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Author's Declaration:

The work presented in this dissertation was carried out in the Faculty of Continuing Education, Birkbeck College, and is entirely my own except where other authors have been referred to and acknowledged in the text. It has not previously been submitted for a degree in this or any other university. The views expressed in this dissertation are my own, and not those of the University.

Signed:

Nadja Eberhardt (19 September 2006)

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List of Acronyms

HYV – High Yield Variety crops

HIV – Human Immunodeficiency Virus

AIDS – Acquired Immune Deficiency Syndrome

Dfid – Department for International Development

WTO – World Trade Organisation

FAO – Food and Agricultural Organisation

USAID – United States Agency for International Development

CIDA – Canadian International Development Agency

UN – United Nations

List of Terms

Report – Commission for Africa Report

Green Revolution Technology – agricultural technology package generally consisting of irrigation, high yielding seed varieties, fertilisers and pesticides.

Agricultural Intensification – a shift to more commercial forms of agriculture using Green Revolution technology, i.e. cash cropping and irrigation with the aim of increasing agricultural output.

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Policy Critique of the Commission for Africa Report's recommendations on 'Agricultural and Rural Development' – Gender, HIV/Aids and Food Security in Rural Communities of Sub-Saharan Africa.

Abstract

The following dissertation is a critical analysis of the 2005 Commission for Africa Report's policy recommendations on 'Agriculture and Rural Development'. Considering the high prevalence rate of HIV/Aids in sub-Saharan Africa, the study focuses in particular on the Report's failure to integrate the pandemic's impact on the agricultural sector, or to consider the way that the agricultural sector and agricultural policy itself can implicate on the HIV/Aids pandemic. With the recognised important role of agriculture for household food security and the connection between nutrition and HIV/Aids prevention, treatment and care efforts, the paper will examine possible local constraints to the proposed technology improvements, such as labour and capital availability, and how these can implicate on food security and the HIV/Aids pandemic. Taking into special consideration existing gender roles and disparities, the study will conclude that it is vital for policy makers to consider how changes in agrarian structures and production impact on benefit distribution, rural household food security and the impact on and of the HIV/Aids pandemic at all levels. The failure of the Commission Report to do so is likely to have both negative implications on policy effectiveness, rural livelihoods and (already compromised) food security.

1. The Commission for Africa Report and the G8

In 2005, with Britain's presidency of the G8's special focus on development in Africa, Africa was at the top of the development agenda. In preparation for the annual G8 summit to be held in Gleneagles in July 2005, the UK government launched a research project to culminate in an extensive 'Commission for Africa Report', a 460 page document "with the purpose of trying to put in place the basic elements of a comprehensive package that would right the wrongs of Africa" (Blair, 2005). Funded predominantly by Dfid, the UK government Department for International Development (Global Autonomy, 2006), it was presented to G8 at Gleneagles, helping to shape the agenda of the summit (G7, 2006) and providing facts, analysis and ideas to assist the eight countries in delivering a comprehensive plan of support for development in Africa (HM Government, 2005).

It would be too extensive a task to examine in depth either the G8 Summit or the role of the G8 within development and development institutions, yet an understanding of the significance of the Commission for Africa Report is central to this dissertation. In the first instance, the Report's significance lies in its primary audience, namely G8 governments and their influence on the international political landscape. For while not itself a development organisation, the G8 is made up of some of the most politically and economically powerful countries (Hewitt, 2000:291) – the US, UK, Japan, France, Russia, Germany, Canada and Italy – prominent players within a variety of key international organisations. For instance, four members of the G8 hold permanent seats and veto power at the UN Security Council, five G8 members are the largest stakeholders at the World Bank (World Bank, 2006) and the IMF (IMF, 2006). Many G8 governments run large and influential development agencies in their own right (Dfid, USAid, CIDA), which also fund a wide variety of development projects and initiatives through intermediaries such as Oxfam, Tearfund, the World Bank and IMF (Oxfam, 2006; Tearfund, 2006; World Bank, 2006; IMF, 2006).

Secondly, while the Report is certainly not without its critics (i.e. Lewis, 2005; Devereux, 2005), it has enjoyed far reaching support and has influenced a variety of development agendas: for example, many of the G8 commitments on Africa, largely influenced by the Report (G7, 2006) were globally backed at the UN Summit in September 2005 (G8, 2005). It has been endorsed, amongst others, by the UN Secretary General, the president of the World Bank, the Canadian minister of finance and a variety of international NGOs such as Oxfam, Water Aid and Tearfund (Commission for Africa, 2005a). Various UK government policy documents have since been informed by the Commission's commitments and policy recommendations (HM Government, 2005; Dfid, 2006), while the Report's importance to the DOHA negotiations at the WTO has also been emphasized (G8, 2005).

1.1 Research Question, Hypothesis and Structure

The Commission Report's policy recommendations focus predominantly on driving economic growth, with growth considered key to development and improving the lives of poor people in Africa (CfA, 2005:33). While it is outside the scope of this paper to critically analyse the Commission Report in its entirety, this paper will examine specifically policy recommendations relating to 'Agricultural and Rural Development' (ibid, 2005:237). In this respect, the Report emphasises the need for Africa to significantly raise agricultural output through 'green revolution' technology improvements such as irrigation, high yielding variety crops (HYV) and a shift to commodity production for trade. Agricultural growth for trade is

seen as critical to overall economic growth and industrial diversification in the wider economy. Policy recommendations on agriculture and rural development are related to a more extensive and separate section of the Report on “More Trade and Fairer Trade” (ibid, 2005:255), discussing a comprehensive set of policy recommendations aimed at creating a fairer international trading environment to increase Africa’s capacity to trade.

While outside the scope of this paper to investigate in detail, it is not the aim here to deny the need to address inequity within the international trading environment or argue against the expansion and modernisation of the agricultural sector for trade. Rather, this paper will focus on the Report’s failure to significantly acknowledge the importance of the agricultural sector in its own right – particularly the subsistence sector – as the resource base for a large percentage of people on the continent (Barnett and Whiteside, 2006:238). Yet especially with the rapid spread of HIV/Aids across much of sub-Saharan Africa, this resource base is quickly being eroded, depleting the region of vital labour, knowledge and skills, and compromising rural communities’ ability to make a living from farming and non-farming activities (Bishop-Sambook, 2004:1): - facts which has largely been overlooked by the Commission.

Ngwira *et al.* (2001:6) found that despite the extent of the pandemic and its impact on livelihoods, policy making often still proceeds as if HIV/Aids never happened, with policy makers having a limited grasp on how the virus affects agricultural systems and importantly also on how agricultural development may contribute to the spread of HIV. Furthermore, a substantial amount of literature has emphasised the importance of food security and nutrition to HIV/Aids prevention, treatment and care efforts (see section 2.1) and the connection between agriculture and food security (see section 2.3), with Bishop-Sambook (2004:1) emphasising that “the agricultural and natural resource sector present a unique opportunity to combat the HIV/Aids epidemic in predominantly rural economies”. Yet while a short section of the Commission Report does specifically address the HIV/Aids pandemic, recognising it as a major development challenge affecting Southern and Eastern Africa in particular (CfA, 2005:201), discussions and policy recommendations on HIV/Aids largely remain confined to this particular section of the Report - issues of food security and nutrition, are wholly absent from its policy recommendations on agriculture and rural development.

Baylies (2002:616) explains that policy makers often fail to take into account the intrinsic connection between food security and HIV/Aids, which, according to Loevinsohn and Gillespie (2003:4), could “create conditions that inadvertently hasten the spread of HIV in rural areas”, by increasing food insecurity and falling nutritional intake. Potter *et al.*

(2004:253) and Bebbington (1999:2021) claim that failing to conceive the way in which interventions into prevailing agrarian structures implicate on existing livelihood strategies, the way people get by and get things done, will mean that policy makers are likely to devise simplistic policy which will increase livelihood vulnerability. This, according to Chamber (1997:170) is an important factor in the failure of development projects so far, and is why development projects are rendered ineffective or even become irrelevant, especially when the full impact of the epidemic surfaces (FAO, 2003a:16).

Despite the above outlined importance and endorsement of the Commission Report within mainstream development institutions, it has received little attention within academic literature, with no evidence of a detailed critique of its policy recommendations on agriculture. Therefore, this paper will critically analyse the Commission for Africa Report's policy recommendations on agriculture in relation to food security and nutrition, especially considering the unique challenges posed by the HIV/Aids epidemic in the region. Considering the close connection between agriculture and food security on the one hand, and the importance of nutrition to HIV/Aids prevention, treatment and care efforts on the other, it will argue that the failure to take on board these issues could lead to potentially negative outcomes for rural livelihoods, food security and levels of nutrition in the region.

Divided into four parts, the first chapter will review some of the existing literature on agricultural development, gender relations and HIV/Aids, giving an outline of the issues at hand and also demonstrating the wide range of literature and evidence available, which the Commission has failed to consider in its policy recommendations. The second chapter will examine issues surrounding agricultural growth based on technology improvements as recommended by the Commission, especially the adoption of irrigation systems and high yielding variety crops (HYV), based on the idea of a 'green revolution' in Africa, and how this can implicate on rural livelihoods and food security. Chapter three will examine gender relations *in* and the gendered nature *of* rural livelihoods in rural Sub-Saharan Africa. Recognising women's greater susceptibility and vulnerability to the virus, and their important role in household food security, it will examine the possible implications of the recommended policies on gender roles and disparities and in turn on the spread and impact of HIV/Aids. Finally, the fourth chapter will evaluate and form conclusions on the Commissions agricultural policies based on the evidence collected within the previous chapters.

