GR NOTE FOR APGOOD MEETING 8 NOV. 2005

Preamble

1. Agricultural S&T in Sub-Saharan Africa (SSA), as well as elsewhere in the developing world, is a very large and complex subject that has a history of well over half a century, and raises an equally vast array of technical, social and economic issues that have occupied all those involved in development over the same period. It is clearly not possible to any real justice to the subject in 10-15 minutes, so this presentation is confined to just three issues. Firstly, the requirements for agricultural S&T in SSA; secondly, the present status and constraints on agricultural S&T in the region, and, lastly, some options for action to help address these constraints, with examples of African-led initiatives already underway

The requirements for S&T in agriculture in Sub-Saharan Africa

2. Given the evidence of the past four decades, there is almost universal agreement that science and technology through innovation have led to remarkable increases in food production in the developing world. The importance of S&T for poverty reduction, including its role in agriculture, has been flagged most recently in the statements made at the G8 Summit, the United Nations and the Commission for Africa. However, it has also been pointed out that Asia and Latin America, rather than Africa, have provided most examples of these achievements. Nevertheless, there are a significant number of impressive success stories throughout SSA, albeit often local, that have not received sufficient attention, as will described later.

3. Over the past two decades, there has been a significant change in the context for S&T in agriculture globally, including stagnation or more frequently decline in funding from the public sector. Priorities for spending in development have moved to health, education and environment. In contrast, global agricultural S&T spending by the private sector has grown significantly, and now almost half, but this is for S&T largely directed at the developed world, and brings with it IPR and other issues. Private sector investment in the developing countries in agriculture amounts to only 10% of this expenditure, and this does not target the poor.

4. Other economic and social changes have also influenced the way that agricultural S&T is organised, financed and managed. Yet, a number of “bottom lines” remain. As earlier speakers have pointed out, almost 70% of Africa’s poor are engaged in smallholder agriculture or pastoralism, whilst the remainder of the urban and rural poor require cheap food, given that this absorbs up to 70% of their incomes.

5. Over the next few decades, there will be an additional 2.5 to 3 billion people to feed, virtually all in the developing world, with limited additional land, water or labour to support the vast increase in production needed. This demand includes staple food crops and livestock, as well as increased requirements for common pool resources - fisheries and forests . There is thus clearly a continuing requirement for improved or new technologies based on strong S&T, and for effective innovation systems to deliver the outcomes.

6. The issue of food and nutritional security has received relatively little attention in major international fora, yet remains a basic requirement, without which all further development is constrained. Health and agriculture are interdependent, and yet are rarely if ever treated as such by donor agencies, which should provide guidance on such issues. Malnutrition as many commentators have pointed out, is greatly underestimated in the developing world, and has receives little attention in the recent international reports referred to earlier. In Malawi, for example, over half of the mortality of children can be attributed to malnutrition, as much as the combined so-called killer diseases that, deservedly, get so much high profile attention. Furthermore, those who do survive to adulthood are often profoundly affected both mentally and physically. This scenario holds for many other Sub-Saharan countries.

Status of S&T in Sub-Saharan agriculture

7. Earlier presentations by speakers in this series have described the importance of agriculture as the launch pad for Africa's broader economic growth, and its crucially important role in poverty reduction in both rural and urban areas of Africa. Other issues of special importance in terms of S&T for agriculture that have been debated widely, and earlier in this APGOOD series, are the respective contributions to poverty reduction of smallholder and commercial scale production, including the question of the relative emphasis on food staples and cash crops.. The arguments seem to suggest that these are "either-or" options. In reality, they are complementary. The process of transition from one to the other, and their complementarities have not been addressed, but are clearly of importance - and of considerable relevance to the contribution that S&T can make.

