New Pathways for Economic Transformation in Africa: the promise of sustainable and inclusive agricultural transformation

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EXECUTIVE SUMMARY

Agricultural transformation has become a top development priority for African governments and the international development community. It is seen to be the first step out of the continent's continued dependence on raw commodity exports, towards diversified and domestically integrated economies that provide sufficient good quality work opportunities to the world's youngest and fastest growing population.

While this objective is to be welcomed, there is a risk that the agricultural transformation strategies already underway in some African countries could increase inequality and further degrade the environment. To prevent this from happening, two changes need to happen. First, agriculture strategies must move beyond their predominant focus on increasing the productivity of smallholders, to integrate actions that will build the resilience of producer households and wider ecosystems to climate and economic shocks. Second, these strategies need to link producers to the wider domestic economy.

There are already promising steps in this direction taking place across the continent. Local economies are being fuelled by the activity of local small and medium enterprises processing, transporting, distributing and selling agricultural products in local urban centres, which is creating decent work and entrepreneurial opportunities. In Senegal, for example, small, women-led enterprises are leading the way in processing highly nutritious local grains. This activity has provided employment for large numbers of women who are milling, preparing, packaging and selling the products to wholesalers and retailers (see section 3.1 for a full discussion).[4] Across West Africa, macro-data show that local food economies are already prevalent. Cash crop export markets are now a fraction of the size of regional markets and domestic trade is connecting cities and rural areas and providing two-thirds of household food needs (compared to an estimated 6.5 per coming from food imports outside of west Africa in 2015). How they function and how they could be better supported however, remain largely under-researched (see box 3 in section 3.1 for a discussion).[5] There are yet other examples of small-scale environmentally sustainable production of nutritious food, using agro-ecological principles, where overall production is higher than on large-scale monocrop farms (see box 7 in section 3.4).

This shows that there is a real potential in many African countries for an agricultural

[1] Edited by Sarah Montgomery. With special thanks to inputs from Anne Lindsay, Priya Lukka, John Weeks, Sophie Powell, Dereje Alemayehu, Gisele Henriques &Toby Quantrill.

[2] The following unpublished background papers commissioned by CAFOD and Christian Aid informed the background research in this report: A Coulson.2016. *The contributions of agriculture to economic transformation: the case of Tanzania*; J Weeks with contributions from C Machethe.2016. *Economic transformation and sustainable development in Africa: what role for small-scale agri-enterprise*? J Penrose-Buckley.2016. *Reducing poverty through sustainable and equitable economic transformation: a brief review of the programmes of the World Bank, USAID, and the Dutch Ministry of Foreign Affairs*; C Kumar.2015. *Reducing poverty through sustainable and equitable economic transformation: what can aid and government programmes contribute? Rwanda case study*; K Lambrechts.2016*. Assessing Ethiopia's agricultural transformation: does it promote sustainable and equitable development*? They are available on www.seetafrica.org.

[3] This disclaimer informs readers that the views, thoughts, and opinions expressed in the text belong solely to the authors, and not necessarily to the author's employer, organization, committee or other group or individual.

[4] Badiane, 2015

[5] OECD. 2013

transformation which is both socially inclusive and environmentally sustainable.

Given the prominence we give to equity and sustainability in our own programmes which support small agro-enterprise development, resilience-building and inclusive agricultural market development, CAFOD and Christian Aid have initiated an on-going dialogue with partner organisations in Africa to find out how agriculture transformation policies in their countries can contribute to equitable and ecologically sustainable development.

This dialogue has been inspired by the recognition of the international community that the 2030 Global Agenda for Sustainable Development (SDGs) demands new thinking on conventional development models. Already in 2011, the UNDESA World Economic and Social Survey recognised that 'continuation along previously trodden economic growth pathways…is no longer an option. There is an urgent need to find new development pathways which would ensure environmental sustainability and reverse ecological destruction, while managing to provide, now and in the future, a decent livelihood for all of humankind' (p.v). In similar vein, the 2009 International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) concluded that the predominant industrial agricultural model cannot be sustained and will never be able to feed the world's future population.[6]

To support the civil society dialogue, we commissioned research to examine the economic theory and history of agricultural transformation, as well as the implementation and impact of policies that aim to support agricultural transformation of three African governments and donors respectively.[7]

This dialogue and supporting research has highlighted that the institutions that are driving economic transformation agendas in Africa need to assign value to natural and agri-ecosystems, agro-biodiversity, equality, the protection of natural resources, and the resilience of agricultural economies to climate and other shocks. These values need to underpin their strategic decisions about where and how to support agricultural production, processing and marketing. This will enable them to move beyond a concern with simple productivity, towards resilient agricultural transformation, where innovative policies can enable countries to 'leapfrog' the polluting and inequality-generating pathways of the past, setting the continent a more inclusive and sustainable path to structural transformation.

As has been highlighted, elements of such an approach already exist. The case studies in this report show that some forward thinking agri-enterprises are already using resilience logic to shape their choices of wat to produce and how they support local producers. More needs to be done to support and mainstream these initiatives. To lay the foundation for inclusive and sustainable economic transformation, governments and development institutions will need to put the following actions at the centre of their efforts to transform Africa's agricultural sectors:

More government facilitation and support for a resilient agricultural transformation – and more broadly, a resilient food system:

- Invest in infrastructure, services, and policies that see a re-orientation of agriculture production towards agro-ecological farming systems and simultaneously recognise and build on the values and knowledge of traditional productions systems
- Radically re-orient public and private extension systems to become facilitators of on-farm research and experimentation with stronger collaborations between the formal scientific establishment and local farmer networks.
- Work with producers and agri-enterprises to invest in infrastructure, services, and

[6] IAASTD. 2009.

[7] See footnote 2.

policies that support local food economies, link food producers to growing urban markets and attract domestic investment.
- Build the confidence and capacity of smallholder producers, especially women, to engage in collective action, both for learning and marketing purposes

Ensure the rights of workers and land-users:

- Protect and secure the land use rights of all land users, including pastoralists and women, both in customary and non-customary systems and
- Use ILO decent work standards to regulate out-grower contracts and labour standards on plantations

Measure what matters:

- Make all the social and environmental costs of monocrop commodity plantations visible and use this to inform agricultural investment decisions
- Make visible and reward the environmental benefits provided by agro-ecological farm management systems
- Include new indicators of productivity such as total farm output and environmental benefits.

1. INTRODUCTION

Poverty reduction remains a major challenge for African governments. For many governments and donors there is growing consensus that rapid and sustained poverty reduction requires 'transformative' growth – economic growth which stems from structural transformation and the movement of labour and capital away from less productive agricultural activities to the more productive manufacturing and services sectors of the economy. This 'economic transformation' has become the key narrative shaping the development plans and discourse of many African countries.

Box 1: What is economic transformation?

Economic transformation brings change in a country's economic structure, with a shift in resources from low to higher productive sectors or activities (a productive transformation). This in turn leads to spatial transformation (a shift in geo-spatial patterns, living arrangements and migration within a country) as well as changes to societal values, norms, beliefs and customs (social transformation).[8]

The term economic transformation provides an analytical framework to understand and organise the complex and inter-related changes that occur as the material wealth of societies grows. "Economic growth" represents the narrowest conceptualisation of this process, focusing almost entirely on measurement. Economic transformation can therefore not be simplistically equated with economic growth.

Historically, economic transformation has been associated with labour migration from the agricultural sector into the urban-based industrial sector (the production transformation described above). Nevertheless, although the overall contribution of the agricultural sector tends to decrease in terms of its relative contribution of the economy, its overall size or contribution to the economy does not tend to decrease. This shift is then thought to lead to higher productivity in the economy and a convergence of incomes in the agricultural sector toward the level of incomes in the industrial sector.[9]

Economic history has shown that structural transformation is a key step in the path

[8] See for example the work of Bongaarts, 2009; Kuznets, 1966 and Polanyi, 1944.

[9] Weeks, 2016

towards 'development'. On the other hand, it has also shown that such transformation is often accompanied by increasing income inequality, environmental degradation and slower than expected reduction in poverty rates.[10]

We propose that what should make economic transformation truly transformational, and different from simple economic growth, is the pattern and quality of growth in the process of structural transformation. In addition to enhancing the productivity of labour in all sectors of the economy, economic transformation should generate productive employment, ensure the fair distribution of income and wealth, and through taxation of more productive activity, lead to equal access to essential public goods and services to ensure a decent life for all members of society. Furthermore, the pattern and quality of growth during structural transformation should decouple economic growth from environmental degradation and social dislocation, which characterised capitalist development in the advanced and newly industrialised countries.

While economic transformation prioritises a proportional shift out of low-productivity agriculture, there is simultaneously a growing recognition of the need to increase the world's food supply to feed the growing population. This dual focus has led many donors and governments to priorities commercial agriculture and high-intensity factory farming. Such a food system has increasingly, however, been recognised as deeply problematic.

'Human history is inextricably tied to the development of agriculture. This tie has always been about more than agriculture as a source of food for human sustenance; agriculture has influenced our value systems, our cultural heritage, the structure and location of our communities, and the development of other sectors in the economy. Agriculture is central to our lives.'[11]

'However, the ties between food systems and human health and cultural heritage are increasingly becoming invisible, as are the impacts that our production systems are having on nature. This invisibility discourages stewardship of our natural resources and fosters their unsustainable use, generating negative impacts for both present and future generations.'[12]

'We are not only consumers and stakeholders; but citizens and actors who have the right to choose what our future food system should look like'.[13]

We know we can build a food system that gives our communities equal access to healthy food, and respects the dignity of the farmers who produce it. We believe in recreating regional food systems, supporting the growth of humane, natural and organic farms, and protecting the environment. We value our children's health, worker's rights, conservation, and animal welfare over corporate profits. And we believe that working together, we can make this vision a reality in our lifetimes.'[14]

These are voices from the heartlands of the global industrial agri-food system. They are all representative of an important shift taking place in industrial societies, where consumers, farmers, agri-enterprises and governments are beginning to recognise that the agri-food system is broken. The main success of this system has been the delivery of increasing amounts of cheap calories. However, this has come at a huge cost to the environment, public health as well as rural societies and the associated cultural identities that promote social cohesion.

Recognition of the problems in both structural economic transformation and the agri-food

[10] Ibid
[11] TEEB, 2015. p.viii
[12] UNEP, 2016
[13] Nourish Scotland, 2016. p.9
[14] Food Democracy Now!, 2017

system has contributed to the content of the global sustainable development goals. For the first time in history, the global community has united behind a set of goals which recognise that poverty and hunger will remain rampant unless the environment is protected, income inequality is reduced and no-one, particularly women, is left behind. For the first time the links between the health of ecosystems, resilience to climate change, future food security and the well-being of the small-holder rural households who produce most of the world's food is also recognised.

The FAO goes further by recognising that rural women and family farmers, and agri-enterprises who manage agricultural and food systems constitute 'the largest group of natural resource managers on earth. The daily management decisions of those who farm, keep livestock, fish, manage forests, and run agribusinesses are key to global food security and the health of the world's ecosystems'.[15] Policies and infrastructure investments that build their ability to produce, market, transport and process agricultural produce, build their resilience to climate change, and reward their protection of ecosystems will drive the change that is required to reach the sustainable development goals. There is therefore an important link to be made between economic transformation, agricultural transformation and the sustainable development goals.

African countries are now scaling up their own visions and plans to transform their agricultural sectors as a way of further diversifying and transforming their economies, for faster poverty reduction. The primary agriculture sector employs around 1.3 billion people worldwide (compared to 6 million and 9 million people in the steel and car making industries respectively), with about 1 billion of these working on small farms of 2 hectares or less.[16]

In most of sub-Saharan Africa, like other parts of the developing world, small-scale agriculture provides subsistence, employment and most of the food directly consumed by urban residents. It also ensures that rural landscapes are conserved as a touchstone for cultural identity. However, while agricultural GDP growth in sub-Saharan Africa has averaged 3.3 per cent over the past decade, it has been neither inclusive nor green.[17] Poverty remains pervasive among family farming households and soil and land degradation has accelerated, whilst current agricultural production, processing and trade activities have not provided the decent work and entrepreneurial opportunities needed to lift large numbers of people out of poverty. The World Bank's adjusted net (or genuine) savings statistics show that if natural resources depletion and environmental damage is subtracted from national incomes, between 2005 and 2013, Sub-Saharan African economies have in fact been steadily shrinking rather than growing.[18]

The degrading natural resource base will spell disaster in a continent already facing historically unprecedented challenges, such as the youth bulge and climate change. Many African countries have aspired, since independence, to follow the standard structural economic transformation development pathway.[19] Historically this process has driven the creation of new work opportunities as well as creating new forms of poverty, landlessness and environmental degradation.[20] In most high-income countries, economic transformation has fostered uneven growth and rising income inequality across population groups and households[21] whilst growth in rural household incomes has tended to lag behind that of urban household incomes.[22] This is a pattern that African countries cannot afford, and more importantly, can – through a

[15] FAO, 2015. p.3
[16] FAO, 2014
[17] UNECA, 2016
[18] Specifically, they have fallen by 1.2% from 2012-2013, 2.1% 2011-2012, 1.8% from 2010-2012, 6.2% from 2009-2010, 5% from 2008-2009, 10% from 2007-2008, 7.3% 2006-2007 and 1.9% 2005-2006. World Bank, 2014.)
[19] This is discussed in more detail in a recently published Christian Aid (2017) Discussion paper
[20] Weeks, 2016
[21] Breisinger & Diao, 2008
[22] Timmer, 2012

commitment to sustainable and inclusive transformation – avoid.

This report is aimed at opening a discussion on the ways in which to grow Africa's diverse agricultural economies to enable increased productivity, environmental sustainability and the creation of decent work.

Section 2 of this report outline some of the key challenges and opportunities for effective agricultural transformation faced by the continent in its efforts to end poverty and ensure a dignified future for all the of continent's people. Section 3 presents the rationale for agriculture's role in ending poverty as well as outlining the rationale for a more sustainable and inclusive agricultural transformation. Section 4 considers how far donor strategies prioritise equality and sustainability in alignment with the Sustainable Development Goals. Section 5 expands on this by distilling lessons from current agricultural transformation pathways on the continent. Finally, Section 6 outlines an agenda for more sustainable and inclusive agricultural transformation.

2. AFRICAN ASPIRATIONS FOR AGRICULTURAL TRANSFORMATION[23]

Many African countries have aspired, since independence, to follow the standard development pathway, aiming to transform their economic structures away from subsistence agricultural production and the export of unprocessed commodities and moving the workforce into the formal waged sector, primarily in manufacturing and services.[24] The first step towards a more diversified manufacturing economy in low-income agriculture-based economies has been the process of agricultural transformation.

Box 2: What is agricultural transformation?

Agricultural transformation is a term used to describe the shift from 'low' productivity subsistence agriculture to more commercially oriented production for formal markets. The shift towards commercial production leads to higher incomes for the same labour effort, mostly through using new technology and knowledge or investing new capital. The economic history of most highly and newly industrialised countries show that such changes in production set off a chain of interlinked processes which eventually led to broader economic transformation through the development of industries that create secure, wage earning jobs and a decent income for self-employed producers.[25]

Linkages are created because the new technologies, innovations and inputs required by commercially-oriented farming households to boost productivity also creates opportunities for enterprises and workers that can supply this demand, for example seed banks, input retailers, transport providers, land workers, and local producers of non-synthetic fertilisers (backward linkages). Their increased output can then also be a catalyst for more investments in agro-processing enterprises that add value to farm produce locally, as well as a myriad of services and enterprises that are needed to bring these transformed products to the intermediary or final consumers (forward linkages).

These linkages to the local and national economy, and the new opportunities for work and entrepreneurship they create, are what drive agricultural transformation and its impact on broader economic transformation. Agro-processing enterprises, which add value to food and non-food agricultural products, are often the first or most prominent manufacturing activity in agriculture-based economies. These

[23] This section summarises much of our CAFOD and Christian Aid commissioned background literature review by Weeks (2016). For a full discussion please see this paper.

