



Community check dam in Mandla District of Madhya Pradesh (Dr Thomas Falk)

Experiential Learning Tools for Sustainable Water Management (India)

Experiential Learning Tools

DESCRIPTION

The project “Scaling up experiential learning tools for sustainable water governance in India” aimed at enhancing sustainable water management at scale by improving the capacities of 1,500 rural communities covering 105,000 households directly and 2,000 communities covering 140,000 households indirectly in six Indian states to manage water more sustainably. This was achieved through experiential learning from collective action games, structured community debriefings, and participatory water planning tools that contribute to greater awareness and improved governance, inducing behavioural change toward more sustainable water governance and management.

The work was jointly conducted by the Foundation for Ecological Security, India (FES), the International Food Policy Research Institute (IFPRI) and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).

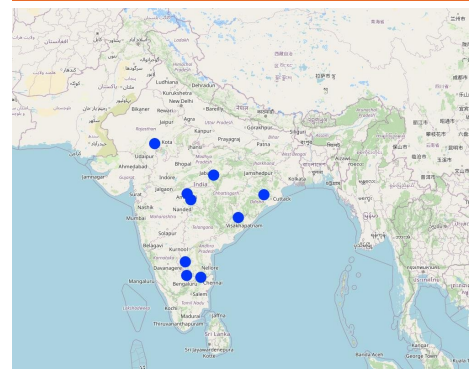
The project team adopted a holistic approach to water governance, considering the complex interconnections between water, land, livelihoods, people, and institutions. Rather than viewing groundwater in isolation, the team promoted the conjunctive use of surface and groundwater for irrigation, integrating both supply- and demand-side strategies to water management. Their approach included harnessing data, experiential learning, capacity building, participatory planning, and strategic communication to initiate behavioural change among actors at both community and broader levels.

At the community level, the team focused on shifting behaviour towards sustainable water use by farmers and local communities. They employ tools like the Groundwater Monitoring Tool (GWMT) for collective resource monitoring, experiential learning games and debriefing for social learning, and Crop Water Budgeting (CWB) for participatory water management, sensitization to leveraging funds of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), scientific and participatory planning through the Composite Landscape Assessment and Restoration Tool (CLART). These tools aim at enhancing the understanding of water as a shared resource, at developing the capacity of community resource persons, at fostering collective decision-making, and at encouraging the adoption of water-efficient practices.

Aiming to influence higher-level actors, the project engaged in multi-actor platforms (MAPs) and built coalitions to promote collaborative water governance. These platforms facilitated discussions among various stakeholders, aiming to bridge governance gaps and encourage coordinated actions. The project also provided training to civil society, government, and private sector actors on water governance, equipping them with the knowledge and tools necessary to adopt sustainable practices.

Overall, the project aimed at creating a web of interconnected interventions that influence the behaviour of stakeholders across different levels, ultimately leading to improved water governance and sustainable resource management.

LOCATION



Location: Chittoor and Anantpur District of Andhra Pradesh, Bhilwara district of Rajasthan, Mandala District of Madhya Pradesh, Anugul and Koraput district of Odisha, Chikbalapur district of Karnataka, Yavatmal and Amaravati District of Maharashtra, Andhra Pradesh, Rajasthan, Karnataka, Odisha, Maharashtra, and Madhya Pradesh States of India, India

Geo-reference of selected sites

- 77.60971, 14.68202
- 77.74149, 13.41404
- 74.65035, 25.37698
- 77.77832, 20.9218
- 78.15186, 20.39753
- 80.36011, 22.60019
- 82.72603, 18.7974
- 85.15966, 20.84019
- 79.10302, 13.24278

Initiation date: 2013

Year of termination: n.a.

Type of Approach

- traditional/ indigenous
- recent local initiative/ innovative



Channel Irrigation Game (Dron C)



Surface Water Game (Dron C)

APPROACH AIMS AND ENABLING ENVIRONMENT

Main aims / objectives of the approach

The approach shall support sustainable land management practices that reduce the proportion of land that is degraded. This contributes to improved food security and strengthens resilience and adaptive capacity of communities through improved water management and irrigation. The approach embeds the ambition to empower women and marginalized groups in their contributions to agriculture and society in general. These impact ambitions shall be achieved through behavioural changes in three domains:

1. Water supply side provisioning actions (mainly investments in and maintenance of minor water harvesting structures, such as dams, tanks, or small check dams).
2. Institutional service provision actions (mainly participatory formulation and enforcement of local by-laws on water management).
3. Water appropriation actions (mainly the use of water efficient agricultural technologies, esp. the consideration of crop water requirement in crop choices).

