infections by around a decade, the wave of deaths from HIV and AIDS is now fully upon us, leading in a number of countries to a stabilization or slight decline of HIV prevalence rates. The third wave of orphans has also started but is as yet far from its peak, with predictions that it could reach 20 million in Africa in the next decade. Rural areas are now

suffering almost as much as urban areas, and maybe even more from the orphan crisis, as many orphaned urban children are returned to rural homes.

Prevalence of HIV and AIDS vary enormously across countries of SSA, for reasons which are still poorly understood. Four countries in SSA have prevalence rates above 20 percent, another seven with prevalence rates between 10 and 20 percent, seven with rates between 5 percent and 10 percent, and 26 with rates below 5 percent. The nine countries of Southern Africa and the Central African Republic will experience the biggest demographic impact. The impact on the age structure of these countries is enormous. In 10 years, Southern Africa went from having one-third of annual deaths coming from the working age population to two-thirds. It is unclear whether fertility will increase or decrease. So far population growth rates have not turned negative in any SSA country. But age-dependency rates will increase and thus reduce economic growth rates.

While a significant body of indirect bio-medical evidence suggests that poor nutrition and parasitic infections should make a person more vulnerable the HIV infection major epidemiological studies cast doubt on this conventional wisdom and instead suggests that food intake and nutrition are not major determinant of differences in prevalence rates (Binswanger, 1980). In longitudinal studies in Africa the median survival rate after infection with HIV was estimated at between 8 and nine years in the absence of anti-retroviral treatment. These survival rates are only about 20 percent lower than the survival rates in OECD countries before the advent of anti-retroviral therapy (ART), leaving little room for food intake and nutrition to be an important determinant. Clearly, therefore, ART, not food and nutrition interventions, is the only way in which survival rates can be significantly increased (ibid).

Mahter et al. (2005) conclude that AIDS will result in a roughly constant number of working age adults. Many affected agricultural households quickly recruit new adults, and the agricultural labor shortages are likely to induce urban-rural labor migration. HIV/AIDS is likely to progressively decapitalize highly affected rural communities, and increasing scarcity of capital (land, savings, cattle, draft animals) may come to pose the greatest limit on rural productivity and livelihoods. *IFAD's focus on all of the assets of the rural poor is therefore as applicable to households having experienced a death, from HIV or any other cause, as to any other household affected by a negative shock.*

Orphans usually face serious psycho-social consequences of the loss of one or both of their parents. Extended families are most likely to choose better-off members as the fostering parents. As a consequence studies have shown that orphan-fostering households are not necessarily the poorest and most vulnerable ones (Rivers et al. 2005). On the other hand, households with more than one orphan reported significantly more food insecurity and hunger than households with no or only one orphan.

The longitudinal data set in Kenya (Yamano and Jayne, 2004) shows that the death of an adult male household head is associated with a larger negative impact on household crop production, non-farmer income and crop production than any other kind of adult death. In addition the Kenya data show that the impact of adult mortality on household welfare is more severe for households in the lower half of the per capita income distribution, i.e. the target group of IFAD.

Interventions against HIV/AIDS in rural areas: We have seen that agricultural and food and nutrition interventions are not likely to be powerful interventions against the spread of the disease or the progression of an infected individual from infection to death. Instead, direct prevention interventions are required, making ART widely available rural areas. On the other hand agricultural, food and nutrition interventions are likely to be important in mitigating the impact of the disease on affected households. And better and more food may also help the adherence of patients to ART. These differences are important for the design of rural HIV/AIDS interventions.

In rural areas of Africa, prevention interventions not only required inter-personal communication, but participatory involvement of whole communities, such as the model of TANESA, which was scaled up to all villages in an entire district. *IFAD has a comparative advantage in participatory approaches. Therefore all its rural development interventions should be designed to contribute to mainstream HIV and AIDS prevention efforts. This does not necessarily have to be a costly effort, as the operations already strengthens community institutions that can be entrusted with the task. Mainstreaming HIV and AIDS prevention is certainly should receive equal emphasis as other mainstreamed agendas, such as improving gender relations and the management of natural resources.*

The WHO guidelines for HIV/AIDS treatment, including ART (WHO, 2004) have been designed in such a way that a nurse in a rural health post, without laboratory equipment, can use syndromic management (i.e. diagnosis based solely on observable symptoms) to diagnose advanced HIV disease and prescribe a standard first line treatment to adults. The WHO guidelines recommend the strong involvement of communities in the provision of the other components, such as training in healthy living and survival skills, provision of food and nutrition, and adherence support. This again is an area in which IFAD has comparative advantage. *It therefore needs to closely follow what is happening in terms of the scaling up of AIDS treatment in rural areas, and assist via its projects where ever possible.*

Care and support involve psycho-social support, health care, home-based care, education, food and nutrition interventions, as well as livelihood support. The consensus of the literature is that care and support should take a holistic approach to the needs of affected families and individuals, rather than dealing with sector-specific interventions one at a time. However, very few holistic and community-based care and support initiatives have been scaled up beyond the level of small boutiques. We have seen that HIV/AIDS impacts are highly differentiated according to who is sick or dies in a family, how well off the household was before experiencing and HIV/AIDS impact, and how large and well off its extended family network is. Therefore only a fraction of the affected households and individuals need care and support interventions from the outside. Because of AIDS stigma means it is rarely possible to provide support interventions only to families and individuals affected by HIV/AIDS. And why direct support only to families who have chronically ill HIV/AIDS patients, rather than all families with chronically ill patients; or only HIV/AIDS orphans, rather than just orphans? *Care and support to HIV/AIDS orphans should therefore be approached within broad community-driven social safety net.*

Rural safety nets: The rising tide of orphans in SSA is an important reason to focus more on safety nets. Additional reasons are the rising food prices, disruptions from globalization, and global warming. Employment generation programs have often been used as partial social safety nets, sometimes as part of social funds and other local development funds (Serrano-Berthet). But unlike in South Asia their size and scope has been fairly limited. While very helpful, they leave a number of people out who cannot work. Clearly they have a role to play in future expansions of safety nets. In SSA, South Africa, Botswana and Namibia have developed significant cash transfer mechanisms to assist a number of the most vulnerable groups, the aged, the disabled, children, and people living with HIV and AIDS. These operate in both rural and urban areas. Financing such cash transfer programs may be beyond the reach of many of the poorest countries. Alternatives are to strengthen traditional community safety net mechanisms along the lines discussed in Box 1.

