Linkages between HIV/AIDS, Land Use, and Natural Resources:
Reviewing the Social Science Literature

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Presentation Outline

• Rural Livelihoods Framework
  – Focus on “Natural Capital”

• Environmental Linkages with HIV/AIDS
  – Agriculture
  – Natural Resources
    • Energy
    • Dietary
    • Health/Healing
  – Conservation (Judy)
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Conceptual model of rural livelihoods

**Shocks**
- Mortality
- Retrenchment
- Drought

**Stresses**
- Chronic illness
- Poverty
- Resource shortages

**Capital Assets**
- Human
- Financial
- Physical
- Social
- Natural

**Livelihood Goals**
- Food security
- Health
- Wealth
- Wellbeing

**Livelihood Strategies**
- Income sources:
  - Migrant labour
  - Local labour
  - Informal trade
  - Social grants
- Livestock & cropping
- Use of natural resources
- Allocation of time & other resources
- Liquidation of assets

**Livelihood Resilience**
Ability to maintain or recover livelihood outcomes after shocks and during stresses.
Resilience/vulnerability continuum.

**Livelihood Outcomes**
- Level of food security
- Health status
- Wealth status
- Level of wellbeing
- Sustainability
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Natural Capital

The importance of non-timber forest products in rural livelihood security and as safety nets: a review of evidence from South Africa

Charlie Shackleton*† and Sheona Shackleton*

South African Journal of Science, 2004
Prevalence of Use of Savanna Resources (includes both purchased and self-collected use)

<table>
<thead>
<tr>
<th>Resource</th>
<th>Mean % of households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wild spinaches</td>
<td>95.6 ± 1.3</td>
</tr>
<tr>
<td>Fuelwood</td>
<td>95.5 ± 1.9</td>
</tr>
<tr>
<td>Wooden utensils</td>
<td>95.1 ± 1.9</td>
</tr>
<tr>
<td>Grass hand-brushes</td>
<td>90.7 ± 4.6</td>
</tr>
<tr>
<td>Wild fruits</td>
<td>88.2 ± 4.0</td>
</tr>
<tr>
<td>Twig hand-brushes</td>
<td>87.1 ± 5.1</td>
</tr>
<tr>
<td>Wood for fences or kraals</td>
<td>62.0 ± 5.5</td>
</tr>
<tr>
<td>Weaving materials (reeds, grass, palm leaves)</td>
<td>55.4 ± 9.6</td>
</tr>
<tr>
<td>Edible insects</td>
<td>53.5 ± 9.5</td>
</tr>
<tr>
<td>Bushmeat</td>
<td>51.6 ± 8.4</td>
</tr>
<tr>
<td>Wild honey</td>
<td>50.5 ± 10.6</td>
</tr>
<tr>
<td>Medicinal plants</td>
<td>49.4 ± 7.5</td>
</tr>
<tr>
<td>Wood for housing poles</td>
<td>49.0 ± 8.1</td>
</tr>
<tr>
<td>Thatch grass</td>
<td>48.8 ± 9.0</td>
</tr>
</tbody>
</table>

Shackleton and Shackleton, 2004
Livelihood benefits from the local level commercialization of savanna resources: a case study of the new and expanding trade in marula (*Sclerocarya birrea*) beer in Bushbuckridge, South Africa

Sheona Shackleton
Trade in reed-based craft products in rural villages in the Eastern Cape, South Africa

Taryn Pereira, Charlie Shackleton & Sheona Shackleton

Selling traditional craft products made from fibrous plants is an important source of income for economically vulnerable rural women. In the Eastern Cape Province of South Africa, Cyperus textile and Juncus kraussii have been used for centuries to make products of functional and cultural importance, such as sleeping mats and baskets. In the former Transkei village clusters of Mpozolo and Ntubeni, female crafters harvest the raw material and make and sell the products in their communities and in nearby towns. Interviews with 40 of them revealed what the trade contributes to their livelihoods and what enhances or limits their success. The findings show that crafting contributes vital income to vulnerable households, on average 26 ± 4 per cent of annual household cash income, over 40 per cent for the poorest households and 5–15 per cent for wealthier households. Lack of access to non-traditional markets was identified as the main constraint on the trade.
### Socio-Economic Characteristics of Crafters and Reasons for Entering Trade

<table>
<thead>
<tr>
<th>Most important sources of household income identified by respondents</th>
<th>Pension (%)</th>
<th>Crafting (%)</th>
<th>Child support (%)</th>
<th>Household member’s salary (%)</th>
<th>Other (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40</td>
<td>25</td>
<td>10</td>
<td>15</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reasons for entering the trade</th>
<th>Struggling, household needed money (%)</th>
<th>Husband left or died (%)</th>
<th>Extra income (to supplement existing livelihoods) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>55</td>
<td>20</td>
<td>25</td>
</tr>
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Mortality-Related Changes in Agricultural Production

• Some evidence suggests
  – Reduce cultivation
    • South Africa: Drimie 2003; Kenya: Yamano and Jayne 2004
  – But impact on cultivation is shaped by position of deceased within household
    • Review by Mather et al. 2004
Land Use Changes (cont.)

