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Does Africa need a Green Revolution?

Poverty, land degradation and the Millennium Development Goals

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Rural poverty unperceived

In 1983, Robert Chambers published a book entitled 'Rural Development: Putting the last first'. This book's message, essentially, was that the world's poor are concentrated in rural areas and that outsiders trying to understand poverty suffer from a series of biases that prevent them from reaching the poor or perceiving their problems. Twenty six years later, unfortunately, poverty alleviation efforts are still focussed on everything except the world's rural poor. In fact, between 1990 and 2004, rich countries reduced the proportion of development funds devoted to agriculture from 12% to 4%¹. And while the Dutch government, amongst many donors who have rediscovered agriculture, has recently earmarked a very welcome € 400 million per year for agriculture, it is still to be seen how this will reach small dryland farmers.

By and large, many international donors now seem to rally around Green Revolution approaches. This, notwithstanding Chambers' warning messages, Green Revolution's controversial history and the need to treat this technology driven approach with considerable care.

The link between poverty and land degradation

Despite the international community's commitment to Millennium Development Goal no. 1², the number of people suffering from hunger has risen from an estimated 800 million people in 2000 to an estimated 1 billion people today. A key underlying fact is that the majority of the affected people live in remote areas, mostly in drylands, and are left to fend for themselves. So far, neither the governments representing the world's poor nor the international community have proven capable of successfully reaching out to these large groups of people.

To achieve the Millennium Development Goals, it is absolutely essential to address the issue of land degradation. Already, 24% of the world's land area is degraded and about 1.5 billion people depend on that land. More than 80% of the extremely poor in Sub-Saharan Africa are living in rural areas and about 85% of the poor depend on agriculture for a living. Generally speaking, the poor depend heavily on natural resources for their survival. They are currently being adversely affected by the rapid degradation of their environment³. The poorest are mostly small and marginal farmers and pastoralists who depend on production for subsistence, while occasionally being able to produce modest surpluses for nearby domestic markets.

Unfortunately, subsistence farming or the creation of modest surpluses for local markets tends to go unnoticed internationally until a food crisis emerges, as was the case in 2007. When, in the wake of such a crisis, donor responses do emerge, they are mostly focussed on technical issues related to food production rather than more political issues such as the problems with access to productive land and water that are the root cause of poverty. This has led some, such as the Dutch Minister for Development Cooperation Bert Koenders, to argue for a more political approach in development cooperation.

This does not mean that productivity is unimportant. On the contrary, against the background of mounting global population growth it is essential that means be found to further boost world food production and especially to boost food production in Africa. Sub-Saharan Africa is the only region in the world where average yields in grain harvests have not increased and food production per capita has decreased since the 1980's. Degradation has now affected more than two thirds of African agricultural land⁴.

Glossing over large differences between regions and households, the majority of farmers in Africa are smallholders, producing on less than two hectares of land and facing food shortages for at least three months a year⁵. Since the 1980's the average amount of arable land available per capita on the continent has declined from 0.38 to 0.25 ha, driven by both population

¹ NRC Handelsblad, 9/5/2008: Investments in agriculture back on the agenda.

² MDG Goal 1: Eradicate extreme poverty and hunger.

³ Ephraim Nkonya, John Pender, Kayuki Kaizzi, Edward Kato, Samuel Mugagura, Henri Ssali and James Muwonge (2008): Linkages between land management, land degradation and poverty in Sub-Saharan Africa: the case of Uganda. Washington: IFPRI

⁴ Ibid.

⁵ See Diagona, B (2003): Land Degradation in Sub-Saharan Africa: what explains the widespread adoption of unsustainable farming practices? Montana State University / Dept of agricultural economics

growth and the exhaustion of existing arable land. Notwithstanding a wealth of traditional knowledge and sound land use practices in Africa, per capita food production has also declined. Diminishing soil fertility, a major problem, especially in drylands, is often caused by the increasing use of inorganic chemicals, the reduction of fallow systems, increased monoculture and the cultivation of marginal areas⁶. Intensification of agricultural production is needed to meet the food needs of the poor, and this requires to be strongly linked to investments in soil fertility⁷.

