Forest Foods for Household Food and Nutrition Security: The Case of the Eastern Province of Zambia

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About IAPRI

Research: 5 Thematic Areas

- Market development and trade
- Public policy and spending
  - Climate change and natural resources
  - Food and Nutrition
  - Emerging issues

IAPRI
Centre of Excellency for Agricultural Policy Research in Zambia

Outreach

Collaborations
- MAL
- Unis in ESA
- MSU
- Uni Hohenheim

Capacity Building
Why forest foods

- Forest foods form a significant portion of the rural diets
- Supplement agricultural products especially when in low supply
- Infuse a lot of nutritional diversity in people’s diets which is essential for reducing malnutrition
- Source on income
Despite an average economic growth of 6% and 10% agricultural sector growth, Zambia has very high malnutrition rates.

**Child Malnutrition trends**

<table>
<thead>
<tr>
<th>Year</th>
<th>Stunting</th>
<th>Wasting</th>
<th>Underweight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>46</td>
<td>6</td>
<td>21</td>
</tr>
<tr>
<td>1996</td>
<td>49</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>2001-02</td>
<td>53</td>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>2007</td>
<td>45</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>2013-14</td>
<td>40</td>
<td>6</td>
<td>15</td>
</tr>
</tbody>
</table>

CSO, 2015 (DHS presentation)
75 million hectares 49.9 million hectares covered by forests (65%)

Rate of deforestation worrisome

Between 1990 and 2000 about 851,000 hectares of forest was lost

Wood fuel extraction is main contributing factor to the deforestation

In the process loss of biodiversity
Several legislations providing guidelines on the extraction of forest products

- 2010 National Forest Policy – importance of non-timber forest products (NTFP)
- 2013 Statutory Instrument number 52 – restricted access to NTFP to control loss of biodiversity
- Revised National Forest Policy of 2014 - inclusion of local communities, traditional institutions, private sector in the management and utilization of forest resources at all stages of decision making.
Study Objectives

- Examine the role of forest resources in the food and nutrition security in Eastern Province
  - Assess availability of forest foods in densely forested area and in open forested areas
  - Review the nutritional properties of the forest foods consumed by the communities
  - Discuss some of the medicinal uses by the communities of forest resources available to them
Study area
Conceptual Framework for Nutritional Status

National Level
Population, natural resources, socio-economic and political environment

Institutional Level
Socio-cultural practices, markets

Health and Sanitation Programs

Household Livelihood systems

Care Practices
• Nutritional knowledge
• Feeding practices
• Food preparation
• Eating habits
• Intra-house food distribution

Crop and livestock production for Consumption

Forest/Wild Food Products

Income On and off-farm activities

Food access and availability

Food Consumption

Food Utilization by the Body

Nutritional Status

Source: Adapted from FAO, 1990
What we found ....

- Forests are an important source of food, income, energy
- Part of the daily diets
- Consumed by all age groups and both genders
- Elderly consumed some foods shunned by younger generations
- Access to forest resources regulated, but laws weakly implemented
Malnutrition in the province remains high

<table>
<thead>
<tr>
<th>Location</th>
<th>Percentage of Stunted Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipata</td>
<td>38.6</td>
</tr>
<tr>
<td>Katete</td>
<td>46.4</td>
</tr>
<tr>
<td>Lundazi</td>
<td>51.8</td>
</tr>
<tr>
<td>Nyimba</td>
<td>47.2</td>
</tr>
<tr>
<td>Petauke</td>
<td>49.5</td>
</tr>
<tr>
<td>Total</td>
<td>46.5</td>
</tr>
</tbody>
</table>

Total Percentage of stunted growth
Forests do not provide all the food types needed for reducing nutrition.

- Non Starch vegetables
- Non-starchy fruits
- Meat

**Food groups available in sufficient amounts**

**Food groups not available**

- Starchy foods like grains, potatoes, cassava
- Legumes, nuts and Seeds
- Eggs
- Dairy
Some important nutrients found in forest foods

**Vitamin A Foods**
- Wild loquat, Masuku (*uapaca kirkiana*)
- Black Jack, kanunka (*bidens pilosa*)
- Katate (*ceratothca sesamoides*)
- Amaranth leaves (*amarathas dubis*)
- Lumanda (*Hibiscus meeusei*)
- Jute leaves (Tindingoma)
- Horned melon (*Cucubitus*)
- Suntha (*cleome gynandra*)
- Rhynchosia roots (munkoyo)
- Usala (*dioscorea hirtiflora*)
Folate

- Bondwe (*amarathas dubis*)
- Black Jack (*bidens pilosa*)
- Jute leaves (*Tindingoma*)
- Lumanda (*hibiscus meeusei*)
- Suntha (*cleome gynandra*)
- Katate (*ceratothca sesamoides*)

Folate deficiency problems:
- Poor pregnancy development
- Retard growth
- Folate-deficiency anemia
Proteins

- Rodents (Mbeba – mouse)
- Vinkubala (Catapilas)
- Inswa Flying termites
- Crickets
- Locusts
- Wild pig
- Antelope
- Guinea fowl eggs*
- Eggs from other wild birds*
- Mushrooms
- Chikanda
Limitations

- Forests resources need to be supplemented by other foods that are purchased or cultivated,
  - This is largely missing or inadequate due to high poverty rates in the districts

- Seasonality greatly determines the supply of forest foods.
  - Lots of foods during the rainy season
  - Low foods available in the dry season
  - Processing is limited to sun drying which is difficult in the rainy season
Limitations cont.

