HIV/AIDS NUTRITION AND FOOD SECURITY

Looking to future challenges

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WHAT WE THINK WE KNOW
2002 FOOD CRISIS IN SOUTHERN AFRICA

MALAWI: >70% of population facing food shortages; adult HIV prevalence 15%

ZAMBIA: second year of crop failure; few food stocks; adult HIV prevalence 21.5%

LESOTHO: second year of food shortages; maize prices high; adult HIV prevalence 31%

ZIMBABWE: food shortages; 31.4% of pregnant women in rural areas HIV+

MOCAMBIQUE: severe floods 2000 and 2001; drought 2002; adult HIV prevalence 13%

STORIES
LIFE IS THE STORIES WE TELL
STORIES ARE THE LIFE WE LIVE
AN ESTABLISHED NARRATIVE ABOUT HIV/AIDS, RURAL LIVELIHOODS AND FOOD?
• PROGRESSIVE DECLINE
• REDUCTION OF CULTIVATED AREA
• REDUCTION OF CROP PORTFOLIO
• DECAY OF INFRASTRUCTURE
• REDUCED PRODUCTION AND PRODUCTIVITY
• POSSIBLE “FAMINE”

NUMEROUS STUDIES
• SOME ARE RECYCLED ANECDOTES
• NO LONG TERM STUDIES AT ALL
• WE DO NOT REALLY KNOW WHAT IS HAPPENING IN A WIDE RANGE OF FARMING SYSTEMS
• KNOW VERY LITTLE ABOUT PASTORALISTS OR FISHING COMMUNITIES
• EVIDENCE AND ADVOCACY
IS THE ESTABLISHED NARRATIVE GENERALISABLE?

META-STUDIES

- IFPRI – GILLESPIE AND KADIYALA 2004
- NOW LITTLE DOUBT THAT HIV/AIDS AFFECTS RURAL LIVELIHOODS
- NATURE AND DIRECTION OF EFFECTS SEEMS CLEAR
- DOES NOT INDICATE IMPENDING “FAMINE” - INDICATES DIVERSITY OF EFFECT
- INCREASING INDICATION OF INEQUALITY EFFECT
- HARD TO GENERALISE FOR “AFRICA” OR EVEN “SOUTHERN AFRICA”
- MORE EVIDENCE MAY BE AVAILABLE AT THIS MEETING
- HARD TO UNPICK CAUSAL INFLUENCE OF HIV/AIDS FROM OTHER BACKGROUND INFLUENCES AT GENERAL LEVEL
AGRICULTURAL AND RURAL LIVELIHOOD CHANGE WILL BE IN DYNAMIC RELATIONSHIP WITH THE EPIDEMIC AND WITH UNDERLYING ENVIRONMENTAL AND POLICY CONDITIONS
THE EPIDEMIC MAY BE A TIPPING POINT FACTOR

ANOTHER STORY

UGANDA – HISTORY

• FIRST SAMPLE SURVEY 1989
• SECOND COHORT STUDY 1993
• THIRD (INITIAL) SMALL STUDY 2004
• FINDINGS
  – 1993 COHORT INTACT – HIV PREV '93 8%?
  – FARMING SYSTEM INTACT – WEEVIL INFESTATION IN MATOOKE
  – COMMUNITY RESPONSE FROM ORPHANED GENERATION – CHAIRMAN
  – 90% OF VILLAGE SCHOOLCHILDREN ORPHANS

International Conference on HIV/AIDS: Food and Nutrition Security
POSSIBLE REASONS

• THIS WAS ALWAYS A ROBUST SYSTEM – HIGH BIMODAL RAINFALL, GOOD SOILS, PORTFOLIO DIVERSITY
• REPORTS OF ACTIVE EXTENSION SERVICES
• WE NEED TO LOOK AT WHAT HAS HAPPENED IN OTHER SYSTEMS IN UGANDA
AGRICULTURAL SYSTEM
CHANGES UGANDA 1989

Experience in Uganda, Kenya, Tanzania and Zambia indicates that there is often sufficient information scattered around to enable initial mapping of farming systems.

In principle these can be overlaid onto sentinel surveillance data to provide some initial guide to relative vulnerability of farming systems to labour loss.

Uganda: farming system vulnerability

A CHALLENGE

- RECOGNISING DIVERSITY OF HIV/AIDS IMPACT
- NEED FOR LARGE SCALE RESPONSES THAT CAN COPE WITH DIVERSITY
- PAY ATTENTION TO THE PATHOGEN
THE MICRO

The epidemic curve is a macro expression of micro processes – we must always keep these in the forefront of our thinking

KNOW YOUR PATHOGEN
Viral replication cycle

STEP 1: BINDING

gp120 binds to:
CD4 primary receptor, then
the CCR5 or CXCR4
chemokine coreceptor

R5 tropic – macrophages,
DC and T cells
X4 tropic – T cells only
Tropism linked to disease
pathogenesis

Typical course of HIV infection and progression to AIDS

10^8 – 10^9 virions are produced and cleared every day
2x 10^9 CD4+ T cells are produced and destroyed every day
VIRUS PARTICLES BUDDING FROM HUMAN CD4 CELL

VIRAL MUTATION
LENTIVIRUS
AGENDA FOR THINKING

THE PROBLEM

• Speed – the epidemic/ endemic (?) has shown itself to be both too slow and too fast for us to respond

• Demographics – change of assumptions about the local social and economic circumstance in which policies and programmes operate

• Changes what we can assume about appropriateness of technologies – labour, capital, knowledge
Number of people living with HIV/AIDS in sub-Saharan Africa, 1980-2001

![Graph showing the number of people living with HIV/AIDS in sub-Saharan Africa, 1980-2001. The graph indicates a significant increase in numbers, peaking in 2001. Source: UNAIDS, 2002.]

