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**HIV, Nutrition, Food and Livelihoods
in Sub-Saharan Africa:**
Evidence, debates and reflections for guidance

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TABLE OF CONTENTS

1	Introduction	1
1.1	HIV and development	2
1.2	Frameworks for linking HIV and livelihoods: Disentangling vulnerability.....	4
2	Mapping the evidence for the linkages.....	7
2.1	Nutrition	8
2.2	Food security	11
2.3	Livelihoods.....	15
	<i>Non-farming food producers</i>	17
	<i>Mobile groups and urban – rural links</i>	18
	<i>Urban formal and informal sectors</i>	19
2.4	Some remaining gaps in knowledge	22
2.5	Summarising can we say about the existing evidence of linkages.....	24
3.	Policy and programmatic responses	26
3.1	Nutrition, food security and agricultural livelihoods responses	26
3.2	Social protection	28
3.3	Targeting	31
4.	Summarising what the evidence should mean for policy.....	32
	Bibliography	37
	Annex 1. Reconciling the concept of vulnerability in livelihoods and in health	46

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1 Introduction

We have spent one quarter of a century attempting to deal with HIV and AIDS, or roughly half the period of the post-colonial development era. Yet HIV and AIDS has become one of the main health and human development challenges of our times, and, particularly so in Sub-Saharan Africa, with significant implications for how development needs to be researched and practised. HIV is increasingly understood to be much more than a health issue; it has far reaching social, political and economic implications for individuals, communities and institutions at all levels, yet responses remain fragmented and in certain ways are also becoming 're-medicalised'. As understanding of the multidimensional nature of HIV epidemics is gradually improving, it is increasingly clear that HIV interventions (whether focusing on prevention, treatment and care or impact mitigation) should take into account the integral role of food insecurity, nutrition and livelihoods vulnerability. Likewise, livelihoods, food security and broader development strategies need to take account of the implications of HIV and appropriately adapt strategies, objectives and practice to adjust to changing realities in communities, as well as consider how they can play their part more squarely in addressing the actual epidemics. As always, the question remains "how?"

This report is one output of a review study, commissioned by the UK Department of International Development (DFID), with the objective of supporting DFID Health Advisers and Livelihoods Advisers to be better able to give up-to-date, informed, and evidence based policy advice for linking HIV and Livelihood programmes and strategies, with the broader aim of better integration between policy and programme solutions in the two areas. The study was carried out by the Institute for Development Studies (IDS), with the collaboration of the Overseas Development Institute (ODI) and with support and inputs from a range of DFID Advisers and external peer reviewers.

The study focuses on the various linkages between HIV and Livelihoods, Food Security and Nutrition. The geographic focus is centred on high prevalence countries in Sub-Saharan Africa, where HIV and AIDS have hit the hardest.² We have drawn on a range of sources including: academic studies on particular themes and countries, donor reviews, reports by non-governmental organisations and decades of personal experience with the issues.

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² The amount of evidence is somewhat biased towards Southern and East Africa, where the epidemic has taken deeper root and where a majority of research on these interactions has been conducted. By this we in no way suggest that similar exercises and directions may not be highly relevant for different lower prevalence settings, although findings and proposed approaches may be somewhat different.

1.1 HIV and development

In its most general form the first question is, ‘what is the link between poverty and the HIV epidemic?’ At the global level, many of the poorest countries and sub-regions are also relatively more affected by HIV, which suggests severe poverty may have predisposed some African societies to more generalised HIV epidemics and some have argued that, therefore, development is what is needed to stop the epidemic (Stillwaggon, 2006). This correlation, however, is not clear. Furthermore, the conclusion does not follow and it ignores what we know from epidemiology and the relevance of the epidemic itself in the dynamics of development. Within Sub-Saharan African countries, middle classes are often more vulnerable to infection by HIV, initially at least, but this often shifts towards the broader (and poorer) population as the epidemic deepens (Gillespie and Greener, 2006). Early on in epidemics the virus concentrated among more mobile, wealthy, educated groups. Such patterns will live long in prevalence data, which become harder to interpret as epidemics age (prevalence being shaped by not only new infections, but also changes in survival or deaths from HIV and other causes, migration and births). New HIV infections are increasingly concentrating among less educated, less wealthy members of many societies affected by HIV (Michelo, et. al 2006; de Walque, et. al. 2005; Glynn, et. al. 2004). Such a change is strongly predicted by health promotion theory, which suggests that changes in structural determinants of vulnerability to infection have a strong effect on behaviour (Hargreaves and Boler, 2006; Filmer, 1998)

When the poor do get infected the vulnerability of their families and communities to the impacts of the disease are generally more severe than is the case for the better off. Rather than varying closely with average per capita income levels across countries, the degree of inequality within countries is a major factor associated with HIV, which is sometimes also seen as an inverse indicator of ‘social cohesion’. When societies exhibit stark differentials in income, or go through transitions (e.g. Ukraine or South Africa or Botswana) the opportunities for infectious diseases to spread are heightened, due to changing social norms and/or opportunities and pressures for sexual mixing, whereas even in some lower income countries with less pronounced inequality and more stable social relations (e.g. Senegal or the Philippines) epidemics appear less likely to spread broadly in the general population – i.e. ‘generalise’ (Barnett and Whiteside, 2002).

Box 1: What is the relationship between HIV and Poverty?

- Poor countries and regions may be more affected by HIV, but the correlation is weak and does not imply that economic development generally would ‘take care’ of HIV transmission
- Inequality and lack of social cohesion is more closely correlated with higher HIV prevalence rates and addressing this is important to be able to reduce transmission
- Higher income groups often reach higher HIV prevalence rates at first, but as the epidemic generalises poorer groups also experience increasing rates, and are harder hit by the impacts

Whilst global macro-level income comparisons may help in setting the broad stage, it does not go far in helping us understand the deeper connections between HIV and development. Thus, two further pertinent questions are: “why is HIV a development concern?” and “why is Development an HIV concern?”

A United Nations review of several studies³ with estimates of the likely impacts of HIV on total GDP growth rates (UN DESA, 2003), suggests GDP growth may be reduced by 1% to 2% a year. For GDP per capita the central range of estimates lies between 0% and 0.7% a year. These losses of economic growth pale in comparison to the differences seen in growth rates between developing countries where for example the best performing countries may grow at up to 8% a year per capita. But, findings from more ambitious models that aim to include – or, endogenise – human capital produce very different results. For the case of South Africa, Bell and colleagues predict that if nothing is done to counteract the epidemic, within three generations South Africa would face complete economic collapse (with important dynamics operating through educational investments and supply shortages of teachers (Bell et al., 2003). For Mozambique, Arndt uses a general equilibrium model that includes effects on human capital, to show that the Mozambican economy could be 14% to 20% smaller in 2010 on account of AIDS, with the main causes of the growth slowdown would be reduced productivity growth, reduced population growth and human capital accumulation, and reduced physical accumulation (Arndt, 2003). Indeed there may be complex systemic effects, with thresholds where once investment in future generations falls below a threshold, positive feedbacks trap economies at low levels of income (Drouhin, et al. 2003). Two implications can be seen from these studies. One is that many of the estimates of economic losses are quite limited, and that, if the right kind of policies were adopted, then the effects of the disease could be more than outweighed by increases in economic growth. The problem here is that it is *matter of debate* as to what the policy mix should be in any given country (and HIV likely makes some strategies even more difficult to follow). Secondly, in any case, governments need to redouble their efforts in education to combat losses to the disease.

Over the last few decades, development policy has increasingly moved from mainly economic poverty analyses to ones focusing on livelihood vulnerability, drawing on notions of assets, social capital and access as well as production and consumption. Variability and unpredictability are sometimes more important in terms of crises than is overall levels of income and consumption.

Impacts of AIDS include not only household losses in labour and savings, but also skills and knowledge, including breaks in the inter-generational transfer of the latter. Traditional coping mechanisms are also becoming stretched from stress and shocks brought by HIV related sickness and deaths, as well as rising dependency ratios, all against a backdrop of other stresses to traditional livelihoods. Many also argue that government service capacities become eroded through deaths and absenteeism, linked to HIV (ILO, 2004).

Box 2: 'Why is HIV a development issue?'

- HIV creates new categories of vulnerable people, less resilient to various livelihood crises
- The epidemic reproduces or reinforces livelihood vulnerabilities and impacts on development in varied and sometimes synergistic ways at several levels
- Food and nutrition insecurity in southern Africa cannot be properly understood if HIV/AIDS is not factored into the analysis

³ Macro-economic studies of HIV assess the impact of the disease on size or growth of economies, expressed in total or per capita terms, whilst some of these studies also address the question of what policies might offset the impact of the disease. Quantitative models are used, some being conventional single equations in terms of factors of production and input-output ratios and others use computable general equilibrium models that look at what happens within particular sectors, and what happens to particular groups of households. Perhaps the most important difference lies between those models that adopt longstanding growth models in which technical change is exogenous, and those that endogenise processes of technical change and investment in human capital.

Projections of the latter effect may need revision, as access to anti-retroviral drugs (ARVs) is improving, particularly in urban areas, and as government and other official employees are also more likely to have access to private sources of treatment, than do the poor. Also, to the extent that staff capacity is eroded, it is also linked to issues of out migration, poor remuneration and increasing work burdens (such as on nurses).

The New Variant Famine (NVF) hypothesis suggests HIV has itself created new categories of people more vulnerable to crises and shocks in development. Not limited to heightened mortality tolls from widespread starvation amongst HIV positive people (in the context of severe food shortages), this new 'famine' includes chronic hunger interacting with the disease to produce a string of negative and reinforcing effects. HIV positive people are particularly affected by the physical impacts of hunger, with serious negative further impacts on families, assets, wellbeing and productivity, and, these interactions are likely to go across generations (de Waal and Whiteside, 2003; de Waal, 2006, Gibbs, 2006). Interactions between nutrition and health are not surprising, nor are those between food security and livelihoods. Other interactions are becoming better documented and it is now well recognised that household food and nutrition insecurity in rural and urban southern Africa cannot be properly understood if HIV is not factored into the analysis (SACD FANR, 2003). Given the complexities involved, however, a natural next question is "how"? What frameworks can we use for inter-relating these issues more clearly, and, in a way that captures the dynamics in both directions between the health and development perspectives?

Box 3: 'Why is development an HIV issue?'

- Development strategies have variable impacts on different peoples' vulnerability to HIV and their role in the dynamics of the epidemic itself, also 'feeding back' into broader development, with implications for priorities on prevention and strategies
- Effective care and treatment requires livelihood security, freedom from hunger, good sanitation, and support for adherence (which also limits drug resistance)
- Development strategies and social protection play a crucial role in mitigating, or exacerbating, the impacts of HIV and AIDS on the households of PLWHA and on their children and communities

1.2 Frameworks for linking HIV and livelihoods: Disentangling vulnerability

In critical periods of transition, human societies have often experienced severe shocks or crises in health (such as epidemics), hunger (or famines), conflict and/or crises in systems and institutions for governance and justice – sometimes polemically referred to as "the four horsemen". In some countries of Africa over the last few decades, all four of the above have been present to different degrees and over differing periods – sometimes coinciding and sometimes not, but when they do coincide links between them are normally drawn. From a health perspective the problem has traditionally been approached in terms of health 'risks'; from a security perspective, HIV is sometimes viewed as a 'threat'; from a governance view, issue of 'rights' are often the main concern; whereas, from



Source: Edström et al., 2006

a development and food security one, it was traditionally seen as 'poverty' but more recently as 'vulnerability', as described in Figure 1. Without denying the potential relevance of all of these to HIV in different settings, and whilst recognising that development also relates to security and governance, this report focuses primarily on relating the perspectives of food security and livelihoods to that of health.

Whilst health has always had curative, palliative and preventive strands, the response to HIV was in the first decade predominantly construed within a preventive health framework, based on epidemiology and focussing on 'risk factors' in infected individuals, in turn seen as 'vectors' of infection and with close attention to population-based epidemic dynamics. This became highly criticised for stigmatising affected people by attaching the concept of risk to individuals rather than situations. Health promotion models became more popular concerned with individual 'risk behaviour' (again, not an uncomplicated or uncontested concept), applying 'health belief models' (based on 'rational choice') to attempt to change behaviour at an individual level. Subsequently, broader public health concepts were adopted, recognising the significance of social and structural determinants of health, also conceived of as vulnerabilities. What unifies the various health focused frameworks in HIV is a placing of the individual in context and a broadly common division of responses into (a) prevention, (b) care and treatment and (c) impact mitigation. There is now also a consensus that these need to be integrated into a continuum, but impact mitigation has not been deeply analysed in health terms.

In the meantime, the development profession, which from the outset had both long-term growth and economic developmental strands and more immediate concerns with poverty reduction (again, primarily rooted in economics), was also going through a shift towards broader conceptualisations of vulnerability, to view livelihoods as also including assets, claims and stores of different kinds, drawing in sociological and anthropological concepts. The problem focus became vulnerability, often conceptualised as reactive (or subjected) to shocks of different kinds, or stresses. With the objectives of protecting and sustaining the wellbeing of households and communities (the two main units of analysis), livelihoods frameworks emphasise protecting various types of assets, conceiving of processes and institutions as mediating access to assets and outcomes. As in the health field, the focus shifted somewhat away from abstract individuals towards communities and social groups in political structures of power.

Drawing on this literature Barnett and Whiteside pointed out the need for paying attention not only to the downstream outcomes and impacts of HIV and related disease, such as AIDS, *but also* the upstream determinants of infection risks *at several levels* (also common in public health approaches), which allows for a clearer linking between livelihoods security and HIV (Barnett and Whiteside, 2002). The main draw-back, however, was that they did not recognise that vulnerability also refers to exposure to HIV and instead used the term 'susceptibility' at several levels, in a manner squarely at odds with the health literature (susceptibility, in health is usually thought of as inherent in the body, as distinct from broader or more structural sources of vulnerability). Many other writers in development and AIDS have since followed and built on this (Gillespie and Loevinsohn, 2003; Weigers, 2006; Morton, 2006). Aside from the important strength of paying attention to the causal pathway in two directions, these frameworks can tend to skim over the long interim phase when the virus stays within the person.