1.2 Methodology

Evidence used in this paper is based on secondary qualitative and quantitative sources mainly taken from academic literature and policy documents from a variety of organisations such as the FAO and Dfid. The study does not aim to devise 'more appropriate' development policy or to draw definite conclusions, but rather presents to highlight and examine a range of issues surrounding the Commission Report's policy recommendations on agriculture. Primary research was thus avoided, with secondary sources including case studies and data covering a variety of countries in the region providing a more diverse research base.

The study's regional focus is on sub-Saharan Africa, primarily because, given a few exceptions, the region continues to be confronted with the highest and rising levels of HIV/Aids on the continent, while also being predominantly rural (*table 1; table 5*). Clearly, no amount of research or data can comprehensively describe the reality and diversity of rural livelihoods and the HIV/Aids pandemic. While accurate and far reaching quantitative data on the HIV pandemic is hard to source, especially in rural areas (Barnett and Whiteside, 2006:59), I have found that qualitative data on agricultural development is frequently contested, with different studies coming to different conclusion. For example, while this paper will highlight some negative outcomes of irrigation projects in Africa, a survey conducted in 107 villages in Uganda by Pender *et al.* (2004:788) found that investment in irrigation was actually associated with improvements in several resource and welfare indicators, including household food security. In contrast, Barnett and Whiteside (2006:248) specifically addressing the impact of HIV/Aids on farming systems, deem labour, knowledge, experience and administration intensive irrigation systems more vulnerable to deterioration, as all of these 'prerequisites' are negatively affected by high mortality rates associated with HIV/Aids, especially in the long term.

Yet outcomes and conclusions vary greatly depending on research emphasis. In regions with high HIV/Aids prevalence rates, policy cannot be assessed accurately without taking into serious consideration the impact of the pandemic on livelihoods, both in the short and long term. Sources used in this paper have thus been chosen or assessed with this in mind, contrasting the Commission Report's approach of adding on HIV/Aids largely as a separate (predominantly health) issue rather than integrating it within its policy recommendations at all levels. Case studies chosen have been used to investigate and demonstrate possible policy implications of a shift to high intensity agricultural production on gender relations, food security and livelihoods in general, and on nutrition and HIV/Aids in particular.

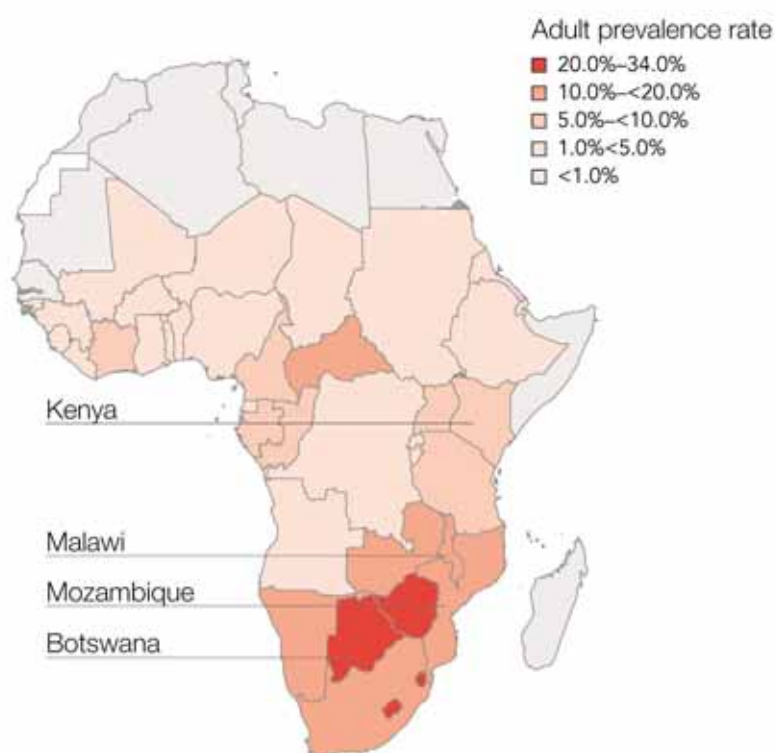
2. The HIV pandemic in rural sub-Saharan Africa

"The distribution of illness and disease tells of the distribution of poverty in the world"
(Barnett and Whiteside, 2006:72).

Since colonial times, hundreds of rural development programmes across the African continent have been initiated by a variety of international development agencies and governments alike. With few exceptions, their achievements have largely fallen short of expectations or have even led to opposite outcomes than predicted (Berry, 1993:43). Yet rural Africa, still confronted with widespread poverty, is facing new challenges. It is by now well known that HIV/Aids is having a devastating impact on rural livelihoods and lives, especially in sub-Saharan Africa, with HIV/Aids considered by many to be a major development issue rather than solely a health issue (Heimrich and Toupouzis, 2000).

According to Hunter (2003) any disease in Africa, whether sexually transmitted or otherwise, has to be placed within the context of the existing and entrenched poverty experienced on the continent, a legacy which she ascribes to 400 years of exploitation under colonialism and more recently to economic development interventions by the North. Despite, and perhaps because of these numerous development interventions, which have been associated with deepening poverty and rising inequality (Devereux, 2002:71), significant reversals in development gains made in the immediate post-war era have been witnessed, and have led to a continuing rise in poverty from the late 1970s onwards (Poku, 2005:25; Scoones and Wolmer, 2003:2).

Thus, while the causes of HIV/Aids are certainly complex and multifaceted, the intrinsic and important link between HIV/Aids and poverty is now widely recognised (Poku, 2005; Barnett and Whiteside, 2006; Hunter, 2003; Lewis, 2005; Stillwaggon, 2002). As the figures and tables on the following page help visualise, the high prevalence of the disease in the developing world, and especially in rural sub-Saharan Africa, is closely associated with the high levels of prevailing and deepening poverty in the region. Due to the pandemic's relatively distinctive feature (compared to for example Malaria and Tuberculosis) of disproportionately affecting the most economically productive segment of society (those aged between 15 to 49) (*figure 2*), means that the negative impact of HIV/Aids on economic growth both in the urban and rural environment is often emphasised (FAO, 2003b:2).

FIGURE 1.0 HIV prevalence (%) in adults in Africa, 2005


Source: 2006 Report on the global AIDS epidemic, UNAIDS/WHO, May 2006.

TABLE 1.0 Estimated number of people living with HIV - 2005

	Adults (Age 15+)	Women (15+)	Women (%)
Global	36 300 000	17 300 000	48
Sub-Saharan Africa	22 400 000	13 200 000	58
Botswana	260 000	140 000	50
Malawi	850 000	500 000	58
Mozambique	1 600 000	960 000	60
Kenya	1 200 000	740 000	61

Source: 2006 Report on the global AIDS epidemic, UNAIDS/WHO, May 2006.

TABLE 2.0 Poverty Indicators for Africa, various regions

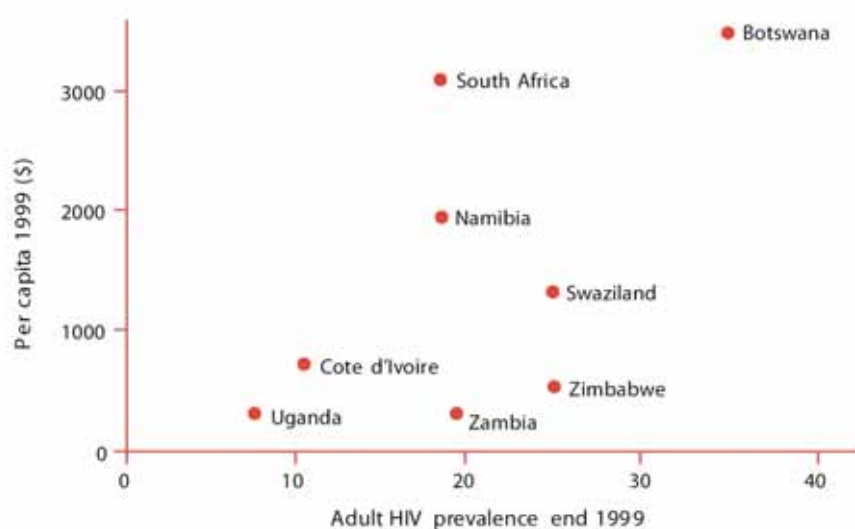
	Pop. below \$1 day (%) 1989 - 99	Pop below \$ 2 day (%) 1993 - 2000	Inf. mort. rate (1000 live births) 2000	Life expectancy (years, M, F) 2000
Southern Africa	29	62	111	45, 47
East Africa	30	79	100	47, 49
Sub-Saharan Africa	43	76	109	48, 50

Source: Chronic Poverty Research Centre, 2004; World Bank 2003b, in Poku, 2005:26

TABLE 3.0 Selected Development Indicators

	Life expectancy	Under 5 mort. (per 1000)	Change in daily per capita calories*	Change in daily per capita protein*
Sub-S. Africa	46	178	-34	-4.1
South Asia	63.2	95	365	12.7
East Asia	69.8	42	856	59.7
Latin America/ Caribbean	70.5	34	324	13.1

Source: UNDP, UNICEF, in Barnett and Whiteside, 2006:140
* 1970 - 97 (%)

FIGURE 1.1 Wealth and HIV: selected countries


Source: Whiteside, 2002

Growing levels of illness and care requirements within households can lead to the diversion of resources away from economic activity for consumption to health seeking and caring activities (Poku, 2005:86). Furthermore, increased health and funeral costs often erode already resource poor households of their last assets and savings (Barnett and Whiteside, 2006:246), compounded also by rising dependency ratios within households due to the growing numbers of orphaned children (De Waal, 2003:6; White and Morton 2005; FAO, 2003b:2; Tibaijuka, 1997:966). Illness and death can additionally lead to loss of knowledge, skills, land and property, while children are removed from schools to make up for lost labour or income (FAO, 2003b:2).

