

Case Study: Turning Research into Practice through Play – The Sand River Game

Bridging Complexity and Engagement through Serious Games

Feeding complex research with practical knowledge and understanding can be challenging, especially when engaging diverse audiences such as policymakers, researchers, and local communities. The *Sand River Game* demonstrates how serious games can bridge this gap - sharing learning experiences that influence real-world practice.



From Research to Game Design

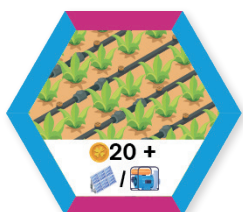
Developed under the **A4Store Project** ("Smallholder Farming Families Adapt African Alluvial Aquifers to Strengthen Their Own Resilience"), the *Sand River Game* emerged from a global collaboration between the **University of Zimbabwe**, **IHE Delft Institute for Water Education**, **Indian Institute of Technology Delhi**, and **Focus Games Ltd**.

Built on the **Adaptive Investment Pathways (AdIP)** research framework, the game translates theoretical models of sustainable irrigation investment into a participatory, scenario-based experience. Interdisciplinary teams of scientists, policy specialists, and game designers co-created, tested, and refined the game to ensure both educational rigor and contextual realism.

Simulating Real-World Decisions

In the *Sand River Game*, players act as farming households managing irrigated fields along a shared sand river. Over several simulated seasons, they make strategic decisions on technology investments, crop choices, market access, and cooperation. Random "event cards" introduce droughts, pests, equipment breakdowns, or market fluctuations - mirroring the uncertainties of real farming systems. At times also one-off payments of family living abroad or support from NGOs.

Through play, participants experience the trade-offs central to sustainable irrigation - balancing profit, equity, and environmental stewardship - while engaging with the same decision dynamics that researchers study in the field.



Field Testing and Impact

The game was piloted in **Zimbabwe** with smallholder farmers, policy practitioners, and academic partners. Farmers quickly recognized their realities in the simulation - sparking lively discussion about cooperation, risk management, and technology choices.

"It felt real - we were talking about our own challenges," one farmer reflected after playing.

Insights from these sessions directly informed game refinements, such as integrating pest events, adjusting crop options, and simplifying scoring systems. This iterative, evidence-driven design process ensured the game remained both accessible and accurate.



From Engagement to Learning and Action

The *Sand River Game* will be used for **policy dialogues, academic workshops, and farmer discussion sessions** in **Zimbabwe**, with the intention of extending its use to **Kenya, Ethiopia, and Mozambique**. It will help stakeholders collectively explore investment strategies, governance challenges, and resilience planning in a low-risk, engaging environment.



Key outcomes include:

- **Deepened understanding** of irrigation technology choices and collective action among farmers and government or NGO practitioners.
- **Enhanced understanding** among policymakers of the choices and risks involved in smallholder irrigation.
- **Increased motivation** among farmers to invest in sustainable solutions, such as solar irrigation.
- **Enhanced dialogue** between farmer, researchers and policymakers, grounding policy conversations in shared experience.

A Model for Translational Research

The *Sand River Game* exemplifies the potential of serious games to **translate research into practice and vice versa**. Its rigorous, co-designed development process ensured fidelity to scientific insights, while its participatory format made those insights accessible, tangible, and actionable.

As it continues to scale across regions and disciplines, the *Sand River Game* stands as evidence that **games are more than tools for play - they are catalysts for learning, collaboration, and change**.

Focus Games is an award-winning company with a strong portfolio of participatory, evidence-based game design. *Focus Games* is open to collaborating on new projects - across any domain - where complex research, stakeholder engagement, or behavioural insight needs to be translated into practice.