Participatory research on the effectiveness of drainage – an example from the Red River Delta, Vietnam

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Effectiveness of drainage in the Red River Delta

- **Polders**: 1,000 – 10,000 ha
- **Centuries-old systems**
- **Densely populated** (1,000 persons per km²)
- **Rainfall**: 300 to 600 mm in a 3-5 day period
- **Rice (2x) followed by winder crop** (vegetables, maize)
Hypothesis of study

Capacity (physical infrastructure) and operation (institutional infrastructure) of the drainage systems constrains the performance of pumping stations regardless of their discharge capacity.
Complex infrastructure (physical)

Dual purpose irrigation & drainage system

Problems:
• System gradually expanded over time
• O & M poor
• Pressure on land increasing → less storage
Complex infrastructure (institutional)

Problems:
- extension not effective
- responsibilities
Complex social structure: many communities
Participatory research approach

Partners:

- Vietnam Institute for Water Resources Research
- Alterra
- Development for Women and Children
PLA Workshop with stakeholders

**Objectives:**
- To establish Sub-project Drainage Committees
- To quantify the stakeholder’s views on the problems, constraints and improvement options

**Participants:**
- Provincial Department of Agriculture and Rural Development (DARD) and People’s Committees;
- Irrigation and Drainage Management Committees (IDMC) and Hydraulic Groups;
- At commune level: leaders of the People’s Committees and Women and Farmer’s Associations;
- At village level: head of villages, irrigation teams and farmers;
- Study team.
### Outcome PLA Workshops

<table>
<thead>
<tr>
<th>Rank no</th>
<th>Trieu Duong Sub-drainage Area</th>
<th>Phan Dong Sub-drainage Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lack of culvert gates and valves</td>
<td>Some drains are too small</td>
</tr>
<tr>
<td>2</td>
<td>Lack of regulators</td>
<td>Inadequate regulations for violations</td>
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<tr>
<td>3</td>
<td>IDMC is not active due to lack of funding</td>
<td>Regulators are operated improperly</td>
</tr>
<tr>
<td>4</td>
<td>It is not possible to regulate water levels in sub-areas</td>
<td>Budget to dredge the drainage canals is insufficient</td>
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<tr>
<td>5</td>
<td>Drainage outlets to the rivers are too small</td>
<td>Operation in (some) sub-areas hampers the functioning of the main system</td>
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<tr>
<td>6</td>
<td>Investments are not done systematically</td>
<td>Monitoring by local authorities is not in time</td>
</tr>
<tr>
<td>7</td>
<td>Instructions from leadership are inadequate</td>
<td>Monitoring of IDMC is not in time and careless</td>
</tr>
<tr>
<td>8</td>
<td>Awareness of farmers is insufficient</td>
<td>Supervision, assessment, reports are unrealistic</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Awareness of farmer is limited</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Propaganda on canal protection is limited / has constraints</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Pumping station is the main source of the problems</td>
</tr>
</tbody>
</table>
Participatory investigations

Tools:
- village profile,
- village diagram,
- cropping calendar,
- Economic classification
- at household level and
- Venn diagram
PLA Workshops to discuss modelling outcomes

From simple to complex
PLA Workshops to prioritize improvement options

- Trash racks: not only at pumping station but throughout the polder
- Changing land use: urbanization ➔ more stakeholders ➔ different tasks for organisations (not only farmers)
- Structures often too small and at the wrong location
- On-farm management: extension
Outcome of the study:

- Conceptual design for improved drainage performance (both physical infrastructure as well as institutional) agreed upon by all stakeholders.

- Implementation manual: method for participatory diagnostic process to identify and quantify constraints in the functioning of drainage systems in other polders in the Red River Delta.
Conclusions

- Applied research is also action research
- Applied research does not have to be objective: the β-researcher brings in his/her knowledge to propose solutions
- Participatory research is an excellent tool for sustainable rural development
- Participatory research links tacit with explicit knowledge