The outcomes of the interventions are seen in the light of needs and capacities of marginalized groups, esp. women and youth. The behavioural changes shall be achieved by influencing the system understanding and norms using the systemic experiential learning approach outlined above.

Conditions enabling the implementation of the Technology/ ies applied under the Approach

- **Social/ cultural/ religious norms and values:** 1. Legal quota for women representation in local government bodies. 2. Inclusion of women farmers who are involved in selection of crops at household level and in decisions on the maintenance of common water infrastructures.
- **Institutional setting:** The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) can be leveraged to support sustainable water management.
- **Collaboration/ coordination of actors:** A cross-sectoral alliance called "The Promise of Commons" creates a strong movement also with regards to sustainable water management.
- **Legal framework (land tenure, land and water use rights):** Recent revisions of Government support mechanisms such as minimal support prices also include water efficient crops.
- **Policies:** 1. Diverse Central Government and State level policies, guidelines and regulations support participatory and sustainable watershed management. 2. Policies that favour participatory management of water resources and focus on behaviour change such as Atal Bhujal Yojana. 3. Policies that support zoning of rice production based on water tables.
- **Knowledge about SLM, access to technical support:** Watershed interventions have a long history in India and there is widespread knowledge about sustainable soil-water management practices
- **Markets (to purchase inputs, sell products) and prices:** Supporting development of market opportunities for less-water consumptive crops and their products.
- **Workload, availability of manpower:** The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) also supports work of local communities on soil-water management.

Conditions hindering the implementation of the Technology/ ies applied under the Approach

- **Social/ cultural/ religious norms and values:** Depending on the state, social norms prevent women to freely speak in the presence of men.
- **Institutional setting:** 1. Subsidies (especially on energy) and other support mechanisms discourage sustainable water management. 2. Changing rules about water use sometimes requires longer time for deliberation and policy making.
- **Collaboration/ coordination of actors:** Multiple stakeholders often act in their own silos.
- **Legal framework (land tenure, land and water use rights):** Water rights are connected to land rights creating the widespread perception that water underneath ones land can be used without restrictions.
- **Policies:** 1. Policies that give price guarantees by way of a minimum support price for farmers for growing water intensive crops. 2. Energy subsidies encourage intensive groundwater pumping.
- **Knowledge about SLM, access to technical support:** Most implementing organizations including the government focus on supply side water management interventions.
- **Markets (to purchase inputs, sell products) and prices:** 1. Consumer preferences favor water intensive commodities. 2. Rising salary level for farm labor

- **Workload, availability of manpower:** Low labor requirements of flood-irrigated rice production make many farmers prefer this water-consuming cropping system compared to more water-efficient production systems.

PARTICIPATION AND ROLES OF STAKEHOLDERS INVOLVED

Stakeholders involved in the Approach and their roles

What stakeholders / implementing bodies were involved in the Approach?	Specify stakeholders	Describe roles of stakeholders
local land users/ local communities	Farmers who are using common or private water resources for cultivation of post rainy-season crops.	Building the capacity of water resource (Private or common) user.
community-based organizations	1. Foundation for Ecological Security (FES) 2. Water User Associations 3. Farmers groups 4. Women self-help groups 5. Pasture land development committees 6. SLM specialists / agricultural advisors 7. Sanjeevani Institute for Empowerment and Development (SIED) 8. PRADAN 9. VIKSAT 10. Reliance Foundation 11. Swadesh Foundation	Building the capacity of water resource (Private or common) user
SLM specialists/ agricultural advisers	IFPRI (https://www.ifpri.org) ICRISAT (https://www.icrisat.org) FES (https://fes.org.in)	Technical support to the design of the approach
private sector	Cotton Connect (https://www.cottonconnect.org/)	Cotton Connect provide farmers with the training, education and tools they need to improve their productivity, income and profitability.
international organization	1. International Food Policy Research Institute, IFPRI 2. International Crops Research Institute for the Semi-Arid Tropics, ICRISAT	Supporting with agricultural and food policy research
Government Partners	1. Atal Bhujal Yojana National Program Management Unit (NPMU), 2. Odisha Agriculture Department & Odisha Livelihoods Mission	The goal of Atal Bhujal Yojana (Atal Jal) is to demonstrate community-led sustainable groundwater management which can be taken to scale. The major objective of the scheme is to improve the management of groundwater resources in selected water-stressed areas and states. Odisha Livelihood Mission has put in place a dedicated and sensitive support structure, to take the rural poor households out of poverty line through capacity building, financial assistance and self-reliant institutions.