8. Much has been said about the need for S&T agendas to be demand-led (or bottom-up), based on priorities identified by the poor, rather than supply-led (or top down) based on priorities identified by researchers or policy makers and shapers. This is a gross oversimplification. In practice, a balance needs to be struck between the two, depending on whether the problems being addressed are global, regional, national or local, and whether they are short, medium or long-term. There are a wide range of major problems that transcend national boundaries, such as climate change, water resources management, human, animal and plant diseases that require horizon scanning and supply-led approaches. But these can still, as one commentator has put it, be informed by the demands of the poor, rather than driven by them.

9. The role of the manufacturing and other non-agriculture sectors to poverty reduction and broader economic growth has been discussed earlier in this APGOOD series. In rural areas, a significant proportion of manufacturing activities are related to agriculture - where food processing and value adding is of great importance - and of special significance in terms of S&T.

10. In looking at the role of science and technology in African agriculture, much has been said recently by international donors and others about Africa's declining agricultural; productivity, due to failure to invest in research and extension services, failure to develop enabling policies and so on. This generalisation fails to take into account the great variability between countries, and masks the not inconsiderable number of S&T -based successes that have occurred in many countries in Sub Saharan Africa. By not doing so, it also fails to acknowledge the lessons learned from successful as well as failed activities, which means that opportunities to build upon this knowledge and extend the outcomes much broadly are lost. So, rather than repeat the litany of problems, let us also acknowledge the considerable number of success stories. There are indeed encouraging signs of progress in African agriculture.

11. In briefly mentioning some of these successes, it is worth pointing out that African farmers are inherently innovative. Over half of the crops in the continent and all of the livestock come from other parts of the world, and yet despite the extreme variability of climate, lack of water, and often nutrient-poor soils, African farmers have over the past centuries, been able to develop highly innovative farming systems based on plant varietal selection, intercropping, rotations, fallowing, and other measures. uniquely adapted to local conditions. There are also a very large number of excellent African scientists, and a significant number remain in the continent despite of the constraints, in contrast to their medical counterparts.

12. There are numerous examples of successful research and capacity building partnerships between African farmers, local researchers and NGOs, linked with northern institutions. Many such examples can be drawn from DFID's £250 million investment in its ten Renewable Natural Resources Research programmes, covering agriculture, forestry fisheries, and natural resource management, over the past 11 years. Benefits to poor small-scale farmers have included pest and disease resistant food crops, improved post-harvest technologies, new approaches to livestock health and production, agroforestry, aquaculture and more efficient management of water and soil nutrients. Most of these programmes placed considerable

emphasis on integrating social and natural sciences, as virtually all problems addressed had technical, social and economic dimensions

13. Given these local successes, why have relatively few of these outcomes not been taken up over much wider areas within Sub-Saharan countries or regionally? Reasons most often cited, and rightly so, are poor political and economic governance, inadequate funding for agricultural research, capacity building and institutional strengthening, and lack of agricultural extension services in terms of both the public and private sectors, lack of infrastructure and so on. These reasons are undoubtedly correct and major reforms are needed, which will require time, political will and very significant increases in funding and other resources.

14. However, what can and should already be done, is for donors to ensure that research is fully embedded in their mainstream development agendas, so that successful local outcomes can be piloted and then promoted on a country wide or even regional scale drawing on the far greater resources that available in development programmes. At present, there is an almost universal failure of donors to develop an integrated research-development-application approach in their programmes. Research and S&T tends to be a stand alone activity. There is also a general failure among donors to harmonise their otherwise fragmented efforts.

15. In all these activities, capacity building is seen as an essential overarching requirement, and rightly so. Generic capacity building at all levels is indeed vital, but there are good arguments for this to be somewhat more targeted for agricultural S&T with capacity being strengthened in high priority areas, so that what is proposed is do' able, and will achieve tangible outcomes. There is good evidence for the value of this approach in south-north and south-south partnerships, with longer term financial and mentoring support coming from northern partners. However, national governments as well as donors need to develop a much more strategic approach and long-term commitment to capacity building and institutional strengthening, ensuring that these are an integral part of the mainstream agenda of development agencies, and are properly funded.