[24] This is discussed in more detail in a recently published Christian Aid (2017) Discussion paper.

[25] Christian Aid, 2017

enterprises, which range in size, can create large numbers of manufacturing work opportunities. (For a full discussion and literature review of this process see Weeks, 2016).

Most sub-Saharan African countries have not performed as predicted by neo-classical economic theory. In recent years many have experienced rising GDP and changing demographics (particularly a rise in life expectancy and little change in birth rates) but this has not, however been accompanied by a shift out of family-based subsistence agriculture into manufacturing activity. Parts of Sub-Saharan Africa are in fact de-industrialising and as a result most people remain dependent on rain-fed agricultural production on shrinking plots of land, which is due to migration and other population pressures. Others have been forced off their land due to competition from large-scale land investors, mostly in the agriculture or mining sectors. Households or individuals without land or unable to make a decent living from agriculture often migrate to rapidly growing urban areas. Here, infrastructure and access to basic services, social protection or decent employment opportunities have not developed to meet this increased demand. As a result, most migrants end up working in the subsistence service industry, which offer similar prospects to those in depressed rural areas (see John Weeks, 2016).

This scenario has prompted renewed commitments by pan-African institutions and their member governments to economic transformation. Agriculture transformation has also been given higher priority in the development plans of African countries and international development institutions over the past 10 years, especially since the adoption of the Comprehensive African Agriculture Development Programme (CAADP), a flagship initiative of the African Union. UNECA[26] and the African Union[27] have been leading these debates, advising that to diversify away from dependence on raw material exports, governments need to actively support strategic industries to start up and grow, primarily through making connections between primary sectors (agriculture and extractives) and the enterprises that are linked to these activities through providing inputs and processing the outputs.

Decades of neglect of the continent's smallholder and rural economy, and the growth of the global food system and globalised agriculture value chains, happened alongside rising inequality, especially between more and less developed regions, in many African agriculture-based economies.[28] The global food and agriculture system has been shaped by the need to produce large volumes of raw commodities at low cost without paying attention to distributing the returns that have mainly accrued to corporate agri-businesses and large landholders, leaving behind rural communities of smallholder producers and landless workers.[29]

The structural adjustment programmes of the 1980s and 90s across Africa led to the withdrawal of state support for basic infrastructure development and the production and marketing activities of smallholder producers. This has contributed to the stagnation and even decline of the smallholder agricultural sector. These effects have been further compounded by low global and regional agricultural prices, in part the result of price controls on staple foods and overproduction in highly subsidised farming sectors of rich countries.[30] As a result, neither smallholder producers nor private enterprises invested in developing agricultural production and marketing, other than for a narrow range of tropical cash crops for export markets. Since

[26] See for example UNECA, 2011 (http://bit.ly/2weal2X); 2013 (http://bit.ly/2vbQK3p); 2013 (http://bit.ly/2w0Ouwn); 2015 (http://bit.ly/2we0ev6); 2015 (http://bit.ly/2i5KhC3); 2016 (http://bit.ly/2i4X0oh) amongst others

[27] See for example AU 2017 (http://bit.ly/2fL6x3n) and (http://bit.ly/2welMHZ); 2016 (http://bit.ly/2uO5oKL)

[28] Kumar, 2014

[29] Weeks, 2016

[30] Woodward, 2007

this made small-scale farming less viable, many rural households were pushed into subsistence farming, surviving only by diversifying their incomes off-farm or migrating to urban areas, driven by the "push" of rural poverty rather than the "pull" of rising urban incomes or waged employment. Widespread dis-investment in rural transport, energy, irrigation, and basic services such as health, education and extension services led to stagnation or decline in agriculture productivity in most countries in sub-Saharan Africa. This actively disabling environment for local producers meant they were unable to supply increasing demand in urban centres nor drive the growth of non-farm economic activities, and low-cost food imports increasingly filled the gap. As such, these imports have effectively functioned as a poor substitute for higher wages in the non-agricultural economy and adequate social protection measures to guarantee a decent standard of living.[31]

Yet agriculture still provides full-time or part-time employment to up to 85 per cent of working age people, including an estimated 38 per cent of Africa's working youth.[32] This has led to the realisation that smallholder agriculture 'is simply too important to employment, human welfare, and political stability in Sub-Saharan Africa to be either ignored or treated as just another small adjusting sector of a market economy'.[33] This sector, however, is very diverse, with some arguing that the constraints facing small landholders in the most remote and least fertile regions mean that they can make a far better living by migrating out of farming.[34] ILO labour figures do not adequately represent the complexity of rural labour in sub-Saharan African countries.[35] A single rural household may be involved Loyisein three types of market – labour markets, informal markets, and formal/export markets. Rural households can typically produce for their own consumption, sell surplus at local village markets, and dedicate some of their plot to a commercial crop destined for a national or export value chain, whilst some may also rear broiler and livestock. This diversity is a key livelihood strategy for small landholders, who still form the majority of working adults and youths. Not all landholding rural households currently engaged mostly in subsistence production may want to change their approach to more commercial production[36] and even small-holders who are more commercially oriented, display different commercial behaviours based on their expertise, attitudes to risk and production, and objectives.

In countries such as Malawi and Ethiopia, population pressures have led to large reduction in average plot sizes, in many cases to well below 0.5 hectares.[37] This is arguably not a viable size for guaranteeing a stable income from full-time commercial farming. Agricultural development projects supported by Christian Aid and CAFOD have shown that some households who raise livestock or cultivate plot sizes of as little as two hectares can, with the right support, successfully produce surplus for marketing.[38] There are many historical examples across Africa of periods of substantial increases in marketed output of both food and cash crops produced on smallholder farms. During the colonial era, West African export crops such as groundnuts in Senegal and the Gambia, cocoa in Côte d'Ivoire and Ghana, and oil palm in southern Nigeria were produced almost entirely on smallholder farms. In the second half of the twentieth century, smallholders dominated the production of export crops such as tea and coffee in Kenya and cotton in the francophone countries of West Africa, and in the 1980s, smallholders dominated commercial maize production in Zimbabwe.

[31] Special Rapporteur on the Right to Food, 2014
[32] Filmer & Fox, 2014
[33] Delgado, 1998. p.1.
[34] Fan et al. 2013
[35] Oya (2015) discusses this when considering decent work indicators for agriculture in rural areas refencing the 2007 World Development Report.
[36] FAO, 2014b
[37] Lambrechts, 2016
[38] Christian Aid, 2015

Despite these complexities and major gaps in understanding informal agricultural markets, development agencies and governments tend to use binary classifications of smallholders to justify their choice of investment or non-investment in rural areas. Typical categories used to describe smallholders include viable versus non-viable, subsistence versus commercial, hanging-in or holding on versus stepping up. These typologies then inform how specific interventions are targeted. They also have a tendency, however, of missing potential opportunities to build locally integrated food webs and agricultural market systems.

Governments and development agencies often argue that investments in rural infrastructure, agricultural support services and marketing support should be targeted at areas and households that are viable (sufficient size fertile land is a key determinant, as is a sedentary lifestyle), near market infrastructure, and better off[39]. The rest, they argue, should focus on finding employment in the non-farm sector. This argument and the subsequent interventions that flow from such reasoning fail, however, to recognise the vital importance of agricultural production for the creation of decent work opportunities both on-farm and in enterprises connected to local agricultural markets. The non-farm economy responds directly to the demands for consumer and productive goods and services when farm incomes rise. This theory has clear roots in economic history, yet very little recent effort has gone into investigating these links and how to better support the development of local food economies and market systems linked to increased production.

3. AGRICULTURE'S ROLE IN ENDING POVERTY AND PROTECTING ENVIRONMENTAL SUSTAINABILITY

In this section, we will explore the role that the agricultural sector can play in tackling poverty; importantly however we highlight that agricultural transformation strategies needs to be accompanied by the right interventions to protect the environment and promote equitable growth. We also explore how developing strong forward (processing and distribution) and backward (inputs) linkages into the agricultural value chain can establish strong, viable local agricultural markets. These, in turn, can promote local economic development and reduce poverty.

3.1 A thriving agricultural sector can end poverty fast

Research shows that for each 10% increase in small-scale agricultural productivity (which is the dominant base) in sub-Saharan Africa, almost 7 million people are moved above the dollar-a-day poverty line.[40] Policies that prioritise reviving agriculture production and marketing across depressed rural areas will support poverty reduction and human dignity far better than reliance on foreign aid to sustain a survival economy.

This places front-and-centre the role of domestic agri-food markets in offering opportunities for agricultural transformation. Typically, rural purchasing power is too limited to propel an entire rural area out of poverty if smallholders produce only for subsistence or local markets. However, the rapid rise in urbanisation and the attendant growing middle class across many African countries is creating demand for foodstuffs which can be supplied and processed by local agricultural value chains, instead of relying on imports. These markets, concentrated on the rising number of small and medium towns and cities, as well as mega-cities, have grown 6-8 fold over the past four decades, and are projected to grow another 6-fold in the next four decades.[41] This increase has taken place despite the much-documented neglect of the local food economy and local smallholder production. It is also

[39] See for example the thinking in DFID (2015) DFID's Conceptual Framework on Agriculture (http://bit.ly/1TzFu5P)
[40] IAASTD, 2009
[41] Reardon, et al. 2015

based on figures from eastern and southern Africa, which is on average the poorest and least urbanised region in sub-Saharan Africa. West African local food markets have grown even faster, given that the urban population has grown by 50 per cent more than in eastern and southern Africa.[42]

Box 3: Local and regional food marketing driving agricultural transformation in West Africa[43]

In West Africa, the food economy has changed significantly in the past two decades. The post-independence economy, which was dominated by exports of raw agricultural commodities, with local trade supporting mainly self-sufficient communities has given way to trade over longer distances, connecting cities and rural areas and regions, and cash crop export markets are now a fraction of the size of regional markets. Across the region, two-thirds of household food needs are now met by regional and local markets. Food imports from outside the region were estimated at only 6.5 per cent of total domestic food demand in 2015.

Regional demand for more processed products has driven the development of food processing and distribution enterprises. These activities are not part of the primary sector and are increasingly performed off the farm and outside the household, and are contributing to job creation in urban and rural areas. Marketing and processing of agricultural products now make up 40 per cent of the value of the total food economy.

Apart from a few relatively large industrial structures such as breweries and flour mills the West African agro-processing sector primarily consists of microenterprises and SMEs which are often family operated and informal. These enterprises are involved in the production of agricultural inputs, small-scale commercial farming, agro-processing including wood and textiles, manufacturing or trading machinery, and provision of support services such as packaging, transport and finance. Their production processes are frequently artisanal, involving limited mechanisation and standardisation. However, some enterprises have evolved into larger, more productive companies supplying the regional market.

Many challenges still prevent efficient local and regional agricultural value chains from becoming the norm across the region. In particular, farmers in more remote and less populated inland areas, or in landlocked countries are less able to respond to the rising demand for agricultural products in coastal areas – this is partly due to a lack of transport linkages and market information.[44]

Urban areas in Africa now consume more than half of overall food produced, with a shift in consumption away from staple grains to diary, meat, fruit and vegetables, and processed foods.[45, 46] Research has shown that linking producers to small and medium urban centres would lead to faster poverty reduction and more inclusive and sustainable growth, than an exclusive focus on mega-cities and export markets.[47] Consumers in small and medium towns and cities tend to establish a closer relationship with their surrounding food providers than large mega-cities and export markets. This, in turn, provides a more conducive environment for the emergence of local food economies and market systems that are environmentally sustainable and provide higher returns to producers and local

[42] ibid
[43] OECD, 2013.
[44] FAO & AfDB, 2015
[45] Reardon et al. 2015
[46] Production for this dietary shift would however, require large increases in long-term public and private investments, especially infrastructure, to complement the existing investments already made by farmers themselves. This however, should not happen without considerable consideration of the public health impacts that this type of dietary shift is already having in 'developed' country contexts.
[47] Christiaensen & Todo, 2013.

processing, transport, and distribution enterprises.

What some term a 'quiet' revolution in local food value chains is already emerging in many African countries.[48] It is fuelled by the activity of local small and medium enterprises processing, transporting, distributing and selling these products in local urban centres, creating work and entrepreneurial opportunities. In Senegal, small women-led enterprises have started selling branded and packaged millet based meals such as thiakry, ready for cooking, in dry form or with milk across a wide range of outlets including convenience stores, supermarkets and small traditional shops in and around Dakar. Some of these products have even been exported to France and the US. This has provided employment for large number of women who are milling the grain in small mills, and preparing, packaging and selling the products to wholesalers and retailers[49]. It is worth noting here, that grains like millet are more nutritious than many of the other cash-crop grains that are produced and in high demand (e.g. processed while flour or maize meal). Livelihoods and work opportunities in the value-chains of these grains can therefore have multiple benefits by tackling hunger, nutrition and reducing the public health burden (linked to a dietary shift to other processed foods) while simultaneously providing resilient livelihoods in the face of climate change and decent work opportunities.

Whilst in the long-term, rural communities and individual households in African agriculture-based societies may move out of agriculture production as their primary economic activity, most are still culturally and socially attached to land, albeit to a lesser degree as a result of recent social and demographic changes, including urbanisation. Common land, in particular, is valued for animal grazing, gathering of wild products, and also for promoting a cohesive cultural identity, while individual household plots are more likely to be used for growing crops.

While the rural labour market in African countries is complex, a significant number of crop and livestock producing households aspire to and can access sufficient land to work full-time in farming as well as employ additional labour on the land to produce crops or livestock for marketing.[50] Yet a very small proportion of this smallholder sub-group is at present able to access the technologies, capital, infrastructure, inputs and innovations necessary for optimal production and returns to labour. Therefore, huge potential still exist to increase returns on labour and capital investments in primary agriculture production in Africa and to connect primary producers with non-farm enterprises in the manufacturing, services and other sectors of the economy.

3.2 Agricultural transformation can be at odds with the 'leave no-one behind' agenda

As unpacked in previous sections, economic transformation can be a successful path to improved incomes and GDP and within this, agricultural transformation can be particularly beneficial. Having said this, the evidence is also clear that without the right types of support and

[48] Reardon et al. 2015
[49] Badiane, 2015
[50] While it is difficult to quantify the number of viable farmers (as there is no accurate data that captures full the complexity of rural labour market dynamics in African countries) we draw on individual case studies, unpublished development project evaluations, and grey literature which document the economic activity of smallholder commercial producers to justify the claim that there are still many rural households who would want to farm full-time for an income. Some of the organisations working in this field are represented in the African Smallholder Farmers Group (www. asfg.org.uk). The FAO, IFAD and the World Bank have produced many published accounts of the economic lives of smallholder farmers across the world. See, for example, The economic lives of smallholder farmer, and analysis based on household data of nine countries (FAO, 2015). The World Bank has gone further to develop a typology of rural households which distinguishes five livelihood strategies within three rural worlds: market-oriented smallholders; subsistence-oriented farmers; labour-oriented households; migration-oriented households; and diversified households in the World Development Report: Agriculture for Development (World Bank, 2008)

intervention, economic (and agricultural) transformation can create new forms of poverty and leave vulnerable groups behind.

Historically, rising per capita incomes have been associated with increasing income inequality in countries where government policies have not explicitly aimed to redistribute income. Higher inequality slows down the pace of poverty reduction and moves more households below the poverty line[51]. There are very few countries – Korea and Taiwan are examples – where early economic transformation has been accompanied by a relatively equitable distribution of income. The full-scale economic liberalisation of the 1980s correlated with a rise in inequality. This has been attributed in part to high-level political commitment to land redistribution and public investment in access to social services and social protection.[52] In most high-income countries, economic transformation has fostered uneven growth and rising income inequality across population groups and households.[53] In addition, growth in rural household incomes has tended to lag behind that of urban household incomes as the structure of the economy changes.[54]

A common feature of all societies that have made the transition to market-regulated economic activity has been the reallocation of assets on the basis of private ownership. While this created new ways of generating private income, it also produced market-generated poverty through new forms of unemployment and loss of productive assets – particularly land.[55] In economies undergoing transformation land dispossession can lead to unequal development, where 'islands of success' are surrounded by poverty, with no distribution of the benefits to workers or surrounding communities[56] (as is illustrated by the example of the floriculture industry in Ethiopia in Box 12 in section 5.5). In all, without government intervention or proper safety nets and support in place, economic and in turn agricultural transformation is at risk of leaving vulnerable groups behind – and therefore in this circumstance is at odds with the priorities of the SDG's.