Lead agency

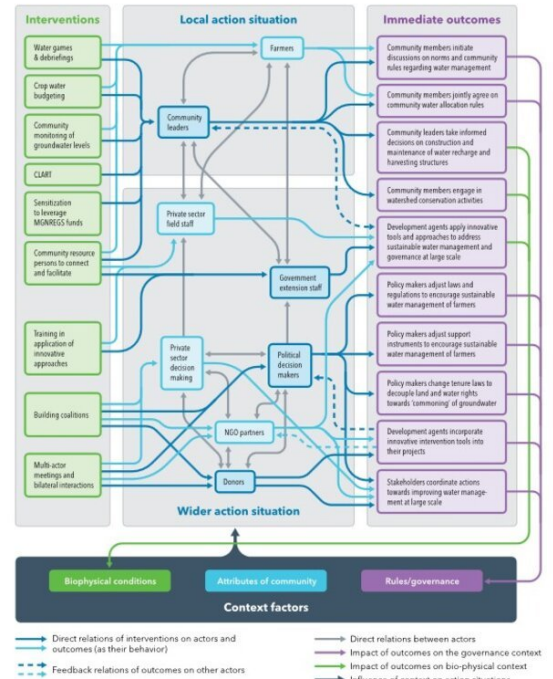
Foundation for Ecological Security (Pratiti Priyadarshini)

Involvement of local land users/ local communities in the different phases of the Approach

	none passive external support interactive self-mobilization	
initiation/ motivation	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>The Foundation for Ecological Security (FES) has local presence in the Districts targeted with direct interventions. The NGO expressed the need for advancing their toolbox through established and trustful relations to local communities, FES consulted communities regarding their main water management challenges. The results of these consultations formed the basis for the design of the intervention strategy and the development of the approach. Specific communities were selected based on their interest in improving water management and the severeness of water management challenges they face. Within the villages, especially households living close to water resources and enjoying benefit from the water resources and farmers who own private groundwater pumps were invited to participate in activities.</p>
planning	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>The planning of the implementation of interventions was mainly done by the project partners, most importantly the Foundation for Ecological Security. FES trained local community members to become Community Resource Person (CRP). CRPs organize the implementation of specific interventions in interaction with community members.</p>
implementation	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	<p>Community members actively participated in experiential learning games, participatory crop water budgeting, the participatory planning of water infrastructure investments using CLART, focus group discussions, debriefings and bilateral interactions.</p>
monitoring/ evaluation	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<p>After the interventions, CRPs work closely with the communities and, if needed, FES helps community members to formulate or revise water rules and by-laws. Community members monitor the water table of their wells.</p>

Flow chart

Interconnections between actors and interventions



Author: Sanil, Falk, Meinen-Dick, Priyadarshini (2024)

Decision-making on the selection of SLM Technology

Decisions were taken by

- land users alone (self-initiative)
- mainly land users, supported by SLM specialists
- all relevant actors, as part of a participatory approach
- mainly SLM specialists, following consultation with land users
- SLM specialists alone
- politicians/ leaders

Decisions were made based on

- evaluation of well-documented SLM knowledge (evidence-based decision-making)
- research findings
- personal experience and opinions (undocumented)
- Experience of CRPs and local key informants; Lessons and highlights emerging from diagnostic and consultation processes

TECHNICAL SUPPORT, CAPACITY BUILDING, AND KNOWLEDGE MANAGEMENT

The following activities or services have been part of the approach

- Capacity building/ training
- Advisory service
- Institution strengthening (organizational development)
- Monitoring and evaluation
- Research

Capacity building/ training

Training was provided to the following stakeholders

- land users
- field staff/ advisers
- Government officials, community members

Form of training

- on-the-job
- farmer-to-farmer
- demonstration areas
- public meetings
- courses

Subjects covered

1. Conceptual background of the approach
2. Demonstrations
3. Teaching the facilitation steps of the different tools
4. Exercising among the trainees and supervised implementation with community members.
5. Experiential learning games, crop water budgeting, CLART, and debriefings.

