



Key points

- A longitudinal study in Zambia used a 'cluster' approach as a short-cut means of obtaining the richness of anthropological and ethnographic methods.
- This provided unexpected insights into the way people have used social networks in adapting to death and illness.
- Programmes working with 'the poor' should be targeting resource-poor clusters, rather than poor households.

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Understanding HIV/AIDS and livelihoods: The contribution of longitudinal data and cluster analysis

More longitudinal studies are needed to establish the effects of HIV/AIDS on individuals, households and communities.

It is now accepted that HIV/AIDS is a long-wave event, with accumulative and systemic impacts. It follows from this that longitudinal studies are needed, to establish the effects on individuals, households and communities and their complex interactions over time. But what kinds of longitudinal studies illuminate these issues the best?

This Briefing Paper provides one kind of answer. It draws on longitudinal research carried out in Zambia in 1993 and 2005 using methods derived from the anthropological and ethnographic tradition.¹ This is one of relatively few longitudinal studies that have explored the impacts of HIV/AIDS on livelihoods anywhere in the world. Its aim was to investigate what had happened over a dozen years to people's adaptability and resilience to HIV/AIDS.

The method of the study was both qualitative and rigorous. It provided a short-cut means of obtaining the richness of detail associated with anthropological analysis. The findings were not expected to be statistically representative but to generate understandings based on detailed case studies.

Research focused on two locations in Zambia: Mpongwe – close to the Copperbelt towns – and Teta, a remote rural area. It was carried out by large multidisciplinary teams of agronomists, nutritionists, social scientists, health staff and soil scientists. The team included members living in the local areas, both government employees



Discussion with a group of young women in Teta, Central Province, Zambia.

Key terms

Longitudinal data: Observations collected over a period of time; the sample (instances or cases) may or may not be the same each time but the population remains constant.

and members of the community. Ten days were spent in the communities collecting data using participatory methods such as community meetings, in-depth interviews and focus group discussions.

Unique to this study was the use of a 'cluster' approach to help in understanding how individuals and households had either adapted or disintegrated as a result of ill health, and specifically HIV/AIDS. Previously, households have

most often been used as the unit of analysis through which to understand these effects. This Briefing Paper suggests that the cluster is a better unit for capturing the complexity and fluidity of people's livelihoods.² The resulting analysis yields unexpected insights that would otherwise have been obscured. Applied to longitudinal data, the cluster approach brings out not only the devastation caused by the disease but people's resilience and the ways they are able to adapt and adjust. It therefore can provide valuable guidance for policy makers and programmers on how to target vulnerable households.

This paper has three sections. The first explains the cluster method. The second summarises what clusters can tell us about the impact of AIDS on livelihoods. The paper ends with a set of recommendations on use of cluster as a methodology, around livelihoods and vulnerability and concerning health and AIDS.

Why 'clusters'?

The household as the unit of analysis has been the focus of criticism over the decades, particularly from anthropologists trying to understand behaviour and relationships at the micro level. Using the household as the unit of analysis was often a side-effect of the fact that survey data is most often collected at the household level. Household surveys have long been criticised for not capturing the intra-household distribution of welfare in aggregate statistics. In micro studies, an analytical focus on households limits the capture of inter-households relations and relationships that go beyond the immediate geographical location as well as relationships that may span time and generations.

Arguably, the household focus enables only a partial understanding of resilience and vulnerability of individuals in their quest for a sustainable livelihood. The cluster concept is an attempt to move beyond this. A cluster is:

A group of people between which there are multiple

resource exchanges, usually based on the factors of kinship, labour and food exchange, and/or common access to draught power (based on Drinkwater, 1994).

A cluster can consist of various households, usually, though not necessarily, living in the same geographical area. For instance, a son living in town and remitting either in kind or cash can also be seen as a member of a cluster. Clusters range in size from about 5 people (usually a single household) to about 20 people (multiple households). A significant benefit of the concept is that it allows the most important relationships between individuals of different generations and gender, marital and kinship statuses to be identified and understood.

In the cluster approach, data are collected from individuals, but this information is used to identify clusters and to place individuals within them. In the 1993 study, respondents for interview were initially selected through community social mapping and wealth ranking exercises. Using the wealth categories generated by the community, the research team interviewed a number of people in each of the categories. Through these individuals, other members of their clusters were identified and interviewed. Each individual indicated the people with whom he/she had close productive and reproductive relationships. These were usually kinship based, so genealogies were collected in the process. This ended with a final listing of relevant clusters. The re-study traced these same clusters.

Over time, as the re-study was able to demonstrate, clusters change size and composition. They may also disintegrate or dissolve. In the restudy, the history of the clusters, including the histories of all the individuals that had been present in 1993, allowed a significant depth of analysis of social change.