A recent literature review unpacks some of the key forms of support and public investment which can insure that the negative impacts of economic or agricultural transformation can be overcome and the benefits enhanced.[57] It highlights that without these interventions, poverty and inequality are likely to increase and environmental sustainability decrease.

3.3 Linkages within a local economy are a catalyst of transformation

Historically, the relative importance of primary agriculture production in the economy has decreased in tandem with an increase in per capita income in today's industrialised countries. This has informed the common understanding that it is the shift of labour and capital out of agriculture that drives industrial development, which most African countries hold to as necessary to reach middle income status in the next 10-15 years. This understanding has even led governments (such as that of Tanzania) to frame explicit targets for moving labour out of primary agriculture production.[58]

However, this linear thinking ignores the long-term timeframe over which such change takes place, as well as the important role that linkages have played in economic development. Essentially, strong linkages between producers, markets and consumers are a catalyst for broader economic transformation within an economy. Where these are focused on local and national markets the effects can be even stronger.

Linkage industries are those which are highly interdependent with other industries in the

[51] Weeks (2016) includes a very useful discussion and graph illustrating this point.
[52] Jomo, 2006
[53] Breisinger & Diao, 2008
[54] Timmer, 2012
[55] Weeks, 2016
[56] Vorley, Cotula & Chan, 2012
[57] Weeks, 2016
[58] Kilama, 2015

economy, and therefore stimulate further economic activities and enterprise. Agro-processing enterprises, which dominate the manufacturing sector in most African economies today, can stimulate integrated development through buying the products and services of small producers, input, transport and service providers, and selling their products as inputs for other manufacturing industries. Food processing enterprises are also the most important source of off-farm employment, and a critical source of capital accumulation in rural areas where on-farm work is often only available on a seasonal basis, following the rains.

Agro-processing enterprises have paved the way for further economic diversification in many of today's highly industrialised countries. Unlike in other manufacturing subsectors, domestic production is the main supply of raw material for agro-processors, which explains their high potential impact on the creation of jobs and decent work opportunities in local agricultural value chains.

Micro, small and medium agri-enterprises dominate in Africa's agricultural markets,[59] but their contribution to employment creation is not always visible to policy-makers, given that much of the work in these enterprises are not regulated and form part of the informal sector. Nevertheless, they present an important link to a more diversified and productive economy, given that these enterprises add value to primary products, create employment opportunities, and disseminate new innovations and skills in the local economy. In small local or national markets, size does not pose the same constraints as it does other industries, given that the lower cost of equipment and available skills for processing activities such as canning, milling and oil pressing require less capital investment.

Evidence shows that consumption linkages, when producers consume more local goods and services, create employment and entrepreneurial opportunities in the local non-farm economy.[60] So do production linkages, which arise when producers increase the inputs and services they buy, or when first stage processing enterprises, storage and transport providers and other enterprises set up to process and distribute agricultural goods. Both linkages contribute to rural transformation. The degree of multiplier effect (including job-creation, employment upgrading and off-farm incomes) will depend on rural infrastructure, population density, the extent of immediate processing needs for agricultural products, the type of technology used to increase production and tradability of goods and services produced and demanded by the farming sector.[61]

Small and micro agriculture-based enterprises are active in farm input production and distribution (plant breeders, seed multipliers, compost manufacturers, agro-dealers, farmer field schools, veterinary services), on farm production (small scale commercial farmers), storage and transport (small distributors, trucking), first stage processing, and marketing (cooperatives).[62] Productivity and the consolidation of individual households into larger groups such as associations or cooperatives to achieve greater economies of scale, commercial bargaining power and influence over the wider commercial environment, greatly impact the potential for small-scale operators at each link. In addition, links between small and medium, as well as larger agri-enterprises can be an important means of facilitating access to credit, markets and business advice for small agri-enterprises,

[59] FAO & AfDB, 2015. & Committee on World Food Security, 2015.
The Civil Society Mechanism of the Committee on World Food Security has also published a report outlining the importance of 'territorial' markets comprising smallholder producers and small and medium non-farm enterprises in African food systems (https://www.tni.org/files/publication-downloads/connecting-smallholders-to-market-english_0.pdf)

[60] Weeks, 2016

[61] Irz et al., 2001; Schneider & Gugerty, 2011

[62] Staatz 2011; Weeks 2016

which generally lack the inputs and information necessary to benefit from existing and potential market opportunities.[63]

Across Africa, there are already many examples of collaborations between smallholder producers, agri-enterprises (either in value chains or on local markets) and consumers, with positive development impacts. In Mali and Burkina Faso, farmer organisations have developed collective marketing systems in the 1990s comprising 5600 and 2100 cereal producers respectively.[64] These organisations have developed strong structures over the past 20 years, which provide professional services to their members. These include advance payments, common purchasing of inputs, and provision of technical advice. These structures have protected farmers from price volatility, and in Burkina Faso, member farmers are contributing 5% of the national food security stock.[65] In Morocco, an agricultural dairy cooperative comprising 110 individual large-scale farmers and 72 cooperatives uniting 14 000 members, has transformed the diary sector. Created in 1987, the subsidiary cooperatives provide services to their members such as milk collection and storage, shared use of equipment, training, and relay milk collection by the federal cooperative, which takes charge of processing, packaging and marketing of milk. In this way farmer organisations control all stages in the value chain and producers are able to negotiate milk prices that are higher than the national average.[66]

Whilst linking smallholder producers to global value chains can increase productivity, incomes and ultimately livelihood choices, it can also create poverty when market prices drop. Similarly, contract or out-grower farmers (a model often used to link smallholder farmers to global value chains) while potentially able to gain more income from guaranteed prices for their cash crops, face enormous risks, especially if prices drop and they are unable to repay the loans they took (from the contracting company in many cases) to pay for inputs. They also find it difficult to negotiate fair prices when locked into a contract with a single buyer. Within global value chains, smallholder farmers can find themselves exposed to fluctuations in global commodity prices, which can put them at risk of unsustainable debt and poverty when prices drop, decreasing their resilience through increased exposure to market shocks and crises.[67] Also, in practice smallholder farmers looking to participate in market chains struggle to meet the quality standards, volumes and logistics required by large enterprises. Large-scale agribusinesses frequently prefer to deal with large-scale farmers due to the risks and transaction costs of doing business with multiple smallholder farmers, especially when they are not organised into a commercial entity such as a cooperative. These preferences serve as barriers to smallholder participation in both domestic and international markets. To overcome these barriers will require policy interventions to foster vertical and horizontal coordination, such as group lending, marketing cooperatives and producer organisations as well as linkages between them.[68]

National and regional markets are likely to enhance the multiplier effects of agricultural growth and so contribute to poverty reduction. These markets are more accessible to the majority of producers than international markets, given that they typically have quality requirements that are easier for micro and small producers to meet. Domestic and regional markets for food staples tend to grow as populations grow and incomes rise. In sub-Saharan Africa, the demand for food staples has doubled between 2005 and 2015 – yet the capacity to produce food has declined in many countries.[69] Although this trend has been reversed since the mid-2000s, the growing demand for food such as rice, soybeans, maize

[63] Mead, 1994
[64] Committee on World Food Security, 2015
[65] Ibid. p.25
[66] Ibid. p. 26
[67] Weeks 2016 and Coulsen 2016 discuss this
[68] Fan et al, 2013
[69] Diao & Yanoma, 2003

and poultry is still being met by imports rather than by local production.[70] The continent's diverse agro-ecological and climatic conditions create further opportunities for regional trade in food and agriculture products, including food crops such as maize, roots, tubers, sorghum and millet.[71] With the right government support, these local and national markets offer far more inclusive growth opportunities which won't leave smaller or more economically marginalised players behind to the same degree. The box below highlights and example from the poultry sector.

Box 4: The importance of local markets: Mozambican poultry markets could be an engine of inclusive growth

The poultry sector offers major opportunities for the creation of work and entrepreneurial opportunities, given the increase in demand for poultry meat across Africa's urban centres in recent years. In Mozambique, for example, initiatives have been launched within the framework of the government's *Priorities for Agriculture Development* policy, which have seen the share of imports in poultry meat consumption fall from 67 per cent in 2005 – mostly frozen parts from Brazil traded through Middle Eastern countries – to 25 per cent in 2011, with minimal official imports recorded since then.[72] Thanks to improved organisation of the Mozambican poultry sector, including a government sponsored consumer campaign, the creation of a poultry association, and upgrading of processing plants, domestic poultry meat production has increased in response to rapidly growing domestic demand. In 2010 it was estimated that poultry sector development since 2005 had generated more than 90,000 new jobs in the poultry value chain[73], including 3000 new jobs in poultry processing, the establishment of 5000 new smallholder poultry farmers, and new income opportunities for 64 800 smallholder feed grain producers. This expansion of the Mozambican poultry sector has benefitted from the maintenance of import controls – mostly to protect the local flock against Avian Flu – which has also helped to protect local producers from highly subsidized and low-quality poultry meat produced in poultry factories in Europe, Brazil and other countries subsidizing factory poultry production for export.[74]

However, in the rest of sub-Saharan Africa, the domestic poultry sector and market system has not fared that well. Overall, between 2004 and 2014, consumption of chicken meat grew by 99% across sub-Saharan Africa, as a result of rising incomes, population growth and changing consumption patterns in urban areas. However, production grew by only 57%, while imports have increased by a massive 209%, mostly from EU countries, especially going to West Africa. Imports of chicken meat accounted for only a third of local consumption in 2004 – 10 years later this has risen by half, to 45%. Growing consumer demand for poultry, especially in urban areas, therefore present huge opportunities, given the right enabling environment, to create decent work and entrepreneurial opportunities for large numbers of people. The adoption of ecological production methods and integration with crop farming, as well as following high animal welfare standards, will also equip a new generation of producers (at present women are more likely to manage poultry production on smallholdings) with the skills and attitudes necessary to protect water sources, soils, and natural resources, and limit greenhouse gas emissions while increasing poultry production.[75]

[70] FAO, 2011c
[71] Diao and Yanoma (2003) have identified 29 food commodities for which there are significant exports and imports within the region and that have the potential for regional trade
[72] Goodison, 2016
[73] Technoserve, 2017
[74] Goodison, 2016
[75] Ibid

3.4 Environmentally sustainable agricultural transformation: a key to transforming African economies.

Global consensus is growing that incomes and productivity among low-income smallholders are best achieved by introducing sustainable agricultural practices, such as those based on agro-ecology, rather than focusing on technological quick-fixes, scaling up subsidies for fossil-fuel heavy synthetic fertilisers, or prioritising industrial mono-crop systems.[76]

Box 5: Synthetic fertilisers fuel climate change

Global supply of nitrogen fertiliser is estimated to increase by about 4% a year, with Africa the fastest growing market for synthetic nitrogen fertilisers. Large agro-chemical conglomerates are involved in a number of initiatives to promote the production and distribution of agro-chemicals and motivate farmers to use synthetic fertiliser to address soil nutrient depletion. When applied to tropical ecosystems, synthetic nitrogen generates between 10 and 100 times more nitrous oxide, a powerful greenhouse gas, than it would in northern and more temperate ecosystems.[77] The concentration of nitrous oxide in the atmosphere has increased by 17% since the pre-industrial era, in part as a result of the introduction of synthetic fertilisers in the Green Revolution programmes of the 1960s in Asia and Latin America. Recent calculations estimate that between 3 and 5% of total greenhouse gas emissions is made up of nitrous oxide emissions resulting from the application of synthetic nitrogen fertilisers.[78] Yet, in industrial agriculture systems, the efficiency of nitrogen fertilisers has decreased by two thirds and their consumption per hectare has increased seven-fold.[79] Recent studies demonstrate that a range of chemical fertilisers are also responsible for much of the earth's lost organic soil matter.[80] Some have called fertiliser manufacturing companies the oil companies of the agriculture world, with nitrogen fertiliser production alone accounting for up to 2% of total global energy consumption.[81] In the past the overall contribution of chemical fertilisers to climate change has been underestimated, including by the IPCC.

The conventional agriculture transformation pathways of today's industrialised countries have questionable development impacts when considering the joint goals of poverty impact, protecting environmental sustainability and a reduction in inequality. They have put enormous pressure on the natural resource base[82] and agriculture production revolutions, including the much-feted Asian Green Revolution (see box), has led to unsustainable increases in the use of synthetic fertilisers, water, and animal feed produced off-farm. This in turn has resulted in levels of water pollution, water use, soil degradation, deforestation and greenhouse gas emissions that are threatening the future of all food and agriculture production. Over-dependence on a single crop also increases risk for households who grow most of the food they eat while industrial-scale monocropping can heighten macro-level risk when international commodity markets fail.

Box 6: Should African countries try to emulate the Asian Green Revolution?

During the period between 1966 and 2000 a staple grain revolution took place in Asia and Latin America. In India and Southeast Asia, average rice yields per unit of land doubled, wheat yields increased three-fold, and maize yields increased by more than 1.5-fold.[83] It became known as the Green Revolution.

[76] FAO 2016, IPES 2016, IAASTD 2009, UNCTAD, 2013.
[77] FAO, 2011
[78] GRAIN, 2015
[79] Schepers & Raun, 2008; GRAIN, 2008
[80] Khan et al, 2007
[81] GRAIN, 2015
[82] IFAD, 2013
[83] Pingali, 2012

A massive increase in investment in agriculture was the major contributor to this productivity increase. This was primarily investment of public international research institutions in developing hybrid cereal seeds and the transfer of this technology to national institutions, who adapted and disseminated these seeds, as well as synthetic fertilisers and pesticides to better off smallholder farmers in 'high potential' areas. Governments also invested public funding in building irrigation and transport infrastructure in these areas.

The Green Revolution has been credited with contributing to widespread poverty reduction, reducing the prices of staple crops, and avoiding the conversion of thousands of hectares of land into agricultural cultivation. Multi-country studies of rice growing areas in Asia show that labor migration to more productive areas resulted in wage equalisation and was one of the primary means of redistributing the gains of Green Revolution technologies to marginal areas. [84]

Since the turn of the millennium, and especially in the wake of the 2008 food crisis, the international development community and the Africa Union have increased both their commitments and actual support to agricultural productivity increases in Africa. This commitment to revive the agricultural sector has renewed the interest of African governments in the technologies and investment approaches that were credited with the success of the Green Revolution in Asia. They have been supported and encouraged to copy this experience by initiatives such as the Alliance for a Green Revolution in Africa (AGRA).

Yet, there is now increasing recognition that the Asian Green Revolution led to severe environmental degradation[85], an increase in inequality between landowners and the landless and between different regions, and in social stress among households. This is holding back development today. Indebtedness among smallholder farmers increased from taking loans to purchase new inputs; over-zealous mechanisation led to lower farm wages and reduced employment; and biodiversity loss increased as farmers rejected traditional practices in favour of agronomic practices that depended on the high use of synthetic fertilisers, which has seen average use increase seven-fold. This has led to soil degradation, water pollution as well as a de-skilling of rural labour.[86]

While many better-off smallholder farmers eventually benefited from higher incomes, those in low-potential and non-irrigated areas saw fewer or no benefits as government strategy was based on intensification of yields only in favourable areas.[87] In South Asia, the poorest areas relying on rain-fed agriculture have seen little benefit from Green Revolution technologies. This has widened inter-regional disparities.