- Example from Kenya (Yamano and Jayne 2004)
  - Loss of female impacts grain crops
  - Loss of male impacts cash crops
  - Loss of male HH head most severe reduction
Land Use Changes (cont.)

- Share-cropping or lending land
  - Lesotho: Drimie 2003

- Lay fallow
  - Lesotho, Kenya: Drimie 2003
Other dimensions of coping
(Yamano and Jayne 2004)

• Selling assets (esp. small animals, farm equipment)
• Little indication of quick recovery
• Higher SES households less significant effects
Another Dimension of Agricultural Impacts

- Adult mortality may threaten land tenure

According to the Kenyan study, HIV/AIDS has clearly impacted on inheritance rights, particularly those of widows and orphans. In some of the cases, women were completely dispossessed of their inheritance to land and property after their husband’s death. The prevailing practice is that inheritance is patriarchal, with the result that in several cases land has been inherited or is being held in trust by male relatives. It has been reported that when a married man dies of AIDS or becomes infected, the woman is often accused of having infected her husband. These widows are subsequently under great pressure to leave their marital homes.

Drimie 2003
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• Environmental Linkages with HIV/AIDS
  – Agriculture: production changes, land tenure impacts
  – Natural Resources
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• Environmental Linkages with HIV/AIDS
  ✔️ Agriculture
    – Natural Resources
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• Natural resources act as “buffer” for impoverished households:
  – Energy
  – Dietary
  – Health/Healing
Energy Needs

- Fuelwood harvested by vast majority of households;
- Even if village electrified.
HIV/AIDS and Energy Needs

- Mortality-impacted HHs more likely to use fuelwood for cooking, heating water;
- Primarily low SES

(Hunter, Twine and Johnson 2006)
• Natural resources act as “buffer” for impoverished households:
  - Energy
    - Dietary
    - Healing
• Natural resources act as “buffer” for impoverished households:
  ✅ Energy
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Dietary Needs

- Wild foods harvested by 95+% of households;
  - Vegetables, fruits, protein
- HIV/AIDS-related impacts?
• Mortality-impacted households exhibit greater reliance on wild foods for sustenance:

“Locusts are now our beef.”

(Hunter, Twine and Patterson 2006)
Elliott’s wife passed away and he now lives with his daughter.

“We stopped purchasing ... most of the time we rely on the garden.”
Zodwa’s deceased husband worked at a game reserve.

“there is a big change now because we no longer have food, we just get assisted by the relatives .... and we depend more now on the field.”
Not only land-based resources

- HIV/AIDS associated with increased resource extraction in Tanzanian fisheries

(Torell et al. 2006)
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Environmental scarcity can lead to food insecurity and nutritional shortage

Nutritional shortage increases susceptibility to opportunistic infections (Piwoz and Preble 2000)
FIGURE 4. The Vicious Cycle of Micronutrient Deficiencies and Human Immunodeficiency Virus (HIV) Pathogenesis

- Insufficient dietary intake
  - Malabsorption, diarrhea
  - Altered metabolism and nutrient storage

- Increased
  - HIV replication
  - Hastened disease progression
  - Increased morbidity

- Increased oxidative stress
  - Immune suppression

- Nutritional deficiencies

Semba and Tang 1999 as presented in Piwoz and Preble 2000
The nutritional role of indigenous foods in mitigating the HIV/AIDS crisis in West and Central Africa

E. KENGI, C.M.F. MBOFUNG, M.F. TCHOUANGUEP and Z. TCHOUNDJEU

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- Department of Food Science and Nutrition, ENSAI, University of Ngaoundere, P.O. Box 455, Ngaoundere, Cameroon
- Department of Biochemistry, University of Dschang, P.O. Box 96, Dschang, Cameroon
- Department of Biochemistry, University of Yaounde I, P.O. Box 812, Yaounde, Cameroon

International Forestry Review, 2004
Key Findings

• Biochemical composition of forest foods: rich in vitamins, energy, proteins and unsaturated fatty acids;
• Major contribution to meeting daily nutritional needs
HIV/AIDS-Environment Links through Health

• Nutritional shortage can lessen also effectiveness of HIV/AIDS treatments (Paton et al. 2006)
From abstract: “Moderate to severe malnutrition was present in 16% of patients at the time of starting ART, and was found to be a significant independent predictor of death …..”
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Links Between HIV/AIDS & the Natural Environment

Global

National

Community

Household   Vulnerability

Individual   Susceptibility
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