The 1993 study developed a typology of clusters according to relative resilience and vulnerability. The types formed a continuum from commercial (Cluster Type 1s) to resource-poor (Cluster Type 4s). Clusters were placed into the categories according to the size of their fields and yields, the types of crops they were growing, whether they had access to draught power, the extent to which they were food secure and the extent to which they were engaged in off-farm activities. The aim of the 2005 re-study was to trace the original clusters and see whether they had changed status within the cluster continuum and to understand what had caused the moves. More specifically, it was concerned with the role that AIDS had played in any shifts.

What do clusters tell us about the impact of AIDS on livelihoods?

Through the re-mapping exercise, the researchers were able to explore the extent of deaths in the cluster, whether they were due to AIDS and the impact on livelihoods. The category of person(s) who had died in the cluster was found to be a key determinant of the effects on the level of resilience of the cluster. If,

Box 1: The changing Zambian context at national and local levels

In Zambia 25 percent of people in urban areas and 13 percent of people in rural areas between the ages of 15 and 44 are HIV-positive. While prevalence rates have been lower among the rural population, because of the nature of the pandemic, the social and economic effects of the disease have been borne by rural and urban populations alike.

Between 1993 and 2005 changes at national level have included privatisation of the mines, public-sector restructuring leading to large scale redundancies, market liberalisation and removal of maize subsidies. Demographic and health trends also underwent change. There has been accelerated movement of population from rural to urban areas, with Lusaka becoming a particular magnet. The health system has been decentralised, health user fees have been introduced and there is increasing awareness of the magnitude of the AIDS epidemic.

One of the study's sites, Mpongwe, was made a district centre, with improved road access and communications. Its population has increased and it also became the maize basket for the Province. Teta, on the other hand, remained a remote rural area; some outward migration has occurred and the effects of the removal of maize subsidies and market liberalisation resulted in people returning to farming systems that are less reliant on maize.

for instance, it was a Primary Producer – the principal producer in the cluster, owning key assets, able to organise labour and ultimately responsible for its food security – the future of the cluster was likely to be threatened. This applied especially if there was no obvious inheritor falling into the category of Secondary Producer – for example, a son with his own fields and kitchen.

In Mpongwe, 123 mortalities were recorded amongst the 35 identified clusters in the period 1993–2005. Of these, it is estimated that 52 deaths (42%) were likely AIDS-related. Altogether, 18 of the 35 clusters were affected by AIDS related mortalities. For Teta, 14 of the 19 clusters experienced deaths over the same period. This resulted in an average of 0.72 AIDS deaths per cluster in Teta, compared to 1.5 for Mpongwe.

The cluster analysis was able to show that, despite the deaths, maize production has increased in Mpongwe since 1993. The increase, however, was only amongst the wealthier or those higher up in the cluster continuum. Livelihoods had also suffered in Mpongwe due to animal disease. Whilst all clusters have been affected by loss of oxen and changes in the maize input and marketing system, some cluster types have been more vulnerable to the impacts of these changes than others.

In Teta, although there has also been considerable change and deaths since 1993, the effects on individuals and clusters were not (yet) heavily evident in 2005. What was in evidence was the change in farming systems, with less reliance on maize and a return to more traditional crops. Teta clusters had also been affected by livestock disease, but with lower ownership and access, the effects were less than in Mpongwe. Overall, the farming system remains diversified and focused on low-input cultivation.

Generally, factors affecting the relative vulnerability and resilience of a cluster to the impacts of a death were:

- length and degree of incapacity during AIDS-related illness (that is, the longer an individual suffered as a result of AIDS the more this affected the household and cluster);
- the health status of the surviving spouse (that is, if the spouse was in good health they were able to maintain the resilience of the household and cluster);
- characteristics and stage of life-cycle of the Primary Producer (PP) (for example, if the PP was old, the inheritor Secondary Producer (SP) had died – deaths in this category being common – and there was no obvious other successor, survival of the cluster as whole became uncertain);
- overall cluster composition (that is, if the cluster consisted of many female-headed households and dependent producers, it was likely to be more affected); and
- livelihood and agricultural production opportunities (increased opportunities leading to increased resilience and reduced opportunities requiring adjustments).

Matriliney and its role in supporting livelihoods

One of the most encouraging findings of the re-study concerns the way families actively manage generational change and succession. This is a factor in how they attempt to rebuild food security and maintain resilience in the face of adversity. The cluster approach is key to both capturing and understanding these efforts.

The majority of ethnic groups in Zambia, including the Lala and Lamba of Teta and Mpongwe have matrilineal kinship systems. Two key elements of such systems are that a person belongs to his mother's group (clan) and inheritance of property goes from a mother's brother to a sister's son.

Studies of matriliney in Zambia and other parts of southern Africa have predicted that in the face of urbanisation, commoditisation and monetisation, matriliney will ultimately disappear. It will give way to patrilineal-type family forms, since on the face of it these appear to reproduce much stronger generational ties. Since the early 1990s, however, research has shown how these forms can persist side by side and that matriliney is in fact far more resilient in the face of economic change than anticipated.