Strategies to increase food production were concentrated on mono-crop production of staple cereals, at the expense of more nutrition-dense crops[88]. In the Philippines, for example, intensive rice monoculture systems have led to the loss of wild leafy vegetables and fish that the poor had previously harvested from rice paddies[89] and in India, prices of micronutrient-dense foods such as legumes rose relative to rice, which has led to a decline in pulse consumption across all income groups and the attendant negative health consequences.[90]

Commercial agriculture, based on a model of mono-cropping has already taken its toll on food systems around the world. According to a UNEP report[91] globally food systems are

[84] Ibid
[85] Pimentel & Pimentel, 1990
[86] Hazell, 2012; and UNCCD & World Bank, 2013
[87] Pingali, 2012
[88] Welch & Graham, 1999
[89] Cagaun, 1995
[90] Ibid
[91] UNEP, 2016b

currently the source of 60% of terrestrial biodiversity loss, 24% of greenhouse-gas emissions, 33% of soil degradation and 61% of the depletion of commercial fish stocks. The increasing homogenisation of food sources worldwide is narrowing the genetic diversity in animals and plants that is crucial to secure human nutritional needs against climate change. Across much of dryland Africa, soil degradation and water scarcity are prevalent and compounded by the impacts of climate change particularly in those areas already experiencing dry and hot conditions.[92] Droughts, floods, new pests and diseases are exacerbating the already risky activity of agriculture production.

Despite the risks, since the early 2000s most private and development finance, agricultural research and institutional development effort has been geared towards large-scale commercial agriculture. The food crisis of 2008 reinforced this model as governments and development agencies sought to scale up agricultural production.

This work has included a focus on agro-processing, road and marketing infrastructure, the production and distribution of synthetic fertilisers, proprietary seeds, finance, machinery and other inputs, and subcontracting small out-grower farmers to produce their raw inputs. Official agricultural research institutions are investing most of their resources on developing breeds and inputs that deliver higher yields under drier, warmer or wetter conditions, or are immune to the toxins used to control pests.

Seeds are a particularly important example to consider in this context. Here, large agro-chemical companies receive development finance to research and modify the germplasm of seeds to improve nutrient content, pest resistance, or resilience to droughts and floods. These seeds, however, are considered their private intellectual property which needs to be protected from unauthorised use and exchange. This has prompted these companies and their financial backers, including development finance institutions such as the EU, to lobby African governments for the introduction of restrictive intellectual property protection laws that would prevent farmers who buy their seed from saving, exchanging or re-using them (see section 4 for a discussion of donor programmes along these lines).

On its own, this pathway is set to lock African countries into a high carbon growth path that fails to create meaningful work in rural areas. Currently, many jobs are being created are in large-scale plantations producing raw material such as sugarcane or palm trees for liquid biofuels. These agricultural workers are usually low-skilled, are not paid living wages, and are at risk of intermittent unemployment and poor working conditions[93] – highlighting the clear link between the environmental and social consequences of agricultural transformation.

Returning to the example of seeds and the negative impact that the current model can have on communities: all of the previously described investment and research is happening in a context where up to 90 per cent of seeds used by smallholder farmers in Africa today are exchanged or bought on the informal market.[94] These informal spaces are essential mechanisms to preserve biodiverse germplasm, which is necessary for breeding seeds in future that are better adapted to climate change.[95] Furthermore, these markets have social and cultural significance, contributing vital, yet often unrecognised, 'inputs' to social cohesion. They also serve to support producers' diverse needs. Women farmers in particular[96], will select seeds and

[92] IPCC, 2014, p27
[93] UNEP, 2008; IPES, 2016
[94] McGuire & Sperling, 2016.
[95] For examples of the operations and challenges faced by community seed banks in Burundi, Mali, Uganda, Rwanda and Zimbabwe see Vernooy, R., Shrestha, P. & Sthapit, B (eds). 2015. Community Seed Banks, Origins, Evolution and prospects. Routledge. London and New York. http://bit.ly/2wi4ZUv
[96] FAO, 1999

crop breeds for characteristics such as taste, cooking quality, and germination time, as well as suitability for uses such as animal fodder, medicines, and ceremonies.[97] Yield, while important, is by no means the only trait that farmers are looking for in seeds. Given the need for genetic diversity to safeguard future crops against climate change, it is of paramount importance that all seed system stakeholders support the women and men who are at the vanguard of safeguarding future biodiversity, mostly through informal breeding, storage and exchange systems.

There is impressive historical evidence of the ability of pre-colonial societies in Sub-Saharan Africa to adapt production systems and livelihood strategies to local ecological conditions resulting in environmental sustainability.[98] Traditional farming practices are rooted in resilience, given the high risks inherent in farming. African farmers have achieved resilience through three main approaches. First, they expose seeds to a wide range of landscapes and conditions which influence their characteristics over time. They become locally adapted and evolve continually in response to environmental factors such as climate change. Second, they increase diversity through informal seed exchange systems, which most commonly take place at local markets. This allows them to spread risk, ensuring that a specific seed variety is grown and saved in several different locations. Third, farmers will plant a number of different varieties on their plot, to ensure that if one is lost they still have other crops available. [99] The majority of African farmers still rely on indigenous pest management and soil fertility approaches although – for the most part – government extension programs encourage the use of pesticides and synthetic fertilisers.[100]

This highlights the value and importance of environmentally sustainable agricultural methods, alongside traditional farming knowledge and expertise to be used within broader efforts towards agricultural transformation. Such a shift isn't without broader economic logic and value alongside environmental and social benefits. A recent compilation of global agricultural research, the *International Assessment of Agricultural Science, Knowledge, and Technology for Development* (IAASTD), showed that agro-ecological production methods produce greater yield increases, more profit and greater resilience to environmental stresses such as drought. [101] In developing countries, these methods produce up to 80 per cent higher yields than conventional monocrop farming,[102] faring particularly well in low input farming contexts. From an inclusion perspective, this is especially important for very marginalised producers who cannot afford expenditure on external inputs and would benefit from being able to re-cycle all inputs – including seed and fertiliser - from the localised agro-ecological system.

Box 7: What is agroecology?

Agroecology is most commonly used to describe a farming approach. But it is also a social movement which emerged in reaction to the Green Revolution and is now at the frontier of challenging the dominant agri-food system. Thirdly, agroecology is also a formal scientific discipline. It broadly refers to the use of ecological concepts and principles to design and manage sustainable agro-ecosystems, which increase productivity, food security, environmental sustainability, and provide important environmental benefits. It differs from conventional farming because its primary aim is sustainability and long-term benefits

[97] Gaia Foundation, 2015
[98] IAASTD, 2009
[99] Extract from an Interview with Dr. Melaku Worede, Ethiopia, by The Gaia Foundation, November 2012, cited in Gaia Foundation. 2015. Celebrating African rural women: custodians of seed, food and traditional knowledge, African Women's Development Fund, Gaia Foundation, African Biodiversity Network, London
[100] IAASTD, 2009
[101] IAASTD, 385
[102] UNCTAD, UNEP. 2008.; Lim Li Ching, 2009.

with its scope encompassing the entire agro-ecosystem, not just the individual farm or plot. It is a holistic approach to the stewardship of rural landscapes and increase system-level resilience to climate change.

For the proponents of agroecological production and marketing, agro-ecosystem health is more important than single crop productivity. The aim is to optimise, rather than maximise yields. Agro-ecological research does not focus on single crops, but examines the entire agro-ecosystem and the multiple biological relationships between different components. The non-commodity outputs of agriculture, which include healthy landscapes, clean water, cultural heritage, agro-biodiversity, and also food for subsistence, and biomass for nutrient recycling, are as important as tradeable 'commodity' outputs.

Agroecological farming management systems work within the potential and limits of the surrounding landscape, and minimise the loss of nutrients, water, and genetic diversity, as well as the use of fossil-fuel based inputs and energy. To increase and stabilise production, agroecological practices aim to enhance the biological interactions among various components of the agro-ecosystem. For example, they would use functional biodiversity and biological processes such as natural predators to manage and prevent pests and diseases or nutrient recycling (through mulching, manure, composting, legume intercropping and minimum soil disturbance) to improve soil health, structure and fertility. They would also use local plant and animal varieties and breeds to enhance biodiversity for increased resilience and adaptation to climate change, and use intercropping and mixed crop-livestock production systems. Typical approaches include intercropping with nitrogen fixating legumes, conservation agriculture, agro-forestry, integrated livestock-crop management, and natural pest management.

The available evidence shows that agroecological systems are resilient to climate change and more resistant to pests and diseases, and also less reliant on fossil-fuel based and polluting inputs.[103] In marginal areas, especially in the arid and semi-arid areas of Africa, they are more productive than conventional systems. Agroecological farmers suffer less damage after extreme climatic events than mono-crop farmers because of their higher agro-biodiversity and better soil and land quality. In these systems, the total output of the farm or plot is higher than monocrop plots, and yields less volatile.[104]

In African countries, smallholders adopt and experiment with a wide and complex array of farming techniques, often practicing agroecological and mixed farming in one plot, and grow a single crop with synthetic inputs on another plot. Vulnerable rural households who rely in part or primarily on agricultural production for food and income often have to make choices and trade-offs between longer term investments in soil and land restoration through knowledge-intensive agroecological practices and collaborative networks, and very short-term food or income needs, which becomes starker when they are faced with insecure land tenure and labour shortages. It is therefore important for agricultural researchers and advisors to put producers in the driving seat when experimenting with farming techniques to sustain the natural resource base, given their existing knowledge, and different experiences, preferences, and socio-economic contexts.

Currently, agroecological products are more expensive in conventional markets, given that no price is put on the environmental, social and health costs of conventional systems (in other words the externalities of conventional systems

[103] ACT Alliance EU, 2017; FAO, 2014c.

[104] Ibid

are not recognised). Conventional systems also attract many subsidies; in Africa many governments provide subsidies for synthetic fertilisers in particular. In Ghana, Burkina Faso and Malawi, between 40 and 70 per cent of the national agriculture budget is spent on subsidies for synthetic fertilisers.[105] On the other hand, no incentives to those production and marketing systems which provide environmental benefits. It is therefore important to develop more comprehensive economic and financial analyses of commercial viability of the outputs of agroecological systems, the returns to labour, the opportunity costs of not using alternative methods, and the value of the ecosystem services provided by these systems. Those interested in scaling investment in such an approach, however, will likely have to battle against the reality that, at present, most large companies and agri-businesses are in principle not interested in promoting agro-ecological systems because inputs and services cannot be standardised and patented to generate a profit.

The *Economics of Ecosystems and Biodiversity for Agriculture and Food* project (TEEB, 2015), supported by a network of organisations including UNEP, is an effort to provide a holistic framework for evaluating the impact of different production systems on ecosystems, biodiversity and human health. To evaluate an agricultural system holistically, measurements and metrics need to go beyond yields and labour inputs per hectare or unit of output of a single crop, to include health costs, costs of environmental impacts such as biodiversity loss, water pollution, and greenhouse gas emissions resulting from different production, transport and processing pathways, as well as social costs including the loss of cultural identity and community and family cohesion during cases of land concentration and dispossession. By making visible the impacts of different production and consumption systems, the project hopes to generate more discussion and buy-in from consumers, agri-enterprises and governments on finding alternative pathways to transform the currently unsustainable agri-food system. According to leaders of the project, food metrics must be urgently overhauled or the United Nations' Sustainable Development Goals will never be achieved.[106] A sustainable food system should deliver adequate nutrition and health across all levels of income and societal development. It should avoid significant negative ecological and environmental impacts. And it should ensure equitable access to land, water, inputs and technical and financial assistance for the roughly 1 billion people who still depend on small farms for their livelihoods.

Small enterprises and rural workers can benefit from the multiple work and entrepreneurial opportunities created by a shift to more labour intensive agro-ecological production strategies requiring local inputs such as bio-fertilisers, planting machines, and locally bred seed varieties.[107] There are incremental positive impacts on job creation in both on-farm processing – for example quality sorting and special handling – and production of organic agricultural inputs, increased labour for land management such as digging of planting pits, building small-scale irrigation systems and landscape level water management systems, as well as in post-harvest farm-to-market supply chains. This means that, rather than displacing the agricultural workforce, a greener agriculture model safeguards livelihoods by keeping people on the land and able to pursue a broad range of livelihoods, with less dependence on seasonal work, on the basis of its enhanced productivity. [108] The increased knowledge, capabilities, and autonomy required for agro-ecological production, together with society's recognition of their contribution to wider ecosystem management, can contribute to make this a more meaningful and desirable occupation.

3.5 Concluding thoughts

[105] Heinrich Böll Foundation, 2013
[106] Sulchdev, May & Muller, 2016
[107] UNEP, 2008
[108] Pretty, Toulmin & Williams, 2011

In concluding this section, agricultural transformation and strong linkages between the suppliers of inputs, producers, processors and consumers holds much promise for raising incomes while also catalysing further economic transformation in a more inclusive manner. Such transformation can play a centrally important role in ending poverty while at the same time being environmentally sustainable – but only if there is a significant shift away from conventional agricultural practices. It is a matter of political will to provide the right incentives to unlock this potential. In the box below, we look at an example of a project in Zimbabwe which demonstrates how agricultural transformation can, with the right support, provide opportunities for participatory, fair and environmentally sustainable economic development.

Box 8: Economic Development could be participatory, fair, tackle poverty and ensure environmental sustainability: an example from Zimbabwe[109]

Zimbabwe's remote Binga province in the western part of the country is home to the Ba-Tonga people. This region has seen an increase in the incidence of droughts in recent years, in part as a result of climate change. In 2015 community members started on a process of self-reflection and action planning to identify their main vulnerabilities and the existing capacities they can harness to overcome these and end the poverty trap they are caught in. Subsequently, 500 producers, mostly women, started organising themselves into farmer groups to train how to produce a high-value crop, rosella, a type of hibiscus, using organic techniques. They also chose to receive training in setting up and managing internal control systems for independent fair-trade and organic certification through peer monitoring. This has led to the first ever organic and fair-trade certification for Zimbabwean rosella, which guarantees them a fair price. They are in control of how the fair-trade premium will be spent – so far plans have been made for various infrastructure projects in this geographically very remote community, including fixing the road, building a community centre, and sinking a borehole.

Production volumes have more than doubled since the first growing season, in part thanks to the medium sized export firm's ability to trade in higher volumes. Thanks to their improved ability to negotiate and manage production contracts, and actively engage with other growers, processors and buyers in the rosella market chain, women producers are now given a guaranteed price by Organic Africa, the export company which buys their crop, once it receives an order for hibiscus. Rosella producers have also been supplementing this income by the sustainable harvesting of wild, non-timber organic products such as baobab fruit and seed, allowing them to spread their exposure to the risk of market price fluctuations, especially when tied to only one buyer. Their new ecological crop and land management knowledge has also allowed women to experiment and apply new techniques to food crop production, which is starting to restore soil structure and fertility. Soil regeneration is paramount if food and cash crop production is to offer a pathway out of poverty in this very arid region.

4. DONOR STRATEGIES FOR AGRICULTURAL TRANSFORMATION

After two decades of neglect, development institutions have, over the past decade, started to channel more support to agricultural development. Their focus has been primarily on increasing agricultural productivity and incomes as a pathway to inclusive economic growth, developing market linkages for small-scale producers alongside an increasing role of

[109] Christian Aid, 2015

the private sector in agricultural transformation.

CAFOD and Christian Aid commissioned a short desk-based study[110] reviewing the agriculture development and food security programmes of USAID, the Dutch Ministry of Foreign Affairs and the World Bank (who are leading in the new efforts among donors outside of the UN system to support agricultural development) based on publicly available material.[111] The research reviewed the material through the lens of the Sustainable Development Goals' priority areas of environmental sustainability and 'leave no-one behind', particularly in relation to poverty eradication and tackling gender and income inequality. Their efforts to support more inclusive and sustainable agricultural transformation, as well as the impacts of some of their approaches which fail to promote equality or sustainability, can provide useful lessons to the rest of the international community, including the UK's aid programme. This section will outline the findings of the study.

