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"Reconcile land system changes
with planetary health"

Effectiveness of games for experiential learning and collaborative governance of groundwater in India

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Abstract

Experiential learning games are increasingly applied as participatory engagement tools to improve resource management, strengthen self-regulation of resource use and enhance constructive interaction of resource users. Pilot studies have shown that combining games with community debriefings and technical planning instruments can support institutional and behavioural change supporting sustainable land and water management. Nevertheless, there is poor evidence on the potential of experiential learning games to achieve impact on a larger scale. We assess the potential of experiential learning in the context of groundwater management in India. Groundwater management requires effective coordination among users. In India, this coordination is still poor which is one explanation for half of all wells showing falling water tables. We applied a package of experiential learning interventions for groundwater management in 1,779 communities in five states of India, intended to improve water users' system understanding, strengthen water related norms, support local water governance, and trigger sustainable land and water management. This consisted of 1) collective action games,2) structured community debriefings to discuss the outcomes of the game, and 3) crop water budgeting for participatory water use planning. A rigorous impact assessment was conducted in 472 communities. Our results indicate that individuals who participated in the interventions were more likely to report contributions to the maintenance of community water infrastructure. After participating in the interventions, participants who cultivated in the post-rainy season reported cultivating significantly smaller plots compared to control sample respondents. Further, women were more likely to report participating in household crop choice decisions after playing the game. We also found that in communities where the intervention was conducted, it was significantly more likely that water management rules were introduced or changed than at control sites. However, we did not find the expected effect on knowledge, norms. This challenges our theory of change which assumed that institutional and behavioural change follows understanding

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and norms. Our results confirm the ability of experiential learning games to support collective action. At the same time, we see the need to better understand the mechanisms of how they trigger behavioural change, especially when being applied on a larger scale.

Keywords: Impact assessment, India, participatory methods, water-Land-Food Nexus