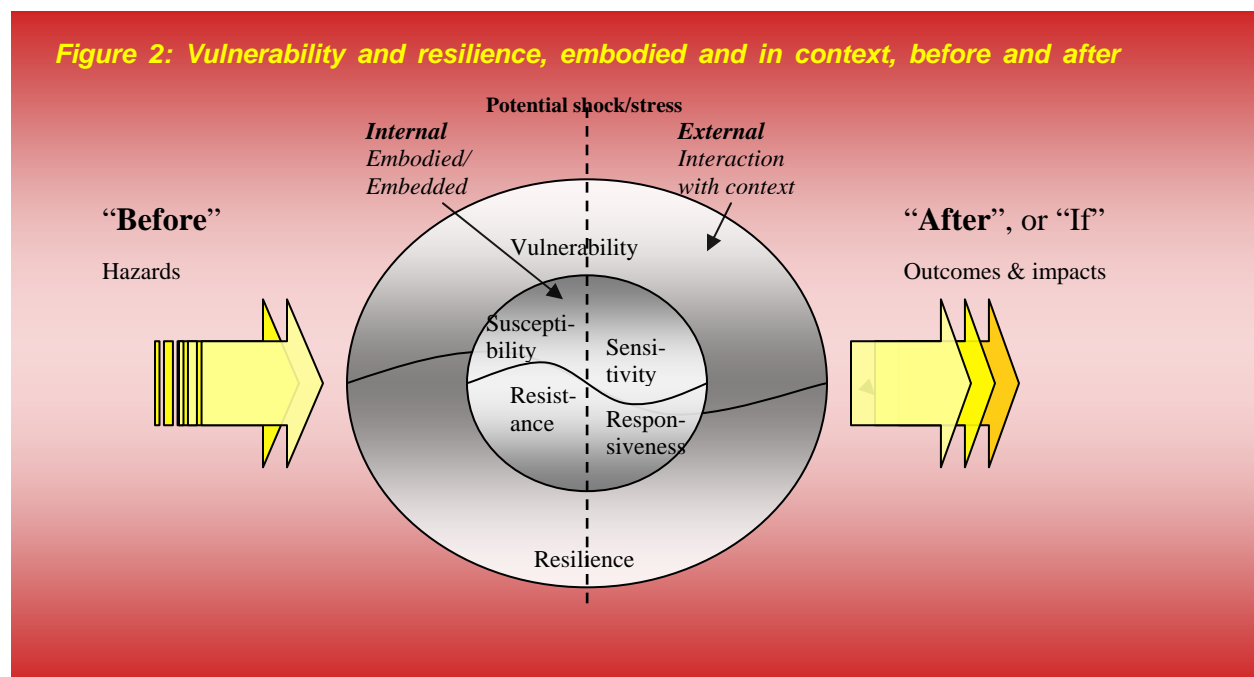
So, if the health perspective has led to a recognition of vulnerability as relevant to prevention, care and impact mitigation (though, with only a limited analysis of impact), the development community has also identified the importance of upstream causes (relevant to prevention) as well as downstream impacts (though only with a limited analysis of midstream processes, relevant to care, support and treatment). The up-, mid- and downstream perspective allows us

to identify linkages relevant to prevention, care/treatment and impact mitigation, respectively and apply a sharper “HIV lens” to development. Whilst a crude simplification of the debates, this nevertheless highlights some difficulties, but also opportunities, for finding common languages across health and development. Annex 1, goes into these conceptual debates, contradictions and developments in a little more detail.

In order to make sense of these diverse and sometimes apparently contradictory frameworks, we need a basic model of vulnerability for reconciling the three different dichotomies, in order to relate HIV to livelihoods, food security and nutrition. We must simultaneously embrace three basic dichotomies inherent in the concept:

- Vulnerability has *two senses* – anticipative of risk of exposure *and* of potential impacts, both of which stem from a relative in/ability to manage;
- It is a product of someone’s/something’s internal susceptibility and sensitivity in relation to contextual factors of vulnerability; and
- Vulnerability, susceptibility and sensitivity have flip-sides, or ‘altered states’ – i.e. resilience, resistance and responsiveness, respectively.

The following diagram may help us simultaneously retain the three simple aspects, which together can make the very idea of resilience and vulnerability slightly complex.

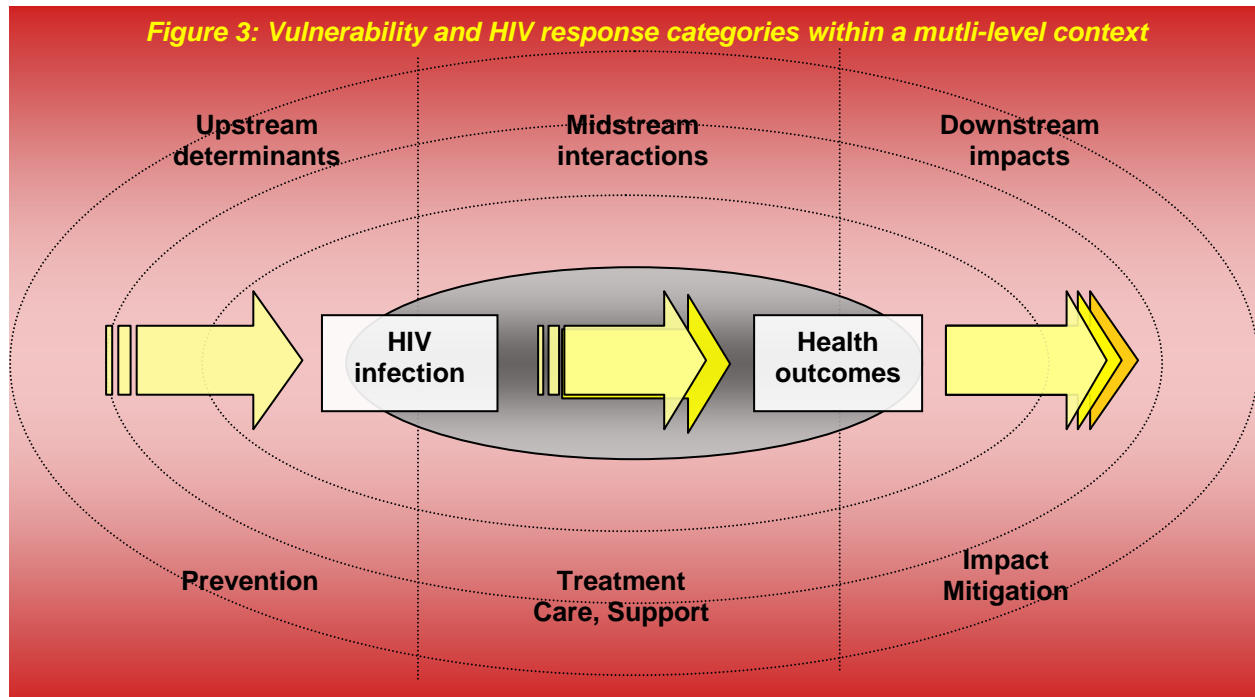


Vulnerability – particularly related to health, nutrition, reproduction or child development, – therefore combines embodied and personal physical and psychological dimensions of susceptibility/resistance and sensitivity/responsiveness, with contextual inter-personal and environmental factors (Edström, 2007). Embedded *and* context-relative, vulnerability is also both forward and backward ‘looking’, as described in Figure 2, and is therefore:

- Portable (& changeable) with people through time and space (context ≠ location)
- Inter-generational, with long-term implications and potentials
- Gendered throughout
- Inter-dimensional; simultaneously personal, political, economic and social

2 Mapping the evidence for the linkages

Vulnerability needs to remain the nexus for relating HIV to nutrition, food security and livelihoods. Rather than separating “before” and “after” analyses into sealed boxes, we should break down the causal pathway to relate linkages (in gender-, time- and context-sensitive ways) from upstream determinants, through midstream interactions to downstream impacts on households, children and communities. We must recognise that both individual and contextual aspects of vulnerability and resilience are relevant to linking livelihoods and development efforts with the corresponding health responses in prevention, care and impact mitigation (Figure 3).



We know that biologically women are more susceptible HIV infection than men: male to female transmission of HIV is between two and four times more efficient than female to male (Mastro and de Vincenzi 1996). Certain cultural norms heighten young women’s overall vulnerability, such as those encouraging (or forcing) women into early marriage or to engage in sexual relations at a young age with older men, since girls bodies are not fully developed for sexual intercourse, being at high risk of vaginal tearing and thus more biologically susceptibility to infections. Early marriage also decreases the ability of a young girl to negotiate condom use (e.g. Clark, 2004; Glynn et al. 2001) and forced sex, or rape, can make HIV transmission more likely, since it may result in more trauma and tissue tearing (e.g. Jewkes and Abraham, 2002).

As this perspective puts the individual in relation to context, we will keep this understanding of vulnerability and resilience and review the evidence, what we know about effective responses and some gaps in the following order: nutrition; food security and; livelihoods (going from the more embodied towards broader contextual aspects, as described in Table 1, below. We will then in the next two main sections summarize major approaches to responding and highlight some gaps, concluding with main suggestions and principles for joining these up.

Table 1. Matrix overview of the organisation of the review

	HIV infection (upstream)	HIV related disease (midstream)	HIV and AIDS impacts (downstream)
Nutrition	Individual ⇔ Contextual	Individual ⇔ Contextual	Individual ⇔ Contextual
Food security	Individual ⇔ Contextual	Individual ⇔ Contextual	Individual ⇔ Contextual
Livelihoods	Individual ⇔ Contextual	Individual ⇔ Contextual	Individual ⇔ Contextual

2.1 Nutrition

Malnutrition is manifest in growth failure, cognitive underdevelopment, immune impairment and hence morbidity and death. It is caused by inadequate dietary intake, ill-health or both. These two factors interact to worsen malnutrition in an individual. Malnutrition reduces a child's ability to learn by reducing interaction and exploration and malnutrition is directly or indirectly associated with 60% of all child mortality and is the main contributor to the burden of disease in the developing world (Ezzati et al, 2002 in Conroy, et. al 2006).

The effects of malnutrition on vulnerability can also be long-term and inter-generational: malnourishment often starts *in utero* and may last throughout the life-cycle, where a stunted girl, for instance, is likely to become a stunted adolescent and woman, increasing the chances that her own children are also stunted. Malnutrition compromises maternal health and is associated with most of the major risk factors for maternal mortality.

There is evidence that malnutrition hinders the physical development of girls, delaying puberty and slowing the maturation of the sexual organs, which could result in the walls of the vagina becoming more fragile and hence likely increasing susceptibility to HIV infection (Delemarre-van de Waal, 2002). There has for a long time been evidence that malnutrition hinders the physical development of girls and slowing the maturation of the reproductive organs

Box 4: Nutrition in women's susceptibility and upstream vulnerability to HIV infection

- Vitamin A deficiency in women is associated with an increased risk of STIs, which in turn can increase susceptibility to HIV co-infection
- Malnutrition in young girls can delay puberty and slow the maturation of sexual organs, increasing the biological susceptibility and risk of transmission during sex at a young age
- Various contextual vulnerabilities can exasperate these disadvantages, such as norms of early marriage for girls, widespread sex-working and unequal age and gendered power-relation, limiting their ability to negotiate condom use

Box 5: The role of nutrition during HIV infection

- Micronutrient deficiencies and weight loss of greater than 10% is associated with a significantly increased risk of disease progression and death
- HIV infection increases energy needs and persons recovering from opportunistic infections have substantial extra energy requirements
- Maintaining the nutritional status of an HIV positive person (preventing or reversing weight loss) is important in reducing sensitivity and vulnerability to the effects of related infections

as well as the pelvic bone, which increases both susceptibility to sexually transmitted and other genital or pelvic infections, and, increases the risks of young women experiencing complications during birth (Winikoff, 1988), which in turn also raises the risk of mother-to-child transmission (not to mention maternal and infant mortality).

Malnutrition and various infections are intertwined in a vicious cycle: malnutrition lowers the body's resistance to infection, weakens the immune system and leads to longer, more severe and frequent bouts of illness. Infections can cause appetite loss, mal-

absorption, metabolic and behavioural changes that affect feeding practices thus depleting body nutrient stores (Gillespie and Haddad, 2003, Scrimshaw et al. 1968; Tomkins and Watson 1989 in Gillespie and Kadiyala 2005). However, there is not specific strong evidence that malnutrition directly increases bodily susceptibility to HIV infection (if a somewhat plausible hypothesis).

It does appear that HIV-positive people with poor diets develop HIV-related disease more quickly, which raises their nutritional requirements further (Semba and Tanga, 1999; Gillespie and Haddad, 2002). The nutritional status of the individual and – particularly – reversing weight-loss is significant in preventing, delaying and mitigating various impacts of HIV infection.

Malnourished people are typically more vulnerable to parasitic and infectious diseases and their illnesses are more severe than those of well-nourished people. Parasites aggravate malnutrition by increasing calorie requirements and draining nutrients (Scrimshaw and SanGiovanni, 1997).

When a person is already infected with HIV, there is evidence that micronutrient deficiencies can accelerate progression of the infection and infectivity, with interactions and implications both midstream and downstream in the causal pathway of HIV. As the viral load of an HIV positive individual increases systemically or locally in genital secretions and breast milk, the vulnerability of an exposed partner or newborn child is also increased, regardless of their own physical resistance or susceptibility. Micronutrient deficiencies may also impair the immune functions, a condition commonly referred to as nutritionally acquired immune deficiency syndrome (NAIDS) first coined in 1968 by Nevin Scrimshaw (Beisel 2001). Thus nutritional status modulates the immunological response to HIV infection, affecting the overall health outcome.

Nutrition and immunity in HIV-positive individuals can interact in two ways. First, HIV-induced immune impairment and the heightened risk of subsequent infection can worsen nutritional status. Second, HIV infection can lead to nutritional deficiencies through decreased food intake and mal-absorption, with increased utilization and excretion of stored nutrients of nutrients, which in turn hasten the onset of disease (Semba and Tang 1999, Piwoz and Preble 2000; Fawzi 2003). It is increasingly accepted that HIV infection increases energy requirements: an HIV-positive person has 10-30% - depending on whether a person exhibits AIDS-related symptoms - higher energy requirements than a healthy non-infected person of the same age, sex and physical activity level to maintain their body weight at a given level of physical activity/energy expenditure (FANTA, 2004; Piwoz, 2004).