The agriculture transformation support programmes of all three institutions share similar assumptions and approaches. First, they all – on paper – subscribe to the idea that broad-based or inclusive agricultural growth is essential to long-term development as it creates the opportunities households needs to raise their living standards and provides countries with the resources to expand access to basic services.[112] Second, to this end, they recognise the importance of strengthening smallholder producer associations and cooperatives to improve their ability to grow commercially and access input and output markets. Third, they focus on the whole supply chain, not just primary producers, and the potential linkages with non-farm enterprises and work opportunities in rural areas. Finally, they recognise the importance of empowering women as primary producers and processors of agricultural produce. Their support is channelled both through bilateral aid programmes, but increasingly through multilateral initiatives which aim to change the policies, rules and regulations in African countries to 'enable' the business of agriculture.

Box 9: A snapshot of the type of interventions the World Bank, FMA and USAID undertake to support food security and agriculture development

The **World Bank's** report on *Ending Poverty and Hunger by 2030: An Agenda for the Global Food System*[113] contains detailed policy objectives, focusing on the three priority areas; climate smart agriculture, improving nutrition, and strengthening value chains. On climate smart agriculture the report notes that the food system must increasingly deliver three "wins" simultaneously: higher agricultural productivity, greater climate resilience, and reduced carbon emissions. On value chains, it notes that poor food producers can increase their income by being linked to the growing food demand; and that actively engaging women in value chains and developing the value chains of products women are already involved in, can increase economic growth.[114]

USAID takes the position [115] that broad-based economic growth is essential to development as it creates the opportunities households need to raise their living standards and provides countries with the resources to expand access to basic services. Within this theory of change, food security is therefore primarily secured through agricultural transformation. USAID's work in

[110] The research also included skype calls with Alison Griffiths, Practical Action & Leonard Zijlstra, ICCO.
[111] Penrose-Bickley, 2016
[112] Ibid
[113] World Bank, 2015. Report summary reproduced in part from the report press release, World Bank, 2015b (http://bit.ly/1HfP5rS)

[114] World Bank 2015
[115] USAID, 2017

this area consists mainly of the Presidential Initiative *Feed the Future*[116], guided by the *Rome Principles on Food Security*[117] which focuses on smallholder farmers and particularly women. The other relevant USAID programmes are: (i) U.S. Global Development Lab[118], (ii) Presidential Global Climate Change Initiative[119]and (iii) the Environment and Global Climate Change Programme.[120]

In addition to USAID's bilateral investments in focus countries, they also engage in complementary investments in; (1) regional programmes when significant challenges to food security require cooperation across national borders, (2) multilateral mechanisms such as the World Bank-administered multi-donor trust fund – *the Global Agriculture and Food Security Program*, (3) countries that are strategic partners*,* where investments will benefit Focus Countries through technical, policy, and other cooperation and (4) global research and innovation to reverse the decline in investment in agricultural productivity, respond to key challenges such as global climate change and water scarcity, and strengthen institutions that deliver technologies to small-scale agricultural producers.

The **Dutch MFA** focus[121] is on food security and focuses on investment in small-scale farming in emerging economies as an effective way to promote inclusive growth in and beyond the agricultural sector. Investment by local and international SMEs, knowledge transfer, capacity building and trade promotion in the agricultural sector are seen as necessary interventions to speed this growth up and make it sustainable. This involves a focus on developing the whole supply chain rather than only on primary production as this is seen to be key to generating employment, income and added value in rural areas. In their policy position, the Dutch MFA also highlight that the agricultural sector needs to be attractive to young people, including women. They highlight that strong farmers' associations and cooperatives can play a key role in this. To this end, Dutch programmes concentrate on providing access to means of production, knowledge, financial services and markets for small and medium-sized farms and enterprises, especially those run by women.

4.1 Inclusivity (rather than equality) matters to a degree in donor programmes

All the agricultural transformation donor initiatives assessed touched in some way on the issue of inclusivity. Very often this is around the important of inclusive economic growth and seeking to ensure that their initiatives contribute to greater inclusivity in this regard. An example of this inclusive growth focus can be seen in the Dutch MFA – there are clear benefits in this approach as well as short-comings in their focus:

- The **Dutch MFA** makes a commitment to invest in small-scale farming as an effective way to promote inclusive economic growth. MFA programmes aim to improve farmers' access to good propagation and source materials by strengthening local seed systems and encouraging the application of breeder's rights. Participating companies are expected to exercise social responsibility and the Dutch government

[116] USAID, 2017b
[117] For further information on the Rome Principles on Food Security, please refer to: http://bit.ly/2wfD4Fu
[118] A new entity within USAID that brings together a diverse set of partners (e.g. local communities, development practitioners, scientists, entrepreneurs, technology experts, academics) to discover, test, and scale breakthrough solutions (*open source development*) to end extreme poverty by 2030. For further information: http://bit.ly/1JuaZ80
[119] Aiming to reach approx. 50 countries with climate and clean energy knowledge, data and tools. Thematic areas include low emission development, adaptation, clean energy and sustainable landscapes.
[120] Working to help communities better manage and benefit from their natural resources by: (i) supporting land tenure policies and resource rights, (ii) fighting deforestation and planting trees, (iii) protecting biodiversity and (iv) mitigating and adapting to the effects of climate change.
[121] Dutch Government, 2014

have committed to taking steps to boost the development of frameworks for international corporate social responsibility underpinned by the OECD Guidelines for Multinational Enterprises and the Committee on World Food Security's Principles for Responsible Investment in Agriculture and Food Systems. However, this support is focused primarily on facilitating cooperation among global value chains actors and challenging multinational agribusinesses sourcing from developing countries to devise inclusive business models, without concomitant attention to local and national food and agriculture market systems, which have far more impact.

Overall, however, there is often not a clear, evidence based theory of change developed which links such initiatives and approaches to poverty impacts – particularly in relation to no leaving the most marginalised behind. Investments in measurement, research, monitoring and evaluation are important aspects of establishing this evidence base and should not be ignored.

In terms of on-the-ground investment, there is a focus on gender inequality and smallholder producers in bilateral programmes. Beyond this, however, the donors do not (at the time of writing) invest in direct and active programming to address spatial, income, and other group-based inequalities. This is problematic as it means that progress (or not) in these areas cannot be planned for and tracked. Furthermore, their support for multilateral programmes to reform government policies and promote infrastructure and private sector investment often contradict and undermine their stated commitments to equity and sustainability (see section 4.2).

Specific interventions in relation to gender equality include

- The **World Bank**'s 2013-15 Action Plan on agriculture development has aimed to reduce gender inequality through raising the standard for mainstreaming gender into agriculture programmes. This is to be tracked by the share of projects that included gender analysis in the design and by the share of projects that included gender in project analysis, actions, and monitoring and evaluation. While this is a useful start, the bar for gender equality outcomes is still not set very high.

- **USAID** has developed the *Women's Empowerment in Agriculture Index*, which aims to understand and measure gender equality within its agricultural transformation programmes. The WEAI tracks rural women's empowerment relative to men in five key areas: (1) Decisions over agricultural production; (2) Access to decision-making power over productive resources; (3) Control of use of income; (4) Community leadership and; (5) Time use. This would allow them to assess changes in gender equality over time as the project progresses. Evidence of tackling gender equality issues is also evident in their leading *Feed the Future* programme. In a six-country independent evaluation of *Feed the Future*[122] it was found that it represented 'substantial, real and important' improvements in the way the US government delivers assistance, including efforts to integrate women's empowerment across all programme activities.

While not a direct focus of this paper, it is worth briefly reflecting on the equality-impact of bilateral and regional Development Finance Institutions as these are absorbing increasingly large quantities of donor finance for agricultural development. For example, the Dutch Entrepreneurial Development Bank (FMO), which is 51 percent funded by the government has a portfolio of $700 million in the agribusiness sector. Much of this money goes toward equity investments in land-based

[122] Oxfam America, 2015.

investments which the Dutch bank claims are 'highly inclusive' and generate a 'large economic benefit'.[123] However, in two cases in Sierra Leone and Tanzania, independent monitoring and research, including by affected communities themselves, have shown that companies supported by FMO have displaced local land users, increasing poverty and food insecurity, as well as causing stress on local water resources.[124] This example highlights the questionable nature of these investments in terms of 'leaving no-one behind' (in SDG language) and tackling inequality.

4.2 There is limited support for sustainable agriculture transformation in donor programmes

While in rhetoric, all three donors make prominent reference to sustainability in agricultural development programmes, limited online data made it difficult to assess to what extent they have integrated this into all agricultural development programmes, and to what extent they support local ecologically sustainable agricultural market systems. One clear finding of this research was the environmental sustainability needs to be better mainstreamed into both policy and programming – giving the mandate of the SDG's we would see this as a priority for donor organisations.

Our research did find the following information of work that has been done so far within the three donor organisations:

- For **USAID**, there were numerous online references to sustainable agriculture projects within their country programmes. They are also investing heavily in *Feed the Future* Labs[125] which focuses on agriculture research in four crop production systems where their own research has indicated an opportunity to 'sustainably increase agricultural productivity and address high levels of poverty and food insecurity[126.] These are South Asian cereal-based systems; East African highland systems; Southern and Eastern Africa maize-based systems and West African Sudano-Sahelian systems. An Oxfam evaluation[127] of *Feed the Future* highlighted a number of areas for action, in relation to environmental sustainability, however they noted that while natural resource management was generally integrated in projects, there was an emphasis on the efficient use of resources, including not-so-environmentally friendly methods such as agrochemical inputs. This was also missing the opportunity to invest more in low-external input approaches such as conservation agriculture and agro-ecological practices and providing farmers with information and tools that can help them better make decisions in preparing for and adapting to climactic changes.

- **The World Bank** also has a mixed history with regards to environmental sustainability. A 2010 evaluation[128] of the World Bank's agriculture and agri-business programmes found that while projects

[123] Penrose-Buckley, 2016

[124] The FMO was one of the lead arrangers for a €142 million loan to Addax Bioenergy, a Sierra Leone-based subsidiary of the Swiss Addax and Oryx Group.71 In 2008, Addax secured a 50-year lease on 20,000 hectare (ha) for a sugarcane plantation, to be used for ethanol production for Europe.72 Although the FMO claimed that Addax was developing "mostly unused land" in Sierra Leone,73 local villagers depended on this land for their livelihood, cultivating rice, cassava, and vegetables.74 The FMO also affirmed that the investment complied with "high environmental and social standards,"75 but field research found that Addax failed to properly compensate displaced villagers and to fulfil its promise of contributing to local development by providing jobs and social services.76 Addax's activities also resulted in intense stress on local water resources, as the expansion of its plantation and irrigation schemes drained nearby swamps and rivers.77 In 2015, the FMO went on to provide $15 million to support the British New Forest Company's activities in Tanzania and Uganda.78 While the Dutch bank claims that forestry investments are "highly inclusive" and generate "large economic benefit,"79 reports show that New Forest's carbon project in Uganda evicted over 22,000 villagers from their land without compensation.

[125] Further information available in the USAID FTF research priorities consultation (undated): http://bit.ly/2v6RoLI

[126] USAID, undated.

[127] Oxfam America, 2015

[128] IEG World Bank, IFC, MIGA, 2010. pp. 86-87

supported by the Bank appeared to comply with the Bank's own environmental safeguards, overall reporting on these safeguards was described as weak. A more recent report [129] from the Institute for Food and Development Policy and the Transnational Institute found that World Bank programmes prioritise increased access to conventional agricultural inputs and 'improved seed as uniformly appropriate for addressing rural poverty (including the need to consider rural income generation and social safety nets varieties'. This is problematic from an environmental sustainability point of view and is in contradiction to the recommendations of the World Bank-funded 2009 International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) report, which recommended a major shift away from this 'business-as-usual' agricultural model to research and innovation that supports more sustainable practices.

- Finally, very little specific information could be found on what the **Dutch MFA** were doing in relation to environmental sustainability. In their policy framework, however, creating ecologically sustainable food systems is a key focus. This includes focusing on the sustainable management of water, soil, energy and biodiversity, and considering the effects of climate change on food systems and vice versa. It is difficult to know how this is impacting their programmatic work.

Box 10 Multi-donor agriculture policy initiatives which do not give priority to equality and sustainability

A significant proportion of donor funding for agricultural development supports multilateral initiatives aimed at influencing the policy and regulatory environment to attract more agri-business investment into the agricultural sector in Africa. It is therefore important to consider the extent to which these investments can tackle issues of inequality and environmental degradation. Two key initiatives to consider here are the New Alliance for Food Security and Nutrition in Africa (NAFSN – or just 'New Alliance' which is an initiative of the G7 counties and Grow Africa) and the World Bank's Enabling the Business of Agriculture (EBA) project. Both were launched in 2012.

To summarise these initiatives:

- The New Alliance has developed country cooperation frameworks. These have been signed in 10 African countries between governments, G7 donors and businesses. They include commitments by governments to fast-track or implement policies that will facilitate the operations and cross-border transactions of large seed companies and the land acquisitions of plantation investors, as well as policies that will provide tax breaks to companies investing in strategic agricultural sub-sectors, and deregulate the general business environment to allow for easier business registration and operation.
- The World Bank EBA, which is supported by the Dutch MFA, USAID (and three other donors including DFID and the Bill and Melinda Gates Foundation) is focused on the agricultural related business environment and grew out of the much-contested Doing Business Rankings. It aims to influence regulations and policies to remove perceived regulatory obstacles to agribusiness investors such as seed and transport companies.

Both the New Alliance framework and the EBA aim to support a favourable investment climate for commercial farmer and business investments in global and national value chains for export markets. While some policy changes might help to unblock market systems in some agricultural export sectors, the policy and regulatory reforms they

[129] Holt-Giménez, Williams & Hachmyer, 2015. p. 4

support have no concern for key issues relating to equality and environmental sustainability. For example, they do not prioritise:

- the quality of new jobs created through new agri-business investment[130]
- the protection and development of informal seed systems which make up 90 per cent of all seed transactions in Africa (Expansion of the use of commercial seeds, whether hybrid or genetically modified, is tied to the enactment of plant variety protection laws. While proponents of intellectual property rights (IPRs) argue that this is necessary to trigger private sector innovation and agricultural development, IPRs result in criminalizing the traditional saving, use, and exchange of seed varieties.[131] This interferes with traditional breeding practices, which for centuries have been a tremendous motor of innovation and have provided farmers with varieties adapted to their needs and specific agroecological conditions);
- the development of laws that secure the land tenure of traditional or other legitimate land users operating in customary systems or on state-held land;
- environmentally sustainable agriculture – both initiatives focus excessively on regulations to facilitate the transactions of agro-chemical companies, rather than encouraging governments to provide more and better regulations and public support for bio-pesticides and bio-fertiliser investments, or programmes to support the environmental benefits provided by producers and investors who operate more sustainably.[132]

There are two further challenges with these initiatives

- firstly, neither recognises that small and medium-sized enterprises often need different policies and regulations to grow and function compared to large multinational companies.[133]
- secondly, the EBA aims to compare all countries against a similar set of 'benchmarks' of agri-business regulations and policies, despite huge differences in their economic, social and agro-ecological contexts.

Both these approaches promote a 'business-as-usual' agricultural development strategy, which risks creating further inequality and environmental degradation.

4.3 How do donors support rural economic transformation

The research[134] showed that USAID and the Dutch MFA have similar agricultural policy agendas, with a strong focus on food security, linking this to rural economic growth and other areas such as nutrition. There is a high awareness of the need to mainstream gender in both programmes. More lately, the World Bank is showing significant convergence with the other two programmes.

With regards to equity issues donors could do more to place inequality front and centre of their thinking and programming given the increasing evidence pointing to the links between inequality and poverty. Some key observations here include:

- There tends to be an over-reliance on market instruments as uniformly appropriate for addressing rural poverty and more of a need to consider other interventions such as rural income generation and social safety nets. Other social protection interventions also need to be considered such as access to childcare which increases women's wage employment levels and earnings.