Neither IFAD nor AfDB currently focus on emergency relief or safety nets. In the case of IFAD this is because its target group is the poor who can be helped by improving their productivity. However, many poor rural people are either too young or too old to earn their own livelihood, or disabled by disease or accidents. Since safety net operations would inevitable focus on enabling the young to stay or become healthy, and to acquire skills, assisting them to do so will prepare them for becoming beneficiaries of

IFAD's traditional programs. IFAD's traditional skills in working with communities would be well applied.

BOX 1: A BURKINA FASO PROPOSAL FOR SCALING UP SOCIAL PROTECTION

Communities and individual families are already part of an informal, if inadequate, social protection system. But they do need additional resources and support to expand these informal mechanisms into a more systematic effort, and to finance support to education, health care or home based care, etc. These resources should be provided as matching grants to the communities, with the latter providing the matching resources in cash or in kind, for example food needed for the most vulnerable.

While communities all over Africa are able to identify vulnerable families, and classify them by degree of need, they are not able to carry out proper needs assessment for these families, a task which normally is done by a social worker. In Sanmatenga there are nearly 300 villages and urban neighborhoods, but only three trained social workers, and there is no way the Ministry of Social Welfare can hire enough social workers to assist communities to do this job. Just as in the areas of agricultural extension, health, or veterinary medicine it would therefore be necessary to develop a system of community-based social workers. Communities should select one or several members to be trained in basic family needs assessment and supervision skills, and they could then be remunerated via daily allowances for their work out of the community grants. The ministry or Social Development would need to develop a curriculum, training program, and supervision program for them.

Assisting the chronically ill, orphans and the families which take care of them will require significant additional training of enough community members to manage the tasks. These community members cannot work as volunteers for a long period of time, and need to be provided with modest remunerations, such as per diems for every day they work or home visit they make.

The community members will encounter situations which they and the community as a whole cannot handle, such as medical emergencies, or child abuse. To deal with these cases requires the putting in place of proper referral systems so that difficult cases can be handled by health professionals, social workers or educators with the required skills. These same specialists need to be involved in designing and delivering the training and be available for facilitation and training on demand.

The same committee structures that were used for prevention at the provincial, district, and community level, the same training teams, and the same financing mechanisms can be reinforced and used to coordinate, manage and monitor the social protection program. In particular the committees can coordinate and provide financial resources to the NGOs and local offices of the respective government services so that they can become the facilitators, trainers and referral system.

Hans Binswanger, personal observations

Agro-climate, Bio-Physical Resources, and Natural Resources Management

Global population passed 6 billion in 1999 and will likely exceed 9 billion by 2050. Combined with higher income this will increase competition for land in many ways –space for housing, recreation, infrastructure and waste disposal. Similarly more people, most living in urban settings, will demand more water, and produce more liquid and solid waste. Intensification of agriculture can cause water pollution, erosion and salinization. We may understand these pressures individually but it is the collective regional and global impacts that receive less attention.

Africa's Land Resource: The 2007 African Development Report said “*Land is a critical natural resource in Africa and is the basis of survival for the majority of Africans. ...If sustainably managed, the African landscape, a rich and dynamic mosaic of resources, holds vast opportunities for the development of human well being*” (p. xvi). Land degradations caused by nutrient depletion, soil erosion, salinization, pollution, overgrazing and deforestation are clearly major issues in African agriculture. The InterAcademy Council Study (p. 49) says: “*Depletion of soil fertility is a major biophysical cause of low per capita food production in Africa Small holders have removed large quantities of nutrients from their soils without applying sufficient quantities of manure or fertilizers to replenish the soil.*” The World Bank IEG Review agrees using different references: “*Low soil fertility is a major contributor to the low productivity of African production systems Only 6 percent of the land in the Region has high agricultural potential*”(p. 14).

It is troubling that most of the evidence is however anecdotal, based on local soil surveys and multitudes of plot studies. (Stocking, 1996). As far as we can determine there has never been a comprehensive soil survey for most of Africa and, beyond soil vulnerability maps, there are no current or historical soil degradation maps. There is substantial evidence of low fertilizer use and yield data support the notion of low fertility. Fortunately the Global Environmental Facility has recently funded a global Land Degradation Assessment for Drylands (LADA) that is executed by FAO, UNEP and a number of collaborating institutions. It is based on worldwide satellite measurement of vegetation covers in 8km x 8km grids with national and local follow up. The local follow up focuses both on hotspots, i.e. the areas with the most land degradation, as well as bright spots, where degradation has been reversed. It appears that globally and in most places vegetation cover has increased over the past 25 years, except in a number of hotspots, such as the former homelands of South Africa (personal communication Freddy Nachtergaele). A full analysis of the results has, however not yet been published.

Neither higher population nor poverty necessarily leads to land degradation.⁴ In the transition from long fallow systems to permanent agriculture soil fertility declines and farmers eventually have to introduce new techniques to stem and reverse this decline. This they tend to do during the evolution of the farming system to higher land use intensity, as discussed so well by Ester Boserup (1965) and Hans Ruthenberg (1973), Their theories are consistent with an increasing number of studies which have shown that the normal processes of land improvement associated with agricultural intensification are taking place in many countries (e.g. Pingali, Bigot and Binswanger, 1987, Tiffen, Mortimore and Gichuki, 1994, Kabore and Reij 2004). Significant cases of soil degradation, on the other hand, are usually associated with open access regimes, insecurity of tenure, and other policy failure, which imply that the normal investment responses of individuals are impeded. (Heath and Binswanger, 1996). Clearly, the alarmist view that in many parts of the Developing World land is being rapidly and irreversibly degrading may be exaggerated.

This does not mean that desertification and soil erosion are not problems worthy of attention, only that we can be more optimistic than the usual rhetoric implies. Global attempts at dealing with the issues of desertification and the related issue of biodiversity loss are dealt with in the conventions on Desertification and Biodiversity. The new Gates/Rockefeller Foundations initiative Alliance for a Green Revolution for Africa (AGRA) has identified soil health as one of its priority program areas. The World Bank in its 2007 article entitled “Desertification and Land Degradation Threaten Africa's Livelihoods” describes what action it is taking. “*To tackle the problem of land degradation more forcefully in Sub-Saharan Africa, in 2005 the World Bank and its partners, including the New Partnership for Africa's Development (NEPAD), launched the TerrAfrica initiative tasked with promoting sustainable land management practices by mobilizing coalitions, knowledge, and scale up financing.*”

⁴ The CGIAR has summarized the literature on this topic in an easily accessible website (CGIAR 2005).