Micronutrient deficiencies may also affect the absorption and, therefore, efficacy of ARV treatment (ART). In particular, reconstitution of the immune system after initiation of ART is known to be associated with a patient's nutritional status and subsequent dietary intake. A few small studies are showing improved body weight and body cell mass, reduced HIV RNA levels, improved CD4 cell counts and faster recovery time amongst adults on ART receiving micronutrient supplementation (Piwoz, 2004; Sadler, 2006; Byron et al, 2006). Whilst one study of ART patients in Singapore, found that those who start treatment while they are malnourished have significantly poorer survival, making them six times more likely to die than patients who receive adequate nutrition (Paton et al., 2006), others argue that sufficient data is not yet available to make conclusive statements (Raiten 2006 in Friis 2006). What can be said, however, is that for some patients, starting on ARV treatment can be made more difficult by poor nutrition.

In general, we know that nutrition is important to support recovery from opportunistic infections and reversing weight loss, as well as important for malnourished people to effectively embark on ARV treatment. For the former reason, it may also be particularly important while ART remains

unavailable to many (Samuels and Simon, 2006). There is evidence that vitamin A deficiency is associated with an increased risk of STDs for women, including genital ulcers and cervical herpes simplex virus shedding, which can increase susceptibility to HIV infection indirectly, as discussed above, but for people who are already HIV positive, this will also increase the likelihood of passing on the virus through co-infection with STIs (Semba et al. 1998; Mostad et al. 2000)

Key to understanding intergenerational dynamics, and the upstream determinants of susceptibility for the child, is inadequate nutritional status of the mother (protein-energy malnutrition and/or micronutrient deficiency), which may increase the risk of MTCT via pregnancy, birth or breast-feeding. Some studies suggest the importance of maternal micronutrient status in vertical transmission of HIV by enhancing systemic immune function in the mother or foetus, reducing the rate of clinical, immunological or viral progression in the mother, reducing the risk of transmission in lower genital secretions or breast milk, reducing the risk of preterm and low birth weight deliveries and/or by maintaining the integrity of the child's gastrointestinal tract (for a review see Gillespie and Kadiyala 2005; Piwoz, 2004; Friis, 2006). These studies, however, may appear somewhat inconsistent as some, show that low serum vitamin A was a predictor of MTCT (Semba et al. 1994, in Friis, 2006) whilst others found that while vitamin A supplementation reduced pre-term delivery and a had reduced risk of low birth weight and infant anaemia, it had no effect on MTCT (Coutsoudis et al. 1999 and Kumwena et al. 2002 in Friis, 2006). This apparent contradiction merely highlights a common problem in converting evidence to solutions: the existence of links and predictor indicators does not guarantee the symptom can be reversed by addressing the deficit/problem directly.

Box 6: Downstream links between nutrition and HIV

- Malnutrition with vitamin A deficiency can raise susceptibility to STIs in HIV positive people and peer groups, raising likelihood of passing on the virus in sexual interactions
- A malnourished pregnant woman is likely to present an increased the risk of mother-to-child transmission of HIV

Results from studies exploring the vulnerability of orphans to malnutrition are mixed. Rivers et al (2004), for instance, found that there was no consistent evidence to conclude that orphans in general are more vulnerable to malnutrition than non-orphans. They also found that two orphans cohabiting in the same household were more at risk of being malnourished than if they were on

Box 7: Losing parents to AIDS and children's vulnerability to nutritional insecurity further downstream

- It is not clear that orphan-hood, in general, can be associated with stunting
- Not all orphans are nutritionally vulnerable and many non-orphans become so as a result of the impacts AIDS
- There is some evidence that shows that some orphans are often more nutritionally insecure and less healthy than non-orphans
- The type of orphan-hood, living arrangements and the context all matter

their own. However, more recent evidence from Tanzania, Zambia and Uganda suggests that stunting is related to some types of orphanhood and that the type of orphanhood is significant (maternal vs. paternal and single vs. double), as is the child's specific living/family arrangements (Greenblot and Greenaway, 2006). Other studies state that orphans are more likely to be food insecure, malnourished and less healthy than non-orphans (Ainsworth and Semali 2000; Deininger, Garcia and Subbarao 2003) though not all orphans are vulnerable, and there are many non-orphans who become vulnerable as a result of AIDS (Gillespie et al 2005).

2.2 Food security

Clearly, nutrition security, food security and livelihoods are closely interrelated, with insecurity in one, leading to insecurity in another. This is most evident when attempting to isolate food security and its upstream, midstream and downstream interactions with HIV and AIDS. Food insecurity is often what makes people review and reassess their livelihood options, as their current ways of maintaining food supplies are becoming unsustainable. Food security is in itself ultimately about individuals' access to food, but as we are social beings this can not be analysed satisfactorily without placing individuals in contexts, as in table 1 and section 2, above.

Food security has been defined as follows: *Food security* exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. Household food security is the application of this concept to the family level, with *individuals within households* as the focus of concern [italics added] (FAO, 2003).

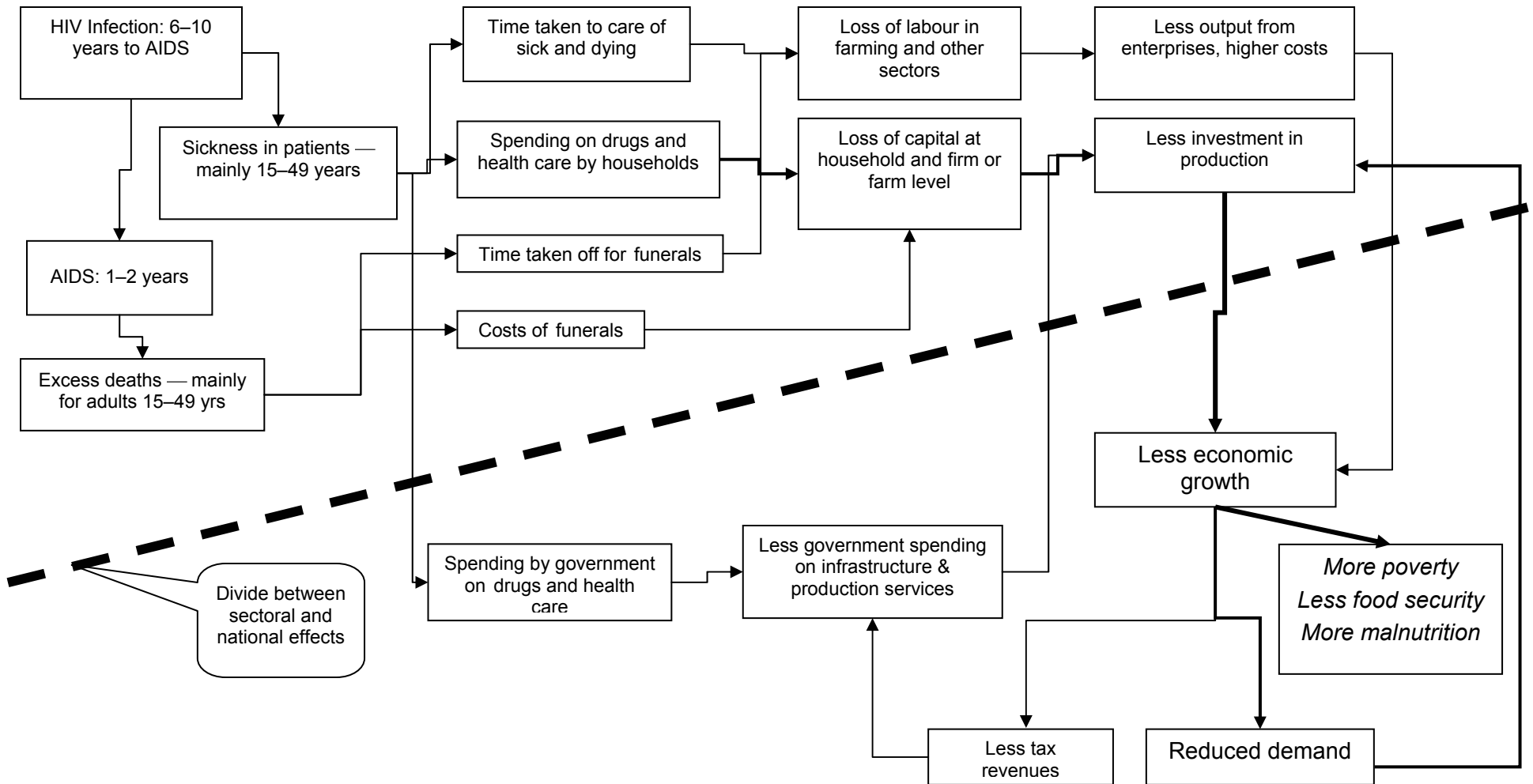
In terms of food availability, at the aggregate level, the impact of AIDS on food supply is usually thought to operate primarily through illness and deaths in the productive age group causing rural labour shortages, leading to a progressive decline of agricultural production, and declines in capital accumulation and demand are also recognised to be relevant. These and other effects described in a range of economic studies (UN DESA 2003), include:

- Growth in the labour supply is slowed or reversed. The economic impact can vary according to the sector of the economy, the degree to which HIV and AIDS affects hard-to-replace skilled labour and whether or not there is a substantial pool of “surplus labour”.
- Savings and investments will be reduced due to increases in HIV-related health expenditures. If children's education, nutrition and health suffer as a result, longer-run economic growth and development will be compromised.
- The epidemic may divert public spending from investments in physical and human capital to health expenditures, leading over time to slower economic growth. Foreign or domestic private investment might also decline if potential investors come to view the epidemic as seriously undermining the likely rates of return, or profits.
- The HIV epidemic may also decrease the growth rate of per capita income, deepening the poverty of the most affected countries and selectively impoverishing those directly affected.⁴

The chart in figure 4, below, summarises some macro-economic effects of HIV and AIDS, in the area below the dotted line. The chart includes a positive feedback loop, absent in many other models, in the form of an inverse multiplier. This has the effect that: if the economy grows less as a result of the epidemic, then aggregate demand is likely to be less and this will itself reduce economic activity as investment falls.⁴

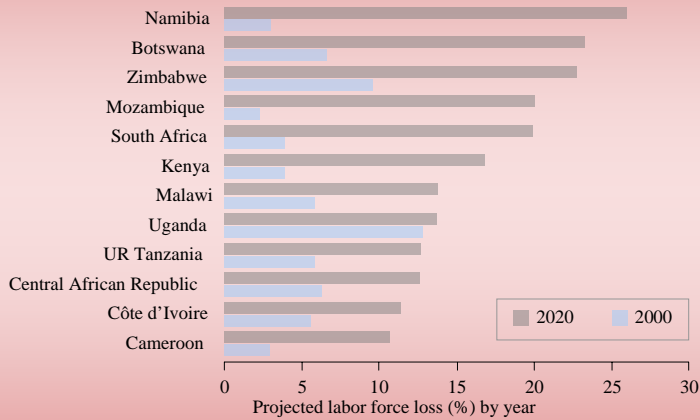
⁴ This is the Keynesian multiplier that arises from the identity that $\text{Income} = \text{Consumption} + \text{Investment} + \text{Govt spending} + (\text{Exports} - \text{Imports})$.

Figure 4: The main downstream impacts of HIV and AIDS on agriculture and food security



Source: Wiggins & Slater, 2006

Figure 5: Projected reduction in African agricultural labour force due to HIV and AIDS by 2020



Source: ILO (2004). *HIV/AIDS and work: global estimates, impact and responses*

The outlook for cumulative losses to the agricultural labour force in Sub-Saharan Africa could be bleak, according to ILO statistics, as described in figure 5. It must be noted, however, that these projections are based on fairly rudimentary estimates of impacts in the absence of access to ART in agricultural communities and should therefore be treated with caution.

At the farming community level, food security of affected communities is affected by reductions of land area cultivated by AIDS affected households, shrinkage of crop and livestock portfolios, accompanied by decay of rural infrastructure and overall reduced rural production and

productivity (Barnett and Whiteside, 2002).

Households affected by adult morbidity, mortality, and a high demographic dependency ratio are significantly more vulnerable to food security shocks than other households. These households suffer from marked reductions in agricultural production and income generation leading to early engagement in distress coping strategies and declines in food security (Tango International 2003). As impoverished families try to cope with the morbidity and mortality associated with the disease, a significant divestment of assets usually occurs, threatening the dissolution of the family unit itself. Many believe it is highly likely that community safety nets are slowly breaking down due to the number of households that require assistance in meeting care, food, cash and labour needs and their inability to reciprocate assistance in kind or cash. Community members that are left responsible for a large number of orphans are poor themselves, making care for these a children a heavy burden (Tango international 2003). Whilst there seems no doubt that they are under significant strain, other research highlights how such safety nets are at the same time more diverse, prevalent and resilient than is usually recognised in the literature (Foster, 2005; Sabates-Wheeler and Pelham, 2006).

Whilst aggregate food production matters for availability, *access* often matters more, in terms of vulnerability to food insecurity: it is rare for absolute food-stocks to be 'insufficient' for the population in general. With short-term supply reductions, however, food prices can rapidly increase making access more difficult for the poorest. This can be precipitated by droughts, seasonal shortages, and market failures of various kinds. At the same time, whilst specialised intensive cash-cropping can have a potential for greater profits, it also limits abilities to fall back on diverse subsistence crops, which has been seen to increase the resilience of households to the impacts of fluctuations.

Food is usually not equally distributed within a household; women and children often receive less than men. This could, in circumstances of extreme poverty, lead to possible impacts on nutritional status of women, making them more susceptible to HIV infection.

In addition to unequal distribution of food at household level, the number of meals and snacks that people eat in a day has an affect on their nutritional status. Typically, as a result of household stress and shortage, the numbers of meals per day get reduced as does the ability to snack, though snacking is often dependent on the season and the place of residence as many snack foods are in fact collected from the wild.

With household stress, the composition and variety of meals is lessened, with the same foods, often with limited nutritional value, eaten day after day. All this clearly has an impact on nutritional status and therefore susceptibility to disease. Again, it is often women who feel the greatest pressure as, for instance, they may strive to ensure that their children get sufficient food each day to the neglect of themselves.

A sanitary environment is also key to appropriate preparation of food. Once again, households in stress are likely to be facing unhygienic and unsanitary living conditions, thus placing household members increasingly at risk of disease and infection through, for instance, infected water.

A recent review by Greenblot and Greenaway (2006) highlights evidence that children and orphans have increased vulnerability to food insecurity when they reside in households with at least one sick adult. A study in Zimbabwe revealed that when a child experiences both the illness of a significant adult and deteriorating food security, s/he is more likely than non-affected children to drop out of school. This is particularly the case amongst girls. Two recent surveys (Blantyre survey and CRS STRIVE) demonstrate that food insecurity is significantly greater for households with multiple orphans than for those with none, and progressively increases as the number of orphans in the household increases. And generally, using the Coping Strategy Index (CSI)⁵ as an indicator of food insecurity, the CHS regional analysis concluded that 'households with a chronically ill member' are significantly more food insecure than those with none (Greenblot and Greenaway, 2006).