[130] Treasure-Evans, J. 2014
[131] APRODEV, 2014
[132] ASFG, 2015
[133] CAFOD, 2011 and 2013
[134] Penrose-Buckley, 20016

- Increase the capacity and bargaining power of farmer organisations as economic gains at the industry level do not automatically lead to smallholder or household-level economic benefits. It is also important to understand power dynamics within value chains. Introducing or scaling up access to market information is also needed as this can be a valuable avenue for tackling power in value chains.

It was difficult to assess the extent to which the SDG's priority on environmental sustainability was integrated into these programmes as generally this was not something reported on in much of the material reviewed. This shows that donors need to show more commitment to mainstreaming environmental sustainability in their policy and programming.

Overall, collecting information around rural economic transformation in donor policy and programming was difficult because of differences and often insufficient monitoring and evaluation measures – especially in regard to SDG priority areas of leaving no-one behind and environmental sustainability.

5. Learning the lessons of current agricultural transformation pathways in 3 African countries

Christian Aid and CAFOD commissioned three background studies to examine the agricultural development strategies of Tanzania, Rwanda and Ethiopia. The studies examined poverty reduction and agricultural growth trends, and whether and how government strategies have stimulated inclusive and green agricultural development and actively promoted linkages between agriculture producers and other sectors of the economy.

Given the socio-political, cultural, historical, economic, geographical and agro-ecological differences between these countries, this section will not attempt to compare in detail their various agricultural transformation initiatives. Instead, it will assess whether their policy priorities for agricultural transformation are inclusive of the most marginalised communities, environmentally sustainable and build connections between primary producers and enterprises in other sectors of the economy (given the potential this has for job creation and economic development described in previous sections).

In a similar fashion to section 4 where we looked at donor policies and programmes, we will use the two central criteria set out by the SDG's to make this assessment. Namely around the 'leave no one behind' principle and that of environmental sustainability. In a national context this may look different to in donor programmes:

- To leave no-one behind, measures are needed to distribute the gains from productivity increases to the most vulnerable populations by creating decent and meaningful work and entrepreneurial opportunities for the poorest, but also by protecting their productive assets, especially land.
- To sustain the natural resource base, proactive measures are needed to sustain biodiversity and healthy soils, protect water catchment systems, forests, and other ecosystems, and reduce or avoid an increase in greenhouse gas emissions linked to agricultural production and processing.

Further the SDG's also highlight the need to diversify, add value, increase returns to labour and create decent work opportunities. As previous sections of this report highlight, to do this, proactive measures are needed to promote connections between primary producers and existing or new enterprises that are linked to agricultural production in other sectors of the economy. A focus on the local economy is also important.

Taken together, these measures can steer African countries towards a more sustainable and inclusive growth path. By acting now, they can avoid the excessive reliance on fossil fuels, growing income inequality, and unsustainable food systems which are facing society in highly

industrialised countries today. Most UN agencies now recognise the need for a rapid and significant shift away from 'conventional, monoculture-based industrial production' of food that depends heavily on external inputs such as fertilizer, agro-chemicals, and concentrate feed. Instead, interventions should aim to develop 'mosaics of sustainable regenerative production systems that also considerably improve the productivity of small-scale farmers and foster rural development'.[135]

In the following sections we will analyse the extent to which Ethiopia, Tanzania and Rwanda are on this path. We will start each section by commenting on overall lessons which can be drawn before looking at each country in a little more detail.

5.1 Agriculture growth has driven poverty reduction

Recent poverty reduction trends in Ethiopia, Tanzania and Rwanda show that raising the productivity and incomes of smallholder farming households has been the one of the most important drivers of poverty reduction This is because most of the population work at least part-time as agriculture producers or unpaid and hired workers on smallholdings – 70 per cent in Tanzania and Rwanda and 85 per cent in Ethiopia – and improving their earnings, working conditions and opportunities has the greatest immediate impact on poverty reduction.[136]

- In 2000, **Ethiopia** had one of the highest poverty rates in the world, in part due to frequent recurrent droughts and cyclical famines. Since then, poverty has fallen by a third – more than in any other African country with the exception of Uganda. According to the World Bank, pro-poor spending on basic services and effective rural safety nets, have bolstered the impact of Ethiopia's high agricultural growth rate – which is an estimated 4.5% a year – on poverty reduction. [137]

- In **Rwanda** the World Bank has calculated that the increase in agricultural production and commercialisation accounted for about 45% of the reduction observed in poverty between 2000/1 and 2010/11.[138]

5.2 The vision of governments determines agricultural transformation pathways

The three countries studied here all have a vision to reach middle-income status in the next decade or so, Rwanda by 2020, Tanzania by 2025 and Ethiopia by 2030. The governments of these countries all share a belief that with the right targeted support and enabling environment, large numbers of smallholders who still live in poverty, can increase their production and market share of staples, cash crops and livestock. In so doing, they can become a source of dynamic growth in rural areas by creating new demand for consumer goods and services and inputs for on-farm production, which in turn will stimulate new work and entrepreneurial opportunities. This, they believe, could in turn pave the way for a larger formal manufacturing sector, creating jobs with higher returns.

This vision has in turn directed agricultural transformation pathways. All three countries have made concerted efforts, Ethiopia already in the 1990s and Rwanda and Tanzania since the mid-2000s, to implement measures that would increase productivity on small farms, mostly through investments in extension, input subsidies, and infrastructure. However, these

[135] UNCTAD, 2013

[136] Coulsen, 2016; Lambrechts 2016; Kumar, 2016.

[137] According to government data, the agriculture sector has grown by 8%, but the World Bank and other analysts claim the figure is closer to 4.5 per cent . Lambrechts, 2016.

[138] The World Bank calculates that increased agricultural production accounted for 35% of the drop in poverty, while increased agricultural commercialization accounted for an additional 10%. Taken together they find these 2 factors explain more than 6 percentage points of the 14-percentage point drop in poverty over the previous decade (2000/1 – 2010/11). (World Bank, 2013)

have not been nearly sufficient. More recently they have started to ramp up support for measures that would help producers adapt to climate change, such as providing public advisory services in climate resilient production techniques and access to weather information services. They have also started paying increasing attention to linking more smallholder producers to markets, not only as out growers in vertically integrated global commodity value chains, but also to supply food to growing urban populations.

Box 11: From Maputo to Malabo: the Comprehensive African Agriculture Development Programme (CAADP)

The CAADP has played an important role in shaping the policies to support agricultural transformation in Tanzania, Ethiopia and Rwanda. All three countries have an overall vision to attain middle income status and halve poverty over the next 10-20 years. Increasing agricultural productivity and encouraging more smallholder producers to switch to commercial production, or 'farming as a business', is at the heart of this vision. While the 2008 food crisis was the impetus for a significant increase in overseas development aid to support agriculture development, from the very low levels of the 1990s, African countries had already been motivated at an earlier stage to renew their attention to smallholder farming systems through their participation in the Comprehensive African Agriculture Development Programme (CAADP), one of the flagship programmes of the New Partnership for Africa's Development (NEPAD). In the 2004 Maputo Declaration, African countries committed to spend 10 per cent of their national budget on agriculture. While only about ten countries have managed to achieve this level of spending, the CAADP process has allowed agriculture development to rise to the top of the development agenda in Africa and subsequently, that of its development partners. About thirty countries have formulated national agriculture and food security investment plans, which set out the areas where they require public and private investment. However, a ten-year review of CAADP concluded that across the region, agriculture growth was achieved mainly by an increase in area under cultivation rather than by an increase in productivity per unit of land.

The next ten-year continental plan for agriculture, agreed in Malabo in 2014, will pay more attention to attracting private investment into agriculture value chains, including in light manufacturing industries to process primary products for export and domestic markets. In 2010 African governments already signalled that they are keen to develop agro-industry as one plank of their industrialisation strategies. They have placed a strong emphasis on regional value chains in 'strategic' commodities. To drive agriculture-based industrialisation, they have been advised by UNECA to create production, consumption and fiscal linkages into the economy using local content policies, as well as sectoral and trade policies.[139]

The Malabo plan will aim to create new jobs for at least a third of young workers in agriculture value chains, and to take measures to allow women preferential access to gainful employment in agribusiness. To achieve these goals, public funds will increasingly be used to 'leverage' private investment in irrigation, mechanisation and inputs such as seeds, fertilisers and credit – echoing the growing trend to leverage private investment through public funds in official aid agencies. Land tenure security and nutrition will also be integrated into agriculture development plans. This, they recognise, will require better coordination among line ministries in sectors relevant to agriculture transformation such as the ministries of natural resource management, water management, trade, food security, and

[139] UNECA, 2013.

land. While the Malabo plan of action recognises that public investments are necessary to support smallholder agriculture production, the national agriculture investment plan which governments will draw up will be primarily an instrument to attract private investment.[140]

Despite all signing the CAADP, and many similarities in vision, each country has taken a slightly different pathway:

- **Ethiopia** has consistently been Africa's highest spender on primary agriculture production, and has the world's second-largest extension workforce, after India. Its 1994 Agriculture Development-led Industrialisation (ADLI) strategy has been used as the framework for subsequent poverty reduction and growth strategies. The 2010 Growth and Transformation Programme (GTP), which is now in its second phase, places far greater priority on developing the manufacturing sector than the ADLI, and focuses on agricultural transformation and specifically developing agro-processing capacity and linking new manufacturing industries to commercial smallholders. The programme aims to achieve an agricultural growth rate of 9 per cent a year (which is double the current rate), primarily driven by export growth in cereals, livestock and coffee. This strategy focuses on better-off sedentary crop producers, who live near existing or planned infrastructure developments and towns, with the potential to work on commercial production.

- The **Tanzanian** government, in contrast, views most of the country's smallholders as a labour reserve for non-agricultural or 'more productive' industries, hence its focus on a few strategic crops and outgrowers. In 2009, it adopted the *Kilimo Kwanza* or *Farming First* agriculture transformation strategy, largely written by large scale farmer representatives. In 2010, British development consultants wrote the *Southern Agricultural Growth Corridor of Tanzania* strategy, which was supported by the World Economic Forum, Grow Africa the New Alliance donors. Subsequently, the government has adopted the Malaysian 'Big Results Now' military command approach to develop a plan of action to transform six sectors of the economy, including agriculture. Planned interventions are targeting three crops only, namely maize, rice and sugar, with the aim of doubling rice and maize production. The main programme activities will be to negotiate 25 sugarcane and paddy commercial farming deals linking outgrowers to nuclear farms, and develop collective rice irrigation, maize warehouse receipt and marketing schemes for both crops. So far, efforts to attract large scale investors have not been very successful. Many large-scale schemes, especially in the jatropha sector, have failed to take off. The costs of investment, the logistical challenges, the difficulties of employing and managing large labour forces, and the uncertainties of markets and marketing, have all proved difficult for large industrial farms.
- **Rwanda** has chosen a different route and has chosen to prioritise small-scale farmers and cooperatives in their approach to agricultural transformation. In light of this difference we will go into a little more detail.

In 2000 Rwanda was a subsistence level, agrarian based economy (accounting for the livelihoods of more than 90% of the labour force) with around 60 per cent of the population living below the poverty line.[141] The distribution of arable land stood at one hectare for every 9 Rwandans and was diminishing due to high birth rates; available pastureland was estimated to be 350,000 hectares, most of which was of poor quality; there was intense

[140] NEPAD, 2015.

[141] Kumar, 2016

exploitation of the land, but without rehabilitation measures, including the use of fertilisers, being practiced.[142] This led to a serious decline in land productivity, accompanied by increased environmental degradation. One of the six pillars of the country's Vision 2020 development programmes was thus to transform "…agriculture into a productive, high value, market oriented sector, with forward linkages to other sectors...".[143] Agriculture is a protected and prioritised sector in budget – if including all agriculture-related items under ministries responsible for infrastructure, the environment (soil conservation) and agriculture, it accounts for more than 10 per cent of the national budget. Agriculture production and livestock intensification consume the largest share of the budget, much less than value chain development and private sector.

Rwanda's *Agriculture Sector Transformation Programme* is a five-year programme originally developed in line with the CAADP objectives in 2005. It is now in its third phase. It consists of three main programmes – the *Crop Intensification Programme* (CIP) launched in September 2007, the *Land Husbandry programme* and the *Water Harvesting and Hillside Irrigation (LWH) programme*. Programme interventions include the dissemination of crop intensification techniques; irrigation infrastructure in the marshlands; terracing and erosion control on the hillsides; a campaign accompanied by subsidies to increase the use of fertilisers; the introduction in 2005 of a land law that secures tenure rights for all existing private landholders; conversion of some 2,500 grass root farmer organisations into more formal cooperatives; enhanced extension services, and so on. The third phase of the programme also has a focus on an expanded private sector role in production, processing, and value addition and the commercialisation of staple crops, export commodities, and livestock products.

A recent project to support Rwanda's agricultural transformation strategy, funded by DFID and IFAD, has demonstrated that integrated livestock and crop farming, combined with agro-ecological farming practices and strengthening of diary commercial cooperatives can transform households and rural economies. More than one thousand households from across Rwanda worked through village-level groups, supported by government services, to build their confidence, increase production in a holistic way, and market the milk produced by their cows. On average, rice yields have doubled, and local milk market systems are emerging in all the regions where family farms have gained access to cows and small livestock.[144] The collaboration between farmer networks, NGOs, government institutions and agricultural research stations have been a key driver of this transformation.

5.3 Government leadership can amplify sustainable agriculture transformation pathways

In all three countries, the government has made significant efforts to address environmental degradation. They have specifically sought to address soil nutrient depletion, land degradation and water scarcity through soil and land restoration along with watershed management programmes. These massive government-led land and watershed restoration programmes have created work opportunities for small producers and communities in rural areas. Governments are also starting to recognise the importance of agro-ecological production approaches though this support does not yet go far enough, and these are still mostly practiced and promoted by local communities with NGO support in small areas. In many areas NGOs, lead farmers, and government extension services have been

[142] Ibid
[143] Republic of Rwanda, 2000
[144] Send a Cow, 2015

training producers in agroforestry, conservation agriculture, composting, integrated livestock farming, permaculture, soil testing, the use of crop rotations and cover crops and integrated pest management. This is contributing to re-skilling rural workers and reducing the dependence on polluting and fossil fuel-heavy agro-chemicals. Despite the success of select interventions to restore soils and ecosystems, governments and the international development community continue to support production systems and interventions such as large-scale agro-chemical input production and distribution and adoption of patented seed, which will undermine agro-biodiversity, burn soils, create water pollution, and de-skill rural labour.[145]

We will now look at some of the specific interventions in each country and at lessons which can be drawn from these:

- In **Rwanda**, the government has prioritised land protection against soil erosion. It has achieved a high level of coverage at very low cost. It has also prioritised water harvesting and irrigation. Irrigation and terracing strategies have not, however, always been linked to broader strategies to increase soil fertility and the viability based on cost. A high percentage of terracing investments have not resulted in production in these areas due to poor soil quality, and there is now a shift in focus to more affordable small-scale irrigation strategies.[146] However, these soil protection interventions are undermined by the drive of some local government initiatives to force farmers to grow single crops that are not suitable to local climate conditions. In Kirehe district in eastern Rwanda, for example, the local administration has been forcing farmers to grow maize with synthetic inputs and improved seeds, as part of the crop intensification programme. Yet, many farmers would prefer to plant more diverse crops, including grain varieties that are adapted to drier conditions, which will be more sustainable in the longer term[147].