Climate change, desertification and bio-diversity losses really come together in the local government arena, communities and on the farms, requiring management and adjustment capacities. Conventions in all three areas provide financing opportunities, and IFAD is hosting the Global Mechanism, a financing instrument for the Convention of Desertification. These also require capacities to harvest the funds at the level of producers, local and national governments, and sub-regional organization, and therefore provide capacity development opportunities for both IFAD (farmer organizations) and AfDB (national and sub-regional level).

Africa's Water Resources: Developing and managing water supplies costs money, but some people see access to water as a right, and we know people over use a free good. In both developed and developing countries, water use in agriculture is often highly wasteful, a consequence of past subsidies for the development of irrigation, and low water and electricity tariffs. Powerful vested interests defend these privileges. As a consequence improved water use efficiency, so necessary for managing the competition for water, is rarely achieved. If these issues are not addressed in the rest of the World, Africa may once more be hit with rising food prices on account of increasing global water "scarcity."

Water is crucial to Africa's development but it is becoming increasingly scarce, To quote the **Africa Development Report, 2007**: "Available statistics reveal that nine African countries already face 'water scarcity' on a national scale (less than 1,000m³ of water per person annually), eight countries face 'water stress' (less than 1,700m³), while at least another six countries are likely to join the list in the coming decades. More than 300 million people in Africa still lack access to safe water and adequate sanitation. The majority of these people are in sub-Saharan Africa, where only 51% of the population has access to safe water and 45% to sanitation. By 2025, almost 50 % of Africans will be living in an area of water scarcity or water stress." (P. 12). While in the aggregate Africa would seem well endowed with water having 17 major rivers and 160 lakes, the distribution of these endowments spatially and temporally is very uneven. For example the Congo River basin which receives over 35 % of annual African rainfall is home to just 10 % of Africa's population. This means that in some areas there is high dependence on ground water (North Africa and Southern Africa), in others major rivers routinely dry up for several months a year. Despite limited irrigation development, agriculture is responsible for 86 % of water withdrawals. Further the major rivers cross several national boundaries, making water development more complicated.

The Inter Academy Council Report provides useful additional points: "...The implication of water scarcity for much of Africa, especially in semi-arid farming systems, is that more water-efficient farm management systems will be needed. They will incorporate drought-tolerant varieties, choose species with higher water use efficiencies, and use crop and simulation modeling for increased water use efficiency, but they still will not be sufficient. ...Most of the additional investment should not be in classic large-scale irrigation systems. There is considerable potential for capturing rainfall through improved soil surface management practices, small water harvesting systems and small-scale irrigation systems, enabling intensification of farming and crop diversification in inland valleys, and in upland systems using supplementary irrigation of high-value rainfed crops." (p. 51)

Irrigation and drainage: The green revolution has shown how important water control is to make high levels of input use profitable. In India the new varieties and higher input use spread first to those areas with the best water control in the Northwest and South, and moved East and to the Center later, partly as a consequence of farmer investment in irrigation and drainage, and partly because research made high yielding varieties available for dry-land crops. Sub-Saharan Africa is lagging badly in irrigation and drainage: Less than 7 percent of crop area in Africa is irrigated, compared to 33 percent in Asia (Gelb et al. 2000). Large scale irrigation has suffered from unaffordable costs and centralized bureaucratic institutions. While models for changing these institutions into autonomous entities partially or fully controlled by the farmers have been successful in some countries such as Mexico, or the Office du Niger, this approach has not yet been replicated in many countries, and therefore even rehabilitation is often not

yet a viable option. Small scale irrigation is a more promising option, but investments are constrained by low profitability of agriculture and therefore low investment capacities of the farmers. *Thus future development of irrigation capacity will need to be carefully planned in the context increasing competition for water.*

Africa's Forests: Forests cover 22% of Africa's land area and African forests make up 17% of global forest cover. In contrast extreme desert covers 43% of Africa's land area. African forests range from open savannahs to closed tropical rainforests. The ADB's **African Development Report 2007** concludes that "...*(D)eforestation, forest degradation, and the associated loss of forest products and environmental services are serious challenges facing African countries. The size of natural forests and woodlands in Africa has been drastically reduced over the last century.*" (p. 25). Degradation not only reduces economic returns from forest products but also contributes to losses of biodiversity, increases the rate of erosion, reduces water quality and increases the risks of flooding in surrounding areas. While the particular issues pertaining to forest are very different among regions in Africa there is obviously a strong need for all development programs to be sensitive to potential impacts on forest resources. This would include expanded forested areas brought under agricultural production. Again as with water trans-boundary issues are very significant.

Africa's Fisheries: Africa is a marginal and declining player in the world fish scene. Africa's total production was just less than 8 million tons (5.6 % of global), 4.8 from marine capture (5.7% of global) 2.5 tons inland capture (26% of global) and 0.7 tons from aquaculture(1% of global). Marine capture has stagnated and aquaculture has grown only slowly. Two countries, Egypt (82%) and Nigeria (8.6%) account for over 90 % of aquaculture production (FAO-SOFIA 2006).

Per capita fish consumption in Africa is less than of global average per capita availability and is declining. In 2004 per capita global availability was 16.6 kg/cap while Africa consumption in 2003 was 7.6 kg/cap down from 9.9 kg/cap in 1982. NEPAD's analysis in advance of its Fish for All Summit is instructive: *"The fish sector makes vital contributions to food and nutrition security of 200 million Africans and provides income for over 10 million engaged in fish production, processing and trade. Moreover, fish has become a leading export commodity for Africa, with an annual export value of US\$2.7 billion. Yet these benefits are at risk as the exploitation of natural fish stocks is reaching their limits and aquaculture production has not yet fulfilled its potential."* (NEPAD 2005, p. 4) A growing part of the trade value is high valued fresh Nile perch exports to Europe from Uganda and Kenya.