Box 8: Food insecurity, HIV and AIDS

- Downstream impacts of HIV and AIDS can reduce food *availability* through causing rural labour shortages and reductions of cultivated land, loss of skills and decay of infrastructure
- Fluctuations in availability is often a more serious problem than aggregate production, as it drives up prices and makes access more difficult for the most vulnerable
- Gender and age-based inequities in intra-household food distribution can sometimes make very poor women and children particularly vulnerable to hunger
- Coping strategies where the food variety and frequency of meals are reduced can increase nutrition and hunger related vulnerabilities in HIV and AIDS
- Limited access to clean water and unhygienic cooking facilities all increase vulnerability to infections, nutritional and overall food insecurity.
- Children and orphans have increased vulnerability to food insecurity when they reside in households with at least one sick adult
- Such children are more likely than non-affected children to drop out of school and girls more so
- Food insecurity progressively increases with the number of orphans in a household

⁵ A Coping Strategies Index (CSI) is a measure of food security, used to establish the frequency and severity of a household's coping strategies for dealing with food shortfalls. The CSI includes four categories of strategies against which households were scored: *consumption, expenditure, income and migration*. Increased use of coping strategies indicates a decrease in food security and vice versa (Senefeld and Polsky, 2006).

2.3 Livelihoods

Research has shown that livelihood insecurity affects vulnerability to HIV and AIDS (both HIV exposure and AIDS impacts). In their work in Malawi, Bryceson and Fonseca (2006a, 2006b) and Bryceson (2006) show how, in response to increasing food insecurity, peasants facing a double threat of famine and AIDS, are becoming increasingly involved in transactional sex. This in turn, leads to increased risk of HIV exposure as well as chances of passing on the infection more broadly. They describe a move from self-sufficient subsistence labour performed within the household context (especially by women and children) towards cash-earning piecemeal work (or *ganyu*) as well as a move from agriculture towards non-agriculture with income-earning turning increasingly to trade and services, including sex work.

There is also a move from household towards individualised work, whereby every able-bodied person works, including women and youth, need to earn cash to cover their subsistence needs. This has been described as a 'proletarianisation' of rural areas (Bryceson and Fonseca, 2006). Whilst neither unprecedented in the history of economic development, nor unexpected in light of market oriented and growth-focused economic strategies, what makes this transition unusually precarious is the deeply intertwined vulnerabilities to upstream, midstream and downstream interactions between changing livelihood strategies, HIV and AIDS.

The above research explores how traditional agrarian livelihoods are changing as a result of crises and broader shifts and how these new forms of livelihood put people at increased risk of HIV infection. Within this context, some other pre-existing livelihoods which by their very nature put people at increased risk, also grow in importance. People engaged in the sex trade (see e.g. Gysels, et al 2002) come under this category as do mobile or migrant populations, which include miners, truck drivers, mobile sex workers and seasonal labour migrants.

Linkages, reciprocities and interdependence between rural and urban areas, evident in many parts of Africa, are key components of livelihood strategies for many but can also increase vulnerability to HIV infection at the same time as strengthening household resilience and coping (see, e.g. Crush, et al, 2006; Crush and Dodson, 2006; HDN/IOM, 2006; SAMP, 2005; Samuels, 2001).

An increasing body of evidence is emerging on how downstream impacts of HIV and AIDS affect livelihoods and particularly rural livelihoods and agriculture. Similarly, how rural households respond, how people adapt, cope or just "struggle", has been increasingly the subject of studies (Barnett and Blaikie; 1992, Baylies, 1996, Rugalema, 2000; Waller, 1997). These studies, however, are often only of a small area and explore a limited number of relations in the rural economy and society. Similarly, few studies are longitudinal (see section 2.5).

Table 2, below, summarises some of the effects of HIV on farming communities, and their responses. It shows, for instance that HIV affects agriculture both directly and indirectly at household level, changing supplies of labor, assets, patterns of farming and other activities, and that it also affects communities as a whole and wider economy. Whilst this is a useful matrix, it needs to be stressed that there are considerable local variations with regards to the impacts which make it difficult to draw general conclusions.

Table 2: Impacts of HIV and AIDS on rural livelihoods within farming communities

Immediate effects	Responses/coping by households	Consequences for agriculture and other rural activity
<ul style="list-style-type: none"> ▪ Loss of labour – from death, sickness and caring; attendance at funerals and in mourning; loss of motivation to trauma; loss of energy from malnutrition 	<ul style="list-style-type: none"> ▪ Reduce labour time in heavy work ▪ Reduce consumption ▪ Take children out of school, esp. girls, so they can work or help with care and household work ▪ Recruit additional labour e.g., widowers may remarry; youths may be adopted from the extended family; children, especially female children, given away for early marriage 	<ul style="list-style-type: none"> ▪ Leave fields uncultivated / delay in agricultural operations ▪ Shift to crops less intensive in labour ▪ Reduce the range and diversity of crops grown ▪ Move from cash to subsistence crops to assure domestic food supplies ▪ Spend less time on land conservation ▪ Shift to less physically demanding jobs, e.g. petty trading
<ul style="list-style-type: none"> ▪ Cash costs of medical bills, transport to health centres, alternative diets, home care supplies, funeral expenses 	<ul style="list-style-type: none"> ▪ Savings liquidated ▪ Assets sold off – consumer goods and household effects, livestock, tools, land (probably in this order, with land sale the last resort) ▪ Borrowing and going into debt ▪ Undertake additional work to earn extra income –crafts, brewing, etc. May include migration to find work. 	<ul style="list-style-type: none"> ▪ Inability to join and participate in co-operatives can mean less access to e.g. credit, or farm input supplies ▪ Less spending on farm inputs such as seed and fertiliser, more extensive cultivation ▪ Migration to find better-paid work may deprive farming of labour
<ul style="list-style-type: none"> ▪ Increased dependency ratios as adults in their prime die, leaving the old and orphaned children 	<ul style="list-style-type: none"> ▪ Adults, especially women, have to spend more time on care of young ▪ Increased cost of schooling orphans – may lead to orphans being taken out of school 	<ul style="list-style-type: none"> ▪ Less time to farm or earn income ▪ Less cash to invest
<ul style="list-style-type: none"> ▪ Loss of knowledge and skills as adults die before passing on their learning to their children 	<ul style="list-style-type: none"> ▪ Not known 	<ul style="list-style-type: none"> ▪ Young and orphaned farmers lack farming skills ▪ Reduction in diversity of crops grown
<ul style="list-style-type: none"> ▪ Loss of access to land by widows and children on death of husband 	<ul style="list-style-type: none"> ▪ Conflicts within extended families over inheritance of land and property 	<ul style="list-style-type: none"> ▪ Widows left destitute, possibly having to resort to commercial sex work
<p>Main sources: UN DESA, 2003; Jayne et al., 2004; Mather et al., 2004; Mutangadura et al., 1999, Arrehag, 2006 adapted from Slater and Wiggins, 2005</p>		

Studies increasingly show, therefore, that the effects and consequences of an HIV related death of an adult on those left behind depends on various factors including: the age, gender and position of the diseased adult in the household; the age, gender and position of the spouse and other adults left behind; the numbers of dependants left behind; the length and degree of incapacity during AIDS related illness; the nature of social relations and the kinship system; availability of agricultural production opportunities; and more broadly, the economic and political context at national and regional levels (Arrehag, et al.; Drinkwater, et al. 2006, Samuels, et al. 2006; Weigers, et al 2006; Yamano and Jayne 2004; Mather et al 2004).

Weigers et al. (2006) show how female-headed households with people living with HIV and elderly-headed households were the most food insecure and had less adult labour available for productive activities. Even female headed households cannot be treated as a homogenous category since, according to Weigers et al.(2006), they differ in level of vulnerability depending on age, marital status, education level and economic position. Similarly, Drinkwater et al. (2006) show how, if the deceased was a primary producer and there was no secondary or upcoming producer to take over from them, then the vulnerability of the individuals in a whole cluster of linked households⁶ was deepened. The variability and differentiation of vulnerability clearly has implications for policies, programmes and designing targeted support.

Non-farming food producers

Aside from more stereotypical sedentary agricultural communities, pastoralists and fishing communities also have particular aspects making their members vulnerable to infection, because of the nature of their occupations and lifestyles involving risky situations (Morton, 2006; Gordon, 2005; Allison and Seeley, 2004; Seeley and Allison 2005; Samuels and Ndubani, 2005). Pastoralist groups are not generally experiencing higher rates of HIV infection, but as the epidemic has typically started in urban centres this may be a function of time. Factors such as limited social connections with urban populations and higher rates of circumcision in some pastoral communities could mitigate their vulnerability. Nevertheless, Morton (2006) describes pastoralists as at potentially high risk of infection because of mobile way of life encouraging sexual practices involving 'sexual networking', polygamy, non-consensual sex and 'wife-sharing'. In addition they are likely to be particularly vulnerable to the impacts of disease because of a rigid gender division of labour, which exacerbates loss of labour for specific tasks, poor access to medical care and the complications for treatment and care implied by the mobility for pastoral migration (of men, livestock and entire households).

There are reportedly very high HIV prevalence rates among fisher-folk in Africa as elsewhere in the World. Fishermen are five times more likely to die of AIDS than agricultural communities in the Lake Victoria region, some 20 per cent of fishing crews in Thailand tested HIV-positive, next to 1.5 per cent in the general population, whilst in the main sea-port of in Cambodia (Sihanoukville), nearly a fifth of fishermen tested HIV-positive, rating as the second worst affected occupational group after brothel-based sex workers (Allison and Seeley, 2004; Seeley and Allison 2005). The specific vulnerabilities of fishing communities include significant amounts of time spent away from home, availability of cash income from fish catches, the availability of commercial sex in fishing ports and cultures of machismo (or hypermasculinity), combined with a disadvantaged position of women in many fishing communities. Alcohol and drug abuse among many fishermen is often an additional factor. Significantly, the high degree of mobility compounds the problem, as fishermen, transporters and fish processors (female or

⁶ A cluster is defined as a group of producers and consumers between which there are multiple resource exchanges, usually based on kinship, labour and food exchange, and or common access to draught power.

male) tend to move between landing sites, markets and processing facilities on a regular basis.

The vulnerability to impacts of HIV and AIDS on fisher-folk are also thought to be severe, due to poor access to health services, ARV treatment and other forms of AIDS care and support (Gordon, 2005). Whilst this is a highly neglected area generally, one programme in Congo has developed savings schemes for vulnerable women and girls in fishing communities (FAO, 2005). The programme aims to promote self-reliance (reducing the need for “fish for sex” transactions) and to strengthen the resilience of livelihoods to cope with burdens of HIV related care or disease. There is a need for further research on HIV and AIDS in the fisheries sector.

Mobile groups and urban – rural links

Refugees and displaced people, either because of conflict or other emergency situations, are another category of people sometimes vulnerable to HIV infection and often to the impacts of infection. There is a large and growing body of literature on the theme of dislocation that lies beyond the scope of this paper, but recent evidence suggests that refugees in camps are sometimes less vulnerable due to limited mobility (SAMP, 2005). There is a clearer consensus that returnees and people on the move – e.g. following conflict – are more vulnerable to infection, than sedentary groups or those with restricted mobility.

Migration is a major source of resilience in livelihood strategies, as well as a source of vulnerability to HIV and the impacts of AIDS. There appears to be a correlation between good transportation, mobility and high HIV prevalence rates, as for example in parts of Swaziland and South Africa (Crush and Dodson (Eds.), 2006). The links between mobility and increased vulnerability to HIV include geographically wider social networks increasing sexual networking and vulnerability to high risk encounters. Additionally, mobile people are more difficult to reach with information and interventions, and migrant groups are often socially, economically and politically marginalized. Traders move between producers, or middle-men and markets, and they are likely to be significant in the transmission of the virus, though this is under-researched.

Migrant workers travel to mines, factories, towns and farms away from home. Different forms of migration lead to different social and geographical forms of “mobile community”. Where labour migration is regularized and formalized as in the South African mines, migrant communities and distinctive migrant cultures have developed. Sex and sexuality are integral components of such cultures, which includes commercial, “transactional” sex and homosexual relations, in addition to sex with a partner at “home”. Other forms of mobility disrupt or prevent the formation of a stable community. People who have multiple ‘homes’, or who spend a lot of time away, often have multiple short-term relationships, which encourages high-risk sexual situations. While “on the road”, women especially are vulnerable to exploitation and harassment, which can include sexual assault. The gender dynamics of migration therefore leads to differences in risk of exposure to HIV between men and women (SAMP, 2005).

Research with female traders at Durban’s Warwick Junction identified lack of information about HIV (in their place of work, i.e. on the street) as one of the main factors making them more vulnerable (Crush and Dodson (Eds.), 2006). This echoes the findings about Johannesburg domestic workers and highlights the need for HIV and AIDS education initiatives targeted at specific migrant communities. Women traders with responsibilities for providing care to household members and financial support face a double burden. Many sleep on the street increasing their vulnerability to gender-based violence as well as risky exchanges. Many women find resilience in peer-support and sleep in groups to reduce these vulnerabilities (Crush and Dodson (Eds.), 2006).

Whilst HIV and AIDS as a cause of migration is under-researched, a new project by IOM's Regional Office for Southern Africa aims to reduce the vulnerability of mobile populations to HIV by establishing partnerships with key organisations working on HIV and/or mobile populations in Southern Africa. The project aims to: implement research on linkages between HIV and mobile populations in destination sites and sending sites, disseminate information on mobile groups and HIV to relevant stakeholders, develop HIV prevention and care programmes in migrant sites and migrant sending sites, implement advocacy programmes that increase the awareness of policy makers to HIV vulnerability of mobile populations in the SADC region and develop regional guidelines on HIV and AIDS for sectors employing mobile workers (Crush et al., 2006).

The linkages between HIV and urban livelihood security are less well-established and attempts to link both HIV and urban livelihood security simultaneously with migration are only now being considered. Responses are rendered more challenging by the fact that migration itself has been undergoing rapid changes in form over the last decade. There is an increasing significance of female migrants in Sub-Saharan Africa (SAMP, 2005) and the parallel trends of a "feminisation of migration" and the "feminisation of HIV" may well be more than a coincidence. Little is known about informal cross-border trading in Africa and it has been largely ignored by both HIV and livelihood security policy makers. However, it is a major motivating factor behind migration and it is significant to regional livelihood strategies and food security (Crush et al., 2006).