Advisory service

Advisory service was provided

- on land users' fields
- at permanent centres
- Private and civil society actors

Government, private sector and civil society actors provide advisory services. The whole approach of the project is based on the idea of social learning where participants find own solutions based on gaining a better understanding of and activating social norms related to the hydrological system, the management challenge, associated social dilemmas, and possible solutions. This approach is very distinct from a typical one-directional advisory service.

Institution strengthening

Institutions have been strengthened / established

- no
- yes, a little
- yes, moderately
- yes, greatly

at the following level

- local
- regional
- national

Describe institution, roles and responsibilities, members, etc.

The approach has a clear intention to strengthen local water governance. In pilot studies, we found that communities who participated in experiential learning games were more likely to adopt water registries as a water planning method.

Type of support

- financial
- capacity building/ training
- equipment

Further details

Research

Research treated the following topics

- sociology
- economics / marketing
- ecology
- technology

In addition to the aforementioned impact assessment, we conducted research to conceptualize behavioural change mechanisms associated with experiential learning. We also synthesized lessons learned with regards to design features of tools, assessed effects of women's participation, and developed a theory of system-level change to guide implementations and inform future programs in the area.

FINANCING AND EXTERNAL MATERIAL SUPPORT

Annual budget in USD for the SLM component

- < 2,000
- 2,000-10,000
- 10,000-100,000
- 100,000-1,000,000
- > 1,000,000

Precise annual budget: n.a.

The described approach has been implemented in multiple stages with different funding sources. Training 1.086 local community members in applying the experiential learning tools and conducting experiential learning sessions with 12.000 community members participated in more than 1.200 experiential learning sessions was implemented with a budget of 1.2 Mio Euro. According to our estimates, conducting one experiential learning session at one site costs between 70 and 120 USD depending on accessibility and the need for facilitation of other stakeholders. This includes the time of facilitators, transport, materials and initial training.

The following services or incentives have been provided to land users

- Financial/ material support provided to land users
- Subsidies for specific inputs
- Credit
- Other incentives or instruments

IMPACT ANALYSIS AND CONCLUDING STATEMENTS

Impacts of the Approach

Did the Approach empower local land users, improve stakeholder participation?

Community members voluntarily participated in the experiential learning sessions. It brought together different stakeholders at the village level and initiated discussion around water management.

- No
- Yes, little
- Yes, moderately
- Yes, greatly

Did the Approach help land users to implement and maintain SLM Technologies?

In a study in Madhya Pradesh in 2018, we found evidence that two years after the intervention, key informants of communities who participated in experiential learning sessions reported with an approximately 20 percent higher probability that maintenance activities of common local water harvesting structures had taken place. An impact assessment, comparing 314 randomly selected treatment sites with 158 control sites confirmed that participants in interventions made stronger efforts to maintain local water harvesting structures and, if cultivating crops in the post-rainy season, reduce the size of the cultivated area.

- No
- Yes, little
- Yes, moderately
- Yes, greatly

Did the Approach improve coordination and cost-effective implementation of SLM?

The approach brought together different stakeholders from the village to the central government level and initiated discussion around water management.

- No
- Yes, little
- Yes, moderately
- Yes, greatly

Did the Approach improve knowledge and capacities of land users to implement SLM?

More than 52.000 community members participated in more than 5200 experiential learning sessions. The participatory crop-water budgeting and common water infrastructure planning exercises provided communities with additional information towards better informed decisions. In an impact assessment, comparing 314 randomly selected treatment sites with 158 control sites we did not find that water related system-understanding improved in the dimensions assessed. Given that we observed behavioural changes and a high level of system understanding during the

- No
- Yes, little
- Yes, moderately
- Yes, greatly

baseline assessment, we hypothesize that knowledge was either not the constraining factor or that our assessment did not capture the most relevant knowledge dimensions being affected by the intervention.

