Equity considerations in a comparative analysis of the socio-ecological dynamics in 3 watersheds of Latin America

J-F Le Coq¹; A Fallot ²
T Aguilar¹,³ ; A Rixen¹,³ ; L Vilugrón⁴
D Gonzales⁴ ; R Schillinger⁵, R Vides-Almonacid⁶

¹: CIRAD / UMR ART-Dev and UNA / CINPE ; ²: CIRAD– UR GREEN and CATIE- grupo CCC
³: Supagro; ⁴: Bosque Modelo Alto Malleco, Chile; ⁵: Asociación del bosque modelo Jujuy, Argentina
⁶: Fundación para la Conservación del Bosque Chiquitano (FCBC), Bolivia

Session “Equity and economic development: interdependencies”
Plan

• Introduction: a participatory modelling process that aims at making explicit sustainable issues (including equities) and at constructing collective action
• 1. Representing interactions in the SES to visualize the impacts of economic development on water security: three sites
• 2. The emergence of equity considerations in the representation of socio-ecological dynamics: comparative analysis
• 3. Possible responses to unsustainable dynamics and their implications for equity
• Conclusion: facing CC, a common problem, different types of equity issues
In the face of climate change, making sustainability issues explicit

Climate change: a “more hostile climate” affecting water flows
For adaptation to CC, water security is a rising challenge, to be understood in relation with economic development
More generally, CC adaptation strategies rely on a better understanding of Socio-Ecological System (SES) dynamics

SES dynamics depend on actors/resources interactions, institutions, and drivers of change

➔ How to build up collective action for community-based management to cope with CC?
➔ How equity issues arise when addressing CC adaptation?
3 territories and civil society organizations involved in EcoAdapt

- Bosque Modelo Chiquitano (BMCh, BO)
- Bosque Modelo Jujuy (BMJ, AR)
- Bosque Modelo Araucarias de Alto Malleco (BMAAM, CL)
<table>
<thead>
<tr>
<th>Dominant type of regulation</th>
<th>BMJ, AR</th>
<th>BMCh, BO</th>
<th>BMAAM, CL</th>
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</thead>
<tbody>
<tr>
<td>Hierarchy + collective action</td>
<td>Community + state interventions</td>
<td>Market</td>
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<thead>
<tr>
<th>Organization of water regulation</th>
<th>BMJ, AR</th>
<th>BMCh, BO</th>
<th>BMAAM, CL</th>
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</thead>
<tbody>
<tr>
<td>Irrigation consortium</td>
<td>Municipality</td>
<td>State authority</td>
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<thead>
<tr>
<th>Water use priority definition</th>
<th>BMJ, AR</th>
<th>BMCh, BO</th>
<th>BMAAM, CL</th>
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</thead>
<tbody>
<tr>
<td>Decree with priority principle (1) Human cons., (2) irrigated agriculture (tobacco, sugarcane, vegetable,...) (3) hydropower (4) industry</td>
<td>Depend on community decision</td>
<td>Water use rights regulated by market forces</td>
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Representing interactions in the SES, (P)ARDI conceptual modelling process

Adapted from ARDI (Etienne et al, 2011)

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<thead>
<tr>
<th><strong>P</strong></th>
<th><strong>AR-DI</strong></th>
<th><strong>PAR-D-I</strong></th>
<th><strong>PARDI</strong></th>
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<tbody>
<tr>
<td><strong>Objectives</strong></td>
<td>Issue / Problematic definition</td>
<td>Actors and Resources identification</td>
<td>Dynamic and Interaction characterization</td>
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<tr>
<td><strong>Protocol</strong></td>
<td>Ecoadapt Synthesis workshop (+ stakeholders’ workshops)</td>
<td>Ecoadapt Synthesis workshop Bibliographical revision (including Ecoadapt materials)</td>
<td>-Workshops -Focus groups -Interviews -Secondary data</td>
</tr>
<tr>
<td><strong>Main source of Information and knowledge</strong></td>
<td>Mainly based on existing accumulated knowledge from BM and researchers</td>
<td>Mainly based on new information raised from stakeholders</td>
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</tbody>
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The emergence of equity considerations

different aspects

In terms of economic power
- BMJ: upstream vs. downstream actors, in land use activities and agricultural intensification/artificialization
- BMCh: large holders – smallholders in livestock production
- BMAAM: water right owners vs. land owners for the development of new activities

⇒ Differences of perspective

In terms of environmental externalities issues and legal backing:
- BMJ: dependence towards the practices of upstream actors and lack of collective response
- BMCh: controversies given specific support to communal producers and lack of law enforcement
- BMAAM: non consumptive rights affecting more than expected water security and lack of effective monitoring

⇒ Latent conflicts
Conclusion

• Equity problem emerge in CC adaptation issue, even in intents to collectively set solutions
• Whatever institutions (Governance structure), equity issue remains
• Diversity of equity issues according to socio-ecosystems
• Further step
  • Define scenarios and adaptation plan
  • Analyze scenarios and adaptation option with an attention on equity issue
Thank you

jflecoq@cirad.fr
fallot@cirad.fr