Rural Livelihood under a Changing Climate Pattern in the Zio District of Togo, West Africa

INTRODUCTION

Problem Statement

- Climate change is one of the main constraints to agricultural production in the Zio district of Togo (FAO 2012), it led to the abandonment of the second crop cycle (IFAD, 2010).
- The livelihood assets are the basis for understanding how people are affected and how they will respond to climate-induced vulnerabilities (Kebede and Adane, 2011).

Therefore, there is a need to assess households' livelihood situation and evaluate their response capacity under a changing climate pattern.

Objectives

- The general objective of this study is to assess the situation of rural livelihood under a changing climate pattern in the Zio district of Togo.
- Assessing the situation of households' livelihood under a changing climate pattern.
- Assessing farmers' perception and understanding of local climate change.
- Analysing the determinants of adaptation strategies, especially in cropping pattern to climate change.

METHODS

Study Area

- **Background**: Climate Change
- **Problem Statement**: 40% of GDP
- **Objectives**: Agriculture Sector in Togo
- **Livelihood Sector**: 70% source of Livelihoods
- **Export Revenue**: 20% of Export Revenue
- **Rainfall**: >98% Rainfed

Sustainable Livelihood Framework

Livelihood situation in the study area

- Livelihood index of the study area (34%)
- Physical capital (65%)
- Human capital (43%)
- Social capital (24%)
- Financial capital (23%)
- Natural capital (13%)

Determinants of Adaptation Strategies

Explanatory Variables

<table>
<thead>
<tr>
<th>Explanatory Variables</th>
<th>Marginal Effect Coefficient</th>
<th>Marginal Effect Coefficient</th>
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</thead>
<tbody>
<tr>
<td>Gender (0/1)</td>
<td>3.24</td>
<td>.0587615**</td>
</tr>
<tr>
<td>Household size (continuous)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education (in year)</td>
<td>1.78</td>
<td>.0000038*</td>
</tr>
<tr>
<td>Farming experience (in Year)</td>
<td>1.041</td>
<td>.0000090*</td>
</tr>
<tr>
<td>Off-farm income in total income (%)</td>
<td>1.024</td>
<td>.00000043**</td>
</tr>
<tr>
<td>Access to Credit (0/1)</td>
<td>.280</td>
<td>.0153073*</td>
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<tr>
<td>Cropland size (Ha)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil fertility status (0/1)</td>
<td>.026</td>
<td>.00000009**</td>
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<tr>
<td>Membership in a social group (0/1)</td>
<td>3.843</td>
<td>.00017254*</td>
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<tr>
<td>Local Knowledge to predict seasons (0/1)</td>
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<td>Access to extension services (0/1)</td>
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<td>Access to Irrigation Water (0/1)</td>
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<td>.00000090**</td>
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<tr>
<td>Distance to the nearest input market (Km)</td>
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<td>.00000000**</td>
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<tr>
<td>Constant</td>
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Note: *** significant at 1% level; ** significant at 5% level; * significant at 10% level.

RESULTS

Climate Change Assessment

- Farmers Perception and Understanding of Climate Change
- 88.74% of the respondents perceived that the temperature has increased, while 11.26% have noticed the opposite.
- There was a general feeling that rainfall pattern has changed over the last 20 years as expressed by 98.72%.

CONCLUSION & RECOMMENDATIONS

- In the study area, households' livelihood is mainly dependent on farming activities. Changes in climate are considered as one of the major issues affecting the lives and livelihood of farmers.
- The result revealed that the sustainability of livelihood in the long run will be severely affected as the natural capital index was the lowest.
- Farmers have undertaken some adaptation strategies mainly in their cropping patterns to counter the adverse effects of climate change. But they have low capacity to undertake adaptation strategies necessary to the pursuit and improvement of their well-being.

- Promote and adopt sustainable land management approaches in order to restore, conserve and improve the quality of soil fertility status in the study area.
- Sensitisation about exaggerated sale of land that prevails in the Zio district to enable young people to possess enough land and take up farming activity as their main occupation.
- Encourage Development service providers like Red Cross to expand their services in the study area.
- Government and development service providers at all level need to produce and provide new crop varieties physically and economically accessible to farmers.