From a macro-economic perspective, countries most reliant on agriculture are those most affected by HIV/Aids (Toupouzis, 2000, cited in Mueller, 2004:21). While prevalence rates are generally higher in urban areas, the absolute number of people living with HIV is now thought to be greater in rural communities (Mueller, 2004:21) (*figure 3 & table 4*). Also, given the fact that many urban dwellers return to their village of origin when they fall ill with Aids, rural households may in any case bear the brunt of the cost of the disease (Heimrich and Toupouzis, 2000:86). The impact of the pandemic on rural communities and economies and the agricultural sector is therefore especially profound (Topouzis, 2000, cited in Mueller, 2004:22), particularly the smallholder sector, which has been found much less able to absorb the labour loss associated with the pandemic (De Waal and Tumushabe, 2003:2).

2.1 Food Security, HIV and Nutrition

According to Barnett and Whiteside (2006:255), the concept of 'food security' consists of actual food availability and people having access to sufficient and stable supplies of dependable quality food. Whether or not individuals or communities are food secure goes beyond immediate food supply but has to consider 'entitlement' relationships, i.e. entitlement to food based on the relationship between rights, interpersonal obligations and individual entitlement to things (Sen, 1981, cited in Potter *et al.* 2006:206). Individual entitlements to food can decline with, for example, a decline in income to purchase food or loss of land to produce food. Thus, a shift in agrarian structures can affect these entitlements and thus household food security.

Food security is closely connected to household and individual nutritional status. With many HIV affected households already living below the poverty line (Webb and Paquette, 2000:695), food insecurity is often a fundamental concern. Thus, with high levels of

malnutrition in the region (*table 4*) - in Southern Africa over 40% of the population (FAO, 2005:31) - adequate levels of nutrition and food security has now been widely identified as a care need for HIV/Aids affected individuals and households (Lewis, 2005:55; Webb and Paquette, 2000:694).

Loevinsohn and Gillespie (2003:25), stress the ultimate importance of a diverse diet for HIV/Aids affected/infected individuals, including adequate amounts of quality macronutrients such as protein and energy. According to Sanders and Sambo (1991:10), malnourishment can lead to higher biological vulnerability to HIV infection, especially in women, and higher viral virulence once infected. In turn, the virus itself can lead to malnutrition, as infected individuals have significantly increased nutritional requirements (FAO 2003a:8; Barnett and Whiteside, 2006:258; Loevinsohn and Gillespie, 2003:25). Malnourished women are more likely to transmit HIV to their children (Stillwaggon, 2002:12) – in sub-Saharan Africa, mother-to-child transmission is the second most important route of infection (Loevinsohn and Gillespie, 2003:7) – while low nutritional status of chronically ill individuals weakens their resistance to opportunistic infections such as TB and diarrhoea, leading to a more rapid degeneration of their general state of health (Webb and Paquette, 2000:696). Anti-retroviral (ART) drug therapy, if at all available, is less likely to be effective and tolerated by hungry or malnourished individuals (Barnett and Whiteside, 2006:258).

	Number (millions)	Proportion
North Africa	7	7%
West Africa	35	16%
Central Africa	42	50%
East Africa	75	42%
Southern Africa	38	42%

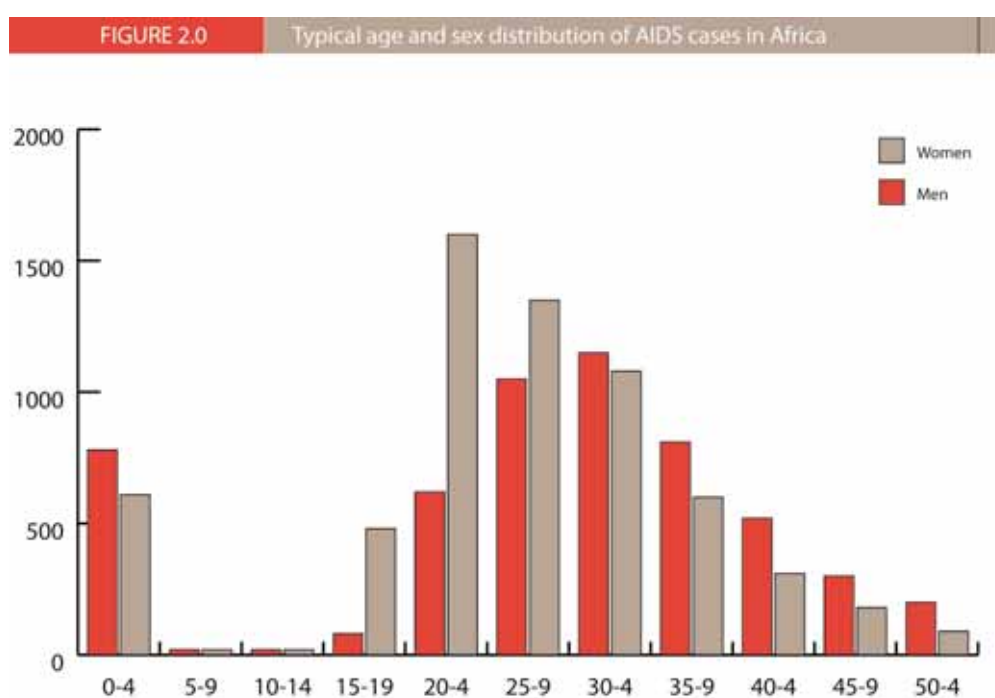
Source: FAO 2002, *The State of Food Insecurity in the World*

It has also been widely documented that food crises and general poverty can and often does lead to social breakdown and an increase in survival strategies that magnify the risk of infection, especially for women, such as migration and transactional sex (Poku, 2005; Hunter, 2003; Devereux, 2002; Barnett and Whiteside, 2006). Thus, argues the FAO (2003a:9), especially given the lack of medical care and drug treatment in most AIDS

affected developing countries, protecting household food security and maintaining adequate levels of nutrition is imperative.

2.2 Gendered livelihoods

In sub-Saharan Africa, women are disproportionately affected by HIV/Aids (*figure 2*), making up almost 58% of adults living with the virus (UNAIDS, 2006). On average, for every 10 men infected with HIV, 13 women carry the virus, with the gap still widening. Some studies even show that in the age group of 15-24, the ratio is much larger still at up to 36:10 (Barnett and Whiteside, 2006:10). It is also widely recognised that the factors driving the HIV pandemic and men and women's biological, social and economic susceptibility to infection are inherently gendered (Baylies, 2000:1; Tallis, 2005:5), with both men and women at risk, but women less able to protect themselves (Baylies, 2002:619).



Source: CHGA, 2003 in Poku, 2005:62

Despite the important role of non-agricultural income generation, smallholder subsistence production is still fundamental to household food security in much of rural Africa (Barnett and Whiteside, 2006:239). The substantial contribution by women to this sector is now widely recognised (Zwarteveen, 1997:1339; Potter *et al.*, 2004:456; Mueller, 2004:49), also by the Commission (CfA, 2005:208), and especially in the era of HIV/Aids (De Waal and Tumshabe,

2003:13). It is estimated that women contribute 60-70% of unpaid subsistence labour on small scale farms (Mutangadura, 2005:5; Machina, 2002:1). There is also plenty of evidence to suggest that women are largely responsible for domestic activities such as childcare, food processing and home maintenance, (Mueller, 2004:49), with women the often unrecognised providers of households (Webb and Paquette, 2000:696) and therefore central to household food provision and security. With increasing household dependency ratios and/or incidence of illness and death within households attributable to HIV/Aids (Poku, 2005:62), this extra burden of care has predictably also fallen on women (Webb and Paquette, 2000:696). It is thus assumed that the pandemic disproportionately affects women in their productive activities (Zwarteveen, 1997:1339, Topouziz, 2000, cited in Mueller, 2004:52) having a particularly dramatic impact on household consumption levels (Baylies, 2002:619).

In much of rural Africa, unequal gender relations and disparities in access and rights to resources are widespread (Walker, 2002; Mbaya, 2002), with gender disparities in resource distribution such as land having become especially relevant in the era of HIV/Aids (Drimie, 2002) and thus to discussions on agricultural intensification. Uneven gender relations play an important role in determining livelihood opportunities and outcomes between men and women - in deciding, among others, distribution of work, income, wealth, land and water rights, credit and access to education (Mutangadura, 2005:4; Cagatay, 1998). Access to irrigated land, for example, is often conditioned by land and water rights, with women frequently at a disadvantage (Zwarteveen, 1997, Hoogedam, 1995). Also, a shift to labour intensive cash crop production has seen women being recruited onto husband or male relative's land as family labour (Whitehead, 1990:63), increasing their dependence on men and compromising their vital subsistence production role.

