



**THE MINIGRID GAME**  
**A PARTICIPATORY GAMING APPROACH TO**  
**COMMUNITY ENERGY PLANNING**

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Regional Director for Southeast Asia



Energy  
Action  
Partners





## ENERGY ACTION PARTNERS

was founded in 2014 as a nonprofit organization with a mission to promote community development through training, capacity building and development projects related to sustainable energy.

We maintain offices in Boston, Kuala Lumpur, and Hargeisa in Somaliland.



### OUR MISSION

To expand individual opportunity and strengthen communities through collaborative programs focused on sustainable energy access.



### VISION

To promote resilient and inclusive communities while preserving social cohesion, a strong sense of identity, and community values.



### CORE VALUES

We prioritize human development outcomes over infrastructure provision.



## Poorly sized system

Unable to meet community demand or ability to pay



## Insufficient savings

Tariff is too low to afford maintenance or repairs



## Load curtailment conflicts

“Unfair” load shedding during dry seasons



## Insufficient revenue

Ineffective enforcement leads to underpayment or theft

## Poor maintenance

Initial funding dries up and no one takes over O&M

## No productive use

Investment in machinery not coordinated with system design



**COMMON NON-TECHNICAL  
MINIGRID CHALLENGES**

**STRONGER RELIANCE ON COMMUNITY PARTICIPATION IN PLANNING AND  
MANAGEMENT CAN MITIGATE MANY OF THESE CHALLENGES**



## WHY COMMUNITY PARTICIPATION?



1. **Receiving information** from the community leads to better design.
2. **Educating community** improves user cooperation and enhances their ability and motivation to look after the system.
3. **Involving community** in planning and management can leverage local authority and make a system more resilient to future challenges.





- ▶ **Human capabilities approach**  
Who chooses?  
How are these choices made?
- ▶ **Community microgrids as a Common Pool Resource**



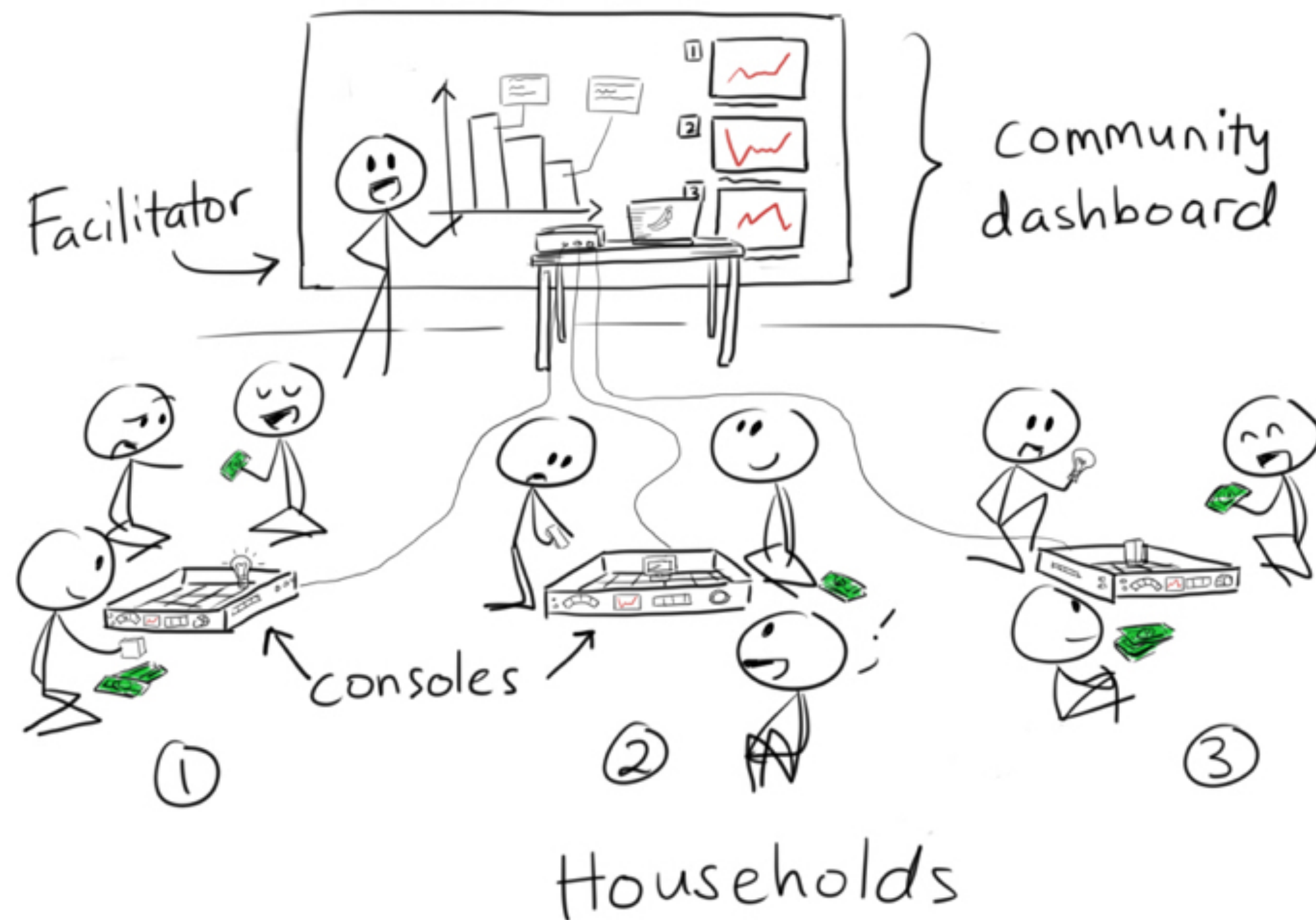
## WHY A GAME?