16. An issue with profound effects on agricultural S&T, that has assumed far greater significance in more recent years, is that the development agendas of most developing countries, and hence donor support, are largely aligned with Poverty Reduction Strategy Programmes (PRSPs). Agriculture and S&T rarely figure in these programmes, as the responsible ministries are often weak and poorly represented in the negotiations with ministers for finance and other key players. This is becoming a major constraint as Direct Budgetary Support through country offices of donor agencies is increasingly becoming the preferred mode of overseas development assistance - most especially for the UK.

New initiatives in S&T for Sub-Saharan agriculture

17. Dr Monty Jones, the first African winner of the World Prize and now head of the Forum for African Agricultural Research (FARA) has passed on a number of points for today's meeting. He considers that there is strong evidence that after decades of stagnation, agriculture is again moving. There is widespread recognition that national programmes have been starved of funds and lost many key staff, and need rebuilding as a matter of the greatest urgency. African heads of state have through the AU and NEPAD all recently pledged their support and 10% of their budgets growth in the sector and a commitment to agricultural research, technology dissemination and uptake, as well as capacity building. This is one of four priority pillars of the Comprehensive Africa Agriculture Development Programme - an African-led and managed NEPAD initiative. There has also been some progress in dialogues between African ministers of finance and agriculture counterparts to raise the profile of agriculture and S&T in PRSPs.

18. There is a need to ensure that the emphasis of agricultural S&T programmes is not solely on research. It is essential to develop innovation systems that engage all stakeholders (farmers

associations, NGOs, extension and researchers, if the outcomes are to reach the poor. Multidisciplinary approaches that also relate to other sectors are vital, as are regional programmes that allow for much wider knowledge sharing, and spillovers of technologies. Insufficient attention is given to the problems of isolation. Lack of access to knowledge because of limited communication opportunities, means that information technology is of especial significance for Sub-Saharan Africa. This includes everything from open access to journals, and institutional knowledge centres to information on technologies and market prices fro farmers associations. It is perhaps no coincidence that a country as poor as Ethiopia is investing almost 10% of its GDP in ICT.

19. The issue of isolation of individual countries in terms of agricultural S&T is one reason for NEPAD's and FARA's major emphasis on African-led sub regional organisations of which Sub-Saharan Africa currently has four. However, these also need adequate support and capacity building to be effective. In this regard, centres of excellence have received much attention - in the Commission for Africa report and elsewhere. The subject remains controversial. Care is needed to ensure that the concept does not lead to the establishment of institutions with ivory tower research agendas that promote the academic interests of high profile scientists but are divorced from the realities of the issues facing the Africa's poor. This is not to say that the problems of the poor are not deserving of S&T and innovation of the highest international standards. At this point regional centres such as that being developed in Nairobi for eastern African nations may fulfil some of the requirements, as will "virtual" centres of excellence through networking. Their agendas are driven by opportunities for innovation rather than research *per se,* and target the poor.

20. Other initiatives include five Africa-wide programmes, owned and supported by African countries, that have been established over the past two years to help address current problems, using pilot sites initially. The programmes target the revitalising of national agricultural research and extension systems, the widespread distribution of proven technologies, disseminating agricultural information regionally, and catalysing training at all levels.

Conclusion

21. In conclusion, it is abundantly clear that S&T for Sub-Saharan agriculture remains of vital importance for achieving the MDGs, and that African nations are taking this seriously. Collectively, they have developed a far-reaching and ambitious set of continent-wide, sub-regional and national programmes to address the major problems facing the poor - all of which are African-led. To achieve their objectives, it will be equally important that the international development community is fully engaged with these initiatives - with donor agencies such as DFID playing a leading role. This may mean re-visiting and perhaps amending the ways that donors are currently supporting S&T in Sub-Saharan agriculture.