"Strategic investments are needed urgently to safeguard the future contribution of Africa's fish sector to poverty alleviation and regional economic development. Broadly, investment is needed: (i) to improve the management of natural fish stocks; (ii) to develop aquaculture production; and (iii) to enhance fish trade in domestic, regional and global markets. In support of this investment, capacity needs to be strengthened at regional and national levels for research, technology transfer and policy development. As a first step, stakeholders in the region need to build a common and strategic understanding of the importance of fisheries and aquaculture for Africa's development and the challenges being faced by the sector."(ibid.p. 4). *"...if per capita consumption is to be maintained at present levels up to the year 2020, capture fisheries will need to be sustained and where possible enhanced, and aquaculture developed rapidly, with an increase of over 260% in sub-Saharan Africa alone over the course of the next 16 years."* (Ibid p.5)

Current concerns revolve around three sets of issues. The first is the continuing decline of coastal fisheries, alleged to be caused by foreign fishing fleets, and the consequent impacts on the income of traditional artisanal fishers. Two recent news releases highlight the issue in rather stark terms. The Institute for Security Studies October 2, 2007 release defines the issue in its title *"The Crisis of Marine Plunder in Africa"* and the **Gristmill** blog headline of 18 Jul 2007 is *"West African fisheries being destroyed"*. The second is improved management of inland capture fisheries which are comparatively more important in Africa. The third is to rapidly expand aquaculture production. The NEPAD plan of

action lays out an ambitious set of investment proposals. Progress to date appears to be mainly on the side of capacity building and research (NEPAD , Oct 2007)

All of these natural resource management issues –land, water, forest and fisheries are highly interdependent and will become more so with increased population pressure and rapid urbanization. The challenges for both IFAD and AfDB are to find ways to incorporate sustainable NRM into programs of growth and poverty reduction.

Are poor natural conditions a constraint to agricultural growth and commercialization in Africa?

Some of the past successes in commercialization in sub-Saharan Africa depended on agro-ecological conditions that were “ideal” for cocoa, tea, coffee, sugar and some other commodities. In some of these (e.g. tea and coffee), the market pays high quality differentials and the desired quality attributes can only be obtained where particular growing requirements are fulfilled. Therefore the global players (either traders or processors) have to access supplies from certain African countries in order to be able to satisfy their customers. Success in these commodities therefore has taken place despite the fact that many of the best regions were landlocked and remote. On the other hand, ideal agricultural conditions are not sufficient for success, as the example of the slow growing Zambian sugar sector shows, which enjoys some of the best growing conditions in the World. While there is a major sugar factory in Zambia, it has been unable to export sugar except into the protected European market. Other success stories in Africa, such as cotton and cassava in West Africa occurred under favorable, but not ideal, climatic and soils conditions. They depend on highly labor intensive production processes that are difficult to mechanize and therefore benefited from low labor cost in Africa (Poulton, et al, 2007). Beyond Africa, agricultural success was achieved in a spectacular manner in landlocked areas of at best moderate agro climatic potential and little irrigation in the Cerrado of Brazil and in North East Thailand.

Marginal versus favored areas: With the accumulation more experience and knowledge the debate about this topic has come to the conclusion that this may be a false dichotomy. Investments in both are necessary and both pay under many circumstances. The WDR defines less favored areas as ones constrained by poor market access and/or limited by rainfall. Using mapping overlays of both factors the WDR attempts to define where these areas exist (WDR pp. 55- 57) The WDR 2008 clearly lays out possible strategies for less favored areas arguing that public policy interventions to reduce poverty and preserve the environment are warranted in many of these regions. Despite past arguments that these investments don’t pay there is now analysis to support the conclusion that “...*public investments in roads, education, irrigation, and some types of research and development can produce competitive rates of return (Fan and Hazell, 2001) and positive outcomes for poverty and the environment in less favored areas.*” (WDR 2007 p.192) The strategies recommended are “... *based on two key interventions: (1) improving technologies for sustainable management of land, water, and biodiversity resources and (2) putting local communities in the driver’s seat to manage natural resources*”. (Ibid. p.193). Absolute numbers of people living in marginal areas do not decline until a very advanced stage of urbanization is reached. Outmigration is not a solution to the marginal areas problems. What is needed is to harness all economic opportunities. If they have been relatively neglected, as in India, rates of returns to investments may be as good as in better endowed areas. For example Ethiopia has still an enormous backlog in small scale irrigation.

Nevertheless, a development approach to these areas has to empower the local populations with the authority and sufficient fiscal resources to provide the necessary human development and social services, so that the new generations have the human capital needed if they choose to migrate. Those who choose to stay behind can then combine remittances and social assistance with locally earned income for a decent

living standard. As Foster and Rosenzweig (2003) have shown, such areas may also be able to attract some industrialization based on their lower labor costs.⁵

The Future of Small Farmers: On a related issue of the role of small farms in growth and poverty reduction there is a new and insightful paper out by Peter Hazell and his colleagues (Hazell et. al. 2007) which make a very good case for policy support for small farmers in both favored and particularly less favored areas. Their conclusions are very pertinent for this report *“In conclusion, the case for smallholder development as one of the main ways to reduce poverty remains compelling. The policy agenda, however, has changed. The challenge is to improve the workings of markets for outputs, inputs, and financial services to overcome market failures. Meeting this challenge calls for innovations in institutions, joint work between farmers, private companies, and NGOs, and for a new, more facilitating role for ministries of agriculture and other public agencies. New thinking on the role of the state in agricultural development, wider changes in democratization, decentralization, and participatory policy processes, and a renewed interest in agriculture among major international donors do present opportunities for greater support to small-farm development. But unless key policymakers adopt a more assertive agenda toward small-farm agriculture, there is a growing risk that rural poverty could increase dramatically and waves of migrants to urban areas could overwhelm available job opportunities, urban infrastructure, and support services.”* (P. 32)

Enhancing Agricultural Profits and Rural Investment

Even in a good institutional environment few of the needed investments will occur if agriculture is not profitable. This is obvious for the on farm investments; but none of the other institutional pillars are in a position to invest unless agriculture and agro-industry are profitable. Unless they can save, communities will not have the means to finance or co-finance their investments. Independent civil society organizations (rather than creations from the outside) must finance a share of their costs from local sources, and these again depend directly or indirectly on profits from agriculture and other natural resources. Local governments which do not mobilize part of their own resources tend not to be accountable to their constituencies, (Manor, 1999) and instead they will be vulnerable to elite capture. The local tax base in turn depends on agricultural and natural resource profits.

It is sometimes assumed that private agricultural investments can be financed via credit. But even where institutions for rural finance could be built, their success depends on the borrowing and repayment capacity of the farmers, both of which depend critically on agricultural profitability. There is therefore no shortcut to capital accumulation in agriculture expect via higher profits, and ultimately higher savings and investments out of these profits.