Did the Approach empower socially and economically disadvantaged groups?

•We have implemented the experiential learning tools in areas having small and marginal farmers and marginalized communities, such as Scheduled Casts and Scheduled Tribes. •An impact assessment, comparing 314 randomly selected treatment sites with 158 control sites found that women reported, after participating in experiential learning sessions, a greater likelihood of their participation in agricultural decision processes.



Did the Approach improve gender equality and empower women and girls?

An impact assessment, comparing 314 randomly selected treatment sites with 158 control sites found that women reported, after participating in experiential learning sessions, a greater likelihood of their participation in agricultural decision processes.



Did the Approach lead to improved food security/ improved nutrition?

We have no related evidence but assume that improved maintenance of common water infrastructure improved post-rainy season water supply including for irrigation and food production. The approach intended to trigger a shift of farmers to more water efficient crops. In our impact assessment, we do not find a significant change towards water efficient crops. Given that in our project region, water is the main constraining production factor, a shift towards water efficient crops would simultaneously improve sustainable water management and food production. We find, however, that farmers who participated in the interventions reduced the cultivated area in the post-rainy season. While this contributes to more sustainable water management and long-term food production, it may create unintended trade-offs with short-term food production. The partners continue refining the approach to address this effect.



Did the Approach improve the capacity of the land users to adapt to climate changes/ extremes and mitigate climate related disasters?

Sustainable water management including water harvesting strongly contributes to communities' capacities to cope with climate change which increases the frequency of extreme events such as high rainfall events, droughts, and dry spells.



Main motivation of land users to implement SLM

Water Governance

Sustainability of Approach activities

Can the land users sustain what has been implemented through the Approach (without external support)?

- no
- yes
- uncertain

The actual SLM activities (especially maintaining water harvesting structures and growing water-efficient crops) are not done by the project but the community members themselves. The presented approach creates the space for communities to find their own solutions to water management challenges. Such solutions are with a higher likelihood tailored to the local context. The partners further assume that communities develop a strong sense of ownership to their solutions which creates motivation to implement them. Rules formulated by the communities may require less external enforcement as they are followed based on intrinsic motivations. The partners acknowledge possible constraints in terms of labour and materials. For this reason, the Foundation for Ecological Security supports communities to effectively leverage government funds. Most notable is the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) as a permanent large-scale government program with dual focus on improving rural livelihoods through creation of durable assets and strengthening local governance. MGNREGS allows communities to demand financial support for investments in construction and maintenance of natural resource management assets on public and individual lands.

CONCLUSIONS AND LESSONS LEARNT

Strengths: land user's view

- Please see Section 6.2. In general, the approach helps community members to initiate discussion on water issues. The games help in reinforcing the idea of water as a common good. Most elements of the toolbox bring together different stakeholders from the village to the district level and facilitate collective social learning. The debriefing sessions also allow discussion, deliberation, and relating game outcomes and learnings to their real-life challenges and solutions. The crop water budgeting helps in planning which crops to grow collectively after assessing the water situation. It offers space for all community members to deliberate on crop choice and consider various aspects before deciding on certain crops.

Strengths: compiler's or other key resource person's view

- There is growing recognition of the potential of experiential learning, which by definition includes experiencing, reflecting, and experimenting to support communities in finding own solutions.

Weaknesses/ disadvantages/ risks: land user's view how to overcome

- Community members need to mobilize own resources and may feel overtrained in implementing own solutions. Local level partners and government can assist in supporting communities in the process of implementing solutions. Linking communities to permanent support structures such as the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) may be essential.
- Improving sustainable water use can create short-term trade-offs with food production. The approach intends to support solutions which do not create long-term trade-offs with food production. Facilitators can create awareness for such trade-offs. Learning tools can make such trade-offs more explicit and identifiable.
- Swelling but hidden conflicts related to resource distribution and free-riding behaviour may break open. It is important to note that the approach would not create conflict but only make conflicts

The approach contrasts with more formal presentations of abstract knowledge that are common in many forms of teaching, or costly learning by doing in real-life. For instance, games create a relatively low-risk forum for experiencing and discussing the complexities of social-ecological systems and allow for exploring behaviour that is too risky in real-life. This can lead directly into inventing and negotiating own rules, including enforcement mechanisms. Players can experiment with rule making and can take this experience into the interaction with the wider community. As the exercise can trigger constructive interaction of resource users and other stakeholders, the resulting social learning effect can potentially go beyond the specific issue or framing of the game to supporting the development of institutional capacity for sustainable commons management. As experiential learning supports participants in finding own solutions, these solutions are likely to be better adapted to the specific social-ecological systems and, therefore more accepted. This increases the likelihood of behavioural change.