- Forest cover is on the decline
  - the situation is worse in open forest areas but is increasing in densely forested areas due to high immigration of people especially from the open forest areas
- Some food preparation methods deplete the nutrients thereby affecting food utilization e.g. adding bicarbonate soda
Forest resources are used for various medicinal purposes by the communities

<table>
<thead>
<tr>
<th>Food</th>
<th>Medicinal Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fruits</strong></td>
<td></td>
</tr>
<tr>
<td>Mchenja (Diospyros mespiliformis)</td>
<td>Treating diarrhea</td>
</tr>
<tr>
<td>Baobab fruit</td>
<td>Treating diarrhea</td>
</tr>
<tr>
<td>Mkonokono (Annona senegalesis)</td>
<td>Treating stomach pains</td>
</tr>
<tr>
<td>Tamarind</td>
<td>Ensuring healthy appetite</td>
</tr>
<tr>
<td>Chelembusha</td>
<td>Treating diarrhea</td>
</tr>
<tr>
<td>Nthudza (Flacourtia indica)</td>
<td>Easing diarrhea</td>
</tr>
<tr>
<td>Msekese (Piliostigma thonningii)</td>
<td>Treating bilhazia, diarrhea</td>
</tr>
<tr>
<td>Ntumbuzya</td>
<td>Treating stomach ache</td>
</tr>
<tr>
<td>Mupundu (Parinari curatellifolia)</td>
<td>Easing diarrhea</td>
</tr>
<tr>
<td>Mbulumbushe</td>
<td>Easing diarrhea</td>
</tr>
<tr>
<td><strong>Vegetables</strong></td>
<td></td>
</tr>
<tr>
<td>Amaranth leaves</td>
<td>Provide adequate blood</td>
</tr>
<tr>
<td>Black Jack, kanunka (Bidens pilosa)</td>
<td>Treating mouth ulcers, measles, sole throat</td>
</tr>
<tr>
<td>Katate (Ceratothca Sesamoides)</td>
<td>Treating stomach ulcers, body building</td>
</tr>
<tr>
<td>Mushrooms</td>
<td>Promoting heart health, Treating high blood pressure</td>
</tr>
<tr>
<td>Mulozi</td>
<td>Easing chest pain, Treating diarrhea, Treating sexually transmitted diseases, For boosting sexual vitality</td>
</tr>
<tr>
<td>Baobab leaves</td>
<td>Ensuring adequate blood</td>
</tr>
<tr>
<td>Mwanyaniche</td>
<td>Boosting sexual vitality</td>
</tr>
<tr>
<td>Black jack</td>
<td>Ensuring adequate blood</td>
</tr>
<tr>
<td>Mwanya</td>
<td>Treating diarrhea and burns</td>
</tr>
</tbody>
</table>
## Medicinal uses

<table>
<thead>
<tr>
<th>Tubers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chikanda (Terrestrial orchids)</td>
<td>Preventing obesity</td>
</tr>
<tr>
<td>Rynchosia roots (Munkoyo)</td>
<td>Treating yellow fever, Providing energy, Stopping vomiting in children</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Foods</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Honey</td>
<td>Treating High blood pressure, respiratory diseases like coughs and Asthma, chest pain, stomach ulcers, HIV-AIDS related illnesses, burns</td>
</tr>
<tr>
<td>Guava leaf tea</td>
<td>Treating diarrhea</td>
</tr>
<tr>
<td>Wild loquat leaves</td>
<td>Treating earache</td>
</tr>
<tr>
<td>Nkuyu (Balanites aegyptiaca)</td>
<td>Treating ring worms</td>
</tr>
</tbody>
</table>
Conclusion

- Forest foods provide diverse key nutrients necessary for fighting malnutrition and stunted growth in children
- Forests enable rural households to consume foods they would not be able to access due to high poverty levels
- Forest foods are not readily available
  - Lack in some food nutrients
  - Only available seasonally
- Poverty reduction interventions should be prioritised
- Nevertheless, forests will remain an important source of future food
- Participatory management of forests is necessarily for sustainable use of resources
THANKYOU

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## Districts, Villages and Number of Participants in FGD

<table>
<thead>
<tr>
<th>District</th>
<th>Area</th>
<th># Female participants</th>
<th># Male Participants</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nyimba</td>
<td>Chief Mwape's area</td>
<td>6</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Nyimba</td>
<td>Mpondani (Chief Ndake)</td>
<td>7</td>
<td>20</td>
<td>27</td>
</tr>
<tr>
<td>Petauke</td>
<td>Milimbo</td>
<td>8</td>
<td>25</td>
<td>33</td>
</tr>
<tr>
<td>Petauke</td>
<td>Chipueke (Nyampande)</td>
<td>6</td>
<td>19</td>
<td>25</td>
</tr>
<tr>
<td>Katete</td>
<td>Kalonga (M’bangombe)</td>
<td>9</td>
<td>21</td>
<td>30</td>
</tr>
<tr>
<td>Katete</td>
<td>Kagoro</td>
<td>14</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>Chipata</td>
<td>Mbenjele</td>
<td>12</td>
<td>11</td>
<td>23</td>
</tr>
<tr>
<td>Chipata</td>
<td>Tazwela</td>
<td>34</td>
<td>29</td>
<td>63</td>
</tr>
<tr>
<td>Lundazi</td>
<td>Mtambalika</td>
<td>13</td>
<td>21</td>
<td>34</td>
</tr>
<tr>
<td>Lundazi</td>
<td>Kanchikota</td>
<td>8</td>
<td>14</td>
<td>22</td>
</tr>
</tbody>
</table>