Projected population structure with and without the AIDS epidemic, Botswana, 2020

![Graph showing the projected population structure in 2020 for Botswana with and without the AIDS epidemic. The graph highlights the deficits due to AIDS. Source: US Census Bureau, World Population Profile 2000.]

International Conference on HIV/AIDS: Food and Nutrition Security
Lifetime risk of AIDS death for 15-year-old boys, assuming unchanged or halved risk of becoming infected with HIV, selected countries

Source: Zaba B, 2000 (unpublished data)
RATE OF DISEASE PROGRESSION

THE VIRAL LIFE CYCLE

8-9 YEARS MEAN PROGRESSION
Changes in life expectancy in selected African countries with high HIV prevalence, 1950 to 2000

A WORST CASE SCENARIO

HIV/AIDS: SUNDERING THE BONDS OF HUMAN SOCIETY?

- Increasing probability of infection
- Decreasing life expectancy
- Increasing possibility of acquired and transmitted viral resistance?
NEW CIRCUMSTANCES FOR INNOVATION AND ADOPTION

Viraemia, Epidemic Curve and Adoption

ARE THERE APPROPRIATE, AVAILABLE, ADOPTABLE AND PROVEN TECHNOLOGICAL INTERVENTIONS?
BUT NEVER FORGET

PROPORTION OF COMMUNITY AFFECTED?

HIV- 85%

HIV+ 15%
ARVs AND THE FUTURE

Are ARVs the answer?

• Yes … and …. No
• The upside is that they provide a window of opportunity for some
• The downside is that:
  – This window must be fully exploited within a short time period – 5-10 years?
  – We do not know what to do – these are novel situations and responses must be rapid
  – There is a threat of viral resistance
  – Pharma will not respond rapidly to African needs
EFFECTS OF VIRAL RESISTANCE?

• A 5-10 YEAR WINDOW
• URGENT NEED FOR INNOVATIVE THINKING
• RESPONSES MAY INCLUDE:
  – SOME TECHNOLOGY – BUT WHAT DO WE HAVE?
  – SOCIAL SUPPORT SYSTEMS
  – INNOVATION, INNOVATION, INNOVATION

ARVS – TREATMENT, PREVENTION AND RESISTANCE

• main use is treatment
• May also have prevention effect
• Risk of resistance
  – acquired
  – transmitted
• Raises following questions:
  – How will ARV roll out affect resistance?
  – What are the implications for future impact scenarios?
Drug resistance in US and UK

- High-level of acquired drug resistance (around 20%) is common in the US and UK - largely reflects historical use of sequential monotherapy
  - Unclear relevance in modern triple therapy era
  - *Resistance should be uncommon if effective regimens are administered to motivated individuals who have continuous access to treatment*

Source: Steven G. Deeks, MD

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THE PROBLEM IS TRANSMITTED RESISTANCE

NEW YORK FEBRUARY 2005

The man, in his mid-40s, had not previously been treated for HIV. He was diagnosed last December and his infection appeared to be recent, health officials said.

The man’s HIV strain proved to be resistant to three of the four available types of antiviral drugs used to keep HIV in check.

While patients being treated for HIV do develop drug resistance, finding such resistance in someone who has never taken HIV drugs is “extremely rare,” according to the city health department.
“CONTINUOUS ACCESS TO TREATMENT”

• < THAN 95% COMPLIANCE SELECTS FOR RESISTANT VIRAL STRAINS
• RURAL ACCESS IS PROBLEMATIC – TREATMENT CENTRES MAY BE EFFECTIVELY INACCESSIBLE
• SMALL COMMUNITIES, LOW PRIVACY, STIGMA
• HOW LONG BEFORE WE SEE NEW EPIDEMIC OF RESISTANT HIV?

DANGERS AHEAD!

• Danger of looking to yesterday’s solutions for today and tomorrow’s problems
• Slow pace of response – bureaucratic inertia
• Pressure to spend funds without novel thinking
• Repeating the errors of the last twenty years
• Adoption of what?
Long Waves and Emergencies - the response

- HIV/AIDS is not like other problems in food and nutrition – it is a long wave event
- We have to recognise that the entire balance between relief, rehabilitation and development work may have changed
- The long wave of the epidemic means that policy, operations and thinking must switch into a new paradigm - we are no longer talking about an emergency-non emergency paradigm

Strategic Tasks in the light of HIV/AIDS

- Review the relevance of current paradigms of development and relief
  - have ability to switch rapidly between activities
- Redefine and prioritise working with vulnerable beneficiary groups
  - the new destitute, the very young and adolescents
- Agricultural policy and programming
  - new demographics and morbidities
- Institutional response
  - shorter institutional memories
- Institutional audit?
  - How will the epidemic affect organization and employment terms?
THE CHALLENGES FOR THIS CONSULTATION

1. TO UNDERSTAND THE SITUATION – UNPRECEDENTED AND UNKNOWN
2. TO ENGAGE CRITICALLY WITH ESTABLISHED NARRATIVES
3. TO CONSIDER THE APPROPRIATENESS OF KNOWN TECHNOLOGIES AND APPROACHES
4. TO THINK NEW AND INNOVATIVE RESPONSES TO A NOVEL AND CHANGING SITUATION

AN EXAMPLE OF FIGHTING TODAY’S BATTLES WITH YESTERDAY’S WEAPONS

• THE PAST IS NOT NECESSARILY A GUIDE TO FUTURE
• WE HAVE TO INNOVATE – HISTORY OF PREVENTION SHOWS US THE MISTAKES WE HAVE MADE
• “INSTALLED CAPACITY” – CONDOMS AND VACCINES
• MICROBICIDES
MESSAGE

IN THIS ENDEMIC IT IS NOT BUSINESS AS USUAL!