It is often assumed that rural non-farm activities can be an engine of growth for rural development. But most rural non-farm activities produce goods and services that are linked to agriculture via forward, backwards, and consumer demand linkages (Hazell and Hagbladde, 1993, World Bank, 1983). The advantage of lower rural wages for industrialization is frequently offset by other disadvantages of a rural

⁵ Foster and Rosenzweig showed that in India, rural industries have located preferably in areas which benefited relatively little from the green revolution and the subsequent agricultural development and where rural wages were generally lower. Rural industrialization has therefore reduced rural poverty and inequality among and within rural areas. Rapid growth of rural industries in the 1990s followed an increase in the overall growth rate of the economy, which was itself partly a consequence of improved agricultural development, and may have been aided by restrictive labor laws whose impact and enforcement may be less in rural areas than urban areas. It is not clear how much these lessons apply to the underperforming countries which are suffering from low overall and low agricultural growth.

location. Therefore the potential for rural industrialization is usually over-estimated. Agricultural, therefore, remains the single most important driver of the rural non-farm sector. Based on this discussion and the analysis in other sections of the report we now summarize the remaining challenges to improving agricultural incentives.

Protection of importables and subsidies for exportables- not a good idea!: SSA countries have already altered their own policies and eliminated overall disprotection of the sector (Section 6). However we have also seen that their incentives are still below those of the other Regions of the World, especially OECD countries. It would be tempting for African policy makers to attempt to further improve agricultural incentives by following the example of OECD countries and subsidizing their agricultural exports or restricting imports to protect their producers. However as shown in section 6, on average African countries already provide protection to their agricultural importables. Raising these protection levels further would in many instances tax poor consumers, and increase poverty, rather than reducing it. In the context of the current agricultural price boom, it would be more appropriate to lower the protection levels than increase them. Increases in the protection of agricultural importables would also often lead to higher protection levels than for industrial goods, and indirectly disprotect them. Subsidizing agricultural exports is constrained by the poverty of the countries, and is a very inefficient way of supporting the agricultural sector compared to the use of scarce fiscal resources for infrastructure, technology development and smallholder services. And such subsidies would become contrary to WTO rules if the DOHA round of negotiations succeeds.

Input Markets: The WDR 2008 argues that developing efficient input markets is a necessary prerequisite to expanded use of improved seeds and fertilizer in SSA. Yet these markets are marked by highly seasonal demand for small quantities which are dispersed over wide geographic areas and with poor infrastructure. The WDR shows that domestic port and transport costs make up to 50% of farm gate fertilizer costs in Nigeria, Malawi and Zambia compared to slightly over 25% for the USA. Scale economies in fertilizer production are substantial so for the vast majority of small African countries domestic production is infeasible and in fact, as noted by the WDR cost effective minimum import lots of 25,000 tons are “...*considerably above the annual demand in most Sub-Saharan African countries*”. (WDR , 2007 p. 150). Again this underlines the need for regional approaches and offers opportunities particularly to AfDB to support regionalization.

This also raises the perennial issue of fertilizer subsidies which is addressed in detail in the WDR (Box 6.7 p152) with a proposal for what they call “market smart” subsidies targeted at poor farmers to encourage initial use of incremental amounts of fertilizer. They also note wide spread use of fertilizer subsidies is expensive. Zambia spent 37% of its public budget for agriculture in 2004/2005 on their fertilizer support program. Of course other inputs will become important in the commercialization process as needs for tools machinery pest management and possibly irrigation equipment emerge. A market oriented agriculture requires access to functioning input markets. The challenge is how to encourage and support their development.

Rural finance: One critical input market is rural finance. The macro-economic instability that has characterized Africa well into the 1990s has resulted in exceptionally high real interest rates. Agriculture is rarely so profitable that it can compete with urban investments in such environments. In addition, rural areas in general and small farmers in particular, face enormous disadvantages in financial markets. Clients are usually small and widely dispersed, and seasonality and covariant risk make financial intermediation difficult (Binswanger and Rosenzweig, 1986). While cooperative institutions have been a success for larger farmers in middle income countries such as Brazil, specialized agricultural financial institutions have been a failure all over the World (World Bank, 1996b) The micro-finance movement can make a modest contribution, but it has found it difficult to overcome the rural disadvantages and emerge as an important agricultural lender (Gine, 2004).

Successful approaches to improving rural financial intermediation have been focused on savings mobilization, postal systems, and improving access to finance by the rural non-farm sector, input suppliers, marketing systems, and contract farming (Yaron et al. 1998). The government of India has forced commercial Banks to open rural branches and reserve a proportion of their lending to agriculture and agro-industry. Two separate studies have shown significant impact on agricultural growth and the rural wage (Binswanger and Khandker, 1996)

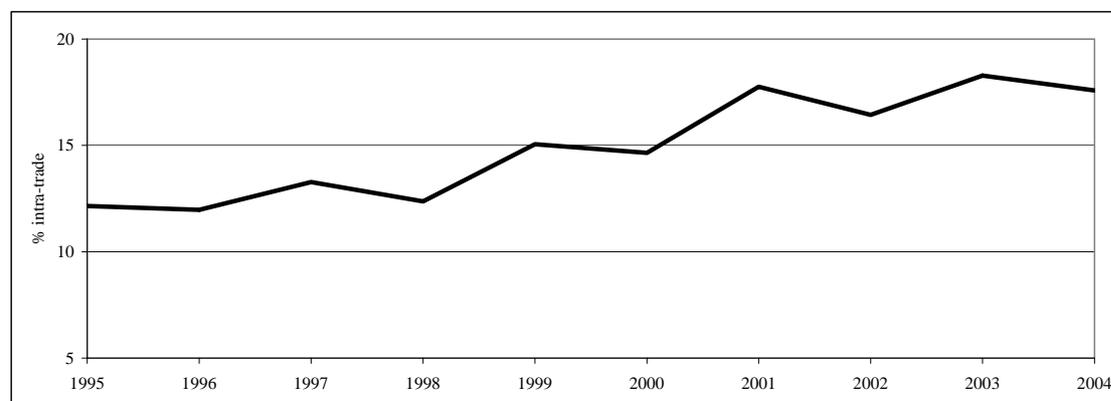
In light of the above analysis, it is not surprising that both IFAD and the AfDB have found it difficult to achieve more than spotty success in rural finance in SSA. Yet both of them put rural finance high on their agenda in their agricultural programs. *An alternative approach to fostering rural investment is to focus on agricultural profitability in general, and support to effective, easily accessible and low cost savings mechanisms, such as postal savings systems linked to rural savings clubs. A complementary approach would be to finance more agricultural and rural investments via matching grants, with the matches coming both from community contributions in kind, as well as individual savings.*