There is thus a huge challenge in the coming years to focus on positive examples of successful marriages between modern insights and techniques and traditional know how and approaches. 'Home grown' improvements in dryland management, crop yields and human welfare should be promoted and adopted for further replication, up-scaling and policy development.

Notwithstanding the wealth of traditional knowledge and sound land use methods in most regions of the world, in many dryland areas land use practices such as the burning of agricultural residues and inappropriate ploughing techniques, lead to impoverishment of the soil and undermine production. These problems are exacerbated by the lack of choices on the part of the poor, by unfavourable environmental conditions, by inadequate logistics and by the lack of access to services, training, credit and markets.

The combination of overexploitation, lack of inputs and know how and natural phenomena such as wind erosion, generates a vicious circle, forcing the affected communities to extract as much as they can from the land for food, energy, housing and income, thus creating a dynamic of self-sustained impoverishment. Under this scenario, the poor become both the causes and the victims of land degradation⁸

Improving agriculture and other systems of land use, including mix systems of agro-forestry, range land management, harvesting of non-timber forest products and veld products is the most cost-effective investment one can make in pro-poor economic development. Such investments should start with what local people grow and harvest in their fields, their forest and around their houses. Donors and researchers need to expand their agenda from one with an almost exclusive reliance on simplified production systems, based on a few improved varieties of crops to one in which agricultural and ecosystem diversity is allowed to play a much fuller part.

It is undoubtedly true that local food production is severely limited by shortages in terms of minerals and other external inputs that enable farmers to break a deadlock. A targeted application of specific inputs ('micro-dosing') can help boost production and enable farmers to break through a poverty cycle.

The intensification of agricultural production, however, has a track record marked by many risks and pitfalls in recent history. If the mistakes of the recent past are to be avoided, such intensification needs to take a route which departs strongly from most of the mainstream, top-down development recipes that have been implemented across the poor nations of the world since the end of the Second World War. Claims that it is possible to launch a new 'green revolution' in Africa need to be treated with caution in view of the impoverishment and environmental degradation that such socio-technological experiments have generated elsewhere. If productivity is to be boosted it needs to be both through the transition to sustainable forms of farming and farmer-led approaches.

⁶ From UNEP (2006): Africa Environment Outlook 2. Nairobi: UNEP: Part F

⁷ See for instance the findings of a CIAT/TSBF/ICRAF (CGIAR) workshop on soil fertility in Sub Saharan Africa held in 2002.

⁸ Report on activities undertaken and support provided by the European Community to countries in Asia, Latin America and Caribbean, Central and Eastern Europe regions in the period January 2001 – December 2005, submitted to UNCCD CRIC-5 by The European Commission, prepared by Imeson A., Koning P.C. de, Kistermann H., and Wolvekamp P.S., 2006

In a partnership in India, Both ENDS and Gomukh have demonstrated that the MDGs can be achieved in 9 years at district level if the transition is based on a locally negotiated vision for action that only brings in external opinions and expertise when local communities have determined that this should be the case.

Initiatives to transform African Agriculture

By contrast, from approximately the year 2000 onwards, a top-down alliance has been built around the concept of a new green revolution for Africa, which, unfortunately, still bears many of the messianic banners advanced for the cause of the green revolution in Asia.

In 2002, African governments endorsed the Comprehensive Africa Agriculture Development Programme (CAADP) in the context of the New Economic Programme for African Development, or NEPAD. This initiative, built around the concept of an African Renaissance and spearheaded by South Africa and Nigeria, aimed to build consensus around an Afro centric vision for its own development. Within the CAADP, the aim is (amongst other things) to increase the area of land under sustainable land management, improve rural infrastructure and trade-related capacity for market access, increase food supply, reduce hunger, and conduct agricultural research⁹.

