Tsetse-Fly Eradication in the Zambezi Region of Namibia Using Sequential Aerosol Spray Technique

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Structure of Presentation

- Introduction
- Background
- Evolution of the project
- Project implementation
- Results
- Discussion & Recommendations
Introduction

• Occurrence:
  – Zambezi region along the Kwando, Linyanti and Zambezi
  – Part of Kwando-Zambezi Tsetse belt

• Trypanosoma Species
  • Trypanosoma congoense
  • Trypanosoma vivax

• Glossina Species
  – Glossina morsitans centralis
Introduction

Map showing Namibia's national borders
Areas where Tsetse fly caught

Area where Tsetse fly were caught prior to spraying
Introduction

Foci of Trypanosomiasis 1990-2004
Background

• Tsetse fly control
  – 1960-1991  Annual ground spraying
    – 1960-1985 Dieldrin
    – 1985-1991 Alphamethrin
    – By 1967 3870 sq km had been cleared east of Kwando River
    – By 1990 ground spraying covered 325 km long by 200m wide from Zambian Border to Lupala island on the southern border with Botswana
  – Aerial spraying not adopted due to environmental concerns
Background

- 1994-2006: Tsetse fly Control programme supported by FAO and RTTCP
  - Odour-baited and insecticide impregnated targets
  - Epsilon traps & Fly rounds
  - Diminazine aceturate (Berenil) used as trypanocide by farmers
Background

Epsilon and Odour Baited Insecticide impregnated target
Evolution of the Regional Project

• PATTEC Coordination Office set up
• Plan of Action: phased systematic creation of tsetse free zones using appropriate methods
• Four SADC member states: Angola, Botswana, Namibia and Zambia
• Agreement signed and exchanged
Project Implementation

- Steering Committee to oversee implementation
- Project Coordination and Management Unit (PCMU)
  - National Focal Points and technical expertise
  - Administrative and operational base in Katima Mulilo
  - Project Area: Kwando/ Zambezi Region
- Four year project in 4 phases
  - Phase 1: Namibia and Botswana
  - Phases 2-4: Angola and Zambia
- Socio-economic impact assessment
- Stakeholder consultations
## Implementation

<table>
<thead>
<tr>
<th>Phase</th>
<th>Year</th>
<th>Area (Km²)</th>
<th>Cost USD</th>
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<tbody>
<tr>
<td>Phase 1</td>
<td>2006</td>
<td>Namibia (4,700), Botswana (5,100), Angola (200)</td>
<td>+/-4 000 000</td>
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<tr>
<td>Phase 2</td>
<td>2009</td>
<td>5000 each in Angola and Zambia</td>
<td>+/-5 000 000</td>
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<tr>
<td>Phase 3 &amp; 4</td>
<td>?</td>
<td>Still to be implemented in Zambia</td>
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Implementation

• Aerial spraying
  ➢ In winter months +/-20 day cycles in 5 cycles using 5 planes
  ➢ Night spraying at low altitude
  ➢ Wind affects droplet placement
  ➢ SATLOC navigation system provides info on runs, km flown, area sprayed, litres sprayed, etc.,
  ➢ Deltamethrin (0.35%) application 0.26 to 0.3 mg/ha
• Environment monitoring: *Cytobagous salviniae*
Implementation

Equipment and materials

Aryes Turbo Thrush Aircraft in flight spraying.

0.35% Deltamethrine: Approximately 450 000 litres used in each phase.
Monitoring

• Entomological surveys
  – Trapping of flies
    • Fly rounds
    • Tsetse fly dissection & aging

• Sentinel herd testing for tryps
Tsetse survey results for 2006

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Results

• The last fly caught on 30 July 2006
• Entomological surveys ongoing
• No adverse effect on *Cyrtobagous salviniae* received
Discussion & recommendations

- Positive impact on tourism, eliminated nagana, annual recurrent budget reduced
- Phase 3 & 4 need to continue: eliminate the need for maintaining barriers
- Monitoring: sentinel and entomological to continue
- Socio-economic impact assessment required
Concerns

• Environmental Issues
  • Project should have an environmental monitoring and recovery plan

• Other issues

Thank you