- In **Tanzania** the Shinyanga region, just south of Lake Victoria, had been stripped of its abundant woodland over decades, first to eradicate the disease-carrying tsetse fly, then to create cropland and make space for a growing population. To restore and manage the traditional enclosures or ngitili, the government has worked with the World Agro-forestry Centre and the region's agro-pastoralist population for three decades. By 2004, 18 years into the project, at least 350,000 hectares of *ngitili* had been restored or created in 833 villages, encompassing a population of 2.8 million people.[148] Benefits of the restoration include higher household incomes, better diets and greater livelihood security for families in the region. Studies suggest that the striking success of the project stems from the rich ecological knowledge and strong traditional institutions of the agro-pastoralist Sukuma people who live in the region and the close collaboration between the government and traditional institutions.[149]

In Tanzania climate change is a significant challenge and in many ways the government's approach to date has not supported small-holder farmers sufficiently which has knock on effects for their ability to grow and reach their potential. There are however many examples of farmers themselves taking the lead in finding the right breeds and varieties to help them adapt to climate change. In the potato sector, for example, market forces and farmer to farmer contact have been the key drivers of growth. This is because public extension services, or those provided by agri-businesses to contract farmers are not sufficiently flexible, demand-driven and responsive to the needs of

[145] IAASTD, 2009
[146] Kumar, 2016
[147] Huggins, 2014
[148] Pye-Smith, 2010
[149] Ibid.

farmers. Local expertise can lead to innovation in partnership with external experts, but agro-climatic diversity – with farmers adapting crops and techniques – can be undermined by mega-projects. Crop diversity staggers labour demands and reduces climate change risks, yet government policy focuses on only a few strategic crops. Small-scale irrigation farming is identified by many residents as the single most important adaptive practice undertaken in the recent past to lessen the impacts of climate variability. More than 80% of the agricultural development budget in recent years has been spent on irrigation schemes. Improved maintenance and expansion of the existing small-scale irrigation infrastructure is central to peoples' aspirations for managing future climate variability.[150]

- In **Ethiopia,** we see several examples of strong government support enhancing sustainable agricultural transformation pathways.

At a strategic level, the government launched a *Climate Resilient Green Economy (CRGE) strategy* in 2011. It is the first government in Africa to integrate climate resilience and low carbon development into an economic growth and development plan. It stems to a large degree from the vision and political leadership of the former prime minister, who was keen to put Ethiopia on a development pathway that is carbon neutral while accelerating and climate proofing future economic growth. Given the priority given to agriculture transformation, the government launched a *Climate Resilience Strategy for Agriculture* (CRA) in 2015, building on the *Ethiopian Programme of Adaptation to Climate Change* (EPACC). Together with the Green Economy Strategy, it sets out how the government will achieve its vision of a climate resilient green economy in the agriculture sector. The strategy has prioritised actions that build resilience at the macro-scale such as adoption of sustainable land management and practices and support for farmer cooperatives, actions that build resilience for households who are the most vulnerable such as training in conservation agriculture, and actions to protect and build biodiversity.

The Ethiopian government has also led one of the first efforts in Africa to map soil fertility and use the information to improve soil fertility management. The country has one of the highest rates of soil nutrient depletion in sub-Saharan Africa. To address this problem, the government launched a national acid soil management programme in four highland regions in 2006. In 2010, the Ministry of Agriculture started developing a national soil fertility map, which is called the *Ethiopian Soil Information System* (EthioSIS), the first of its kind in Africa. EthioSIS uses remote sensing satellite technology and soil sampling to produce digital soil maps for each region. Based on this information, experts have generated a national soil fertility atlas, helping the Agriculture Transformation Agency (ATA) to make tailored recommendations on types and blends of fertilizer to use in each region and zone. The soil map has shown up the major macro and micro-nutrient deficiencies across different regions, which has prompted the government to commission foreign companies to build five fertiliser blending plants in strategic locations. In addition, the government also wants to establish fertiliser manufacturing plants – in particular potash processing, given that Ethiopia has sufficient natural potash to also serve the export market.

To complement the investment in fertiliser blending and manufacturing plants, the government has started a massive new fertiliser demonstration programme, training about 40 000 extension workers to reach more than 5 million farmers.[151]

However, tthe returns from the use of inputs are highly weather dependent. Net returns from synthetic fertiliser use are only positive under good rainfall conditions. Harnessing biological processes and natural resources that

[150] Coulson, 2016
[151] Lambrechts, 2016

are locally available – for example through composting, manure, legume intercropping and other techniques, has been shown to increase soil fertility and productivity even under uncertain rainfall conditions.[152] African smallholder farmers use, on average, only 5% of the synthetic fertilisers used by Asian smallholders. If synthetic fertiliser application can be restricted to a minimum necessary to generate new biomass and regulated appropriately to ensure judicious use, African countries stand a good chance of avoiding the environmental damage to water systems and soils that are plaguing Green Revolution Asian countries today. This will require, however, that they shift existing subsidies and other supports for synthetic fertiliser production to fund rewards and payments to producers who practice more sustainable agro-ecological management approaches.

The information generated by Ethiosis is nevertheless hugely valuable, and could be used, for example, to encourage research institutes and development agents, together with farmers, to scale up existing or develop new environmentally sustainable soil fertility management techniques.[153] The officials in charge of this programme believe that that soil fertility should be higher up the Ethiopian political agenda. The country needs more soil scientists to monitor and validate the impact of the soil rehabilitation programme, as well as the environmental impact of large scale land investments. To address some of these issues, the ATA has developed the terms of reference for an Ethiopian Soil Resource Institute, which can monitor soil health, salinity, water use, and regularly update soil maps.[154]

Another challenge in Ethiopia is land degradation which is a major cause of chronic food insecurity in the country. In the rural highland areas, half of all land is degraded. Recent studies have shown soil losses of between 10-80 tonnes, compared to normal soil regeneration rates of 5-7 tonnes per hectare per year.[155] Major causes of land degradation include population growth, deforestation due to expansion of agricultural land, poor forest and rangeland management practices, inappropriate land use planning and periodic droughts. In the late 1990s the Tigray Bureau of Agriculture and Natural Resources piloted an integrated community-based watershed management approach. Rehabilitation of the upper catchment areas of a watershed has led to a recharge of groundwater in the lower catchment areas, which meant that communities that relied previously on rainfall could now invest in wells and pumps and grow crops where nothing grew before. This approach, which was based on the labour of farmers and communities to rehabilitate the watershed, was scaled up to 450 watersheds, on 400 hectares of degraded land, across five regions. Overall poverty was reduced by 20 per cent in these areas, as was dependence on food aid.[156]

The environmental benefits of the programme include reduced sediment in streams, increased biomass, ground water recharge, increased biodiversity, and increased water availability and quality. This has reduced the damage from seasonal floods and increased down-stream production of economically viable crops, supported by soil and water conservation interventions, and the introduction of aquaculture.

African countries such as Nigeria, Tanzania and Ghana are now looking to learn from Ethiopia's experience to restore their degraded land.[157] Some of the key factors that have contributed to its success include the inclusion of community leaders and smallholders as key stakeholders, strong political leadership,

[152] Altier et al., 2015

[153] Lambrechts, 2016. In an interview with Prof Mamo, a soil scientist and head of the Ethiosis programme, the purpose of the system was presented as a strategy to increase the efficiency of synthetic fertiliser use, which has supported the establishment of local fertiliser mixing plants, rather than to provide a tool to help farmers and research institutions experiment and scale up non-synthetic soil fertility management techniques.

[154] Lambrechts, 2016

[155] Togul & Hobson, 2013.

[156] Ibid

[157] Lambrechts, 2016

integration of the programme into all national and local development strategies, and combining it with a productive safety net programme.

5.4 Transformation depends on linkages between producers and agro-enterprises

As we saw in section xx, strong forward (agro-processing, distribution marketing and so on) and backward (inputs like seeds) linkages into the value chain can have considerable positive impacts on the creation of jobs. This is especially valuable in rural areas and secondary towns where the need is often greatest. The case of Rwanda and Ethiopia in particular show some interesting results in this area.

- In **Rwanda**, the manufacturing sector was mostly destroyed by the genocide. The majority of enterprises are still in the start-up or growth phase and in the process of developing optimal systems and organisational structures. Agricultural transformation has had an important role to play in Rwanda's manufacturing sector and seven out of the ten largest manufacturing firms in Rwanda are agro-processors in the beverages, sugar, grain, leather and textiles sectors. These firms are starting to be valuable employment creators and estimates based on 2011 data suggest that Rwanda's largest manufacturing firms provide about 17,500 factory jobs.[158] However, there is little comparable data available on the work provided by cooperatives, whose numbers have trebled since the inception of Rwanda's agricultural development programme in 2005.

- In **Ethiopia**, the government is setting in place several schemes to link commercially oriented smallholders to local agro-processing industries. Agro-processing is the fastest growing manufacturing industry and is concentrated in the leather, textiles, garments and food and beverages (in particular sugar processing) sectors. To grow this sector, the government has embarked on an integrated agro-industrial park (IAIP) strategy, borrowed in part from the Chinese experience. Industrial parks are understood to play a role in countries that are transitioning from an agricultural-led economy into an industrial-led transformation.

An IAIP is a geographic cluster of independent agro-enterprises grouped together to gain economies of scale by sharing infrastructure – roads, power, communication, storage, packaging, by-product utilization, effluent treatment, logistics, transport, and laboratory facilities – and taking advantage of opportunities for bulk purchasing and selling, training, and extension services. Multiple agro-processing functions, namely final processing, storage, packaging, marketing and distribution, take place in each agro-industrial park, which will also include support businesses and social infrastructure such as training centres. Each agro-industrial park will be served by a network of rural transformation centres (RTCs), which provide linkages to producers. These facilities are geographic clusters of marketing, processing and distribution infrastructure. The RTCs will also offer financial and basic social services to farmers. They will be located within a hundred-kilometre radius from an IAIP site. Farmers and farmer groups will be able to deliver their produce to these centres, and also receive training and inputs. The government plans to link them to buyers through contract farming arrangements. Agricultural produce will be collected, sorted, graded, stored and may even undergo primary processing, before onward transport to an agro-industrial park. The plan was launched in February 2016 and will see the development of four pilot agro-industrial parks, linked to 28 regional transformation centres.

As mentioned above, one of the top four priority industries for the IAIP's is the leather sector. The government is actively promoting a shift away from the export of low value-added

[158] Kumar, 2016

hides and skins to high value-added finished leather products. This industry has strong links to livestock keepers and pastoralists. The potential to reduce poverty in rural areas, alongside that of earning foreign currency, has been a strong factor motivating this strategic choice. Another strategic sector is oilseeds. The cultivation of oilseeds has a long tradition in Ethiopia with about three million farmers, millers, transporters and traders earning their livelihood in the sector. With the support of international donors such as the FAO, ILO and UNIDO, the government has sought to develop the edible oil value chain to substitute imported palm oil on local markets. To date, 340 farmers and four farmers' cooperatives have been assisted with improved seed stocks, investment credit, and training in best agricultural practices. The project has helped set up two producers' consortia of 77 members with the objective of a joint investment in a refinery.[159]

5.5 Agriculture transformation can have negative impacts on inequality without intervention

As we have seen in previous sections of this paper, economic transformation can be a highly successful path to improved incomes and GDP and within this, agricultural transformation can be an important catalyst. Having said this, the evidence is also clear that without the right types of support and intervention, economic (and agricultural) transformation can create new forms of poverty and leave vulnerable groups behind (see section 3.2 for this discussion) – this can be directly in contrast with the priorities of the SDG's and the development agendas of national governments.

In all the countries looked at in this study we saw a vision and subsequent policy and programming around agriculture transformation and broader economic transformation (see sections 5.2 and 5.3). To what extent has this vision been successful or not in tackling inequality and ensuring no one is left behind?

Inequality

In Ethiopia, inequality is a growing concern and between 2000 and 2011, the poorest 10 per cent of the population, which are effectively landless, became worse off, mainly because of food price inflation. According to the World Bank, if this pattern of income loss is not reversed, the government will not achieve its aim of reducing poverty to below 12 per cent by 2030.

In Rwanda, to the contrary, inequality has decreased – although some recent poverty figures are contested.[160] The government has focused its crop improvement strategy on crops that can generate immediate income, raise families out of poverty and build farmers' assets, as opposed to those with the highest market potential. According to the World Bank, this, combined with social grants, subsidies, extension services and improvements in basic service provision, has raised the incomes of the poorest 20 per cent, living in extreme poverty, faster than that of the top earning 20 per cent since 2007, thus reducing inequality. In years past, Rwanda has focused most of the attention in its agriculture transformation programme on public sector interventions – focusing on crops produced and consumed by the poor. In a country with a history of social unrest, this is a particularly important strategy.

It is not however certain that this progress will be maintained as in recent years there have been some important policy shifts within the crop intensification programme (CIP). Concerns have been raised in recent studies that 'agricultural research and extension as well as subsidisation of fertiliser and seed is going towards crops with strong growth potential but are not necessarily the crops upon which the poor depend for most of their

[159] Newkirk, 2013
[160] Kumar 2016

food'.[161] As a result, increases in production were greater for better off households than for those that were poor, who produce foods such as cassava, beans and bananas, which were not covered by the CIP. The most vulnerable households are, in fact, under-represented in the CIP and the Land Use Consolidation Programme.

Land access

Economic and agricultural transformation goals can lead to land access constraints for rural communities. Vulnerable rural communities are often worse off when they lose access to their most important asset – the land they have used for food and cash crop cultivation, livestock grazing, fishing and gathering of wild products. Secure access to land is a key challenge in all three countries.

An increasing threat to land access is growing population pressure, leading to land fragmentation, especially in Rwanda and Ethiopia, where average plot sizes are now a third of a hectare or less, which reduces further the viability of full-time crop and livestock production. To counter this trend, the Rwandan government has spearheaded a home-grown strategy of land use consolidation as part of its 2007 crop intensification programmes, whereby inputs and services were made available to farmers who consolidated their land under production in its crop intensification programme. As a result, combined with the impact of social grants, input subsidies, and improved public and extension services, one million Rwandans have moved out of poverty since 2005.

However, in Tanzania and Ethiopia, the greater risk to the land access of vulnerable populations has come from competition from large-scale land investors (international, domestic or government-owned agri-business investments). African governments, generally, are keen to attract investment and land investment is generally a priority area. Development Finance Institutions (DFIs) support this work and continue to use public aid to support these operations. In fact, multi-national corporations, international development banks, bilateral donors and host governments tend to use a remarkably similar set of arguments to justify large-scale land transactions. This despite the shaky track record in delivering development impact. The box below explores some of the key issues around these large-scale land investments.

Box 12: Large scale land investments: benefits and challenges

Large-scale land investments can drive equitable transformation if they create new decent work opportunities, through contract farming, direct employment, or stimulating new start-up enterprises, without displacing land users. Benefits could also include improved infrastructure and redistribution of investor profits. However, it is difficult to find examples of large scale land investments in Africa that have realised these benefits and have not created new forms of poverty among displaced land holders. This is mostly because the wages earned through new work opportunities do not cover the price of food or households do not have alternative work opportunities to make up for the lost income from other previous uses of the land (see the Ethiopian Floriculture example described below) .

he most common narratives used to justify these projects are (1) the need for investment in rural areas to provide new job opportunities and reduce rural poverty (the *development* narrative); (2) the urgency of addressing various major global crises, most notably those around food, water, energy, and climate (the *crisis* narrative), (3) the availability of unused or underutilised land that could be brought into (more) productive

[161] Ibid

use (the *idle* land narrative) and (4) the superiority of capital-intensive, large-scale agriculture over semi-subsistence smallholder farming (the *efficiency* narrative)[162]

These narratives stand on shaky grounds. (1) To date, large-scale land deals in Africa have rarely generated new, permanent and secure job opportunities (let alone decent jobs) for local communities and have mostly aggravated hardship rather than reduced poverty among rural populations. (2) The global food, water, and climate crises are in part caused by the predominance of industrial commodity production systems and will not be solved by extending these systems to developing countries. (3) Much of the land leased to investors in Africa had been fertile, populated or served important ecosystem or livelihood functions prior to the land deals. Historically, these areas were often left degraded and unused after the investors left. (4) And finally, empirical and theoretical studies have shown that farming more diverse crops and livestock on smaller-scale plots deliver higher overall yields than monocrop plantations.[163]

The 'development' narrative can be debunked further: firstly, the new work opportunities created on large plantations often do not pay sufficient wages to replace the value of the diverse crops and wild products they relied on for subsistence and income before, especially in areas where food prices rise more rapidly than wages. Secondly, the involuntary land dispossession has accompanied some large agriculture investment projects pushes already vulnerable communities and households into a deeper cycle of poverty, given the lack of alternative options for meaningful work and livelihoods. Thirdly and in relation to these first two points, displaced producers and communities then do not have access to other livelihood and employment opportunities, especially in more remote areas.

