Indigenous Perception of Climate Change, its Impacts and Coping Strategies for Sustainable Livelihoods in Guyana and Suriname

by

Paulette Bynoe, Ph.D.

African-Caribbean-Pacific Forestry Research Network (ACP FORENET) Workshop

18th -19th December 2012
CIRAD
Montpellier, France
Outline of Presentation

• Introduction and Conceptual Framework
• Brief Description of Study Areas
• Main Research Goals and Questions
• Research Methods
• Results and Discussion
• Conclusion and Recommendations
CLIMATE HAS CHANGED.
CLIMATE WILL CONTINUE TO CHANGE.
CLIMATE DEMANDS CHANGE.
(MICHAEL TAYLOR, 2011)
Climate change (and particularly global warming) is a new global reality that has potential to reverse the sustainable development gains at international, regional, national and local levels.

Last 20 years have seen marked increase in climate–related disasters in terms of number and severity, with increasing impacts on local economies, communities and their climate dependent livelihoods.

Indigenous peoples, who have survived over long periods to many kinds of environmental changes, including climate change, may have valuable lessons to offer about successful and unsuccessful adaptations.
GUYANA AT A GLANCE

- 214, 970 km²
- Population = 763,719 (2007)
- Forest cover is approx. 85% with estimated forest land between 18.416 million hectares and 18.695 million hectares
- Economy is mainly agriculture- and resource-based in terms of its production base.
- The agricultural sector comprises on average 20 plus % of the GDP
- Moderate poverty rate in rural interior = 73.5% (Household Budget, 2006)
CLIMATE CHANGE PROJECTIONS FOR GUYANA

• **Temperature**
  Mean annual air temperature in Guyana has increased by 0.3°C since 1960. Climate change will have significant consequences for climate in future years, with temperature rising from 2°C to 4°C by the end of this century.

• **Rainfall**
  The climate scenarios show that the country could experience mean annual rainfall decrease. The rainfall patterns would experience considerable temporal and spatial change along the country. Guyana may suffer water deficits in October and November, as projected for the 2040-2069 period.

• **Forests**
  The loss or degradation of forests can generate a number of impacts on its inhabitants, such as a reduction in water availability; scarcity of basic supplies needed to subsist; a reduction to their forest communities’ income and resources, and forced migrations both out and into the forest.

Source Guyana Second National Communication to UNFCCC Secretariat
Main Research Goals and Questions

To predict the possible impacts of climate change on the livelihoods of indigenous peoples in Guyana and Suriname by investigation of their experiences with short term climatic variations.

To make visible their adaptation and coping strategies in response to those short term climatic variations in an effort to share the lessons learnt, and to advocate for contextual national climate change policies.

How do indigenous communities perceive climate change, its causes and impacts? What is their awareness and knowledge of climate change?

What are the strategies that have been adopted by indigenous communities to cope with the changes in the climate?
Batavia is a titled Amerindian community in Region 7 on the lower Cuyuni River. Access to this community is by river. Commercial activities include small scale logging, farming and fishing which are both done at the subsistence level.

Kwebanna is an Amerindian community located in Region 8 the North West district of Guyana on the right bank of the Waini River. Most of the high value commercial timber species within the community have been extracted by private companies.

Wowetta is an Amerindian community that is located in the Upper-Takutu-Upper Essequibo in Region 9. Wowetta shares its border with the Iwokrama International Rainforest.

Kwamalasamutu is the largest native village (Trio) and is situated in the South of Suriname on the bank of the Sipaliwini, where the ancient caves are
Research Methods

- Desk review of accessible literature
- Field reconnaissance
- Key Informant interviews
- Rapid biological assessments
- Social surveys in 4 communities social (200 hhs; 168 hhs)
COMMUNITY SURVEYS

Kwebanna (90)

Batavia (36)

Wowetta (42)

Kwamalasamutu (32)
Analysis: Respondents’ Profile

- Approx. 85% were > 30 years, while 57% originated from their local villages.

- Main sources of livelihood of respondents were agriculture (subsistence farming), fishing, hunting and logging, respectively.

- For example, in Kwebanna 95.5% practised subsistence farming 93.0% fished; 58.9% hunted; 32.2%

<table>
<thead>
<tr>
<th></th>
<th>Proportion of Food Produced In the Village</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
<td>Most</td>
<td>Some</td>
<td>Little</td>
<td>Total</td>
</tr>
<tr>
<td>Kwebanna</td>
<td>17</td>
<td>35</td>
<td>30</td>
<td>8</td>
<td>90</td>
</tr>
<tr>
<td>Batavia</td>
<td>1</td>
<td>15</td>
<td>10</td>
<td>10</td>
<td>36</td>
</tr>
<tr>
<td>Wowetta</td>
<td>5</td>
<td>27</td>
<td>10</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>Kwamalasa mutu</td>
<td>14</td>
<td>7</td>
<td>2</td>
<td>9</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>84</td>
<td>52</td>
<td>27</td>
<td>200</td>
</tr>
</tbody>
</table>
Understanding of Climate Change

- There was relatively poor understanding of climate change: 25.5% of the respondents stated that they could not explain the term. However, over 90% felt that the climate is changing.

- When asked: What measures can be taken to fight against climate change? 42.5% of the respondents said ‘Nothing can be done. It is God’s work’.

