

Evidences

Study #3335

Contributing Projects:

- P662 - 5.2.1 Governing Shared Landscapes

Part I: Public communications

Type: OICR: Outcome Impact Case Report

Status: New

Year: 2019

Title: Experimental games scaled out to 250,000 households to improve ground and surface water governance in India

Short outcome/impact statement:

In India, rapid decline in groundwater levels is a serious challenge in many areas. With support from PIM and WLE, IFPRI partnered with the Foundation for Ecological Security, a major Indian NGO, to develop and test the use of experimental games to strengthen groundwater governance at the community level. ICRISAT developed similar tools for managing surface water. These tools are being scaled out to over 3,700 communities involving some 250,000 households in at least six Indian states.

Outcome story for communications use:

A pilot project in Andhra Pradesh showed that playing games on natural resource management can enhance communities' understanding of the constraints on resources and increase adoption of rules for managing groundwater [1] and surface water resources. Based on these promising results, these games will be scaled out to about a quarter of a million households ([2], [3]) across six Indian states with support from Germany's Federal Ministry of Economic Development and Cooperation.

Groundwater is a particularly challenging common-pool resource to manage. Because many factors influence its availability (rainfall, state policies, local rules and individuals' choices) it can become easily depleted. In addition, well owners cannot see how their extraction of water affects groundwater stocks or the ability of their neighbors to access water. In Andhra Pradesh, the number of wells and land irrigated by groundwater has almost tripled in 30 years. In 2008, 300 of the state's 1,227 groundwater blocks (sub-district administrative units) were considered as critical or overexploited [4], with an additional 200 classified as semi-critical.

Experimental games help reveal how players can be motivated to cooperate for improved use of common-pool resources. Seeking to investigate if these games can prompt cooperation in real-life, IFPRI (with support from WLE) partnered with the Indian NGO Foundation for Ecological Security (FES) and Arizona State University to introduce a groundwater game ([5], [6]) which proved helpful [7] for communities struggling with groundwater depletion. In this game, participants choose between growing Crop A, yielding modest income but requiring little water, and growing Crop B, lucrative but water intensive. The more participants pick Crop B, the faster the groundwater level drops. Two years on, a significantly higher proportion of game-playing villages adopted groundwater management rules compared to non-game-playing communities.

At the same time, with PIM support, ICRISAT developed the same type of games for surface water management.

Scaling out these tools across India is expected to save precious water resources.

Links to any communications materials relating to this outcome:

- <https://tinyurl.com/yd45eps4>
- <https://tinyurl.com/ychsrgfa>
- <https://www.ifpri.org/blog/innovations-stimulating-improved-water-management>
- <https://tinyurl.com/ydcuya6u>
- <https://tinyurl.com/y7a3jl3u>
- <https://tinyurl.com/y9jzfcc8>

Part II: CGIAR system level reporting

Link to Common Results Reporting Indicator of Policies : No

Stage of maturity of change reported: Stage 2

Links to the Strategic Results Framework:

Sub-IDs:

- Land, water and forest degradation (Including deforestation) minimized and reversed
- Increased capacity for innovation in partner development organizations and in poor and vulnerable communities
- More productive and equitable management of natural resources

Is this OICR linked to some SRF 2022/2030 target?: Too early to say

Description of activity / study: <Not Defined>

Geographic scope:

- Sub-national

Country(ies):

- India

Comments: <Not Defined>

Key Contributors:

Contributing CRPs/Platforms:

- WLE - Water, Land and Ecosystems
- PIM - Policies, Institutions, and Markets

Contributing Flagships:

- F5: Governance of Natural Resources

Contributing Regional programs: <Not Defined>

Contributing external partners:

- MANAGE - National Institute of Agricultural Extension Management
- ASU - Arizona State University
- FES - Foundation for Ecological Security
- Department of Agriculture (Andhra Pradesh, India)
- BMZ - Bundesministerium für wirtschaftliche Zusammen-arbeit und Entwicklung / Federal

Ministry of Economic Cooperation and Development (Germany)

CGIAR innovation(s) or findings that have resulted in this outcome or impact:

See below.

Innovations:

- 97 - Collective action games to strengthen resource governance in India (<https://tinyurl.com/2k3nw64m>)

Elaboration of Outcome/Impact Statement:

Groundwater is one of the most challenging resources to manage, resulting in overuse in many areas of India. In 2013-2014, IFPRI received funding from WLE to develop a proof of concept on using experimental games for strengthening groundwater governance to address groundwater table declines in the hardrock aquifers in India ([5], [6]) in collaboration with the Foundation for Ecological Security (FES) - an Indian NGO with community workers operating in thousands of communities in several states [8].