However, a series of major problems prevent such a transition. Much African government spending is locked into the importation of foreign food, sustaining emergency food aid, artificially maintaining low food prices for urban populations and paying off foreign debt. With the advent of the financial crisis in 2008 and the strong rise in food prices, this situation has deteriorated significantly. Measures need to be taken to reroute current spending away from relief measures and towards long term investment in the future of African agriculture. For instance, the CAADP budget is slightly less than Africa's total foreign debt of U.S. \$ 290 billion, i.e. debt cancellation could go a long way towards enabling such a transition.

International responses to land degradation

From the 4th to the 15th of May 2009, the 17th Conference of the Commission on Sustainable Development (CSD) took place at the UN in New York. The 17th session of the CSD brought together the representatives of 53 countries to discuss issues related to agriculture, rural development, land use, drought, desertification and a geographical emphasis on Africa.

In her position as chair of the CSD for its 17th session, Dutch agriculture and nature conservation minister, Gerda Verburg, compiled the draft negotiating text for the session. It states that the world is facing multiple crises: poverty, the food crisis, economic recession, environmental degradation and climate change. Agriculture and sustainable land management have a key role to play in ensuring security for the world's population. In this context, she argues the following:

"First and foremost we need a sustainable and home grown Green Revolution, especially in Africa.[...]. This means calling for a revolution in ideas, a revolution in technologies and a revolution in agricultural and trade policies and market access as well as providing the financial means."¹⁰

Put this way, few would disagree with the concept of a Green Revolution, but there are a number of substantial issues that need to be dealt with if such a Green Revolution is indeed to be sustainable.

The concept of the Green Revolution is associated with the use of high yield seed varieties, fertiliser, infrastructure development, extension support and irrigation. This revolution started in Mexico and later spread to countries such as India and the Philippines. It managed to realise substantial increases in food production, but at the same time was usually only successful among those farmers able to invest in capital intensive agriculture. It strengthened the hand of those who were already economically powerful, increasing the gap between rich and poor and making many forms of agricultural labour redundant.

⁹ UNEP (2006): AEO 2, Op. Cit.

¹⁰ Ministry of Agriculture Nature and Food Quality (2009): Credibility, Cooperation and Commitment. Speech at the opening of the High level segment of the 17th session of the UN Commission on Sustainable Development.

Environmentally, the Green Revolution is associated with the reduction of biodiversity through mono-cropping, pollution through pesticide use, and soil salinisation through irrigation. To suggest therefore that this model can be 'tweaked' into a sustainable form that alleviates poverty begs the question how this is to be done.

A New Green Revolution for Africa

The Rockefeller Foundation, instrumental in launching the first Green Revolution, is now actively lobbying for a Green Revolution in Africa. Together with the Bill and Melinda Gates Foundation, the Rockefeller Foundation launched the Alliance for a Green Revolution in Africa (AGRA). Although AGRA claims to be an African led partnership, it is strongly linked to commercial interests of biotechnology and food companies such as Monsanto. Within the Gates Foundation, AGRA falls under Robert Horsch who previously worked for Monsanto¹¹. Also, it has very little to do with African food production. Together with the Japan International Cooperation Agency, the West Africa Rice Development Association and NEPAD/CAAPD, an alliance has been formed known as the Coalition for African Rice Development which aims to double African rice production in ten years. Given the fact that rice has never been a staple crop in Africa, the question is why this should be such a strategic aim of the alliance.

Against the background of a food crisis, the question can be raised why an external agency is initiating a transition to new crops instead of focusing on existing staples such as cassava, maize, sorghum, millet and other locally preferred sources of food. Poor farmers tend to spread risks as a strategy against setbacks, engaging in a range of activities and raising a variety of crops in response to risky climatic, environmental and economic surroundings. If initiatives are to be farmer led, it is the reduction of these risks that needs to be at the heart of growth strategies.