% within a Surveyed Community
- Kwebanna=30.0%
- Batavia=38.9%
- Wowetta=21.4%
- Kwamalasamutu=3.1%

% within a Surveyed Community
- Kwebanna=35.3%
- Batavia=47.2%
- Wowetta=26.2%
- Kwamalasamutu=84.41%
## Perception of Impacts

<table>
<thead>
<tr>
<th>Statements on Perceptions</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Don’t know</th>
<th>Communities accounting for those that Strongly Agree or Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature is increasing.</td>
<td>47.0</td>
<td>42.0</td>
<td>6.5</td>
<td>4.0</td>
<td></td>
<td>Kwebanna and Wowetta and Kwamalasamutu</td>
</tr>
<tr>
<td>Rainfall is decreasing every year</td>
<td>22.5</td>
<td>31.5</td>
<td>36.0</td>
<td>8.0</td>
<td>2.0</td>
<td>Kwebanna</td>
</tr>
<tr>
<td>Rainfall every year is insufficient for our crop cultivation</td>
<td>15.0</td>
<td>34.0</td>
<td>38.0</td>
<td>11.0</td>
<td>2.0</td>
<td>Kwebanna</td>
</tr>
<tr>
<td>Flooding in the village is more severe and frequent</td>
<td>39.0</td>
<td>35.5</td>
<td>18.5</td>
<td>3.0</td>
<td>4.0</td>
<td>Batavia and Wowetta</td>
</tr>
<tr>
<td>Climate change has led to a reduction of our local production systems</td>
<td>25.0</td>
<td>46.5</td>
<td>19.5</td>
<td>2.0</td>
<td>7.0</td>
<td>Kwebanna and Batavia</td>
</tr>
<tr>
<td>Climate change has led to a change in livelihood activities and strategies</td>
<td>24.5</td>
<td>45.0</td>
<td>24.0</td>
<td>1.5</td>
<td>5.0</td>
<td>Kwebanna and Batavia</td>
</tr>
<tr>
<td>There have been an increase in droughts</td>
<td>28.0</td>
<td>36.0</td>
<td>31.0</td>
<td>1.0</td>
<td>4.0</td>
<td>Kwebanna and Batavia</td>
</tr>
<tr>
<td>Climate change is affecting the health of villagers</td>
<td>42.0</td>
<td>40.0</td>
<td>11.5</td>
<td>1.5</td>
<td>5.0</td>
<td>Kwebanna and Kwamalasamutu</td>
</tr>
</tbody>
</table>
Impacts at Community Level

Livelihoods have been changed for >80% in each community.

All respondents in Wowetta perceived that farmers and fishermen are the most affected group, followed by children and women.

Floods cause cassava to rot and food deficit; unemployment; mosquito invasion and malaria; destroyed walls of homes made of clay; seasonal migration; contaminated shallow wells resulting in unsafe water.

Droughts caused heat stress, water deficit, insect infestation; destroyed staple and other crops; skin rashes, psychological stress.

Fires in farms, savannah and forests, death or migration of wildlife; dusts and health risks; abandonment of farms; more productive time spent in search of water.

Fish can be easily caught during droughts; water harvesting during intensive rains.
Coping Strategies of Communities

- Shifting to other livelihoods less risky to climate change
- Adjusting cropping patterns
- Planting early mature crops like the “Amazon Stick” (Cassava);
- Practising multi-cropping;
- Relocating to higher round; and
- Asking God for help.
Major Obstacles to Adaptation

- Inability to predict weather
- Pests invasion
- Limited alternative livelihood options and lack of finance
- Location of Residence (relatively isolated; harsh)
- Lack of information that is adequate, clear and simple.
CONCLUSION

• Climate change is already having serious implications on the livelihoods of the targeted communities.

• Although they have used local strategies to adapt to these changes, the magnitude of future hazards may limit their capacity to adapt.

• Survey results indicated that there was limited awareness, knowledge and capacity (especially in Guyana) at local level to understand climate change, and this may hinder local adaptation capacity.

• There needs to be synchronised efforts of the bottom–up and top-down approaches to climate change adaptation at the community level.
RECOMMENDATIONS

- Capacity building (awareness, information, training, early warning systems)
- Establishment of community safety net programmes
- Water harvesting and storage
- Access to soft loans to construct more climate resilient homes (demonstration or pilot projects)
- Formalisation or modification of local coping mechanisms
Scenes from Climate Change Awareness Workshop on 11/12/2012
ACKNOWLEDGEMENTS

• I wish to acknowledge:
  – my project is an EU-ACP Forest Research Network (FORENET);
  – the Iwokrama International Centre for Rain Forest Conservation and Development functions as the Regional Focal Point Organisation (RFPO) for the Caribbean, and especially Ms Vanessa Benn; and
  – Contributions of my team members (Ms Jewel Liddell, Dr. Patrick Williams, Ms Emily Allicock, Ms Paulette Allicock and Ms Kristine Erskine.)
This publication has been produced with the financial assistance of the European Union and African Caribbean Pacific Group of Countries. The contents of this publication are the sole responsibility of Dr. Paulette Bynoe and members of her team and can under no circumstances be regarded as reflecting the position of the European Union or IFAD.
Thanks for listening!