Social implications of the development of cassava post-harvest systems in Africa

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Cassava in the African social-economic system

Cassava is one of the most important food crops of Africa. It has assumed the status of a food security and an industrial crop. It is a source of calories to about 500 million people.

In addition, it provides:

• Increased income for farming households
• Increased employment opportunities
• Potential to target development benefits to women.
• Potential lower food prices for consumers
• Competitively priced raw materials
• More convenience e.g. improved traditional products

Diversity of cassava postharvest in Africa
The products of cassava postharvest system include:
- Fresh cassava
- Traditional food products
- Animal feed
- Starch
- Sugar syrups
- High quality cassava flour
- Etc…..
Aspects of the cassava post harvest system

A. Multiple drivers of change: past, current and future
- Technical
- Economic
- Political
- Socio-cultural
- Environmental

B. People, Place & Post-harvest systems
(harvesting, storage, consumption, marketing, processing)
attributes influencing existing Vulnerability, Adaptive Capacity, Resilience

C. Actual outcomes & impacts: past, current & future
- Poverty
- Food security
- Livelihoods: Sustainability
- Gender and diversity
- Food Aid
- Interventionism
- Commercialisation
- Income
- Institutional growth institutions

D. Desired outcomes: Visions of different stakeholders (government planning, private sector, civil society etc)

E. Capacity building: responses of diverse actors in varied processes
Aspects of the cassava post harvest system

Technical

• Detoxification: peeling, grating, fermentation, drying

• Nutrient enhancement: food mixes, micro and macronutrient fortification

• Non-food uses: bio-fuels, adhesive extenders
Aspects of the cassava post harvest system

Economic

- Agro-enterprise development: Business plans, feasibility/profitability, productivity
- Commercialisation
- Globalisation
- Markets and marketing systems

Cost, revenue and profit per kilogramme of dried *fufu* produced at the pilot plant for 2002 and 2005

<table>
<thead>
<tr>
<th>Items</th>
<th>2002</th>
<th>Production years</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of fufu wet paste (₦)</td>
<td>34.02</td>
<td>61.20</td>
<td></td>
</tr>
<tr>
<td>Cost of coal (₦)</td>
<td>3.67</td>
<td>6.32</td>
<td></td>
</tr>
<tr>
<td>Total cost of production (₦)</td>
<td>85.79</td>
<td>134.37</td>
<td></td>
</tr>
<tr>
<td>Revenue (₦)</td>
<td>100.00</td>
<td>200.00</td>
<td></td>
</tr>
<tr>
<td>Profit</td>
<td>14.21</td>
<td>65.63</td>
<td></td>
</tr>
<tr>
<td>Return on investment</td>
<td>1.17</td>
<td>1.49</td>
<td></td>
</tr>
</tbody>
</table>

Computed from data collected at the UNAAB cassava processing pilot plant (2002 and 2005)
Aspects of the cassava post harvest system

Political
- Stability of political environment
- Consistency of policy
- Predictability of government actions
- International relations
- Trade agreements and barriers
- Corruption

Cassava processors’ perception of the benefits of PIC in Nigeria  Adebayo and Salawu, 2007
Aspects of the cassava post harvest system

Social/cultural
- Food habits
- Perception of gender roles
- Permissiveness of deviance
- Rural-urban interactions
- Media influence
- Power relations
Aspects of the cassava post harvest system

Environmental

- Sanitation
- Waste management
- Climate change
Key social-economic issues in intervening in the CPHS

- Poverty: pro-poor vs. non-poor focus
- Food security: food secure vs. business focus
- Livelihoods: People vs. Profit focus
- Sustainability: Short vs. Long term
- Gender and diversity: Gender neutral vs. Bias
Key social-economic issues in intervening in the CPHS

• Food Aid: Balancing surplus vs. Lack
• Interventionism: Abstain vs. Intervene
• Commercialisation: Small biz. vs. Large enterprises

Income: Subsistence vs. Higher income

• Institutional growth: Informal vs. Formal institutions

Rating of the process of developing cassava grater and screw press by researchers and extensioners (Adebayo, 2006)

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Very high</th>
<th>High</th>
<th>Moderate</th>
<th>Low</th>
<th>Very low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demand driven</td>
<td>10</td>
<td>13</td>
<td>10</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Target specific</td>
<td>10</td>
<td>16</td>
<td>5</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Locally funded</td>
<td>9</td>
<td>17</td>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Easily adaptable</td>
<td>16</td>
<td>12</td>
<td>6</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Compatible with local practices</td>
<td>19</td>
<td>10</td>
<td>7</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Cheap to adopt</td>
<td>13</td>
<td>12</td>
<td>7</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
## Relative importance of factors affecting livelihood activities in Nigeria