Research is surfacing increasingly crucial information how chemical inputs, fungicides and pesticides may render the opposite effect of making plants more susceptible to pests and diseases¹². Realism cautions against self-serving interests of the international agri-business. This has led to undue interference with policy choices in contravention with the priorities of local people – male and female – and their social and environmental conditions. Bearing in mind logistics, costs of chemical inputs and seeds, and existing limitations to extension services, Green Revolution interventions are likely to reach only a small fraction of the 1 billion people suffering from hunger and poverty. It is unlikely it will harness local land users self reliance – bearing in mind the vagaries of the world market, the fluctuations in oil prices and the ever-changing prices of chemical inputs.

The predominant model of agricultural development is geared to reducing the diversity of crops and diets by shifting the focus from nutritious traditional foods to commercial crops. Lack of supportive policies, combined with a lack of awareness about the nutritious value of local foods, are causing the local foods to disappear. New drives to promote a green revolution, as by AGRA, will increase this negative development. This, whereas with global food prices rising, the need for self-reliant food production is greater than ever before.¹³ Therefore, *food sovereignty* rather *food security* is the message.

Every year, a large part of the world's harvest is lost to pests and diseases. Those who are most affected by this loss are resource-poor farmers. For them, a poor harvest can mean the difference between life and death. Pesticides and fungicides offer a solution, but they can damage the environment and harm people's health. Moreover, they are often too costly for poor farmers to afford. Crop varieties bred to resist pests and diseases are another possible solution. However, limiting production systems to a few modern cultivars presents problems of its own: planting large areas with genetically uniform resistant varieties can provide the ideal conditions for new strains of pests and diseases to evolve, and the resistance of the variety may fail after only a few cropping seasons.

¹¹ Mariam Mayet (2007): The New Green Revolution in Africa: a Trojan Horse for GMO's? Johannesburg: African Centre for Biosafety.

¹² See for example Healthy Crops. A New Agricultural Revolution, by Francis Chaboussou, The Gaia Foundation, 2004.

¹³ Food and traditional in Nepal: a melting pot of diversity, by Bhuwon Sthapit, Ambika Thapa, in GeneFlow News, Biodiversity International, 2008

Most rural land users require sustainable solutions that are low input, affordable and environmentally-friendly. Studies of advanced agricultural systems have shown, for example, that crop mixtures and crop rotations can reduce the damage caused by pests and diseases. Many farmers use a diversity of traditional varieties and mixtures of modern and traditional varieties in this way. This also helps protect the diversity of the local land use system.

Female food producers, the neglected force

Women in dryland regions of for example Africa are typically the ones in charge of feeding and nourishing the family. In rural and peri-urban areas, women are often also responsible for collecting nutritious plants, tubers and other food stuffs from the wild, which they use to supplement the family diet. They are responsible for managing small parcels and family farms, or are growing food in small gardens around the home. Crops they produce include leafy traditional vegetables and 'minor' staples such as tubers, legumes etc. They sell any surplus in markets, providing a vital extra source of income – for schooling, clothing, etc. and emergency situations. This responsibility brings with it a wealth of knowledge about local food and food preparation traditions, handed down from generation to generation.

Changing agricultural policies, specifically the shift in emphasis from traditional food crops to cash crops such as ground nut, cotton, and rice have significantly affected the production of traditional crops, reducing their availability. At a time when diets are becoming increasingly simple, and nutritious foods are being replaced by lesser quality food items, the role of women in promoting diversified diets is increasingly important. Women can be considered the primary guardians of diversity. Their knowledge forms a cornerstone to achieve food sovereignty, nutrition and health in rural dryland regions.

Gender-based inequities are part of the root system that perpetuate poverty and which hinders the achievement of MDG1. 'Modern' market oriented Green Revolution interventions have by and large deepened the gender inequities. World wide one can witness that the space developed by modern technology, extension services, capital inputs, infrastructure developments and access to markets is claimed by men, at the expense of the spaces for women, their methods of land use, their access to land, biomass and water, and at the detriment of the well being of their families and of biodiversity.