Migration, as a response to livelihood insecurity, allows for reciprocity between rural and urban households and is an important source of resilience. Urban people send cash remittances to rural families, which facilitates the purchase of food and other necessities in the rural areas and contributes to the availability of a 'rural surplus' for remitting foods to the urban household.

The balance between cash remittances from urban migrants and food transfers from rural households is a delicate one for impoverished, vulnerable households. However, important knowledge gaps in these links remain and they include: typologies of reciprocity, typologies of vulnerability, typologies of coping and typologies of effective interventions.

Urban formal and informal sectors

The HIV and AIDS epidemic has typically first taken root in urban areas, where high concentrations of resources and disposable incomes have combined with high degrees of inequality and opportunities for sexual networking between population groups. Impacts on the urban and national economy are likely to be significant, although it is extremely difficult to isolate the effects of HIV and AIDS amongst an array of other factors, such as relative terms of trade, climate (impacting agriculture and down-stream on transport or food-processing), political events, or economic policy such as interest rate and exchange rate adjustments.

The impacts of HIV related morbidity and mortality on urban formal sectors is thought to be somewhat similar to labour related affects on agricultural production from morbidity, caring, mortality and funeral-related absenteeism. Demand for food, however, is also likely to decline as people die and disposable incomes and savings decline due to pressures from medical expenses and foregone incomes. In Malawi, for example, private savings and investments have bottomed out at virtually nil in the last few years and manufacturing production is less than half of 1992 levels (Arrehag et al., 2006). Public investments may well not compensate for these savings shortfalls as budgets are squeezed by the increasing pressure on services, such as health and education. Increased overseas development assistance related to HIV and AIDS, however, may mitigate these effects, but investments become increasingly tied and reactive to dealing with impacts of shocks as opposed to laying foundations for economic growth.

In terms of vulnerability to HIV and AIDS in urban areas, it is crucial to pay close attention to the most vulnerable groups and particularly to those in the informal sector, or the 'grey economy'. As noted in section 2.1 above, relative inequality may well be more significant as a driver of the epidemic than absolute poverty. People in the informal sector are particularly vulnerable for many reasons, not least because their operating in this sector is often a symptom of marginalisation and/or their recent arrival from rural areas, having less entrenched or secure social networks or access to benefits and services than their better off or more established urban counter-parts.

One study on women street traders' vulnerability to HIV in South Africa and Uganda found that poor conditions of employment in the informal economy influence women's social and economic marginalisation. This in turn is linked to social and behavioural dynamics that influence HIV vulnerability. Findings show that most of the women live and work in poor areas and that their location of work at truck stops and transport hubs results in high levels of violence, abuse and rape, all of which contribute to an increased vulnerability to HIV (Lee, 2004).

While there are some clear linkages between women's social and economic marginalisation through their working conditions and the vulnerability to HIV infection, there are a number of gaps in the literature, which restrict a more comprehensive analysis. For example, the sexual practices of informal workers and links between street trading and sex work are not researched in detail (Lee, 2004). It is clear from the research literature, that particularly poorer women in the informal sector often resort to transactional sex – or, sex work – as one of their coping and resilience strategies, amongst others, but few studies analyse this received wisdom head-on.

Maybe the most surprising and significant gap in research on livelihoods and HIV has been the dearth of meaningful basic – or even action – research on the role of sex work as a livelihood in its own right. A few studies exist, however, and one small study detailed the life histories of 34 female sex workers in a Ugandan trading town and found that the women shared similar backgrounds and that this had played a role in their move into commercial sex (Gysels et al., 2002). A disadvantaged background and restricted access to economic resources were the major reasons for women gravitating to commercial sex work. Their experiences in their exploitation of opportunities and in the level of success they achieved diverged significantly, however. Three groups of women were identified, who had developed different life styles and ways of dealing with opportunity and risk: (1) women who work in back-street bars, have no capital and are almost entirely dependent on selling sex for their livelihood; (2) salaried waitresses in bars along the main road and engaged in a more institutionalised kind of commercial sex, often mediated by middlemen and (3) the more successful entrepreneurs, who earn money from their own bars, as well as from selling sex. The three groups had different HIV risk profiles, due partly to their divergent financial independence from men, with women in the latter group having taken control of sexual relationships and shown resilience in their ability to negotiate good deals for themselves, both financially and in terms of safer sex. The poorer women were more vulnerable and less able to negotiate safer sex.

One action focused study on the livelihoods of commercial sex workers in Binga, concluded that commercial sex work must be viewed from a livelihoods perspective if the underlying factors of vulnerability are to be addressed (O'Donnell et al., 2002). The study correctly points to a need for significantly scaling up the reach of HIV prevention activities with sex workers, as there is a classic "collective action problem" (where a woman can earn more by having unprotected sex than by insisting on a condom). Surprisingly, however, rather than considering what would be required for transformative collective action and building resilience through solidarity in the sex work force, the authors instead propose that broad based food aid programmes to sustain

marginal livelihoods could 'prevent' sex work, by reducing the incentives for poor women to engage in the trade. A further conclusion that direct material support to help women 'seek a way out' of the livelihood also betrays a common underlying view of sex workers – and vulnerable women more broadly – as passive vulnerable victims who must be protected from themselves, as opposed to looking to their actual livelihood strategies as a basis of their resilience, on which to instead build.

We mention these shortcomings in the analysis mainly to point out how relatively poorly developed thinking in this area appears to be in Sub-Saharan Africa, where the active mobilisation of the most vulnerable groups to HIV has been broadly neglected. Stigma and denial no doubt plays a major part in why the role of sex work in the epidemic continues to be downplayed, or obscured by re-labelling the oldest livelihood in the World in new 'transactional' terms. The literature on East and Southern Africa appears almost universally oblivious to the many crucial lessons from successes in other parts of the World, such as in Brazil, India, Thailand or other parts of Asia and Latin America.

As context specificity is crucial in understanding the detailed vulnerabilities involved in diverse livelihoods, the above section was subdivided by broad livelihood categories. In box 9, below, we draw out some key features relating to upstream, midstream and downstream vulnerabilities.

Box 9: Livelihoods, HIV and AIDS

Upstream links to HIV vulnerability

- Diverse forms of informal livelihoods can increase vulnerability to infection
- Mobility and migration particularly enhances vulnerability to HIV, can compromise ARV access and adherence, as well as raise vulnerability to other impacts of ill health
- Women's livelihoods, which involve sex work raises their vulnerability, as female susceptibility to transmission of HIV is two to four times than that of males, and unequal age and gendered power-relations make girls and young women more vulnerable to infection by limiting their ability to negotiate condom use
- Street children's livelihoods are often particularly risky, lacking social or legal protection

Midstream interactions

- Sickness impacts on concentration, energy and resourcefulness to generate or maintain a livelihood
- HIV related stigma at work, or in the market, can lead to loss of income/jobs
- HIV positive people are often denied access to credit or insurance due to discriminatory policies and poor regulatory frameworks
- Positive people or their children can experience precarious access to social networks of support, where stigma is strong and reciprocity capacity weak

Downstream vulnerabilities to impacts

- Declining personal assets and stores of physical strength, resulting from the adverse health outcomes of HIV related disease, reduces individuals' ability to fall back on their own labour
- Morbidity and mortality linked household labour shortages, lower incomes and demand, loss of skills (school drop out and deaths), falling savings & investment etc.
- Clustering of impacts in pockets of most vulnerable groups can increase inequality
- The most marginalised and vulnerable are likely to be most affected by livelihood shocks and stresses brought by AIDS

2.4 Some remaining gaps in knowledge

Whilst evidence and knowledge is increasing on the nexus between HIV, nutrition, food security and livelihood, knowledge and evidence gaps persist. On the nutrition side, there are still a number of unknowns. For instance we do not know enough about the impact of pre-existing malnutrition on HIV susceptibility or the degree to which malnutrition increases the efficacy of horizontal disease transmission between adults (incl. through association with other STI infections). The need for such research should to be balanced with the fact that research on transmission needs to be directed towards follow promising and feasible interventions and many other areas of sexual health research and interventions are likely to be higher priorities for prevention.

With respect to ART, we need to know more about its role in exacerbating micronutrient deficiencies and how to better promote of catch-up growth in appropriate ways. Further research is also needed into interactions between micronutrients in HIV seropositive individuals, and the effect of pre-existing micro-nutrient intake and status on the efficacy of micronutrient supplementation interventions. This could provide us with improved information of micronutrient supplements for HIV positive individuals (e.g. Friis, 2006).

To date, most nutrition-relevant research in the context of AIDS has been clinical, dealing primarily with interactions within the individual body and their implications for health policy. More attention needs to be paid, therefore, to linking nutritionists with agricultural economists and/or program managers to investigate the broader issue of household and community-level nutrition security, policy and programming in the context of AIDS. A key question, which remains to be answered, is the cost-effectiveness of different kinds of interventions and/or broader policies to improve nutrition of people living with HIV or AIDS (PLWHA) and their households and what are the implications for scaling up better outcomes (RENEWAL, 2006; PEPFAR, 2006). Within this, it is important to not restrict ourselves to nutritional therapies or supplements, but also consider educational and market-based food security solutions, linked to better HIV interventions.

From a broader livelihood perspective, whilst there are some good overviews of the literature on the impact of HIV and AIDS on rural households, (Baylies, 2002, Bollinger and Stover, 1999; Loewenson and Whiteside, 1997; White and Robinson, 2000), a review of AIDS *impact* studies worldwide (Booyesen and Arntz, 2003) found only 38 impact studies of which only 16 related to Africa⁷. In particular, a dearth of longitudinal studies was noted, which would permit an exploration of the longer term impacts of different components of ill health on people's livelihoods and overall experience of poverty. This would help in isolating the impact of episodes of illness from the effects of other factors on individuals and households, as well as understanding the relative importance of causal factors on coping strategies and to discern the drivers of change (e.g. Alumira, et al, 2006; Senefiel and Polsky, 2006).

Given that we do understand that context is all-important, more research would be useful on local variation and how specific conditions affect impacts and therefore responses. In order to draw learning and possible programmatic and policy implications from micro studies and make them relevant at national level, it is important to research interventions, programmes and their outcomes as well as the basic dynamics and linkages.

⁷ Exceptions include an ongoing cohort study in South Africa by Bachman and Booyesen (2003, 2004) looking at the economic impact of HIV/AIDS on households, and the study by Drinkwater et al. (1993, 2006).

It is important to point out that understandings on both impacts and responses have to a certain extent been limited by the common unit of analysis having tended to be “the household”, defined broadly as a single production and consumption unit. Whilst clearly an important (and to a large degree necessary) unit, the household is *not* sufficient as a unit of analysis to appreciate the fuller dynamics of vulnerability to HIV and AIDS. There is need to move beyond this unit to take into account local structures and institutions which are dynamic and flexible (e.g. see Samuels, et. al 2006 for discussion on use of clusters). We also need to link such research better to the role of individuals as units of analysis in health and nutrition frameworks, but also in actual changing livelihood strategies and political economies.

The ‘household-framework’ is also rendered inadequate by the fact that there are increasing numbers of children who are separated, or at risk of separation, from their families. Very little is known about street children or child labour in sub-Saharan Africa (including their HIV prevalence) through formal research. Limited information has been gathered through rapid assessments in South Africa, Tanzania, Zambia and Zimbabwe focusing on child labour and street children (Rau, 2003). But, on the whole, the reality of child sexuality as well as child labour is typically overlooked and the ‘domestic’ situation of ‘street kids’ tends to keep them broadly outside sanctioned social norms, laws, services and social protection.

A gender lens is often missing from the studies, with the household framework often reinforcing rather than challenging gender-constructs. Whilst some evidence is emerging now (e.g. Weigers et al, 2006; Drinkwater et. al, 2006), we still do not know enough about the differential impacts, responses and potential policy and programmatic implications for men and women. Whilst many studies do refer to gender, it is often little more than paying lip service to it, and the term ‘gender’ is used as if it were synonymous with women.

Similarly, when a gendered distinction is made in programming, it is often limited to highlighting the vulnerability of girls to sexual violence, pregnancy or HIV infection. The needs of girls are usually ‘lumped in’ with those of adolescent girls and women, thereby ignoring the specific needs and issues of young girls – let alone young boys. Responses that do specifically target boys and girls, however, show better attitudes to gender equality as well as improved resilience (Hargreaves and Boler, 2006; Barker and Girard, 2003). Many are predicated on and reinforce hopelessly generalised gender norms, such as ‘mothers are the carers’, ‘fathers are earners or absent’ and ‘children are sexless’. Few integrate deeper gender analysis in how they address vulnerability, before, during and after crises, within households or over generations.

From a wider livelihoods perspective, currently most health services and HIV related programmes are designed for sedentary populations, residing in one area. The above has shown the diversity of livelihoods, especially in terms of residential and occupation locations; health services, therefore, need to become more creative in order to attempt to capture people who are not sedentary and/or living and moving in different locations. Thus, for instance, many programmes target miners in South Africa at their place of work but what about the sending areas, i.e. the places they return to at regular intervals? With refugees and displaced people, how can one ensure a continuity of supply of ARVs, for those who are lucky enough to get access to them in one location, when, for instance, they are repatriated? How can one best raise awareness amongst populations who practice polygamy and wife-sharing about the dangers of multiple sexual relations?

Finally, most studies fail to address dynamic interactions between dimensions of vulnerability and, particularly, fail to develop any deeper analytical research into the *dynamics of resilience*, as internal to the dynamics of change and transformation. Biological processes and

epidemiology operate in a context of social and economic exchange, decisions and behaviours of individuals in social groups (only some of which takes place within households). Yet, we tend to reduce reality to a single dimension of economic, psychological, or sociological explanations and frameworks. In other words, the real-World causal interactions between socio-cultural, political, biological and economic processes usually go unrecorded. In research and programmes we too often (a) treat people as incidental passive subjects – usually vulnerable to shocks – and (b) fail to recognise that it is the lived experiences and understandings of disease, poverty and misfortune, combined with cultured aspirations of health, wealth and happiness, which drive what people do and on which their resilience is based and can develop.

