Adaptations and Vulnerability
Challenges

- Clearly important, but a huge topic
- Many different definitions
- How to limit/focus adaptation and vulnerability for LCLUC?
What do WE mean by adaption?

• Adaptations are long-term changes in land use in response to changes in:
  – Institutions and policies,
  – Economic development,
  – Climate,
  – And their interactions
### Land use adaptation matrix

<table>
<thead>
<tr>
<th></th>
<th>Institutions/policy change</th>
<th>Economic development</th>
<th>Climate change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>***</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Grazing</td>
<td>**</td>
<td>***</td>
<td>**</td>
</tr>
<tr>
<td>Forestry</td>
<td>***</td>
<td>**</td>
<td>*</td>
</tr>
</tbody>
</table>
Additional dimensions

- Social scale: household, community, national adaptations
- Temporal scale: shocks vs. gradual change vs. interannual variability
- Regional variability
- Developing versus developed countries
- Cultures / indigenous people
- Most limited (food, water, ... )
# Land use adaptation matrix

<table>
<thead>
<tr>
<th></th>
<th>Institutions/policy change</th>
<th>Economic development</th>
<th>Climate change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agriculture</strong></td>
<td>***</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td><strong>Grazing</strong></td>
<td>**</td>
<td>***</td>
<td>**</td>
</tr>
<tr>
<td><strong>Forestry</strong></td>
<td>***</td>
<td>**</td>
<td>*</td>
</tr>
</tbody>
</table>
Key adaptation questions

• Which stressor triggers the most land use change?
• What are the main adaptations to each stressor?
Key adaptation questions

• Where are good examples of past adaptations? (strength of satellite imagery)
• Where will we see major adaptations in the future?
• Which places are most vulnerable to each stressor/land use combination? (modeling)
Potential next steps

• Synthesis workshop
  – Identify good examples of past adaptations
  – Hypothesize where the action is in the future

• Write a review paper