Output Markets: The same problems which negatively affect input markets also impede the development of output markets, and most of them have already been discussed: Low population density, landlockedness, poor road and port infrastructure, high transport costs for given infrastructure, illegal extractions along the road, inadequate competition, poor financial markets and the resulting high costs of finance, and a business environment that is only slowly improving. Market development in food crops is also impeded by frequent and unpredictable government interventions in the markets. Fortunately, farmers associations are increasingly entering input and output markets, but a lot more support will be needed for them to achieve the kind of prominence they have in East Asian countries or Brazil, for example. The WDR of 2008 provides a comprehensive analysis of how to foster output markets in general and the participation of producer organizations in particular. As we discussed earlier in Chapter 5 intra regional trade in basic commodities offers real possibilities for African agriculture but is constrained by serious barriers to trade.

Barriers to intra-regional trade: Intra-regional trade offers major opportunities for SSA agriculture. Domestic demand for most agricultural commodities is price and income inelastic, therefore rapid gains in production will inevitably lead to lower domestic prices and quickly reduce gains in farm profits. Moreover high production volatility translates into high price variability and risk. Opening sub-regional trade can reduce the impacts of these factors and increase regional food security. Intra-Africa trade in agriculture was a small share the total African trade, but that share rose from 11% to 18 % over the period (Figure 8.1). The largest deficits are in cereals followed oils and fats, dairy products and meats. Thus it seems there is substantial potential to expand intra-Africa trade in agricultural and food products. Of course there are barriers that have to be overcome including transport and handling costs, sanitary and phyto-sanitary issues, tariff and non tariff barriers to trade and market information. Lynam has argued that there are real possibilities and real challenges in developing profitable access by African small holders to growing African urban markets (private communication).

Nevertheless, regional integration in agriculture has been slow. The Economic Commission for Africa has shown that *“there have been some strides in trade, communications, macroeconomic policy and transport. Some regional economic communities have made significant strides in trade liberalization and facilitation,...in free movement of people,...in infrastructure,...and in peace and security... Overall, however, there are substantial gaps between the goals and achievements of most regional economic communities, particularly in greater internal trade, macroeconomic convergence, production and physical connectivity.”* (Economic Commission for Africa, 2004, p.1) *Given AfDB’s desire to increase efforts in regional integration this area seems to be a desirable opportunity which deserves to be vigorously pursued.*

Figure 8.1: Trends in intra-Africa trade in agriculture
(Africa's imports from Africa as percentage of Africa's total imports)



Source: FAO, 2006, based on the WTO annual trade statistics.

Phytosanitary rules and regulations are steadily emerging as more important barriers for developing country agricultural and agro-industrial exports. Their increasing stringency is driven by consumer demand factors, as well as by their potential to replace tariff barriers as a protection against imports (World Bank, 2005a). Developing countries have little choice but to insert themselves into the standard-setting processes and bodies, and to build up their capacity to comply with these regulations (Ingo and Nash, 2004). Small countries are at a particular disadvantage, as they will have difficulties providing the necessary services. Regional collaboration and integration will be necessary to enable compliance at an affordable cost. *Again this seems an area where support from AfDB would be highly desirable.*

The Ultimate Source of Growth: Agricultural Technology

Despite the enormous growth in human population and incomes, for more than 150 years agricultural commodity prices have followed a declining trend. This astonishing phenomenon has been caused by the combination of increasing international trade and sustained technical change in agriculture (Mundlak, 2001). The steady price declines show that eventually most, if not all, benefits from technical change in agriculture elude farmers and are transferred to consumers in the form of lower commodity prices, the famous agricultural treadmill. Evenson and Collin, (2003) show this once again for the Green Revolution from 1996 to 2000. It is therefore not sufficient to improve the institutional environment and eliminate the barriers to profitability in the low income countries so that they may adopt the already available technology. In a global agricultural system, agricultural profits will go to those who are ahead of the curve in terms of implemented technology, human capital and institutions. The under-performing countries will need to produce a steady stream of new technology by strengthening and re-building their agricultural research and technology adoption systems.

The growing technology divide: Around 1961, average cereal yields were around 1 ton per ha in the developing world, and rose to nearly 3 tons per ha by 2005. They increased to around 4.5 tons in East Asia and the Pacific (EAP), to around 2.3 tons in the Middle East and North Africa (MENA), while they stagnated around 1 ton in sub-Saharan Africa (SSA). (WDR 2008, figure 2.1). In 2000, improved varieties covered 84 percent of the cereal area in EAP, 61 percent in MENA and LAC, while they covered only 22 percent in Africa. In 2002, fertilizer consumption had reached a staggering 190 kg per ha of arable and

permanent crop land in East Asia and the Pacific, 73 kg in MENA, but only 13 kg in SSA. As a consequence, even the penetration of high yielding varieties led only to very limited yield growth in SSA.

Recall that African agriculture is characterized by a multitude of diverse of farming systems, heterogeneity within farming systems (rather than dominance by one or two crops), the presence of many endemic plant and animal diseases, weathered soils with low fertility, and erratic rainfall. In terms of its resource endowments and production mixes, African agriculture differs more sharply from the developed world than other developing regions of the world (Pardey et al. 2006), therefore limiting the ability of Africa to benefit from intercontinental or sub-regional technology transfer and spillover of scientific and research results. These features therefore imply that SSA requires a greater scientific and adaptive research effort than other Regions.

In 2000, Global agricultural R&D spending was \$36.3 billion, of which 37 percent was conducted by the private sector, while 63 percent, or about \$ 23 billion was conducted by public entities. Ninety three percent of the private research was conducted in developed countries (all figures from Pardey et al, 2006). On the other hand, public agricultural R&D grew faster in the developing world, and is increasingly concentrated in China, India and Brazil. In stark contrast, public agricultural research in SSA grew at only about 1 percent per annum in the 1990s, and in 2000 was around 1.6 billion dollars. Sub-Saharan Africa has the lowest share of private agricultural R&D spending in the World, only 1.7 percent of already low public spending (ibid). Of total agricultural research spending, donors provide about 40 percent, and in some countries this rises to 60 percent. Only five African countries — Nigeria, South Africa, Botswana, Ethiopia, and Mauritius — are paying the recurrent budget of their NARS from national sources. *“Collectively these data point to a disturbing development—a growing divide regarding the conduct of (agricultural) R&D—and, most likely, a consequent growing technological divide in agriculture....The measures also underscore the need to raise current levels of funding for agricultural R&D throughout the region while also developing the policy and infrastructure needed to accelerate the rate of knowledge creation and accumulation in Africa over the long haul.”* (ibid, P 68).

