Climate change and disease emergence

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Ethiopian Health and Nutrition Research Institute (EHNRI) and Institute of Development Studies (IDS) workshop on climate change adaptation and nutrition with gender perspective in Ethiopia

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## ILRI and CGIAR research programs

<table>
<thead>
<tr>
<th>Category</th>
<th>Subcategories</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dryland Cereals</strong></td>
<td>Wheat</td>
</tr>
<tr>
<td><strong>Grain Legumes</strong></td>
<td>Maize, Rice, Roots, Tubers and Bananas</td>
</tr>
<tr>
<td><strong>Livestock and Fish</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Climate Change, Agriculture and Food Security</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Forests, Trees and Agroforestry</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Water, Land and Ecosystems</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Integrated Systems for the Humid Tropics</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic Agricultural Systems</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Dryland Systems</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Policies, Institutions and Markets</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Agriculture for Nutrition and Health</strong></td>
<td></td>
</tr>
</tbody>
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ILRI Resources

- Staff: 700
- Budget: $60 million
- 30+ scientific disciplines
- 120 senior scientists from 39 countries
- 56% of internationally recruited staff are from 22 developing countries
- 34% of internationally recruited staff are women
- Large campuses in Kenya and Ethiopia
Vector-borne diseases and climate change

- What are the most climate-sensitive diseases and why?
  - The most climate-sensitive diseases are those that are transmitted by arthropod vectors (VBD)
    - mosquitos, ticks and flies
  - Distribution of vectors highly depends on climate; in turn disease distribution depends on vector distribution
  - Changes in climate alters vector distribution, which in turn changes distribution of disease

- Which climatic factors are the most important in distribution of vectors and VBDs?
  - Temperature and humidity play a major and complex role in vector survival and development

- How do temperature and humidity affect distribution of vectors and VBDs?
  - Effect of temperature is difficult to generalize: increase in temperature may expand or contract current range of vector
    - Increase in temperature may increase rate of maturation of immature stages; it may also increase mortality of larva as soil dries up faster
  - Effect of humidity: usually promotes survival by preventing desiccation
Vector-borne diseases of livestock in sub-Saharan Africa

- What is the importance of VBDs in livestock in Sub-Saharan Africa?
  - Vectors and vector-borne diseases are responsible for major productivity losses in livestock
  - Some also affect humans

- What are the most important VBDs diseases of livestock in sub-Saharan Africa?
  - Rift Valley fever – mosquito-borne disease
  - Tick-borne diseases - East Coast fever
  - Trypanosomiasis – transmitted by tsetse fly

- What are the challenges in control and research?
  - Effect of climate change is often complex and difficult to predict
  - Majority of climate-sensitive diseases affect multiple species
  - Multi-disciplinary approach required with engagement of different stakeholders
Risk mapping as a useful tool for forecasting

Potential RVF hotspots in eastern Africa (predictions at 1x1 km)
Thank you!