2.3 Rural Livelihoods, Agriculture and Food Security

“Low and falling food production and consumption, low food quality because of infertility of tropical soil, and endemic parasitic diseases that drain the population of essential nutrients are all conditions more descriptive of sub-Saharan Africa than any other part of the world” (Stillwaggon, 2002:16)

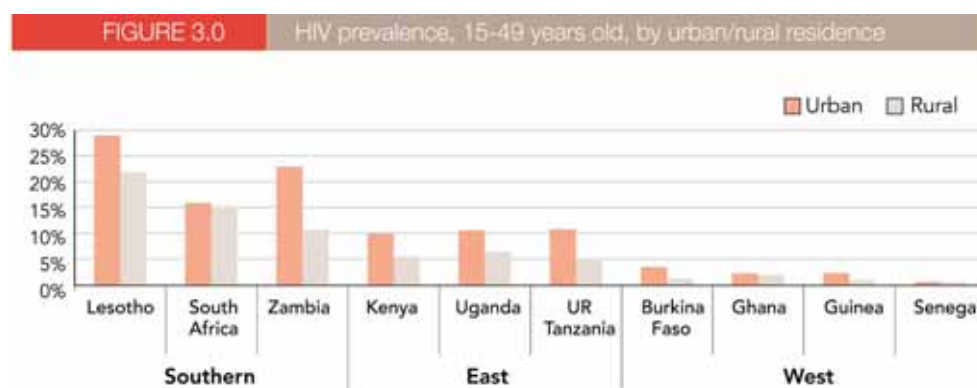
Despite rapid urbanisation, much of sub-Saharan Africa still remains largely rural, with over 80 percent of populations in some places living in rural areas (*table 5*) and largely dependent on the agricultural sector. (Mutangadura, 2005:4; De Waal and Tumushabe, 2003:2). Rural livelihoods in this region are seen to be some of the most precarious anywhere in the world

(Potter *et al.* 2004:427) and are affected by poor infrastructure and difficulty accessing markets for credit, labour and trade, among others (Lipton *et al.* 2003). Agricultural production is central to household food security (Barnett and Whiteside, 2006:240) yet has gone into decline in recent years (*table 6*). In Malawi for example, low and declining agricultural productivity is considered perhaps the most fundamental source of chronic poverty in the country (Devereux, 2002:76).

Yet while agricultural production is fundamental to rural livelihoods and food security, diversity is equally a main feature of rural livelihoods: agricultural activity is but one of many (Chambers, 1997:163). Human labour is the most important yet often scarcest resource of poor rural households in the region. Diverse livelihood strategies are widely regarded as a measure for survival, for risk management in precarious environments. While increases in farm activity can be a response to diminishing returns on labour and land, and coping with adverse shock (Barrett *et al.*, 2001:8), increased diversity spreads livelihood flows across seasons (Chambers, 1997:170). Shaxton (1993, cited in Chambers 1997:172), emphasises that diversity and complexity of agricultural systems are found to be directly correlated to their stability and sustainability. Yet according to Berry (1993:191), although access to off farm income can increase household food security, opportunities to engage in wage labour and non-agricultural production, especially for women, is limited, with opportunities conditioned on the state of the male economy (Koooper, 2004:136). Equally, Barrett *et al.* (2001:2) suggest that those poor in capital and land to begin with can face an uphill struggle to overcome entry barrier.

TABLE 5.0 Distribution of population - rural/urban		
	Urban (%)	Rural (%)
Sub-Saharan Africa	37.0	62.5
Botswana	52.5	47.5
Malawi	17.2	82.5
Mozambique	38.0	62
Lesotho	18.2	81.8
Uganda	12.4	84.6

Source:http://earthtrends.wri.org/searchable_db/index.php?step=countries&ccID%5B%5D=4&allcountries=checkbox&theme=4&variable_ID=448&action=select_years



Sources: UNAIDS, 2006

TABLE 6.0 Per capita agricultural production, Africa 1965 – 2004

PIN/Net per cap.	Africa	Africa (developed)	Africa (developing)
1965	107.1	119.5	105.7
1975	104.9	121.4	103.1
1985	92.3	106.3	90.9
1995	94.1	85.4	94.8
2004	97.6	100.9	97.5

Source: FOSTAT, 2005, reproduced in Barnett and Whiteside, 2006:253
 PIN stands for Product Index Number, an identifier used for each crop in the FAO system
 (<http://apps.fao.org/lim500/nph-wrap.pl?>)

The following chapter will examine how a shift from subsistence to commodity production as recommended by the Commission Report and the increased commercialisation of rural life - i.e. agricultural production for trade and export, the growth of rural markets for labour and commodities drawing households in to commercial transactions (Berry, 1993:67) - can implicate on rural households, especially considering the impact of HIV/Aids.

3. Agricultural Interventions and Rural Livelihoods

As a continuation of the Commission's focus on economic growth, supporting irrigation projects and the application of high yielding variety (HYV) crops to increase output is the central theme of the Reports recommendations on agricultural and rural development. Based mainly on one academic research paper, 'Irrigation and Poverty Alleviation: Review of Empirical Evidence', a document which presents compelling evidence for the poverty alleviating nature of irrigation systems in water scarce areas of impoverished rural areas in Asia, the Commission Report recommends donors emphasise their support for small scale irrigation by increasing investment in this area by \$2 billion annually, to allow for a 30% rise in cropping intensity and generally higher agricultural output (CfA, 2005:237). Furthermore, the Report calls for development and diffusion of modern HYV crops such as maize and rice, and highlights the importance of supporting agricultural innovation such as the 'New Rice for Africa' (NERICA) (CfA, 2005:238), a high yielding hybrid rice variety developed to suit the African agricultural environment of pests, diseases and water stress (Kijma, *et al.* 2006:253). This, predicts the Commission, will lead to a rise in yields by an average of five percent and crop prices by seven percent per annum (CfA, 2005:238).

It is perhaps unsurprising that in the mainly semi-arid and arid environments of sub-Saharan Africa, beset by unpredictable patterns of rainfall, poor soils, growing populations and declining food security (*table 3; table 6*) the idea of increasing agricultural output has been at the centre of rural development policy from the colonial period onwards. The Commission's policy recommendations are thus by no means innovative. Both colonial administrators and later development 'experts' have and continue to look (to date largely unsuccessfully¹) to irrigation and hybrid crops as an important tool to increase agricultural output and fuel economic growth (Adams and Anderson, 1988). The 'Green Revolution' technology package (Barnett, 2003:29), consisting of irrigation, HYV crops, fertilisers and pesticides, which, already having transformed agriculture production and substantially increased food output and security in many parts of Asia, was to be reproduced in Africa.

This chapter will argue that although the use of hybrid seeds such as NERICA have been successful at least in some parts of the continent (Kijma *et al.* 2006), and while irrigation and green revolution technology certainly has the potential to positively transform agricultural production and increase food output in the region, its implementation and positive outcomes for food security cannot be guaranteed. Widespread agricultural interventions systematically

¹ In sub-Saharan Africa, despite numerous development interventions which focused on irrigation and HYV crops, average land under irrigation is barely 4% (CfA, 2005:238).

alter rural population's livelihood strategies and impact on gender relations and food security, bringing gains to some while bypassing others. Local constraints, which have to a large extent hindered the replication of the green revolution in Africa to date, need to be considered. This is especially true when HIV/Aids further constrains rural livelihoods and increases the need for food security as part of prevention, treatment and care efforts.

3.1 Intensive Agricultural System: Some Considerations

Subsistence production, still the main form of agricultural production in much of sub-Saharan Africa, forms an important component of rural livelihoods in the region (Haddad & Gillespie 2001, cited in Mueller, 2004:31). It is generally based around the cultivation of a variety of crops (and keeping of livestock) to meet households own consumption needs, mainly using traditional methods of cultivation (Wield and Chataway, 2000:118). In contrast, green revolution agricultural production is based on technological improvements such as irrigation, fertilisers and HYV 'cash crops'. Irrigation, the timely application of water to agricultural land to lead to extended or multiple cropping periods (Potter *et al.* 2004:459), allows for greater areas and marginal land to be used for cropping. Irrigated land is especially suitable for HYV crops, which also require more extensive fertilisation to deal with soil depletion attributed to intensive mono-crop cultivation. Production of single 'cash crops', such as rice or maize, often adapted to the local growing environments, is aimed at increasing output of tradable agricultural produce and thus increasing household cash income. This, according to Quinn *et al.* (2003:114) is the general purpose of expensive irrigated land, whereas rain fed agricultural land is by and large used for subsistence farming.

3.2 Labour availability

Compared to Asia, labour has been historically scarce in Africa, a fact often overlooked by policy makers. Both irrigation systems and HYV crops are labour and capital intensive. While increased employment opportunities due to increased labour demand in intensive agricultural systems are considered by some to be an effective poverty reduction tool (Lipton *et al.* 2003), Berry (1994:197) points out that this in fact has been a major obstacle in the widespread adoption of HYV crops and irrigation in Africa.