Taking the realities of rural dryland food producing economies as a point of departure, if one is unable to allow women a firm position in the driving seat any attempt at reaching MDG1 is pointless. Using this as a benchmark, one can not but conclude that the international community and national elites have failed so far. If one is serious about achieving MDG 1, it is to be avoided that the international donor community and national decision makers continue to back the wrong horse.

Policy makers that set out to support women-producers should acknowledge that one key factor underlying poverty, malnutrition, environmental degradation and loss of biodiversity is women's limited control over land, seeds, credits, extension, education, markets, and political power. This calls for a re-thinking of the costs and benefits of Green Technology approaches and compare these to the costs and benefits of traditional land use systems, and a deep understanding of and engagement with existing local land use strategies: their strengths, weaknesses and potential. But above all, it requires a true understanding of and participation by those who – left to fend for themselves – play a key role in assuring there is nutritious food on the house hold table.

Policy Recommendations

- Focus on the MDGs implies a focus on drylands, degraded land and the sustainability of agricultural production;
- Broaden the perspective on the food crisis from one focussed exclusively on productivity increases to one which includes issues of intensification and diversity (versus simplification), enhanced self-reliance (versus dependency) and food distribution (with more attention for local markets);
- Develop donor strategies to strengthen the voice of the poor in rural areas, their preferences and know how, as a means to develop poverty alleviation strategies and realise the MDGs;
- Design and implement policy measures which assure local women food producers a firm position in the driving seat towards food sovereignty and achieving MDG 1;
- Base external intervention strategies on negotiated outcomes to land and water management developed at the local level. Avoid references to a Green Revolution or other interventions that have not been locally negotiated.

The role of Both ENDS

With the support of the Dutch government (DGIS) and the European Commission, Both ENDS and its partners have made land degradation, and drylands in particular, one of their key issues. The main focus has always been the support of southern organizations in their efforts to enhance land care.

In all corners of the world, local land users - farmers, pastoralist, forest dwelling communities - and civil society organisations have developed sound land management strategies, often based on land use practices that rest on local knowledge and local traditions that have stood the test of time. Many of these approaches have achieved noteworthy successes. However, these successes are often not published and need to be brought to the attention of colleagues in other countries as well as policy makers both in the South and in the North. Both ENDS is devoted to the analysis and promotion of these experiences and supports the exchange of learning experiences amongst southern partners and key other actors.

Both ENDS staff co-authored the European Commission's Report to the UNCCD on activities undertaken and support provided by the Commission to combat desertification. Both ENDS coordinates the EC-funded project known as Drynet, which involves 14 project partners in 17 countries working on land degradation abatement and policy dialogue. Drynet supports developing countries in their efforts to integrate the environment and poverty linkages in drylands into their national development processes and places land degradation higher on the political agenda. Both ENDS also ensures the link between civil society and local stakeholders in drylands and the scientific community in ongoing research projects and it is partner in the joint research project DESIRE under the EC Framework Programme. Both ENDS is a member of the international Alliance for the Regreening of the Sahel. It is co-founder and member of the international Analog Forestry Network which supports locally-led ecosystem regeneration.

In all activities we will continue to **cooperate with partner organisations**, including the following Drynet partners:

- Centre d'Actions et de Réalisations Internationales (France);
- League for Pastoral peoples (Germany);
- Instituto Sertão (Brazil);
- Observatorio Latinoamericano de Conflictos Ambientales (Chile);
- Probioma (Bolivia);
- Tenmiya (Mauritania);
- The Environmental Monitoring Group (South Africa);
- Environnement et Développement du Tiers Monde (Senegal, Morocco, Madagascar);
- Central Asian Regional Environmental Center (Kazakhstan, Uzbekistan, Kyrgystan, Tajikistan, Turkmenistan);
- Lokhit Pashu Palak Sansthan (India);
- Turkish Foundation for Combating Soil Erosion (Turkey);
- The Centre for Sustainable Development and Environment (Iran);
- SCOPE (Pakistan).