Proof of concept was followed by piloting in 20 communities in Andhra Pradesh, where the use of these tools was shown to significantly increase adoption of rules for groundwater management [1], [7]. The Indian partner conducted experimental learning interventions in 200 additional communities (working with approximately 14,000 households) in the states of Karnataka, Maharashtra and Rajasthan.

In parallel, with PIM support, ICRISAT developed the same type of games for surface water management [9].

Based on the promising results of the games, the German Government awarded IFPRI and ICRISAT funding to scale groundwater and surface water governance games to an additional 3,500 rural communities. About 250,000 households will benefit from this unprecedented resource management governance scaling up initiative [2], [3], [10], [11].

These efforts will be implemented through involvement of Foundation for Ecological Security's Prakriti Karyashalas or "rural colleges", which are training institutions designed to respond to the learning needs of rural communities, panchayats, government and NGO staff. Another key partner will be the National Institute of Agricultural Extension Management (MANAGE), India's premier training center for agricultural extension services, which has already piloted training on the approach.

The Andhra Pradesh Drought Mitigation Program plans to apply these tools in an additional 300 communities using its own funds. A number of other organizations have expressed interest and signed memoranda of understanding with FES for additional scaling [2].

References cited:

- [1] Meinzen-Dick, R. S., Janssen, M. A., Kandikuppa, S., Chaturvedi, R., Rao, R. K., Theis, S. 2017. Playing games to save water: Collective action games for groundwater management in India. CBIE Working Paper Series 2017-001. <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll5/id/6076>
- [2] Scaling up experiential learning tools for sustainable water governance in India (BMZ, IFPRI Project). https://www.landw.uni-halle.de/prof/agrarpolitik/forschung/scaling_up_india/
- [3] Scaling up experiential learning tools for sustainable water governance in India (BMZ, IFPRI Project). Proposal and memorandum of understanding. Confidential.
- [4] Meinzen-Dick, R. S., Janssen, M. A., Kandikuppa, S., Chaturvedi, R., Rao, R. K., Theis, S. 2018. Playing games to save water: Collective action games for groundwater management in Andhra Pradesh, India. *World Development* 107(July 2018): 40-53. <https://doi.org/10.1016/j.worlddev.2018.02.006>
- [5] Ground Water Game for Practitioners. <https://gamesforsustainability.org/2015/12/05/groundwater-game-for-practitioners/>
- [6] Groundwater game practitioners' manual. 2017. https://gamesforsustainability.org/Groundwater_Game_for_Practitioners_Manual.pdf
- [7] IFPRI blog post "World Water Week: Experimental games spark community cooperation on groundwater in India". 2017. <https://www.ifpri.org/blog/world-water-week-experimental-games-spark-community-cooperation-groundwater-india>
- [8] Meinzen-Dick, R. S., R. Chaturvedi, R., Domenech, L., Ghate, R., Janssen, M. A., Rollins, N., Sandeep, K. 2016. Games for groundwater governance: Field experiments in Andhra Pradesh, India, *Ecology and Society* 21(3):38. <http://dx.doi.org/10.5751/ES-08416-210338>
- [9] Falk, T., Kumar, S., Srigiri, S. 2019. Experimental games for developing institutional capacity to manage common water infrastructure in India. *Agricultural Water Management* 221:260-269. <https://www.sciencedirect.com/science/article/abs/pii/S0378377418312708>
- [10] Foundation for Ecological Security. 2020. Water Commons -Influencing Practice and Policy. Progress of the project for the period April 2019-March 2020. Missing Dropbox link.
- [11] Memorandum of Understanding FES and State of Maharashtra through District Collector Yavatmal, dated January 2019. <https://www.dropbox.com/s/532cwo4yda7ab69/MoU%20between%20Maharashtra%20and%20FES.pdf?dl=0>

Quantification: <Not Defined>**Gender, Youth, Capacity Development and Climate Change:****Gender relevance:** 1 - Significant

Main achievements with specific **Gender** relevance: Separate games were played with men and women to understand gender differences in perceptions.

Youth relevance: 0 - Not Targeted**CapDev relevance:** 1 - Significant

Main achievements with specific **CapDev** relevance: The project builds capacity of communities to manage water.

Climate Change relevance: 0 - Not Targeted**Other cross-cutting dimensions:** No

Other cross-cutting dimensions description: <Not Defined>

Outcome Impact Case Report link: [Study #3335](#)

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