Irrigation systems firstly require construction labour and ongoing maintenance, administration and management input. Secondly, growth in agricultural output and extended cropping

periods increases demand for farm labour throughout the year (Lipton *et al.* 2003). Research by Berry (1993) for example demonstrates the difference in labour inputs between traditional crops such as cassava and new hybrid high yielding rice or maize varieties. Production of cassava is more flexible in labour input requirements (i.e. timing of labour input has little effect on yields, and mature produce can stay underground for months without deteriorating), allowing for periods of absence due to illness or labour allocation to other income generating tasks without crop deterioration. In contrast land irrigation, fertilisation and use of HYV crops, allowing for multiple cropping seasons with higher output, require higher amounts of ongoing or concentrated and timely labour inputs, while harvest labour requirements are inflexible due to rapid crop deterioration. Multiple cropping seasons also reduce the time between agricultural cycles, which can impact on other income generating activities, as discussed in section 3.4.

Labour requirements in green technology agriculture are not only an important consideration when evaluating regional policy adaptability of the Commissions recommendations, but also need to be examined specifically in relation to HIV/Aids. For it is widely recognised that with the rapid spread of HIV/Aids across the region, household labour loss attributed to the pandemic has been extensive (Potter *et al.* 2004; Baylies, 2002; Barnett and Whiteside, 2006) - see *table 7*. When agricultural production systems require high inputs of labour, these systems can be inherently biased towards those with reduced labour availability. Hemrich and Topouzis (2000:91), Mueller (2004:32) and Bishop-Sambrook (2004:10) found that shortages in labour experienced by HIV affected households led, among other things, to a reduction in cultivated land, increased land under fallow, a shift to less intensive cropping systems, and reduction in crop yields and crop variety. Research by Barnett and Whiteside (2006; 248) and Bishop-Sambrook (2004:10) shows that labour loss attributed to HIV makes labour intensive farming systems especially vulnerable to deterioration. A case study from a rural irrigation system in Thailand (Sophon, 2001, in Barnett and Whiteside, 2006:249) found labour loss due to HIV/Aids has actually led to a significant reduction in maintenance work and has led to a shift from labour demanding crops such as rice and chilli, to more flexible produce such as Soya, onion and Logan fruit.

It is thus questionable whether labour intensive farming is necessarily suitable or viable in HIV/Aids affected rural areas. Haddad and Gillespie (2001:493) argue that in the context of HIV/Aids and general chronic poverty experienced in the region, farming systems that are less labour intensive are better able to respond to the labour losses attributed to the pandemic, especially relevant also when considering the gendered division of labour to be discussed in the following chapter. Thus, "perhaps the most profound challenge to the

agricultural sector in countries threatened by HIV/Aids is the need to develop agricultural and natural resource management systems that are more labour extensive and use less purchased inputs but support sustainable livelihoods" (Haddad and Gillespie, 2001:498).

	Overall labour force		Agricultural labour force	
	By 2005	By 2020	1985 -2000	1985 -2020
Botswana	-17.2	-30.8	-6.6	-23.2
Lesotho	-4.8	-10.6		
Malawi	-10.7	-16.0	-5.8	-13.8
Mozambique	-9.0	-24.9	-2.3	-20.0
Namibia	-12.8	-35.1	-3.0	-26.0
South Africa	-10.8	-24.9	-3.9	-19.9
Tanzania	-9.1	-14.6	-5.8	-12.7
Zimbabwe	-19.7	-29.4	-9.6	-22.7

3.3 Access to Capital

Agricultural labour activity and cash investment in crops and land improvement means that farmers have a good deal of direct and indirect capital invested in cultivated fields at any given time, especially relevant given the capital and labour intensive nature of the proposed farming systems. In contrast to low-technology agriculture mainly used for subsistence production, green technology farming not only relies on irrigation, particularly in the semi-arid and arid climate of the region, but also on expensive farm inputs such as fertilisers, pesticides and seeds for HYV crops. According to Berry (1994:182) the cost of irrigation is higher in Africa than anywhere else, with fertiliser in Africa prohibitively more expensive than in Europe, Asia and North America (Sanchez, 2002:2019; FAO, 1996:3). Furthermore, it has been well documented that HIV/Aids increases strains on household economy, for example through diversion of capital and reduction of asset base, reduction and liquidation of savings due to increased health and funeral costs and reduced income due to productive labour loss (Barnett and Whiteside, 2006: 246). This, according to Berry (1994:181) is an especially relevant consideration in rural sub-Saharan Africa, where the majority of farmers are capital poor in the first place.

While reduced capital availability for farming inputs such as fertiliser and seeds can compromise agricultural production, unavailability of necessary capital can also directly affect

the long-term viability of these intensive farming systems. For even as the Commission Report recommends the doubling of arable land under irrigation, with donors to invest \$2 billion a year until 2010 (CfA, 2005:238), subsidisation or ongoing capital availability of impoverished farmers to reinvest into the systems cannot be guaranteed in the long term. The examples of Malawi and Zimbabwe below illustrate how the failure to consider realities and issues surrounding capital availability, capital loss and long term financial sustainability of capital intensive agricultural projects, despite initial funding, can lead to the rapid deterioration of these agricultural systems and in turn seriously affect national food security and nutrition levels.

Funded mainly by government subsidised credit for smallholders for HYV seeds and fertiliser (Carr, 1997:96), in the late 1980s and early 1990s Malawi experienced what many hailed at the time as the African Green Revolution success story, apparently demonstrating the ability of agricultural intensification to increase output and food security in the region (Smale, 1995). The shift in agricultural production from low technology methods to high technology agriculture was certainly noticeable: in the 1992/93 season, the technology had been adopted on almost half of the total maize area, and predictions indicated that by the end of the decade, 50 - 70% of land would be subject to these new technologies (Carr, 1997; Smale and Heisey, 1994). Yet in 2002, Malawi experienced widespread famine, which Devereux (2002:77) attributes to low agricultural productivity, caused by loss of government subsidies under the liberalisation period, with the subsidies having become fundamental to maintaining food security in the country. Declining soil fertility, high prices of hybrid seeds combined with escalating fertiliser prices and a lack of credit meant that by 1995/96, only 7% of smallholder land grew hybrid maize seed and use of fertiliser was the lowest in 15 years (Carr, 1997:93). Similarly, Robinson (2002:855) found that in Zimbabwe, the fear was that without continued recurrent subsidies for irrigation the viability of production was threatened. This, leading to the abandonment of irrigation schemes and plot holders returning to rain-fed subsistence agriculture, meant the loss of considerable national capital investment in the schemes. Thus argue Brown and Nooter (1990:36), "subsidies may produce temporary desirable financial incentives to producers, but may eventually lead to project failure since it is unlikely that governments will be able to sustain them over the medium or long term".

Policy recommendations, which lead to higher capital investment requirements, need to consider the long-term financial and overall sustainability of these programmes, even when initially funded through donor or government subsidies as recommended by the Commission Report. While the Commission's policy recommendations on agricultural intensification certainly have the potential of increasing agricultural output and income, initial and ongoing

higher capital input requirements combined with increased labour requirements bring with it a generally higher risk to the capital invested. For the virtuous cycle of increased agricultural output leading to higher income and spare capital for reinvestment into agricultural input such as seeds, fertilisers, system maintenance and management, to lead to self-sustaining agricultural production systems cannot be guaranteed.

3.4 Risk Management

Widely acknowledged as vital to livelihood risk management (Quinn *et al.* 1998; Scoones and Wolmer, 2003; Reardon, 1997; SLSA Team, 2003; Bryceson, 2002; Chambers, 1997:163), income and crop diversification in rural southern Africa is fundamental to household's survival; evidence also suggests that more recently, diversity has been on the increase (Bryceson, 1996, cited in Ellis, 1998:5). While diversification occurs both deliberately as a risk aversion strategy as well as an involuntary response to crisis (coping strategy) (Ellis, 1998:2), the focus here will be on the former, and why and how rural households have adapted livelihood strategies in response to risks posed by the harsh physical and economic environment of the region (SLSA Team, 2003:15).

The Commission Report recommends, among others, the development and diffusion of HYV crops such as maize and crossbred NERICA rice, and the expansion of horticultural and flower production for export to European markets (CfA, 2006:237). Chapter 8 explains the importance and mechanisms of integrating Africa into the global liberalised market and increasing trade output from the continent. While it does explicitly mention the need to perhaps protect domestic agricultural producers on the ground from the negative effects of being integrated into an open market system (*ibid*, 2005:289), it fails to address the overall implications of the proposed large scale shift from agricultural production for household consumption to market tradables (both food and non-food). And while the Report acknowledges the potential risks to farmers (*ibid*, 2005:274), the focus is on creating incentives or short-term risk management solutions rather than examining the possible long-term implications, especially in relation to food security.