The changing nature of technology discovery: All around the world innovation is shifting away from a linear pattern that starts with scientific discovery and moves successively to technology development, adaptation to local conditions and dissemination to farmers. In its place comes a broader and more circular paradigm: It is broader in the sense that innovations no longer concentrate on basic food or industrial agricultural outputs but instead include the entire value chain from farm production, natural resource management, assembly, processing, marketing and retail to consumers. Driven by consumer demand changes, attributes of appearance, convenience, nature of the production process (organic, environmentally friendly, genetic and location origin) are assuming importance, most strongly so in developed countries, but increasingly in middle and low income countries. The growth in information and communications technology has transformed the ability to take advantage of knowledge developed in other places or for other purposes. Within this broader paradigm, private research and development plays an increasing role, facilitated by the development of broader intellectual property rights in agricultural technology which provide many promises but also induce high levels of anxiety about exclusion and high transactions costs for developing country agricultural innovation. A number of larger developing countries are taking advantage of greater private sector involvement, including most recently India which now boasts over a hundred private domestic and multinational seed companies. The private seed sector is also growing in Africa, with Kenya being perhaps the most advanced. The last major change is the emergence of bio-technology, which we have already discussed in section 3.

The African institutional framework for agricultural technology generation: Sub-Saharan Africa has over 400 public and private entities engaged in agricultural research, of which nearly 200 are public research institutions, and another 200 are universities (compared to 20 in 1960). However, 40 percent of them have fewer than 5 researchers and 93 percent have fewer than 50 full time researchers (Beintema and Stads 2004). Sub-Saharan Africa has nearly 50 percent more agricultural scientists than India and

about a third more than the United States, but all of Sub-Saharan Africa spends only about half of what India spends and less than a quarter of what the United States spends. Only a quarter of African scientists have a PhD, compared with all or most scientists in India and the United States.

All institutions engaged in research within each country are collectively aggregated into “National Agricultural Research Systems” (NARS). In the different sub-regions of Africa the NARS have created Sub-Regional Organizations (SROs) the strongest of which are **CORAF/WECARD** for West and Central Africa and **ASARECA** for Eastern and Central Africa. The SRO for Southern Africa is the SADC Food Agriculture and Natural Resource Directorate (**SADC/FANR**), and a North Africa SRO initially comprising Morocco, Algeria, Tunisia and Libya is also under development. The SROs foster research collaboration in their sub-Regions, and ASARECA and CORAF/WECARD have established research grant funding mechanisms of their own, with significant support from the European Union. (Source: FARA website and websites of the individual SROs). In 2001 the three SROs for sub-Saharan Africa established the Forum for African Agricultural Research **FARA** that has its secretariat at the regional FAO office in Ghana. FARA has been entrusted by the African Union and NEPAD to coordinate Pillar 4 of its Comprehensive African Agricultural Development Program (CAADP) which focuses on Agricultural Research and Technology Dissemination.

In order to strengthen bio-technology research, four regional biosciences networks initiatives were established under the auspices of the New Partnership for African Development (NEPAD). The Biosciences eastern and central Africa Network (BecANet) facility was established in 2004. BecANet consists of a secretariat and Hub located on the campus of the International Livestock Research Institute (ILRI) in Nairobi, Kenya (that should provide a common biosciences research platform, research-related services, capacity building and training opportunities), regional nodes, and other laboratories distributed throughout eastern and central Africa for the conduct of research on priority issues affecting Africa’s development. In addition NEPAD has initiated three other African Biosciences Initiative which are networks of leading centers and consist of hubs and nodes in Northern, Southern and Western African, i.e., the Southern African Network for Biosciences (**SANBio**) with its hub at the Council for Scientific and Industrial Research (CSIR), Pretoria, South Africa; the West African Biosciences Network (**WABNet**) with the hub at Institute Senegalais de Recherches Agricoles (**ISRA**) in Dakar, Senegal, and the Northern Africa Biosciences Network (**NABNet**) with the hub at National Research Centre (NRC) of Cairo, Egypt. These hubs possess and are strengthening the necessary physical infrastructure to develop and implement regional and continental biosciences projects. (NEPAD, 2007)

In the early 2000s a public –private sector partnership to foster access to proprietary research was created, funded by the Rockefeller Foundation. The **African Agricultural Technology Foundation (AATF)** is an international not-for-profit organization designed to facilitate and promote Public-Private Partnerships for access and delivery of proprietary technologies that meet the needs of resource-poor smallholder farmers in Sub-Saharan Africa (SSA). Through a catalytic and facilitative role, AATF tries to serves as an honest broker between owners and/or holders of proprietary technologies and those that need them to promote food security and improve livelihoods for smallholder farmers in SSA. AATF was incorporated in the UK in January 2003 and in Kenya in April 2003.

The Consultative Group on International Agricultural Research (CGIAR) supports the research of 15 international Centers, of which 13 are located in developing countries. In 2006 the CGIAR consisted of 1,115 internationally recruited scientists and a total staff of 8,154 working in over 100 countries. A strategic component of the system is the ex-situ germplasm collections of eleven of the International Agricultural Research Centers (IARCs). Building on earlier independent initiatives, the CGIAR since the early 1990s, has rapidly broadened its focus from crop genetic improvement towards natural resource management (NRM), environmental issues, and policy research.

In 2006, of total CGIAR expenditures of 458 million dollars, around 220 million dollars, or 48 percent, went to Sub-Saharan Africa. Note that this is only about 10 percent of total research spending in SSA. Africa also benefited from the share of 9 percent share of CGIAR expenditures that went to North Africa and Central and West Asia. All Centers currently have programs in SSA. Two Centers are located in West Africa (IITA and WARDA) while two are in Eastern Africa (ILRI and ICRAF). There were a total of 162 CGIAR Centers' programs/projects in SSA. To implement these programs/projects, the Centers engaged a total of 389 internationally recruited staff, 121 regionally recruited staff, and 2607 local staff. However, as discussed previously, the CGIAR spends less than 10 percent of its overall resources on biotechnology research, and little of that is likely to be spent in or for Africa. The CGIAR is not the only set of advanced research institutes (ARIs) operating in or for Africa. France's *Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD)*, and the *Institut de Recherche pour le Développement (IRD)*, formerly Office de la Recherche Scientifique et Technique Outre-mer, (ORSTOM), also have operations on the continent. The combined budgets of these two institutes are as large as the entire CGIAR budget. (NEPAD, 2007).