- The main advantage of the approach is its clear structure which makes it relatively easy to learn and replicate it at large scale. The cooperation with government partners confirms the strong demand for replicable and scalable behavioural change tools in the context of water management.

visible. The games allow to discuss behaviour which is the source of conflict in a setting where it can be played in a symbolic way without pointing at any specific person. Firmly embedded community organisations such as the panchayat having a mandate to coordinate community issues is essential. Facilitators should be sensitized for signs of open conflicts and act sensitively. If necessary, they can support finding an adequate moderator.

Weaknesses/ disadvantages/ risks: compiler's or other key resource person's view how to overcome

- Facilitators use inappropriate tools leading to inappropriate solutions. Decision support tools were developed to guide facilitators appropriately. Taking the approach to new geographies requires a good idea of the management challenges. There may be need to adapt tools to new contexts.
- Facilitators are impatient and fall back into a teaching mode. Emphasizing the value of experiential learning and creating trust in the creative potential of communities needs to be a priority in facilitator trainings.
- Communities think only within the space of existing knowledge The approach can be combined with the sharing information on innovative technologies.
- Policy and market dynamics override local level initiatives Local level experiential learning needs to be embedded into a system level multi-stakeholder process. For instance, in our case, government officials needed to be aware of the problematic incentives created by energy subsidies, current minimal support price mechanisms and other farmer support systems. Building coalitions, multi-actor platforms and bilateral interactions need to part of the intervention strategy.
- Unintended gender dynamics may appear Great care needs to be taken on decisions such as whether to conduct mixed-sex sessions or sessions with women only. A good understanding and consideration of specific dynamics is essential.
- A once-off intervention may be too weak to create a lasting effect. If this is observed, the experiential learning interventions should be repeated. Important is to apply the combination of tools not only because they build on each other but also to sustained interaction with the community.
- In the presence of elite groups, members of marginalized groups will not interact The facilitator can navigate the discussion so that all groups are adequately represented. The facilitators are to be trained so to be more sensitive in the facilitation. If this is insufficient to ensure equal participation, conducting separate sessions with marginalised groups may be required, at least as a preparatory step.

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Full description in the WOCAT database

https://qcat.wocat.net/af/wocat/approaches/view/approaches_7289/

Linked SLM data

n.a.

Documentation was facilitated by

Institution

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- IFPRI International Food Policy Research Institute (IFPRI) - United States
- the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

Project

- Experiential Learning Tools for Sustainable Water Management in India

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Links to relevant information which is available online

- Scaling up experiential learning tools for sustainable water governance in India: <https://www.ifpri.org/project/scaling-experiential-learning-tools-sustainable-water-governance-india>
- Sourcebook: https://fes.org.in/resources/sourcebooks,manuals,atlases-&-ecoprofiles/sourcebooks/strengthening_governance_and_management_of_water_as_commons_May_2022.pdf
- Crop Water Budgeting (CWB): <https://www.indiaobservatory.org.in/tool/cwb>

- Groundwater Monitoring Tool (GWMT): <https://wmt.indiaobservatory.org.in/dashboard/map-dashboard>
- Composite Landscape Assessment and Restoration Tool (CLART): <https://www.indiaobservatory.org.in/tool/clart-det>
- Surface Water Game Manual: <https://gamesforsustainability.org/practitioners/#surface-water-game>
- Channel Irrigation Game: <https://gamesforsustainability.org/practitioners/#chanel-irrigation-game>
- Dam Maintenance Game: <https://gamesforsustainability.org/practitioners/#game-on-managing-check-dams>
- Groundwater Game: <https://gamesforsustainability.org/practitioners/#groundwater-game>

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