Risks associated with traditional rain-fed subsistence agriculture such as rain-failure, degrading soil fertility or pest infestation can directly affect crop production and household food security. Risk management through diversification, especially in the precarious environments of sub-Saharan Africa, has long been fundamental for household food security and has been well documented. According to Berry (1994:191), diversity in cropping patterns

and methods of cultivation is key to averting risks associated with single crop production. Flexible crop management, i.e. intercropping and mixed cropping is vital in protecting against adverse effects of climate, disease and economy (SLSA Team, 2003:23), with Barnett and Blaikie (cited in Haddad and Gillespie, 2001:493) suggesting that crop diverse farming systems are more resilient to labour loss. Mixed cropping both takes advantage of complementarities between crops, and also of variation in soil types and differences in microclimates (Ellis (1998:1) Thus, research by Haugerud and Collinson (1990, cited in Berry 1993:196) on farmer's responses to new crop varieties actually showed that many farmers preferred short-maturing to HYV crops and, even when encouraged to specialise, preferred to cultivate several varieties of crops at the same time. Equally a case study from Uganda showed that HIV/Aids afflicted households switched from cash crops to food crops and were reluctant to change to high yielding crop varieties, with heightened food insecurity overriding long-term livelihood strategies (Mueller, 2004:32).

Diversification of income is an equally important strategy employed by many households to buffer against risks associated with possible income failure. Highly differentiated across regions, seasons, by age and gender, on the availability of infrastructure, social assets and generally level of household resource base (SLSA, 2003:22), they encompass work as diverse as fishing and hunting to casual domestic labour, food processing and seasonal migration work in urban construction (Chambers, 1997:164; SLSA, 2003:19).

While agricultural production is certainly central to rural livelihoods in southern Africa, income diversification also has to be seen as a natural response to the seasonal nature of the agricultural cycle and hence income – both cash income from sale of crops, or in-kind income from subsistence production – which is concentrated around the harvest season. Thus, the diverse portfolio of income strategies generally needs to complement the seasonality of the agricultural cycle i.e. can not be synchronised with the farm's own seasonal work of planting, weeding and harvesting (Ellis, 1998:11). Equally, according to Reardon (1997:739), non-farm activity is focused around the dry season, after harvest and before the next agricultural cycle.

A shift to monoculture of HYV cash crops for export, as recommended by the Commission, requiring larger and ongoing capital and labour investment, is thus likely to lead to a decrease in household labour availability for other income generating activities. This can increase dependence on agricultural output as the main source of (mainly monetised) income and raise the risk of household destitution from income failure, creating an especially precarious situation for already capital and labour poor households. The need for higher

initial and ongoing investment compared to low technology subsistence farming also increases the risks of higher capital loss to the farmer. For example, abandonment of a plot before harvest due to ill health means that households stand to lose not only the original investments, but also the promised returns (Berry, 1994:189). This is especially relevant when increased levels of illness and death in HIV/Aids affected households means that they may be less able to cultivate or tend to their fields. Furthermore, “in the marginal cash position of most subsistence farmers, incurring large debts for inputs, land preparation, farm labour and so forth could be too risky even though the profits might be large” (Brown and Nooter, 1990:37).

HYV crops such as rice or maize, suitable for trade but insufficient to directly meet household nutritional needs (i.e. a household cannot only eat rice or maize if that is all they produce), means that households become more dependent on market transactions to cover household consumption needs (ref to follow). It is outside the scope of this paper to discuss issues surrounding the politics and economics of national and international trade rules and systems relating to cash crop production, although these have been discussed elsewhere (Oxfam, 2002; Hughes, 2001). Clearly, irrigation, fertilisation and new seed varieties take a lot of the environmental gamble out of agricultural production and increase the potential to raise household income through growth in output. Yet when expensive farming inputs are subject to price fluctuations in fertiliser and seed prices, and gains from agricultural output is determined largely by national and global supply and demand, farmers are faced with new and larger livelihood risks.

These risks have been well documented. Lipton *et al.* (2003) for example found evidence to suggest that rising levels of agricultural land coming under irrigation combined with green revolution HYV seeds and fertilisers and associated higher global yields has led to falling of agricultural prices. When the rise in yields is slower than the depression of farm prices (farm output prices relative to farm input prices – i.e. fertiliser, pesticide and seed cost), this can negatively affect farm income. Also, Bryceson (2002:729) and Brown and Nooter (1990:36) explain that fluctuations in food prices, which can vary considerably depending on supply and demand in the larger economy or even just by exchange rate fluctuations can directly affect the viability of these projects.

Thus, when policy makers assume rural livelihoods to be based predominantly around agricultural production, it can result in policy that is likely to directly affect household risk management strategies, increasing the chance of income failure. It also introduces new and complex risks associated with integration into national and global markets systems, which

can implicate on household food security: Longhurst (1988, cited in Potter *et al.*, 2004:440) for example found that children of cash crop farmers do not generally enjoy better nutritional status than children on non-growers, while Kennedy and Bouis (1993, cited in Potter *et al.* 2004:320) point to evidence that in some areas, neglect of food production due to a shift to cash cropping negatively affected family nutrition. Lastly, it is important to keep in mind poor 'exchange conditions', - "the ability to sell and buy goods and the determination of relative prices of different products" (Sen, 1999:162) - have in the past been major determinants of famine, as people have lost the ability to buy adequate food supplies (Sen, 1999:162).

3.5 Conclusion

This chapter has aimed to highlight some of the issues surrounding a shift from subsistence and low-technology agricultural production to green revolution technology aimed at growth in agricultural output as recommended in the Commission Report. The focus has been in how these changes can implicate on food security and household nutrition and risk management, considering specifically the impact of HIV/Aids on rural livelihoods.

Irrigation technology, a shift to HYV 'cash crops' and the integration of producers into larger markets as proposed by the Commission Report, while certainly having the potential, as they did in Asia, to raise agricultural output and income and serve to improve food security, could nevertheless negatively impact on rural livelihoods and food security, and in turn on the HIV/Aids pandemic in the region. The issues covered in this chapter are neither exhaustive nor examined in adequate detail to warrant a conclusive study. The aim so far has been simply to demonstrate how failing to take on board, for example, regional considerations such as labour and credit shortages, compounded by HIV, or the way that a shift from subsistence to cash crop production can implicate on household risk management and in turn on food security, can inadvertently lead to negative outcomes for some. For even if the policy aim of increased agricultural output is achieved, the simplistic model of increased output equalling increased income and food security for all cannot be assumed. Thus, an understanding of who gains access to the benefits of agricultural interventions is also vital when devising development policy on rural development, which will be the focus of the next chapter.

4. Gender Roles and Gender Disparities

Stephen Lewis, the UN Secretary-General's special envoy for HIV/Aids called the Commission Report's lack of gender analysis within its policy recommendations, "a feckless failure to recognise that women sustain the entire continent of Africa, and should have a definitive role in every single aspect of social, economic, political, civil, and cultural life, from peacekeeping to agriculture to trade to Aids" (Lewis, 2005:132). For while the Report recognises women's greater susceptibility and vulnerability to HIV infection and their role in subsistence production, acknowledging the importance of equality in land and water rights (CfA, 2005:237-239), and its importance to irrigation (ibid, 2004:199), a more thorough understanding or integration of the connection between agriculture, gender roles and disparities and HIV/Aids is lacking within its agricultural policy recommendations.

Section 2.2 of this paper highlighted women's role in subsistence production and household food security and existing gender disparities in rights and access to resources such as land and water. Yet these resources, along with capital and labour, are vital especially to intensive agricultural production systems, determining to a large extent who gains access to and benefits from the proposed technology improvements. Poorer households and in particular women, often socially and economically at a disadvantage, are especially vulnerable in this respect. Thus, claims Hunter (2003:73), a large scale shift to commodity production can increase dependence of women on their husbands for economic survival, leaving them more burdened, impoverished and economically isolated, with negative consequences, amongst others, for household food security and levels of nutrition.

It is not the aim of this chapter to simply conclude that the proposed shift from subsistence to commodity production is, at least in the short term, unable to positively implicate on agricultural production. Rather, it will explore how such policies may, in time, help widen and further embed existing gender disparities, with benefits of technology improvement as recommended by the Commission not necessarily distributing evenly within and between households. Also, considering HIV/Aids' impact on rural livelihoods and the way that it has also been seen to further enhance existing gender disparities, this chapter will argue that a failure by the Commission to integrate a gender analysis within its agricultural policy recommendations is likely to have, among others, negative implications on women's subsistence production and in turn on household food security.

It is of course outside the scope of this paper to discuss in all aspects of gender disparities and roles in rural Africa. Yet in the context of the Commission Report's recommendations on

agricultural intensification based on cash cropping and irrigation, and considering the fundamental importance of property rights to agricultural production on the one hand and the connection between agriculture and food security on the other, it seems especially relevant to examine gender disparities in rights and access to land and water.