2.5 Summarising can we say about the existing evidence of linkages

In relation to HIV, reasonably good and balanced nutrition clearly matters to the sick, as recovering from opportunistic infections implies substantial extra energy requirements to regain lost weight. No systematic (strong) evidence exists, however, that further weight gain produces additional benefits. Improved nutrition is also particularly important for some undernourished people when starting on ARV treatment. There is evidence on micronutrients interacting with HIV, but some of this evidence and how to treat micronutrient deficiencies in the context of HIV and ART is less conclusive. In terms of the inter-generational dynamics of HIV and AIDS vulnerabilities, nutrition also matters to pregnant mothers, to the unborn, to babies and to young growing children, especially to girls. However, in all these cases, it also matters equally (or more) for other reasons and responses may be more relevant in areas of maternal and infant health, education or social protection for specific vulnerable children.

Food security obviously matters for nutritional security of the very poor, particularly in the above cases in relation to HIV and AIDS – and for the broader welfare of some orphans and vulnerable children, depending on context and living arrangements. Otherwise, it mainly links to HIV related vulnerabilities in so far as how it influences livelihood strategies and related vulnerabilities, although it is also important to underline that food security is one of several aspects and objectives of livelihoods strategies.

Livelihoods are strongly inter-related with HIV-linked vulnerabilities and resilience, because of the various socio-economic, gender and power-based and socio-cultural behavioural dimensions of HIV and AIDS vulnerabilities and resilience. The important linkages can be identified in relation to contextually specific risk situations and behavioural elements, access to social support and services, as well as in relation to bio-physical aspects at different life-stages and/or stages of HIV, and differentiated by gender. Whilst the predominant body of literature analyses rural agricultural livelihoods in these respects, new approaches to analysing different and changing livelihoods may be increasingly required to better link it with HIV and AIDS.

Whilst not the central focus of this review, it is hard to find strong evidence of how different *macro-economic* development options and strategies influence HIV-related vulnerability. Restrictive caps on social spending can sometimes undermine the necessary investments for health, education, water and social protection for basic human development, which are also needed for dealing effectively with HIV and AIDS in many of the poorest countries. We also have evidence that HIV tends to spread more effectively in transitional/rapidly changing economies and/or where large income differentials and mobility are two significant features. The implication points mainly to managing growth and development with an eye to pro-poor (or redistributive) strategy options and reducing poverty and marginalisation progressively.

Table 3, gives an overview of interactions between vulnerabilities in these areas.

Table 3. Internal vs. external vulnerabilities in up-, mid- and downstream linkages between HIV, nutrition, food and livelihoods

	Upstream vulnerability to HIV infection	Midstream vulnerabilities	Downstream impact vulnerabilities
Nutrition (Internal physical susceptibility & sensitivity)	<ul style="list-style-type: none"> ➤ Vitamin A deficiency in women is associated with an increased risk of STIs, thus increasing HIV susceptibility in HIV negative women ➤ Malnutrition in girls can delay puberty and slow the maturation of sexual organs, increasing the physical susceptibility during sex at a young age 	<ul style="list-style-type: none"> ➤ Weight loss of greater than 10% is associated with a significantly increased risk of disease progression and death ➤ HIV infection increases energy needs and persons recovering from opportunistic infections have substantial extra energy requirements 	<ul style="list-style-type: none"> ➤ A malnourished pregnant woman is likely to present an increased the risk of mother-to-child transmission of HIV ➤ Malnutrition with vitamin A deficiency can raise susceptibility to STIs in HIV positive people and peer groups, raising likelihood of passing on the virus through sexual interactions
Nutrition (contextual factors)	<ul style="list-style-type: none"> ➤ Parasitic and infectious diseases interact with malnutrition and can raise susceptibility to STIs in individuals, and increase broader vulnerability to infection in sexual interactions and networks. 	<ul style="list-style-type: none"> ➤ The nutritional status of an HIV positive person is critically important in mitigating down-stream impacts of HIV infection for the person and others 	<ul style="list-style-type: none"> ➤ Some (but not all) orphans from HIV are nutritionally vulnerable, depending on family context and living arrangements
Food security (susceptibility & sensitivity)	<ul style="list-style-type: none"> ➤ Inadequate feeding of girl children (and girl infants) can make them more vulnerable to later sexual and reproductive health complications, including more susceptible to infections (nutritional effect, as above) 	<ul style="list-style-type: none"> ➤ Inadequate food decreases the period positive people can live healthily without treatment ➤ ARV treatment is less effective and more difficult to adhere to without adequate food 	<ul style="list-style-type: none"> ➤ Orphans are often (not always) more food insecure and less healthy than non-orphans, and then also more susceptible to diseases. ➤ Type of orphan-hood (paternal/maternal-) matter to food security.
Food security (contextual factors)	<ul style="list-style-type: none"> ➤ Fluctuations in food prices is often a more serious problem than availability, making access more difficult for the most vulnerable ➤ Food insecurity exacerbating discrimination against girls in child feeding, combined with early marriage, or where girls engage in sexual relations with older men, make young women more vulnerable to HIV transmission 	<ul style="list-style-type: none"> ➤ Coping strategies where the food variety and frequency of meals are reduced can increase nutrition related vulnerabilities in HIV and AIDS ➤ Access to clean water and sanitary food preparation may be strained for sick people and struggling households ➤ Poor access to good quality and diverse foods can compromise health, welfare and productivity of HIV positive and other people with illnesses 	<ul style="list-style-type: none"> ➤ Reduced food availability through causing rural labour shortages and reductions of cultivated land, loss of skills etc. ➤ Children have increased vulnerability to food insecurity when they reside in households with at least one sick adult. ➤ Households with larger numbers of orphans tend to be more food insecure than others ➤ Children in such households are more likely than non-affected children to drop out of school, and girls more so
Livelihoods (personal susceptibility & sensitivity)	<ul style="list-style-type: none"> ➤ Female susceptibility to transmission of HIV is two to four times than that of males, placing prostituted/ing young girls at greater vulnerability than adult sex workers 	<ul style="list-style-type: none"> ➤ HIV positive people have increased sensitivity to bouts of illness ➤ Sickness impacts on concentration, energy and resourcefulness to generate or maintain a livelihood 	<ul style="list-style-type: none"> ➤ Personal stores of physical strength and health declines over time with disease progression, reducing ability to fall back on ones own labour
Livelihoods (contextual factors)	<ul style="list-style-type: none"> ➤ Sex work (transactional sex, in all its diversity) raises vulnerability and unequal age and gendered power-relations make girls and young women more vulnerable to infection by limiting their ability to negotiate condom use ➤ Mobility and migration enhances vulnerability to HIV ➤ Diverse forms of informal livelihoods can increase situations of risk and vulnerability to infection ➤ Street children's livelihoods are often very risky 	<ul style="list-style-type: none"> ➤ HIV stigma at work can lead to loss of income/jobs ➤ Denied access to credit due to credit policy ➤ Precarious access to social network support, where stigma is strong and reciprocity capacity weak ➤ Mobile livelihood compromising ARV adherence 	<ul style="list-style-type: none"> ➤ Morbidity- and mortality-linked household labour shortages, lower incomes and demand, loss of skills (school drop out and deaths), falling savings & investment etc. ➤ Clustering of impacts in pockets of most vulnerable groups can increase inequality ➤ The most marginalised and vulnerable are likely to be most affected, undermining resilience

3. Policy and programmatic responses

This section identifies some existing policy and programmatic responses to combating the issues of HIV and nutrition, food and livelihoods insecurity. Policy responses aimed at combating livelihood, food and nutrition security have been identified as needing to focus on:

- increasing agricultural production and productivity in a sustainable manner,
 - increasing income for the food insecure through farm and non-farm livelihoods,
 - making markets work for the poor and improving access and infrastructure,
 - reducing vulnerability through appropriate safety nets (or social protection),
 - improving the nutritional status of vulnerable groups,
 - ensuring public health and education policies support the poor, especially girls and women,
 - developing capacity, fostering good governance and public accountability
- (from Gillespie and Kadiyala, 2005).

Superimposing an HIV lens on the above, the section identifies existing responses, some with more evidence of their success and effectiveness than others, some being more applied and scaled-up than others.

3.1 Nutrition, food security and agricultural livelihoods responses

Adequate nutrition plays a key role in the care and support of people with HIV, as it can help prevent or reverse weight loss associated with opportunistic infections, thus supporting recuperation from HIV-related infections and allowing those ill to participate directly in their own care (Awour et al, 1998; Abdale and Kraak, 1995). A review of research suggests that nutrition interventions to prevent or reverse weight loss and wasting associated with HIV infection may help to preserve independence, improve quality of life, and prolong survival (Macallan, 1999; Piwoz and Preble, 2000; Friis, 2006).

There are now many programmes and an increasing array of experiences linking nutrition with HIV/ for people living with HIV and those on ART (e.g. see the AMPATH study by Byron et al, 2006). Thus, for instance, in many places, people living with HIV are given nutritional

Box 10. Nutrition focused midstream programme responses to the needs of HIV positive people

- Caloric supplementation is necessary where patients suffer significant weight loss. However, supplementation that leads beyond weight recovery and stabilisation to weight gain will not in itself reduce the risk of disease progression
- Improved food intake may facilitate commencing anti-retroviral treatment among patients who are poorly nourished, including by diminishing adverse early side-effects (e.g. nausea) of ART
- We still do not know enough about micronutrient-micronutrient interactions, or micronutrients-ART interactions to conclude that micronutrient supplementation or ready-to-use therapeutic food can slow progression of HIV to AIDS and death, or whether it is the best way to ensure nutritional security for HIV positive people on a large scale.

counselling, are sometimes given vitamin supplements and/or given other nutritional supplements, such as HEPS – High energy protein supplements (e.g. World Vision).

Community-based therapeutic care (CTC) is a community-based model of delivering care to malnourished people at home, rather than in therapeutic feeding centres. It includes many of the features of the WHO home-based care (HBC) model for PLHA: provision of physical care, ensuring a continuum of care, reducing stigma, building local capacity and promoting the

sustainability of support. CTC uses a ready-to-use therapeutic food (RUTF) as a nutritional treatment. Whilst Sadler et al. state that RUTF can be made with the right balance of micronutrients for the HIV positive people (Sadler et al., 2005), according to others we still do not know enough about micronutrient-micronutrient interactions, or micronutrients-ART interactions to make such claims (Friis, 2006). Indeed, Sadler et al. themselves point out that while initial use of RUTF among people living with HIV and AIDS appears positive, there are potential risks in terms of its interaction with ART. The evidence is thus not strong and more research clearly needs to be done before promoting the wider use of RUTF.

Many NGOs have developed projects which attempt to support the food and livelihood security of people living with HIV as well as their communities. These projects tend to lack rigorous evaluation and there is often limited systematic evidence of their effectiveness and impact. Clearly, as many case studies show, they have an immediate benefit to individuals and their families, but whether the benefits are lasting remains a key question as we lack serious impact evaluations; cost-effectiveness is another issue, as most projects tend to be resource-intensive.

Oxfam in Malawi, for instance, has provided seeds, fertiliser, and training to people who have been weakened by illness so that they can grow low-maintenance, nutritious vegetables in kitchen gardens adjacent to their homes. Similarly, a key feature of the RAPIDS (Reaching HIV Affected People with Integrated Development and Support) consortium in Zambia, is, through its multi-sectoral approach to AIDS programming, to link RAPIDS' clients to CRS/Zambia agriculture and food security activities in order to improve their livelihoods. These have been addressed through the C-SAFE (Consortium for Southern Africa Food Security Emergency) and LISAR (Livelihood Initiative in Support of Agricultural Recovery). The goal of C-SAFE was to address short-term vulnerability of households experiencing acute food insecurity in districts affected by drought conditions, including families affected by AIDS. Food was distributed and complemented by nutrition and HIV education activities. Examples of other C-SAFE activities

include training farmers to construct grain storage structures and to use conservation farming methods; providing vegetable seeds; and using cooking demonstrations to promote locally available, drought resistant and highly nutritious. Moving beyond an emergency response, LISAR's goal is to create a sustainable improvement in food security for vulnerable households still recovering from the food crisis. The program targets impoverished rural families, with additional support for women-headed households affected by HIV and AIDS, vulnerable youth and those chronically at risk. Activities include promotion of seed vouchers and fairs for grain and vegetable production (see Bishop et al., 2006)

Box 11. Programme responses focused on rural agricultural livelihoods

- A variety of broader rural food security-based responses aim to have downstream, midstream and upstream impacts on HIV related vulnerability. Improved access to food through the provision of inputs are thought to also benefit PLWHA as well as other community members affected by AIDS, and, educational activities often target the community with HIV awareness raising messages.
- General awareness raising has, however, not been convincingly shown to result in behaviour change, although we know that good and well-targeted peer-education can. This is likely because it tends to aim for changing social peer-group norms and the social context, as well as empowering individuals within the group with understanding and skills.
- Many NGOs have developed projects which support the food and livelihood security of people living with HIV and their communities, but there is often limited systematic evidence of their broader effectiveness or lasting impact.
- These remain primarily small scale, with little known about the effects or impacts on HIV related resilience/vulnerability or about the prospects for scale-up.

The above responses are aimed to have both mid and upstream consequences, as, for instance, the educational activities target the community as a whole and prevention messages are key to awareness raising. Similarly, the benefits of improved access to nutritious foods through supporting the provision of inputs will also benefit people living with HIV as well as communities more widely affected by HIV and AIDS. The FAO Junior Farmer Field and Life Schools (JFFLS) initiative is a livelihoods approach to assist with mitigating the effects of HIV and AIDS on the youth, including orphans and vulnerable children (OVC). The overall objective is to improve the livelihoods of OVC and provide them with opportunities for long term food security, while minimising the vulnerability to destitution and coping strategies with high risk of HIV infection. It does this through empowering 12-18 year olds through an participatory active learning methodology, passing on agricultural, entrepreneurial and life skills; and by instituting gender equal attitudes in agriculture, improving their nutrition, and self-esteem. Part of the process includes an awareness of HIV and AIDS. JFFLS have been set up in various countries, including Kenya, Mozambique, Namibia, Tanzania, Zimbabwe, Swaziland and Zambia.

Programmatic responses to offset labour constraints in rural livelihoods as a result of HIV related mortality could include increasing access, especially for women, to labour saving technologies (e.g. light weight ploughs, fuel efficient stoves, grinding mills) and reducing labour requirements of cropping systems, e.g. through improved seed varieties, zero or minimum tillage techniques and post harvest storage.