<table>
<thead>
<tr>
<th>Factor</th>
<th>Ereji</th>
<th>Ode Remo</th>
<th>Ilaro</th>
<th>Ilewo Orile</th>
<th>Soso</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to land</td>
<td>Vital for the key activities of farming and <em>fufu</em> processing.</td>
<td>Important for farming, ownership of water supplies and <em>fufu</em> processing sites.</td>
<td>Not important - range of off-farm livelihood activities available.</td>
<td>Important for key activity – farming.</td>
<td>Important for key activity – farming, especially production of kola nuts.</td>
</tr>
<tr>
<td>Access to labour</td>
<td>No problems in labour availability.</td>
<td>No problems in labour availability, though cost of casual labourers highly competitive.</td>
<td>Problems in labour availability for some activities due to range of employment opportunities.</td>
<td>Few labour constraints.</td>
<td>Few labour constraints.</td>
</tr>
<tr>
<td>Access to water</td>
<td>Critical. Water supply is limited in dry season and has to be purchased.</td>
<td>Very important – water is limited and has to be purchased all year round.</td>
<td>Important. In town water is purchased all year round. Specialised livelihood activities (e.g. <em>fufu</em> processing) utilise natural sources.</td>
<td>Freely available all year round.</td>
<td>Freely available all year round.</td>
</tr>
<tr>
<td>Access to credit</td>
<td>High dependency on informal credit (esp. family support and deferred payments for goods).</td>
<td>Some dependency on informal credit (esp. family, deferred payments for goods, moneylenders). Relatively high levels of capital available.</td>
<td>Important (esp. family and friends).</td>
<td>Important informal credit (informal groups savings, co-operatives and deferred payments for goods).</td>
<td>Important informal credit (savings group and cooperatives)</td>
</tr>
<tr>
<td>Access to markets</td>
<td>Limited access, especially in rainy season. Traders visit village from outside.</td>
<td>Essential. The town’s good access to markets is critical to most livelihood activities.</td>
<td>Essential. Good market access influences most livelihood activities.</td>
<td>Important. Limited access constrains livelihood options.</td>
<td>Important. Limited access constrains livelihood options.</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Poor roads limit access. Lack of services (e.g. electricity) perceived as major constraint.</td>
<td>Very good infrastructure at all levels.</td>
<td>Very good infrastructure at all levels.</td>
<td>Poor roads. Electricity and communication systems in place.</td>
<td>Poor roads and electricity.</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Most residents are native Yoruba.</td>
<td>Yoruba and Ibo present. Some links between livelihood activities and ethnicity.</td>
<td>Heterogeneous ethnic population but no links with important factor.</td>
<td>Most residents are native Yoruba.</td>
<td>Not important. Most residents are non-native, but homogenous group.</td>
</tr>
</tbody>
</table>

Adebayo et al 2004
### Cassava processors’ perception of effectiveness of, and adoption of selected postharvest technologies

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>$X^2$ - calculated</th>
<th>Degrees of freedom</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adoption of cassava peeling machine</td>
<td>1.47</td>
<td>2</td>
<td>0.48</td>
<td>Accept Ho</td>
</tr>
<tr>
<td>Adoption of hand driven grater</td>
<td>15.92</td>
<td>4</td>
<td>0.00</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>Adoption of power driven grater</td>
<td>33.65</td>
<td>6</td>
<td>0.00</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>Hand screw press</td>
<td>18.17</td>
<td>8</td>
<td>0.02</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>Adoption of Hydraulic jerk</td>
<td>15.26</td>
<td>8</td>
<td>0.05</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>Adoption of fortification of cassava with protein-rich cereal</td>
<td>0.35</td>
<td>2</td>
<td>0.84</td>
<td>Accept Ho</td>
</tr>
<tr>
<td>Adoption of rotary dryer</td>
<td>1.83</td>
<td>4</td>
<td>0.77</td>
<td>Accept Ho</td>
</tr>
<tr>
<td>Adoption of iron frying pot</td>
<td>41.39</td>
<td>8</td>
<td>0.00</td>
<td>Reject Ho</td>
</tr>
</tbody>
</table>

Level of significance – 0.05
Decision criteria – When Asymptotic significance is less than 0.05, reject Ho

Adebayo and Sangosina, 2005
Conclusions

• Development interventions in CPHS need a clear understanding of social/development implications, trade-offs, clarity of goals, etc.
• There is no ‘one size fits all’ approach for addressing social issues
• Social issues will remain important so long as people are involved in the cassava post harvest systems
• All options for addressing social issues are dynamic. They change with time, actors and locations
• New social issues often emerge from the technical, economic, political or social interventions put in place to address previous ones
• Consistent common sense and reasonable consideration of circumstances at a particular period in time often offer the best way forward
Thank you!