4.1 Gender Division of Labour in a Rural African Context

The gender division of labour and gender differences in livelihood opportunities and outcomes were widespread across much of rural Africa even before HIV/Aids (Mutangadura, 2005:4). Often, the work of men and women was and still is largely independent, with women not expected to rely economically on their husbands (Whitehead, 1990:60; Kooper, 2004: 137). Dividing responsibility of household spending and consumption along gender lines, women are predominantly associated with responsibility for short term spending on food and men on long term spending such as the purchase of farm inputs (Whitehead 1990:67). Women are mainly associated with subsistence production, including more labour intensive tasks such as watering, planting, fertilising, weeding and harvesting (Mutangadura, 2005:4). Men on the other hand are more likely to assist with clearing and harvesting and to pursue commodity production (Sorensen and von Buelow, 1990:6), "with cash crops considered men's crops" (Mutangadura, 2005:4). Thus, considering the gendered nature of rural livelihoods, policies which affect these livelihoods also affect men and women differently. Evidence shows that a failure to address the gendered division of labour and gender disparities in property rights, assuming households to be harmonious realms with egalitarian economic activity and consumption levels (Cagatay, N. 1998; Kooper, 2004) and leaving women's subsistence labour unrecognised (Kothari, 2001:62) is likely to make women worse off (Whitehead, 1990:62). Case studies have shown that frequently in more labour intensive agricultural systems, based on irrigation and cash cropping, women are recruited as family labour on their husbands land (Zwarteveen, 1997; Whitehead, 1990; Mutangadura, 2005), diverting their labour away from subsistence agricultural activities. Yet traditional conventions governing intra household distribution (based on men and women's more independent economic roles and incomes) are often not abandoned, with women not necessarily gaining access to the benefits of their labour (Whitehead, 1990:63), and men likely to retain ultimate control over property and distribution of income at household and village level (Kooper, 2004; Mueller, 2004; Mbilinyi 1990). This can leave women economically disadvantaged and more dependent on husbands for income and food, even if household income as a whole rises due to agricultural intensification.

Also, despite land being fundamental to agricultural subsistence and commodity production, and land ownership implicating on the relative and absolute well being of rural populations and household food security (Potter, *et al.* 2004:430; Mbaya, 2002:2), rights and access to land and/or water are by no means universal, with widespread acknowledgement of rural African women's disadvantage (Quinn, *et al.*, 2003:117; Bassett, 1993, cited in Potter, 2004:56). Toroitich *et al.*'s (1994) research on Kenyan rural women for example found that because landlessness is directly associated with absolute poverty, women are more likely to be poorer. And while growing flows of male migrants to urban areas means that Kenya's agriculture is increasingly in women's hands, this is not reflected in modern land registration, with land titles almost always going to men.

Many African countries, while not legally discriminating between property rights of men and women, incorporate diverse and parallel systems of land tenure and rights to farm (Potter *et al.*, 2004:436), which are not based on a neat distinction between individual freehold ownership and customary African tenure as is often suggested. Rather, these rights are underwritten by religion, kinship and political authority (Siddle and Swindell, 1990:72), with both patrilineal and matrilineal land inheritance systems relatively widespread (Mbaya, 2002:8). Walker (2002) found that in Malawi and Zambia, no system necessarily secures women's right to land, as laws are often left unenforced or are overridden by traditions governing land inheritance. Mbaya's (2002) research on women's land rights in an area of matrilineal inheritance system in Malawi for example found that while legislation on land rights does not discriminate between sexes, with men and women having de-jure access to and control of land, a study by the WLSA (WLSA, 2000, cited in Mbaya 2002:8) found that rights for women to land even in matrilineal systems were primarily rights in theory, still dependent on husbands or male relatives for access to land (Mbaya, 2002:8).

Although the Commission Report acknowledges the importance of security of tenure and land rights to agricultural production (CfA, 2005:239), it fails to formulate policy which integrates an understanding of these existing disparities and how they may affect policy outcomes and benefit distribution. Yet access to the benefits of agricultural intensification, especially the proposed large scale shift to irrigated land for commercial production as proposed by the Commission, depend largely on existing land and water rights (Zwarteveen, 1997:1339). In the case of irrigation, Zwareteveen (1997:1346) and Hoogendam (1995) found that nearly everywhere men are given priority when allocating water rights, irrespective of who is actually using the water, with women's access to water generally mediated through their husband or male relatives (Zwarteveen, 1997:1346). Therefore, even when women work on men's land as household labour, straining their time for own productive and

reproductive activities, proceeds from irrigated farming are not necessarily accrued evenly within households, often benefiting and remaining under the control of men (Berry, 1993:198; Zwarteveen, 1997). Equally, Sorensen and Buelow (1990) in their research in Kericho, Kenya, examining gender issues surrounding a shift from subsistence to larger scale production of maize, established that not only can commoditisation implicate on women's subsistence production role, but also enhance existing gender disparities. With maize being a cash crop and with men being primary owners of land, their control over total output was legitimised, despite the fact that production relies heavily on women's labour input. Land previously used for women's subsistence production was ploughed and used for maize production, meaning that women lost much of their economic autonomy as food producers. While ever more appropriated by their husbands as 'free labour', women still continued to carry the bulk of domestic work. Berry (1993:197) found that in the cultivation of hybrid maize in some regions of Zambia, although the additional burden of farming fell on women, this also contributed to inequality within as well as among households. Studies on intensive farming systems found that malnutrition among young children was actually positively correlated with the amount of maize sold by households (Potter, 2004:197), with Longhurst (1988, cited in Potter, 2004:440) finding that a critical factor in determining the nutritional effects of cash crop production among smallholder farmers to be the extent to which women controlled production.

It seems likely therefore that despite possible increases in overall agricultural output attributable to agricultural intensification, women do not gain sufficient access or rights to these benefits. Increased demands on women's time for work on husband's fields and their decreased control over resources on the one hand, and compromised subsistence production on the other, can lead to increases in intra-household disparity and lower nutritional status and food security for the household as a whole. Thus, in devising agricultural policy, despite the possible overall benefits of technology improvements, it is clearly vital for policy makers to address existing gender disparities in rights and access to property and how these rights can determine to a large extent who gains access to and benefits from a shift to more intensive forms of agricultural production. The failure of the Commission Report to adequately integrate these gender issues within agricultural policy means that the Commissions policy recommendations on agriculture are likely to increase women's dependence on husbands for income and compromises their own subsistence production work, with possible negative outcomes for overall household well being and food security.

4.2 Gender Disparities and HIV/Aids

An important consideration also in relation to land and water rights is how these are further eroded by the impact of HIV/Aids. Although conclusive evidence is lacking, it has been central to a variety of studies in sub-Saharan Africa. As chapter three highlighted, labour loss attributable to HIV/Aids itself has been seen to strain rural households in their agricultural production activities. According to Toupouzis (2000, cited in Mueller, 2005:50), in the case of agricultural intensification and men's primary role as commodity producers, young adult male labour loss is more likely to have negative outcomes for agricultural intensification, while young adult female labour loss is connected primarily with decreased levels of nutrition and household food insecurity.

Yet while clearly any adult death within a family has negative impacts on households and economic productivity, according to Poku (2005:99), existing economic, social and cultural patterns make men better equipped to deal with this negative impact. For with existing disparities in property rights, special concern has been widely voiced over the vulnerability of widows to the loss or erosion of land rights as a consequence of HIV/Aids. And according to Drimie (2002:20), the way that HIV/Aids itself impoverishes households means that widows are often anyway left with few resources. Furthermore, increased caring demands on women due to higher levels of illness means that their subsistence production role is likely already to be severely compromised (Mueller, 2004:50), affecting their roles in protecting household food security (Hunter, 2003:73; Mutangadura, 2000).

As outlined above, women's access and rights to land is often mediated through their husbands or male relatives. Drimie (2002:20) and Aliber and Walker (2006:725) explain that a central consideration in any study on HIV/Aids, gender and property rights is that with high death tolls attributable to HIV/Aids, many more widows, and thus households, are left without access to land. Albier and Walker (2006:705) found that in Kenya, while land disputes related to HIV/Aids are still rare, to be on the increase. In north-western Tanzania, Muchunguzi (2002) found that, when discovering their HIV positive status, men would sell of their land without consulting their wives or other family members. According to Drimie (2002:14) although women often cared for their dying husbands, death of the spouse frequently led to loss of rights and access to his property. And even when women tried using husband's title deeds to acquire credit, stigma surrounding HIV/Aids constrained their ability to access financial resources using these property assets. Widespread stigma can leave widows ostracised, losing the livestock and land on which their livelihoods are based (Toupouzi and Heimrich, 1994), with stigma also found central to women's increasingly vulnerable land

tenure in a study on land rights in Lesotho, South Africa and Kenya. In some cases, women were found to have been divorced by their husbands upon revealing their HIV positive status, weakening their claim to land (Drimie, 2002:20).

In Zambia, Machina (2002:9) found that while divorced or widowed women were sometimes permitted to continue using their late husband's land, customary law meant it was unlikely they would be able to inherit. Frequently, divorced or widowed women were found to return to their natal families, where they were dependent on male relatives for access to land. A case study from the Kagera Region in Kenya found that lack of land rights by women can mean widows (especially those without children) often neither have access to land from their dead husband's estate or rights of return to their own clan's land (Tibaijuka, 1997). And, with the increase commoditisation of rural life, often women's only means to acquire land is through cash purchase. One of the major forms of cash acquisition for land purchase by widows was through prostitution, which, even with the risk of contracting HIV, was considered a more pressing short-term survival strategy (Tibaijuka, 1997:966).

4.3 Conclusion

According to Elson (1995:9), development policy which is not analysed in terms of gender is intrinsically male biased and frequently has, while perhaps unintentionally, increased gender inequality (Tallis, 2002:41). As this chapter has demonstrated, taking on board issues of existing gender roles and disparities is fundamental to agricultural policy, especially in relation to food security. Yet the Commission Report has failed to do so within its policy recommendations on agricultural and rural development.