Though small scale and as of yet, little known about the effects, impacts and possibilities for scale-up, an increasing number of HIV-responsive agricultural interventions are being implemented. These include: conservation farming, tractor hire services, post-harvest and processing technologies in Kenya (Bishop-Sambrook, 2003, in Gillespie and Kadiyala, 2005.); agricultural support and training, vocational training and provision of credit and loan schemes in Uganda, Tanzania, Lesotho and Zimbabwe (White, 2002, in Gillespie and Kadiyala, 2005), pit farming⁸ in Zambia and community grain banks in Malawi (Connolly, 2003, in Gillespie and Kadiyala, 2005); and promotion of agrobiodiversity and indigenous knowledge (Guerney, 2002; Gari and Villarela, 2002, in Gillespie and Kadiyala, 2005)⁹.

Whilst many of these responses are quite likely sound livelihoods programmes in their own right, they appear to be rather weak in terms of HIV prevention, care and treatment. Furthermore, we still have no systematic evaluations or substantial evidence for such various initiatives having significant impacts on the dynamics of HIV, whether in terms of transmission (even sexual behaviour), morbidity and mortality, or sustainable reductions in mitigating other impacts of AIDS.

3.2 Social protection

Some of the above responses have recently been conceptualised as being part of a large and encompassing debate on social protection measures for the most vulnerable and affected by AIDS. The objective of social protection is broadly to reduce the economic and social vulnerability of poor, vulnerable and marginalised groups and to enhance the social status and rights of the marginalised, by providing consumption transfers. Older debates on 'social welfare' and 'assistance' have focused mainly on protective assistance to the poorest and most vulnerable, as well as sometimes preventive efforts through insurance and pooling of resources

⁸ A form of conservation farming.

⁹ A note of caution is important here as some labour saving technologies, although being beneficial when applied to domestic tasks may also make things worse in certain situations by leading to a decrease in labour demand (see Dorward and Mwale in Gillespie, 2006).

(usually to deal with impacts of shocks, rather than to actually prevent them). The idea of 'social protection' takes on a broader perspective to also include promotive and transformative actions (Devereux and Sabates-Wheeler, 2004) and could lend itself better to building on a more balanced understanding of vulnerability, resilience and agency, which responds to the complex needs of real people. A reconciled view of vulnerability – as also anticipative of exposure – provides for a broader set of ex-ante options under all four types of social protection responses.

Box 12. Social Protection

- The objective of social protection is reduce the economic and social vulnerability of poor, vulnerable and marginalised groups and to enhance the social status and rights of the marginalised
- Where multiple objectives are involved, social protection is most effective when linked (not necessarily with conditionality) to issue-specific services and programmes (e.g. education, HIV and AIDS programmes)
- It may be particularly important for reducing the vulnerability and building resilience of key marginalised groups in relation to HIV

The next generation of social protection programmes is likely to focus on, amongst other things, innovative approaches to social insurance, innovative partnerships between governments, donors, NGOs, civil society and the private sector' and on more concerted efforts to reach vulnerable groups who are largely 'uncovered' by existing social protection arrangements. Whilst there is no clear or definitive consensus on what types of interventions are covered by the concept of social protection, interventions appropriate to reduce vulnerability to HIV, improve and extend the lives of those infected and mitigate the impacts of HIV and AIDS include: transfers (such as cash or food); education and training (particularly around prevention, sexual health, nutrition and life skills for orphans); and improving access to financial resources (savings insurance and micro-credit). The interventions need to be tailored to specific contexts, individuals and stages of the epidemic.

Box 13. Cash

- Cash can be cost-effective, but it needs to take account of relative prices and supply costs of alternatives, financial staff and 'hidden costs' of poor people accessing markets.
- risk of adding to inflation vs. benefits to local producers and other multiplier effects).
- Choice may be the main benefit for empowering vulnerable people to respond and manage with their personal needs and priorities and build resilience and status.
- Well understood entitlements can reduce exclusion and facilitate accountability.
- Feared disadvantages to women are not inevitable and if well-targeted cash can enhance their autonomy and resilience.
- Old age pension and foster care grants can play an important role in providing a longer-term social safety net to affected households and children affected by AIDS.

Cash transfers (e.g. grants) can play an important role in mitigating the socio-economic impact of the HIV epidemic. The evidence emphasizes the likely importance of the child support, disability and foster care grants, though the child support grant, the smallest of these grants, did not consistently aid households in escaping poverty. Many of the most affected households remain beyond the grasp of social safety nets. The introduction of a broad-based social security system offering minimal general benefits, or of specifically targeted welfare programs, may in the short and medium term be important in mitigating certain impacts of the epidemic (Booysen et al., 2004).

Whilst most recognise that food assistance alone will not address the complex needs of HIV positive adults or affected children, the difficulty with these arguments remain that little research has been done on the comparative pros and cons of food vs. other forms of support relative to HIV and AIDS. Few doubt that sufficient food and reasonably good nutrition is important for maintaining good health and supports the process of recovery from bouts of illness. As mentioned above, food does help in HIV treatment for recovery of weight loss, but we do not have strong evidence that further weight gain makes any difference. Whilst nutritional support can be useful in these clinical circumstances (where the patient can not access food needed to recover weight loss), it is far less likely that food transfers should be a general strategy for social protection of those affected by or vulnerable to HIV.

It has been shown that food for education (FFE) has a positive impact on absolute school enrolment. In programmes that combine the provision of take-home rations for girls with on-site feeding for all pupils, girls' absolute enrolment rates were found to be sustained year on year, and their drop-out rates declined particularly in the higher grades of primary school (Gelli et al., 2006). Universal access to education for boys and girls is an important human development objective in its own right and also supportive of HIV, AIDS and poverty reduction strategies, but how education strategies prioritise investments and incentives goes far beyond HIV and AIDS as well as livelihoods. Other priorities such as removing barriers to access (like school fees or uniforms), improving the relevance and quality of teaching and the curriculum (e.g. including sex and life-skills education, which has been shown to have beneficial impacts) may be higher priorities, although school feeding clearly has benefits in addition, if affordable and feasible.

If we are to generalise, food transfers may be appropriate in some cases where cash would be inflationary because of food shortages or where inflation is out of control for other reasons. In a broader set of situations cash transfers are likely to be more appropriate since it can be more cost effective, have lower transactions costs, allowing greater beneficiary choice and accountability, due to awareness of entitlements, as well as to stimulate local markets (Slater, 2004; Harvey, et al. 2005).

Box 14. Food

- Food assistance alone will not address the complex needs of HIV positive adults, those vulnerable to infection or affected children.
- Combining specific nutritional interventions with home-based care can be practical and targeted if based on clinical needs. Beyond nutritional educational support, whether food transfers to symptomatic HIV positive people is a cost-effective option depends on the context.
- Food can be nutritionally fortified, but cash may allow access to a broader range of products in markets.
- Food for education (FFE) can have a positive impact on school enrolment and it may have a particularly beneficial impact on vulnerable children, but its priority next to addressing other incentives and obstacles to education remains an issue of overall educational strategy
- Food transfers may discourage local producers and economies, if not sourced locally, and it can limit flexibility and choices open to the beneficiary
- Its cost effectiveness is context-specific and may be appropriate in a contexts of hyperinflation or severe short-term food shortages

There is no broad consensus on whether micro-credit 'qualifies' as an income transfer normally associated with social protection, but many argue that innovation in microfinance to support HIV and AIDS-affected or other vulnerable households should be encouraged, accompanied by close scrutiny of the discrimination in communities that may result in exclusion of those affected by HIV and AIDS (Barnes, 2003; Slater, 2004; Pronyk et al., 2006). Few current programmes reach positive people and some simply combine HIV awareness activities with microfinance projects, without significantly deeper analysis.

Box 15. Credit

- Few current micro-credit programmes reach positive people and some 'integrate HIV' by simply combining HIV awareness activities with micro-finance projects, without significantly deeper analysis
- A common problem is the notion that HIV positive people would not be able to repay loans, which draws on and reinforces the stigma and denial which obstructs all efforts to productively address HIV
- Linking micro-finance to HIV education on HIV, gender and violence for girls and older women can strengthen their resilience in negotiating sexual relations, and reducing domestic violence, whilst further innovation and operations research is a priority
- Innovation in microfinance to support HIV-affected or vulnerable people should be encouraged, but with close scrutiny of discrimination that may result in exclusion of those affected by HIV

Freedom for Hunger and World Relief, for instance, developed a strategy combining microfinance and health education, in which during repayment meetings HIV education was provided. There is an increasing interest in developing this important field, however.

3.3 Targeting

Underlying much of policy is the issue of targeting. Many argue that poverty reducing interventions should be directed to all vulnerable households and communities, and, integrated into other programmes to promote community and child welfare and reduce poverty, and, therefore not target on the basis of HIV or AIDS at all (Meintjes et al., 2003; UNICEF, 2004). Vulnerability is indeed more the issue, but the conclusion does not follow and it makes an AIDS specific analysis and response more problematic.

Whilst most agree that the label of 'AIDS orphan' can be stigmatising and that vulnerability is context-specific, there is no clear consensus on which children are most important to reach, other than that they be vulnerable. However, in aiming to address vulnerabilities in relation to HIV and AIDS, they should be linked to the dynamics of HIV, and these are – as we have seen – interwoven in complex ways. Whilst too narrow targeting can indeed precipitate harmful stigmatization, too broad targeting tends to diffuse impact (Levine, 2001). Whilst poor children need support because of their poverty, some of them have other needs because of HIV or the impacts of AIDS. The same goes for vulnerable women or people who are chronically ill.

Targeting should take account of vulnerability, in the above respects, to integrate protection strategically for the right people on the margins in the right ways. Evidence suggests that communities are better than governments or formal NGOs at targeting and reaching those most in need (Foster, 2005). Community-level targeting is now being used for certain responses and clusters is an interesting avenue to explore further. Community targeting can indeed reduce stigma and enhance sustainability, but it can also introduce bias and leakage (Levine, 2001).

Communities have often also proven effective in discrimination, as the lifestyles and livelihoods of the most vulnerable are often seen as a threat to social codes and norms. Nevertheless, to help most vulnerable children, a primary concern is to also support the household and carers (Ainsworth and Filmer, 2002; Slater, 2004). Support to older carers was until fairly recently neglected, but has now received a little more attention (Help Age International and the International HIV/AIDS Alliance, 2003).

Careful attention to gender, age and family relationships is needed to help us identify important gaps in current approaches to targeting. Orphan-hood is not the main problem, although it clearly matters. In terms of orphans, those with one parent alive are often more vulnerable than those having lost both parents, particularly when the latter are fostered in family settings. As noted, sickness in the household (e.g. of a parent) is often more of a threat to child education and welfare, than is orphaning per se.

Small children and older teens are often ignored in targeting responses, which misses out on important opportunities for addressing gendered intergenerational dynamics in the reproduction of poverty and HIV related vulnerability, as well as gender constructs. Gender differentiation in children is a neglected area and 'children' are often seen as a gender neutral category, with the same needs and vulnerabilities.

However, targeting households will not be enough to effectively reach individual street children and those most vulnerable, such as those selling sex or injecting drugs. It is generally assumed that they will be 'picked up' by HIV programmes for sex workers and injecting drug users. This is a serious mistake, given the explosive combination of children and sex or drugs for most implementation agencies and the increasing hostility to pragmatic harm reduction approaches in major donor organisations.

Box 16. Targeting the vulnerable

- Too narrow targeting can precipitate harmful stigmatization, but too broad targeting tends to diffuse impact.
- Targeting needs to be done in ways which do not reinforce stigma
- Targeting HIV positive early is a major challenge with the current low uptake of VCT and the systemic stigma attached to a positive status
- A primary concern is to support the household and carers of children and the sick.
- Community targeting can reduce stigma for children and enhance sustainability, but it can also introduce bias and leakage
- Better inclusion and participation of children in community analyses with appropriate adaptation of tools is a priority
- Small children and older teens are often ignored in formal targeting, which misses out on important opportunities for addressing gendered intergenerational dynamics in the reproduction of poverty, HIV and gender 'constructs'
- Gender differentiation in children is a neglected area and 'children' are often seen as having the same needs and vulnerabilities
- Targeting households is not be enough to reach street children or other vulnerable groups, falling outside of standard social norms

4. Summarising what the evidence should mean for policy

A few facts about human beings and human societies may be possible to generalise, but they are very few. There may be an inverse relationship between what we can generalise about vulnerability in HIV-food linkages and the 'distance' from the virus and the body, in terms of levels (biological, personal, inter-personal, households, community, economy, legal and political framework, broader environment). If generalising is hard in the problem definition, the specific things you can do to change it are even harder to generalise.

In reflecting on the evidence base for programme and policy responses, it is abundantly clear that – in seeking for effective solutions – we must resist the automatic temptation to simply invert the problem tree (i.e. *Solution* ≠ *~Problem*). Chronic food shortage is often not best solved with simply providing food (food aid) on a large scale, nor is chronic income poverty always best solved with merely giving cash to the poor (cash transfers), although it can be needed for particular groups. The vulnerabilities generated by informal and risk-taking livelihoods of those on the margins of society are usually not effectively addressed by attempting to eliminate those livelihoods. This approach usually wastes resources and lives.

We can also conclude that whilst vulnerabilities are key to the linkages explored in the previous section, effective responses must look beyond vulnerability and build on peoples' resilience and agency. Here too, however, resilience is not the same as the absence of vulnerability (i.e.: *Resilience* ≠ *~Vulnerability*). Simply focusing on vulnerability reduction frames the person as passive. Where agricultural production is increasingly inadequate and people turn to non-farm activities (e.g. mobile trading) for livelihoods, strengthening their ability to do that better may be more important than boosting farm productivity. Where changing livelihoods involve greater vulnerabilities to HIV, aim for enabling them to manage more safely. For orphans, other vulnerable children and girls, more broadly, emphasise human development strategies which enhance their life-skills and life chances generally, as flexibility and informed adaptability are central to resilience, in both sexual health and livelihoods capacities. Resilience, like vulnerability, has important social and other contextual influences, but is fundamentally about the resistance and responsiveness – in other words 'agency' – of individuals in context.