These findings were corroborated by this research. The inherent adaptability and flexibility of the matrilineal social system enables it to accommodate deaths and changing economic and demographic circumstances. In particular, findings from the study show how individuals, families and clusters are able to realign themselves, following matrilineal principles, in accommodating death and the burdens it brings.

Two aspects of matrilineal systems are key to understanding processes at work in communities: flexibility and choice regarding residence locations and the relative fragility of the marital bond. These interlinked features are central to understanding the nature of resilience and vulnerability. Flexibility and choice particularly affect men's decision making about residence, a key factor being where an individual expects his livelihood to be more stable and sustainable. In both study sites, partly as a result of the fact that male labour is in high demand, men can choose between the village of their in-laws, that of their own parents, or an independent location.

One can argue, therefore, that aspects of the matrilineal system have assisted people's adaptation to death and illness. This is especially the case for HIV/AIDS with its potentially devastating effects on individuals', families' and clusters' abilities to adapt and survive. Once a spouse dies, the widow or widower can easily become absorbed into another cluster, not only by drawing on kinship ties but also through marriage. It is the cluster concept as an analytical tool that has enabled these processes to become salient.

What of AIDS?

It is evident from the 2005 study in both sites that

AIDS is now a known disease. This is in contrast to the situation in 1993 study, when it was only starting to trickle into the consciousness of the inhabitants of Mpongwe and Teta. In 2005, the young women's focus group discussion in Mpongwe provided an overview:

AIDS reduces household members, gives extra responsibilities due to nursing, it increases poverty, and it increases vulnerability on the entire household as resources become over stretched, the number of orphans increase and it is difficult to look after orphans as they expect special care.

Despite the spread of knowledge about AIDS, however, the link between AIDS and HIV remains misunderstood. People see AIDS but they do not understand how it results from the HIV virus. The knowledge and information that are available are still far from effecting behaviour change. Messages from Lusaka are missing key sections of society. Sexual practices and preferences remain closely tied to traditional customs and belief systems. For example, there have been some adaptations in widow/widower cleansing practices. However, if a person is known to have died from AIDS, sexual cleansing of a dead person's spouse is still carried out.

Some implications for policy

This paper has described some highlights from one of the first longitudinal studies of the impact of AIDS on livelihoods, particularly highlighting its innovative use of participatory data collection and a 'cluster' approach. Although the findings have not been set out in detail, there are some definite lessons for those making policy and designing programmes in this field:

Clusters

- This study shows that vulnerability, in terms of gender, age, socio-economic status and agro-ecological location, can only be understood clearly in the context of multiple resource flows and relationships among households. It follows that in programmes working with 'the poor', targeting should be directed at resource-poor clusters, rather than poor households.
- For targeting, a broad-based multi-faceted definition of vulnerability is needed, one that is not just AIDS-related. For example, not all orphans are vulnerable, and not all vulnerable children are orphans.
- The validation of the cluster methodology in the restudy – by farmers and the research team alike – suggests there is much to be gained by exploring how it can be used in future research as well as programmatic interventions.

Endnotes

1. Drinkwater, M., McEwan, M. and Samuels, F. 2006. 'The Effects of HIV/AIDS on Agricultural Production Systems in Zambia: A Restudy 1993-2005'. Support for the study came from RENEWAL, CARE, International HIV/AIDS Alliance, FAO and Sida.

Livelihoods and vulnerability

- One of the main findings of the study is about the resilience provided by social networks. It is nonetheless clear that even the better-off farmers in the study areas continue to be gravely affected by the combined effects of the AIDS epidemic, livestock disease and changes in the economic and policy environment.
- While national food security policy has focused on maize intensification, crop diversification remains important for household food and nutritional security. This requires a policy emphasis on local knowledge (being retained in Teta but lost in Mpongwe).
- Diversification within and outside agriculture contributes to resilience because it allows farming systems to be adjusted depending on whether and when labour is available.

Health and AIDS

- Traditional belief systems, especially relating to sexual cleansing and witchcraft, are deeply embedded, and these are affecting health seeking behaviour and outcomes.
- Education about HIV/AIDS is using culturally inappropriate communication channels, particularly by failing to differentiate between HIV and AIDS. People understand the signs and symptoms of AIDS, but they do not appreciate how it results from the HIV virus. The 'silence' of HIV is not understood, nor is it adequately addressed in prevention campaigns.
- Appropriate messages need to be targeted at appropriate people. Thus, older women in rural Zambian societies are the channels for transmitting cultural norms about sex and sexuality. Without their active involvement, messages on HIV prevention will not succeed. HIV-protection messages based on the 'happy couple' and use of condoms are mostly seen only as promoting promiscuity and are not appropriate for the rural cultural context.
- Changing behaviour requires changing the way people see themselves, their own concepts of identity. Sexual practices can change – condom usage is discussed now, whereas it was rejected previously – but better information is required as a basis for local discussion.

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2. This is not to be confused with the concept of cluster sampling.