Issues surrounding labour and capital availability relating to agricultural intensification, risk management strategies and how they implicate on policy effectiveness, were discussed in the previous chapter. This chapter has argued that the gendered nature of rural livelihoods, especially gender disparities in rights and property, means that in many respects, men and women will be affected differently by the proposed changes in agrarian structures.

Access and rights to land, clearly connected to agricultural production, are inherently gendered, meaning that women often benefit from these resources through their husband or male relatives. Commoditisation of agricultural life has thus been shown to often disproportionately favour men, with irrigated fields, expensive and labour intensive and more suited and preferred for cash crop production (Quinn *et al.*, 2003:114), unlikely to benefit

'primitive' subsistence agriculture. Also, with women's economic activities, especially subsistence work, left unrecognised, their perceived 'free time' is often diverted to assist men in cash crop production, increasing their dependence for income on men and men's property.

Especially also the way that HIV/Aids has been seen to further erode women's rights and access to property highlights the need for existing gender roles and disparities to be a central consideration for agricultural policy makers. According to Mueller (2005:52), the HIV/Aids epidemic clearly reveals decades of neglect in development policy to give women more control over their own lives. While women working on men's land for commodity production may increase household productivity and general agricultural output in the short term, increased adult morbidity and mortality attributed to HIV/Aids means the full impact of these disparities becomes clearer. With more women left abandoned and widowed than ever before, yet more dependant on men's resources for economic survival, women can be left destitute, exposing them to short term survival strategies such as prostitution and increasing their vulnerability to HIV/Aids. Thus, based on the above evidence, it seems likely that a failure by the Commission to integrate these issues within its policy recommendations on agriculture is likely to lead to negative outcomes for women in general and implicate on their vital subsistence production role and as protectors of household food.

5. Summary of Research and Conclusion

While it was outside the scope of this paper to examine in detail the different cultural, economic and social realities on the ground in the vast region of sub-Saharan Africa, it is without doubt that the impact of HIV/Aids on rural livelihoods is creating new and unique development challenges. HIV/Aids has, in the words of White and Morton (2005:187) “served to expose the glaring inadequacies of standard development strategies to date”, in how it enhances poverty (Poku, 2005:11), fuels gender inequality (Tallis, 2002:1), and requires new and innovative approaches by policy makers. Yet according to Barnett and Whiteside (2006:240), despite the pandemic’s potentially serious impact on farming, farming systems, rural livelihoods and nutrition, it has been largely overlooked by policy makers. The Commission has equally failed to integrate an understanding of the impact of HIV/Aids on rural livelihoods and the agricultural sector within its policy recommendations. Instead, the predominant focus remains on poverty reduction through economic growth, and within agriculture specifically on increasing output through large scale ‘green revolution’ technology improvement such as irrigation and HYV crops, and a shift from subsistence production to cash crop production for trade.

Nevertheless, it was not the aim of this dissertation to discredit the potential of irrigation and other green revolution technologies to positively transform agricultural sector and increase food output in the region. Neither was it to argue for leaving African agriculture wholly unmodernised or devise ‘more adequate’ agricultural policy to contrast those by the Commission. Yet what has become clear throughout this paper is that the unproblematic implementation of these technology improvements or positive outcomes for livelihoods and food security cannot be guaranteed. The Commission Report has failed to integrate an understanding of how HIV/Aids impacts on its policy recommendations, or the way that the proposed changes in agrarian structure may themselves implicate on food security and HIV/Aids. Yet as this paper has highlighted, far reaching agricultural interventions such as those proposed by the Commission can systematically alter rural population’s livelihood strategies, brining gains to some while bypassing others, impacting on gender relations and food security. Thus, taking into account the close connection between agriculture and food security on the one hand, and the importance of nutrition to HIV/Aids prevention, treatment and care efforts on the other, this paper has argued that the failure to take on board these issues could lead to potentially negative outcomes for rural livelihoods and (already compromised) food security and levels of nutrition in the region.

With the Report's focus on the agricultural sector's role in economic growth, chapter three explained that with the close connection between agriculture and food security, the importance of the agricultural sector in its own right also needs to be recognised. The sector faces a variety of challenges, especially shortages of labour and capital, which more recently have been further compounded by HIV/Aids, calling into question the suitability of the proposed shift in agricultural production. The chapter further highlighted that the long term financial sustainability of more capital intensive agricultural systems cannot be guaranteed, even when, as recommended by the Report, initially subsidised, but especially when considering the negative impact of the pandemic on capital availability. Case studies showed that often a direct reaction of farmers to financial instability was abandonment of plots, casting doubt on whether capital intensive agricultural systems are necessarily sustainable in the long term, especially in areas confronted by increased capital and labour shortages attributable to HIV/Aids. Evidence showed that a shift from traditional cropping methods and crops to cash crops can implicate negatively on household nutrition levels, shifting labour and capital away from other economic activities. This was also shown to have possible negative implications on widespread existing livelihood risk management strategies, based on security in diversity to avert risks associated with single crop production or a single source of income. Conceiving HIV/Aids itself as a risk to livelihoods, the Report's disregard of how its policies could implicate on these risk management strategies is thus likely to increase livelihood vulnerability and have negative implications for long term food security.

Furthermore, plenty of research has shown that development policy which is not analysed in terms of gender is inherently biased and likely to make women and households in general, worse off (Elson, 1995; Kothari, 2001). According to Bryceson (2002:727) when altering peasants access to essential means of production, such as land, labour or capital, the peasant producers' conditions of existence may be detrimentally affected. Yet when the focus of policy is on economic and agricultural growth, outcomes measures are unlikely to pick up negative implications on, for example, benefit distribution. Chapter four examined the Report's failure to integrate a gender analysis within its policy recommendations on agriculture. Although it acknowledges the importance of securing tenure and land rights for women (CfA, 2005:239), the Report fails to formulate policy which integrates an understanding of existing disparities and how they may affect policy outcomes and benefit distribution. Yet widespread existing disparities in property rights in the region can mean that while some may benefit from the proposed technology improvements and agricultural growth, others, especially women, may be left wholly destitute and faced with increased livelihood vulnerabilities. Evidence shows that in this respect, vulnerabilities have been enhanced further with the full impact of HIV/Aids, leaving widows and abandoned women in an

especially precarious situation. Furthermore, policies which focus on agricultural commoditisation, i.e. a move from subsistence to cash cropping, must consider the fact that in many areas, cash crops fall clearly within the economic domain of men (Mutangadura, 2005:4). This means that women are unlikely to benefit equally from this shift in agricultural production, even if there is an increase in overall output and household income. Evidence showed that in households that had shifted to more intensive agricultural production, there was a positive correlation between falling levels of nutrition and increases in amount of maize sold, highlighting intra household benefit distribution issues. With women's important role in subsistence production and in protecting household food security, the chapter thus highlighted that the Commission's failure to integrate these issues within its policy recommendations is likely to cause more harm than good, increasing existing gender disparities, benefit distribution, women's dependence on husbands and can implicate negatively on food security and levels of nutrition.

Thus, although the Commission Report's agricultural policies may, in a laboratory environment, lead to the desired outcome of unprecedented growth in land under irrigation and increasing dramatically African agricultural output, this paper has shown that in reality, this may not be the case. Failing to take on board issues surrounding HIV/Aids, gender relations and benefit distribution, can clearly compromise policy outcomes. While it has not been the aim here to assess the long term viability of the proposed agricultural policy recommendations, evidence surely calls into question outcome predictions made within the Report – that given both existing constraints such as labour and capital shortages, and new challenges posed by the HIV/Aids pandemic, it is unlikely that an attempted replication of the Asian green revolution as proposed by the Commission will be as relevant/effective at improving lives and economies as they are being portrayed.

What has certainly become clear is that agricultural policy makers need to incorporate within policy an understanding of the wider issues at hand – what Barnett (2003:68) calls a “synthesis between the technical and social aspects of agricultural production and rural livelihoods”. Findings on these issues must be an integral part of policies rather than added on separately as the Commission has done. For example, Loevinsohn and Gillespie (2003:4) argue that policy makers need to take an HIV lens to development programmes, where the issue of resistance and resilience to HIV/Aids is grounded in the process of understanding and responding at all levels. And, according to Mueller (2004:24) while it is possible to make general statements about implications of HIV/Aids on farming systems, agricultural production, rural livelihoods and household food security, responses must be developed in relation to specific situations. Barnett and Whiteside (2006:260) explain the need for policy

makers to recognise the diversity of impact that the pandemic will have on rural livelihoods and to develop large scale responses that can cope with this impact. In the context of nutrition and food security, gender issues need special consideration to ensure both policy effectiveness and prevent creating situation that makes women and households in general worse off. Thus, in the words of Machina (2002:14), contrasting the Commission Report's claim to have a good understanding of what works and what doesn't work (CfA, 2005:22), especially when designing relevant policies and programmes to mitigate the impact of the HIV/AIDS pandemic, huge knowledge gaps remain. Thus, while Bishop-Sambook (2004:1) claim that the agricultural sector presents a unique opportunity to combat the HIV/AIDS pandemic in predominantly rural economies, it seems unlikely that the policies proposed by the Commission for Africa will be a move in the right direction. Evidence in this paper has shown that they are more likely to be rendered ineffective or even become irrelevant, especially when the full impact of the epidemic surfaces (FAO, 1003a:16).

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