In *macro-economic and rural development* strategy, generally, the impact of HIV should not deflect us from long-established goals and the ongoing search to reaching them. Within that, HIV exacerbates the needs for good policy that encourages growth through pro-poor policy choices, appropriate technology for farming and rural economies, including diverse and labour saving technologies, appropriate and effective social protection, better health services with access for the poor and marginalised, sanitary environments, overall predictable food security and additional spending on education. Development strategies which contribute to reducing extreme poverty and marginalisation are particularly needed. Limiting mobility is usually not a good economic policy option; nor is it likely to be effective for HIV, as mobility is also a response of resilience and agency, on which to build.

Livelihoods based development solutions can be very relevant for relating poverty and food security to HIV related resilience across prevention, care and impact mitigation, primarily because the relevant HIV-related vulnerabilities of individuals are deeply social context dependent, as well as life-cycle relative. The weakness in, and challenge for, livelihoods policy as a response is that its frameworks tend to focus on households and areas to strengthen include better attention to the role of different kinds of individuals within households and the role of social networks, sexual culture and mobility.

Given the mixed evidence on *food security* in relation to HIV it is hard to draw general conclusions for policy options. It impacts on HIV related vulnerabilities through nutritional channels, but only for a few specific groups, or more broadly through its impact on livelihood responses, which – again – are highly group and context specific. Hence, policy implications tend to point in the direction of livelihoods solutions, or linked specifically to the nutrition of pregnant mothers, young children and the sick and in connection with other services. This, however, does *not* imply that providing food transfers is the best solution to food insecurity in these groups.

In the area of *nutrition*, specific considerations and responses – such as nutritional education and supplementation for specific individuals with special needs, where the latter is evidence based – can be appropriate. These include in health and HIV activities with (i) symptomatic HIV positive individuals experiencing significant weight loss, in order to reverse weight loss or (ii) where nutritional status is an impediment to malnourished HIV positive individuals starting on ARV treatment. Such interventions are client-specific and time-limited. Furthermore, there are several areas where the effectiveness of particular micronutrient supplementation is not yet established. Whether it would be cost effective to include food transfers (incl. therapeutic feeding rations) at a large scale in care or treatment programmes (compared to alternative strategies for strengthening nutritional status) is unclear. Furthermore, we have found no strong reasons or evidence to suggest that such transfers would be an appropriate incentive to encourage the uptake of ART or other AIDS services generally.

Whether from an HIV and AIDS or livelihoods and poverty perspective, it is essential to figure out how to reach *the right people for the right purpose*. Who are the truly vulnerable and – amongst them – which groups are key to driving the epidemic and in the linkages between HIV and livelihoods? We must also look for who are most affected and who else may also be shouldering the additional burdens of the impacts of HIV, as well as who they relate to for support, gatekeepers, influencers etc.

Nutritional security, as we have seen, matters particularly for poor and marginalised:

- **pregnant mothers**, their **unborn** and **infants** (minimising mother to child transmission of HIV, improving lifetime chances of children, their bodily resistance and responsiveness to infections and hunger in later life)
- **girl children** (malnutrition can compromise development sexual and reproductive health, including raising HIV susceptibility)
- **HIV positive people** (preventing the accelerated onset of disease and a prerequisite for effective ARV treatment)

Nutritional interventions with these groups may be particularly relevant where food security is a significant problem and/or where information, knowledge and skills can be strengthened through relevant channels, such as maternal and child health services, schools, Home based care teams, ART clinics, or hospices. This does not imply that food transfers are the answer and 'informed agency' may often be more appropriate. With the possible exception of disadvantaged girl children (in general), the appropriate responses remain primarily health and educational responses.

Food security with adequate access, quality and utilisation of food, is primarily a matter of sustainable livelihoods, functioning markets and reasonable education on basic nutrition and skills in feeding practices. At scale these are best addressed through effective (good) overall development, livelihoods and educational interventions and policies. Beyond that – such as where families and individuals are unable to cope independently – *social protection* is often required for specific vulnerable groups, including:

- **The very poor**, unable to make ends meet (often highly vulnerable to HIV, affected by HIV and/or caring for vulnerable children)
- **Orphans and other vulnerable children** (some categories of which have been documented to be particularly vulnerable to hunger)
- **Elderly people**, including carers of orphans, other children or sick adults
- **Chronically ill or disabled** people unable to earn a living (some by HIV).

Whilst *social protection* with predictable consumption transfers is crucial in its own right to address poverty, the specific needs of the *most vulnerable* groups are best met by linking such schemes with specialised services, such as: for vulnerable children to schooling and child protection; for the ill with HIV to health care, incl. ARV treatment and palliative care; for the elderly to social care and support and so on. For the poor and marginalised – but otherwise ‘able’ – social protection also needs to provide linkages to other livelihood options, enabling people to escape poverty and transform their own situations. Rather than believing that social protection ‘includes everything’ that reduces poverty and vulnerability or builds resilience, link it with other strategies for the right people and purpose.

Livelihoods programs and interventions in relation to HIV, should take account of vulnerability or resilience in the face of risks of infection as well as abilities to stay productive, if infected, or to care for others sick or affected within people’s immediate circles (such as the household, or extended family). In highly HIV affected communities programmes generally need to become sensitive to specific and varied needs in these respects, but within that, particular groups may need particular attention, such as:

- **Poor women**, often divorcees or widows, some of who rely on transactional sex
- **Disadvantaged youth**, out of school, leaving school or on the streets
- **HIV positive people**, asymptomatic or managing productively on ARV treatment
- **Households with orphans and vulnerable children**, including child-headed

Livelihood interventions need to be flexible and non-discriminatory, allowing such marginalised or disadvantaged people access to resources, credit, inputs, education and skills building. Solutions will often need to be creative, providing support with diverse enterprise development or public works options, which do not rely on heavy labour.

As the levels of complexity of interrelated vulnerabilities to HIV and AIDS or poverty and hunger are highest in the most vulnerable groups, linkages between solutions in both areas become relatively more important. Broader efforts for general population categories, on the other hand, can be done with less depth of integration or service linkages and on a lower per capita basis. Whilst different group’s relative levels of vulnerability related to poverty *or* to HIV are sometimes not the same, there is often some correspondence. The need for closely integrated or linked solutions declines the broader and less focused the populations. The directly relevant interventions in nutrition and food are so far quite limited, whilst the connections and productive linkages with specific livelihoods considerations and poverty addressing interventions are far more broad-ranging. Table 4, below, provides a summary overview of indicative strategies relevant to nutrition, food security and livelihoods for different groups, from preventive actions (on upstream determinants of HIV vulnerability) and support for people living with HIV (on midstream interactions and vulnerabilities) to impact mitigating options (for dealing with downstream consequences of the health outcomes of HIV and AIDS).

Factoring in how to build the resilience of growing people is central to breaking the back of the epidemic and we must systematically consider prevention at the same time as treatment and impact mitigation. The links need to be drawn with, or by, HIV positive people at the heart of the analysis: They are required for HIV transmission, but they are also the ones who need treatment and care and whose families and children become affected by HIV. By the time current impact mitigation programs for orphans and vulnerable children begin to work the original children are already teens and often sexually active, whilst new cohorts are filling their ranks. Not taking account of children’s educational needs for prevention and for flexible life-skills early enough is a serious missed opportunity and reneged responsibility. The principle “don’t just give a hungry child a fish, but teach him how to fish” is no longer enough: we must now say “don’t just teach the children how to fish, but tell them the truth about sex and condoms”.

Table 4. Indicative strategies for building resilience to HIV and AIDS through nutrition, food security and livelihoods strengthening

	Upstream determinants of HIV	Midstream HIV+ve vulnerabilities	Downstream impacts
Nutrition	<ul style="list-style-type: none"> ➤ Emphasis on good nutrition for girls ➤ Maternal health and nutrition support ➤ General public health and health service strengthening, including strengthening and scaling up STI treatment. 	<ul style="list-style-type: none"> ➤ Nutritional support to reverse weight loss in HIV illness ➤ Nutritional support in connection with commencement of ART for some malnourished patients 	<ul style="list-style-type: none"> ➤ Post PMTCT educational support for positive mothers in infant feeding ➤ Attention to quality of nutritional content in early childhood development
Food security	<ul style="list-style-type: none"> ➤ Targeted support to poor young girls staying to secondary school ➤ Link micro-credit schemes to the most vulnerable to HIV infection ➤ Food preparation and hygiene education expanded through schools and media 	<ul style="list-style-type: none"> ➤ Ensure home-based care take food access issues and preparation advice into account ➤ Social transfers for poor chronically ill and poor HIV positive (but on basis of poverty rather than HIV) 	<ul style="list-style-type: none"> ➤ Targeted food security/social protection to households with most vulnerable children to reduce drop out of school ➤ School feeding can be an equitable way to also reach the most vulnerable children but cost-effectiveness context specific
Livelihoods	<ul style="list-style-type: none"> ➤ Universal good quality sex and life-skills education, from primary and through secondary education. ➤ Livelihood-tailored accurate HIV and sexual and reproductive health information available to women, men, girls and boys in multiple locations and media ➤ Resilience strengthening for female sex workers (and other informal economy 'overlapping' occupations) scaled up, with harm reducing condom promotion, empowerment-focused peer-education and mobilisation, linked or complemented by microfinance and micro-enterprise support. ➤ Geographically linking HIV and livelihoods activities, through alliances and government supported facilities, across major routes of mobility and migration. ➤ Targeted HIV peer-education integrated with substance abuse harm reduction and social support for street youth ➤ Peer-group based livelihood activities for youth in low income neighbourhoods (including flexible savings and credit schemes), with solid gendered HIV-peer education. 	<ul style="list-style-type: none"> ➤ Ensure PLWHA are included and benefit from micro credit and entrepreneurial/income generating programmes ➤ HIV in the workplace policies developed by employers ➤ Anti-discrimination and job security legislation to protect PLWHA ➤ Health insurance and treatment access ➤ Support the creation and organising of self-help groups, with HIV positive peer-based enterprise development, linked to adherence support, treatment literacy and advocacy. ➤ Promote and massively expand confidential voluntary HIV testing, with counselling, for early diagnosis and secondary prevention to slow the progression of disease and protect livelihoods of PLWHA. ➤ Actively stimulate recruitment of increasing numbers of HIV positive people as (remunerated) front-line health workers, whilst respecting choice for non-disclosure – i.e. as peer-educators and counsellors, with matched groups of peers, of unknown HIV status. 	<ul style="list-style-type: none"> ➤ Livelihood strengthening support to vulnerable and child fostering households, including social insurance, for asset protection, and disposable income smoothing, with access to fungible credit. ➤ Livelihood strengthening strategies and policies, which go beyond pre-conceived categories or 'livelihood constructs', sensitive to changing realities and developed in partnership with groups most affected by HIV and AIDS ➤ Ongoing transfers to households unable to cope and old aged heads of households ➤ Comprehensive social protection strategies for 'most' vulnerable people need to combine broad-based equitable poverty reduction with access to good basic services like health and education. ➤ Social protection for 'the most' vulnerable should also integrate or link with specialised services and support for those most marginalised, vulnerable and key to the dynamics of the epidemic.

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Annex 1. Reconciling the concept of vulnerability in livelihoods and in health

The nexus concept for linking health to development has become vulnerability, but the use of the term has turned up complications in itself. There are at least three dichotomies inherent in vulnerability. These are: (1) exposure to encountering negative shocks/events, such as HIV infection, vs. experiencing negative consequences of those events; (2) internal embodied aspects vs. external contextually relative aspects; and (3) that vulnerability necessarily coexist with its opposite – i.e. resilience (which may be more relevant to building strategies for responding).

Robert Chambers reminded us of this first dichotomy, namely that “Vulnerability... refers to exposure to contingencies and stress, and difficulty in coping” (Chambers, 1989). That is, it has two senses – one anticipative of exposure and the other of the consequences. This has led to confusions and divergent languages developing. Reproductive health, HIV and gender writers developed a view of vulnerability to HIV exposure as different from – if complementary to – a risk analysis and as crucial to empowering prevention strategies (UNAIDS, 2001; Edström et al., 2002; UNDP, 2004, Bates et al. 2004).

Meanwhile, many development writers evolved an understanding of vulnerability almost entirely focused on the likely implications of shocks occurring. In linking HIV to development, Barnett and Whiteside described vulnerability as “features that makes it more or less likely that excess morbidity or mortality associated with disease will have negative impacts” (Barnett and Whiteside, 2002). This has been followed by others (Gillespie and Loevinsohn, 2003; Weigers, 2006; Morton, 2006). They instead apply the idea of ‘susceptibility’ to describe what is otherwise referred to as vulnerability to exposure, or to infection, and at various levels from the individual to entire economies.

Susceptibility is more commonly understood as the biological or ‘internal’ part of vulnerability to infection, as opposed to other predispositions, referred to as contextual or structural vulnerability (Plumber et al., 2001; Bates et al., 2004), which highlights the second dichotomy of internal vs. external. Several development writers also picked up on a similar internal/external distinction (e.g. Chambers, 1989; Watts and Bohle, 1993). Whist starting with Gillespie and Loevinshon’s framework, Morton also uses this dichotomy, in relation to potential livelihood impacts of HIV and AIDS on pastoralists, but only in the downstream sense (Morton, 2006).

Moser applies this internal/external distinction to explore the third dichotomy highlighted here – of opposites, or altered states of vulnerability – building on notions of sensitivity and responsiveness (Moser, 1989) and to highlight an embedded sense of agency and capacity, which are ideas also pursued by other writers (Bohle and Watts, 1993; Devereux, 2001). These analyses have – again – primarily referred to sensitivity in vulnerability to negative consequences. However, Sinha and Lipton argued that vulnerability to frequent exposure, coexists with and creates agency and resilience, including avoidance capacity (Sinha and Lipton, 1999), which goes beyond the passive sense of resilience and vulnerability to shocks.

The solution to reconciling these debates lies in recognising that the three dichotomies co-exist in what is normally meant by vulnerability, as described in section 1.2. This involves also clarifying that susceptibility relates to the internal aspect of vulnerability to becoming infected/attacked etc., in a similar sense to which sensitivity describes the internal aspect of vulnerability influencing the degree of suffering negative impacts if/once infected/attacked etc.

As an illustration, Achilles (in Homer’s *The Iliad*) was virtually invulnerable to strikes and blows (with his body almost totally resistant, as well as his courage, stealth and skills making him extremely resilient and effective in combat). Once struck by Paris’ arrow in his only susceptible body-part (the heel), he proved to be extremely sensitive and vulnerable, however, unable to respond or recover from a relatively minor type of injury. In other words; Achilles was almost invulnerable to being struck, but – *if/when* struck – very vulnerable in terms of its consequences.