In economies undergoing transformation, land dispossession can therefore lead to unequal development, where 'islands of success' are surrounded by poverty, with no distribution of the benefits to workers or surrounding communities (this is well illustrated by the example of the floriculture industry in Ethiopia below.[164] Overall, the continuation of this model of agriculture investment therefore risks creating a dual rural society, with a new underclass trapped in a cycle of poverty, existing alongside a few large industrial estates, with very few linkages to local workers, enterprises and communities.

Box 13: Floriculture industry in Ethiopia

Ethiopia's floriculture sector is the youngest in Eastern Africa, making a slow start in 1997, but growing exponentially after the government started supporting the industry with credit, airfreight, and land access. By 2013, more than 80 floriculture companies have been incorporated, with Ethiopia the second largest flower producer in Africa after Kenya. Floriculture now contributes 80 per cent of foreign revenue earnings, and employs 85,000 people directly and 200,000 people indirectly. Although all the companies are plantation-based, the sector only uses 11 per cent of the land that has been developed for horticulture. However, this this land was previously used for food production and pasture, which are of critical importance to local livelihoods. In one project, a government-sponsored vegetable project serving the local market was halted to lease land to a Dutch flower company. Local community members in Holetta and Debre Zeyt felt that the government prioritized the resource needs of investors, who wanted arable land close to roads and water sources, which led to the mandatory relocation of local

[162] Neef, 2016
[163] Ibid
[164] Vorley, Cotula & Chan, 2012

land users, at times with no or inadequate compensation.

Floriculture is a more water-intensive industry than other horticultural sectors. Despite this, there are hardly any limitations on the amounts of water the companies are allowed to use. Dutch firms in Ethiopia do, however, employ water-saving techniques such as drip irrigation, hydroponics and automation systems.

The most significant contribution of the floriculture industry to development has been job creation. Almost a hundred per cent of the jobs created by Dutch floriculture companies are permanent, with women employed in 80 per cent of the jobs. However, despite average wages being more than double the statutory minimum wage per month, they are only between a third and a quarter of the living wage and therefore do not support a decent livelihood. Given that employees are fully dependent on these wages for their subsistence, residents are not always interested in taking jobs on the flower farms, so many jobs have gone to migrants. This influx of new workers, in turn, has created demand for local food producers. However, their wages are insufficient to make them food secure when considering living costs such as housing and remittances. The result is an economically successful sector which is effective in job provision and raising some out of poverty, but overall a surrounding area that remains poor (or worse where poverty increases) – a classic 'island of success'.

Source: LANDac, Flowers for Food? Scoping study on Dutch flower farms, land governance and food security in eastern Africa, January 2016, University of Utrecht[165]

Despite the bad track record of large-scale land-based investments in building resilience amongst the most vulnerable, many African governments and their donor partners continue to promote and support these types of investments. The three countries we looked at in this study show some divergence in the way and degree to which this agenda is being pursued in different countries:

- In **Ethiopia**, the federal government has created a centrally controlled Land Bank, which designates land available for large-scale land investors. Many of these designated investment areas are in the less populated regions of the country. In pastoral areas, where it is well known that land is used for grazing animals, the government has clearly stated that it wants nomadic pastoralists to become settled, and will therefore not protect their use of land that could be turned into more 'productive' use. However, it has not made a thorough assessment of the existing land use in many of these areas. As a result, the arrival of new land users has in some cases led to conflicts between existing land users and new investors.[166]

- In **Tanzania**, the government's *Farming First strategy* has designated that large areas of land under state control be made available to investors. More than a quarter of Tanzania's land is also being marketed to agri-business investors as part of the *Southern Agricultural Growth Corridor of Tanzania (SAGCOT)*. This initiative was developed by the British consultants AgDevCo, with support from the Norwegian fertiliser producer Yara International and a range of powerful international organisations and donors. It was first launched in Dar es Salaam and then at the World Economic Forum in Davos in 2010. Much of its publicity is aimed at attracting agri-businesses to invest in large farms. But it also promotes the benefits of smallholder outgrowers, who grow crops on contract to supplement those produced on a central or nucleus farm. There have been several documented cases of communities being displaced from their land by investors in the

[165] Kirigia, Betsema, van Westen & Zoomers, 2016

[166] LANDac, 2016.

growth corridor areas, without adequate compensation and access to decent work and livelihood opportunities.

- In contrast, the **Rwandan** government's strategy has primarily focused on increasing public investment in irrigation and crop improvements, targeting food crops grown by the poorest, and support for cooperatives. The government supports a smallholder-led model of agriculture transformation, and as a first step, has scaled up support for contract and satellite farming, and cooperatives. As a result, the number of agricultural cooperatives has expanded three-fold between 2008 and 2013. . There has been reports, however, that although some cooperatives have been beneficial to farmers, others have been established by local government administrators with little farmer consultation, and some are very poorly managed[167]. According to some reports, local government officials have sometimes forced farmers to join cooperatives, and sell their crops only through the cooperative. This has limited the rights and agency of farming households to choose how to use their land best and where to sell their produce.[168]

Where the government has aimed to attract private investment, it has been in the agro-processing industry linked to smallholder production. One of the most notable characteristics of the agribusiness sector in Rwanda has been the number of joint ventures either between foreign investors and farmer cooperatives or foreign investors and the government. The latter has paid great attention on how to keep the benefits of value chain development in-country – whether through ownership structures or paying attention to the incomes generated for small farmers in different crop sectors. It has done so by 'leading' the private sector into new opportunities taking a role either as regulator, co-investor or partner in seeking expanded business opportunities. For example, it recently awarded a tender to a company building new tea factories linked to 6000 hectares of greenfield sites. The company will train up to 7000 farming households to supply the factories and create a further 2600 formal jobs.[169]

5.6 Gender equality is still neglected in most agricultural transformation strategies

For economic and agriculture transformation to truly see development impact in line with the SDG's, gender equality needs to be prioritised. Research has found that investments are generally needed in women farmers, but not only for equity reasons. It is estimated that even if women simply had the *same* access to productive resources (such as land and seed) as men, they could increase yields on their farms by 25–30 per cent. This would raise agricultural output in developing countries by 2.5–4 per cent and reduce the number of hungry people in the world by 12–17 per cent. Despite this, women remain largely marginalised.[170]

Across Ethiopia, Tanzania and Rwanda, the economic situation of women roughly mirrors that of women in other low-income countries. While women provide the bulk of agricultural labour, they function mainly at subsistence level with insufficient skills and access to market information, credit, extension, services, entrepreneurial opportunities and secure land tenure. Gender disparities are embedded throughout all agriculture and related economic activities. The division of household tasks and earnings from sales are dictated by social norms, with women performing the bulk of reproductive, care and household tasks, while having less control over the use of earnings.

[167] Ansoms, A. 2009. *Faces of rural Poverty in Contemporary Rwanda: Linking Livelihood Profiles and institutional Processes*. Phd dissertation, university of Antwerp. Quoted in World Resources Institute, 2014

[168] Huggins, 2014

[169] Kumar, 2016

[170] FAO, 2011b

The lack of equity in the division of care activities affect women's participation in agriculture more than in other sectors, given the lack of organized care and public investment in poor rural areas. Improved investment in rural infrastructure, along with greater investments in labour-saving technologies are the most efficient way to empower women economically given the hours women spend collecting water and fuel. Expanding early childhood education and/or paying social welfare benefits directly to mothers would have dual benefits for women and children.[171]

On paper, **Rwanda's** approach to gender equality and women farmers is among the most impressive in Africa. The *Strategic Plan for the Transformation of Agriculture* (PSTA II) mentions women farmers in various places and calls for gender equality in agriculture. The government is also committed to gender-responsive budgeting across all ministries and state institutions. Beyond agriculture, Rwanda has made major progress in promoting gender equality, with women forming the majority of parliamentarians and with laws, on paper, emphasizing gender equality such as property ownership.

There is, however, still a considerable way to go for women farmers to see the full benefits of such policies. Only 15 per cent of women farmers received fertilisers through the government subsidy programme, while those who grow crops other than maize do not have access to the subsidy at all.[172] Access to extension services is mixed. Models of the likely impacts of the government's agriculture transformation programme, first adopted in 2005, showed that incomes were projected to rise faster among male-headed households than women-headed households, and for households producing export crops rather than food crops and would widen income gaps between men and women, highlighting a bias in spending and policy.

5.7 Some concluding observations

These three countries have all highlighted agricultural transformation in their national development plans and it is therefore valuable to consider the extent to which the new global commitments to a more sustainable and inclusive development model are reflected in their strategies. Ethiopia is recognised as the forerunner among African countries in attempting to link its agricultural and industrial development strategies through the development of agro-industrial parks and clusters, connecting commercial smallholders to agro-enterprises, mostly directed at the export market. Rwanda has taken a different approach and has been recognised for its success in rapidly reducing extreme poverty – a strategy within which agriculture has played a central role. Finally, the Tanzanian government has been a keen promoter of an agricultural development model based on attracting large-scale investment for primary export production. Each country offers lessons which have been considered in this section.

6. FUTURE PATHWAYS FOR AGRICULTURE IN AFRICA

There is increasing global recognition that agriculture production and even processing can, under certain conditions, perform important environmental, socio-cultural and economic functions, especially in African societies still rooted in agrarian culture and social relations. Despite this, the dominant narratives shaping the agricultural transformation agendas of African countries and development institutions showcased in this report, tend to use language that emphasise purely the economic functions of agriculture. This language pits certain options against each other with one clearly framed as optimal: subsistence production against 'farming as a business', 'high potential' against 'resource poor' producers, 'traditional' or 'backward'

[171] UN Secretary-General's High-Level Panel on Women's Economic Empowerment, 2016.

[172] Kumar, 2016

against 'modern' farming, production for local markets against global value chain integration, traditional agricultural knowledge against high technology, less productive agricultural labour against more productive labour in manufacturing and other sectors, and on-farm against off-farm economic activity and employment.

These narratives assume that the purpose of agriculture transformation is to increase the yields of 'single strategic' marketable crops or livestock products as the means to reduce poverty. In so doing they move labour and other factors of production into more 'productive' sectors. This 'productivist' logic focuses on the efficiency of commodity production for global and sometimes national agricultural commodity markets that reward farmers who can produce large volumes of specialised and uniform commodities at the least cost. However, as the examples and literature explored in this research show, if agricultural transformation decisions are based predominantly on this approach, it will over time increase ecosystem degradation and unequal development.

However, a new 'resilience' logic[173], is starting to take root among some of Africa's decision-makers and many rural communities. This is in part because of the recognition that agricultural systems are extremely vulnerable to climate change. It is also the result of social movements advocating for greater local control over the continent's food systems and for agro-ecological production systems. In this logic, sustainability and equality are the primary aims of agricultural development. It values and supports traditional belief systems (which view environmental and economic objectives as interdependent), local food economies, networks of trust and solidarity. It views productivity not in terms of yield increases, but as total output and environmental benefits provided at farm and landscape level. Only once these values are mainstreamed, and the risk taken by farmers is accounted for, can governments lead, and donors support a radical re-orientation of the agriculture system towards one which promises environmental and social benefits the already present economic goals.

Despite the neglect by governments and the development finance community, the adoption of agro-ecological farm management and landscape management practices are growing from the bottom-up, led by farmer networks often in collaboration with NGOs.[174] Yet, although the latter are important drivers of change, the need for faster and deeper poverty reduction through inclusive and sustainable agriculture growth requires that governments and donors line up behind these efforts. This will require a number of shifts. To lay the foundation for inclusive and sustainable economic transformation, governments and development institutions will need to put the following actions at the centre of their efforts to transform Africa's agricultural sectors:

1. **More government facilitation and support for resilient agricultural transformation – and more broadly a resilient food system.**

First, there is a need to invest in infrastructure, services, and policies that, rather than intensification of production, *see a re-orientation of agriculture production towards agro-ecological farming systems and simultaneously recognise and build on the values and knowledge of traditional productions systems*. This change is slowly starting to manifest – in recent years, some international agencies, including UNEP, UNCTAD, the FAO and the Consultative Group for International Agricultural Research (CGIAR) have started to endorse especially the farm management elements of agro-ecology as important tools that should be available to

[173] Adapted from Silici, 2014

[174] See examples of the impacts of agro-ecological farming collected by the Alliance for Food Sovereignty in Africa (AFSA) on their website http://afsafrica.org/case-studies/, as well as in Ecological Farming: the seven principles of a food system that has people at its heart, Greenpeace International, 2015, Amsterdam

small-scale farmers and vulnerable communities to improve their resilience, total output, and livelihood options. Yet none of them, as yet, promote a full-scale re-orientation of all conventional industrial agricultural systems to agroecological systems, or the full-scale adoption of agroecological approaches in developing countries where agricultural systems are in transition.

Secondly, there is a need to *radically re-orient public and private extension systems* to become facilitators of on-farm research and experimentation with stronger collaborations between the formal scientific establishment and local farmer networks. Here farmers need to be open-source and high value innovators, rather than mere consumers of external inputs (a disempowerment that is produced by the increasingly concentrated pool of global agro-chemical companies). Effort will need to be directed to developing quality advisory and information services along with farmer-led research, market systems, and policy and regulatory regimes. Such efforts will need to be able to test, scale up, and incentivise agro-ecological farming practices, bio-fertiliser and bio-pesticide product markets, or community seed banks and informal seed exchange mechanisms that can catalyse small seed enterprises in rural areas.

Thirdly, there is a need to work with producers and agri-enterprises to invest in infrastructure, services, and policies that *support local food economies and link food producers to growing urban markets*. Some important mechanisms for doing this could be to use local content policies, incentives, and regulations to attract domestic investment (including by traditionally poor or marginalised people) in agro-processing and support input markets for agro-ecological farming systems. To explicitly meet a 'leave no-one behind' agenda, this needs to include a focus on building the confidence and capacity of smallholder producers, especially women, to engage in collective action, both for learning and marketing purposes.

2. A commitment from governments and development institutions to measure what matters

To truly embrace agricultural transformation that is both socially inclusive and environmentally sustainable, governments and donors need to commit to measuring what truly matters to this agenda – beyond simple economic outcomes. Firstly this means that the *social and environmental costs of monocrop commodity plantations need to be made visible* and actively measured in performance indicators. This information then needs to be used to inform agricultural investment decisions so that they are made in favour of both people and planet.

Secondly, there is a need reward and incentivise producer and processor behaviour which contributes positively to environmental and social outcomes (rather than purely incentivising commercial monocrop farming). In other words governments and donors must *make visible and reward the environmental benefits provided by agro-ecological farm management systems*.
Thirdly, the understanding of farm productivity needs to be broadened beyond purely an increase in yields and the economic implications of this. True productivity (which is both environmentally sustainable and leads to more equitable outcomes) must be considered. This means that governments and donors need to *include new indicators of productivity such as total farm output and environmental benefits*.

3. Proactive steps from governments and donors to ensure the rights of workers and land users

Finally, if governments and development institutions are to take the leave no-one behind agenda, within the SDG's, seriously, they need to take proactive steps to ensure that workers and land-uses' rights are protected rather than prioritising investment at any cost. This means that the *land-use rights of all land users (including pastoralists and women) need to be*

protected and secured. Importantly innovation needs to take place so that this can happen in both customary and non-customary systems.

Principles of decent work then need to be introduced with some urgency into agricultural value chains. In particular *ILO decent work standards must be used to regulate out-grower contracts and labour standards on plantations*. Decent work standards are even possible in informal contexts. The ILO and organisations like WIEGO have done important work around this.[175]

[175] See for example ILO 2002 & 2013 and WIEGO undated a & b

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