CGIAR research has made significant contributions to SSA agriculture. Many previous studies highlight successes such as the high-yielding cassava varieties that include resistance to mites, mealy bugs, cassava bacterial blight, tolerance to drought, low cyanogens potential, and good cooking quality; the famous biological pest control especially in cassava but also in other crops; biological pest control in potato, including via pest resistant cultivars; improved hybrids and open-pollinated varieties of maize in western, eastern and southern Africa; higher-yielding wheat in eastern and southern Africa; hybrid sorghum in Sudan; semi-dwarf rice for irrigated regions in West Africa; early maturing cowpeas in West Africa; and disease-resistant potatoes in the eastern and central African highlands.

Returns to agricultural research: The adoption of new crop varieties in Africa has been significant. In

BOX 3 : ESTIMATED RATES OF RETURN TO INVESTMENT IN AGRICULTURAL RESEARCH		
Region	Number of estimates	Median rate of return
Africa	188	34
Asia	222	50
Latin America	262	43
Middle	11	36

the late 1990s the adoption rate of improved varieties of all crops was 22 percent of total area planted, and of this 11 percent was planted to CGIAR related varieties, usually produced in collaboration with the NARS. (Pardey et al. table 6). In eastern, central and southern Africa 10 million farmers are reported to plant and consume improved varieties of beans.

Alston et al. (2000) assembled more than 1500 rate of return estimates to agricultural research and extension (Box 3). The median of the rate of return estimates was 48.0 percent per year for research, 62.9 percent for extension studies, 37 percent for studies that estimated the returns to research and extension jointly, and 44.3 percent for all studies combined. Box 3 shows that the median return in the developing World is about the same as in the developed World, and that the median rate of return in Africa is slightly lower than elsewhere, but still very high at 34 percent.

Evenson (2003) estimates CGIAR contributions to yield growth due to CGIAR research in SSA to be in the range of 0.11–0.13% per year. This range is much smaller than the 0.30–0.33% per year average yield growth across all developing regions (Evenson, 2003). *Despite substantial introduction of new varieties there*

has not been a great aggregate impact on yields, compared with other regions, partly because of the much lower adoption rates and partly because of lack of irrigation, fertilizer, and inappropriate policies.

The most urgent need for action: The upshot of the returns discussion is that the under-investment in agricultural research in Africa is not warranted either by low returns or low adoption rates. FARA has developed the **Framework for African Agricultural Productivity (FAAP, 2006)** that sets out guiding principles for how research is to be fostered, institutionalized and financed in Africa. Under FAAP, FARA, the SROs, and the NARS will collectively guide the evolution and reform of agricultural institutions and services; foster an increase in the scale of Africa's agricultural productivity investments, and help align and co-ordinate financial support.

A joint donor evaluation analyzed FARA and its programs as follows: *"FARA is a young organization.... it has developed a strong organizational framework in its first three years of full existence.... The Secretariat has demonstrated that it is both efficient and effective in its operations....with increasingly significant tasks being assigned to the FARA Secretariat and the various FARA constituencies, these ... urgently need to increase their human resource capacity. ... JEE believes that the FAAP provides a framework for harmonizing donor support, and that committing to consolidated funding of the FARA Rolling Work Programme & Business Plan [RWPBP] is the best means of pooling resources."* (JEE report 2007, p.11).

Despite these favorable developments and external assessments, the work programs of FARA, of the SROs and of the NARS remain seriously under-funded. Fortunately the AfDB has recently approved a 25 million dollar program in support of FARA and both AfDB and IFAD are funding agricultural research via different channels. Nevertheless more finance for agricultural research at all levels by both institutions is warranted.

Agricultural science and education institutions: *"Africa now houses roughly 300 Universities. Three quarters of African countries offer some tertiary level training in agricultural sciences. At least 96 public universities teach agriculture and natural resources management. Of these, 26 are in Nigeria, ten in South Africa, six in Sudan, five in Kenya and three in Ghana. Nineteen separate faculties of veterinary science exist in 13 countries, five of them in Nigeria alone"* (Johanson and Saint, p. 15). Despite these many facilities, agricultural aid funding *"...has dropped precipitously. ... agriculture received a diminishing portion of a shrinking development assistance pie..."* Country expenditure has paralleled the drop in donor assistance. What is left is a proliferation of institutions which have limited staff with virtually no research support money. The sad part is that now the need for agricultural technology development has regained high priority for Africa, the continent is left with a deteriorating, oversized and fragmented infrastructure, many vacant positions, an aging staff, outdated equipment, and no operating funds (Johanson and Saint p 34).

Johanson and Saint's conclusion is poignant; *"Agricultural education and training has been demonstrated to be a vital, but much neglected, component of agricultural development in Africa. It is **under-valued, under-resourced and under-provided**. Human capital in agriculture has been depleted by long neglect."* (p. 67). The InterAcademy Study states *"...It is the conviction of this study panel that much of what would be necessary to improve agricultural productivity and food security in Africa hinges on strengthening agricultural educational systems, more specifically the coverage and quality of higher education."* (P. 184)

However there are hopeful signs. *"Seven American foundations have formed the Partnership for Higher Education in Africa and pledged to invest at least USD 200 million over the next five years... and ...the Gates and Rockefeller Foundations recently formed a separate partnership, called the **Alliance for a***

Green Revolution in Africa (AGRA)” (ibid). UNDP is supporting a community of practice, SEMCA – “Sustainability, Education and the Management of Change in Africa” focusing on agricultural education.

In conclusion of this science and technology section it is clear that African regional and national institutions for agricultural science, technology and agricultural science education have started to respond to the enormous scientific and technological challenges faced by Africa. The challenges are intensified by increasing competition for resources, climate change, and rising international agricultural prices. These responses are occurring in a rapidly changing global research system including bio-technology, intellectual property rights and patent systems, and a growing range of players, especially the private sector. The significant institutional responses have not so far been matched by adequate funding from international donors and national governments, especially in the areas of bio-technology and science education. While AfDB and IFAD are contributing financing at regional, sub-regional, national and project levels, it is clear that they will need to step up their contributions just like others will.

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