- ▶ **Engaging:** playful environment increases attention and interest
- ▶ **Experiential:** players learn by direct experience through simulation
- ▶ **Self-mobilizing:** players become active participants while external actors become facilitators
- ▶ **Non-judgmental:** simulated world allows exploration of taboo topics
- ▶ **Consensus building:** cooperative game requires discussion and collaborative decision-making





## WHAT IS THE MINIGRID GAME?



It's both a **participatory minigrid design** and planning tool and an **educational** tool.

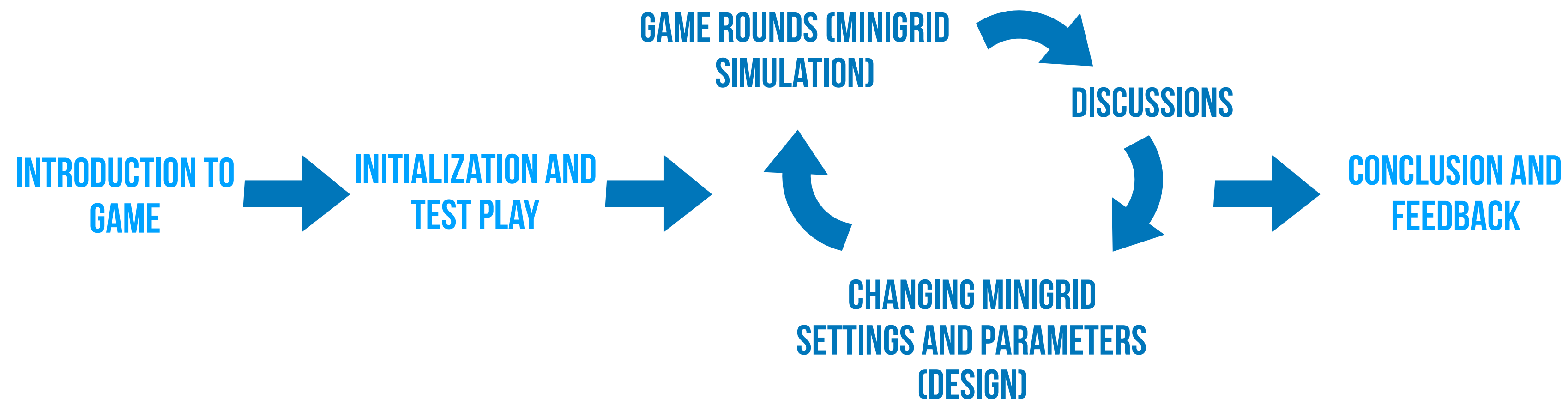
- ▶ As an **educational** tool, it helps users understand operations and the economics behind microgrids.
- ▶ As a **design** tool, it creates a collaborative environment and allows for users to negotiate and reach consensus on design parameters, as well as management policies.

**The goal:** To collaboratively design a renewable energy minigrid that enables the community to thrive at present and into the future.



## THE PROCESS

1. **Pre-workshop social mapping activities** are conducted to help calibrate game parameters.
2. **Community minigrid planning workshops** are held using The Minigrid Game, with multiple sessions to answer different questions.
3. **Implementation** of outcomes through an action plan designed with energy committee/management.







## OUTPUTS

Load profiles

Energy  
managers/  
committee

Management  
rules and  
regulations

DSM options  
(if needed)

Village-based  
enterprises





## OUTCOMES

Improved system design

Increased management capacity

Increased transparency  
-> higher trust and cooperation

Higher inclusion ->  
enhanced participation  
and gender equality

Coordinated investment  
and plans for productive  
end use



# The MINIGRID Game

[www.theminigridgame.org](http://www.theminigridgame.org)

Development and demonstration of The Minigrid Game in Ulu Papar, Sabah was supported by



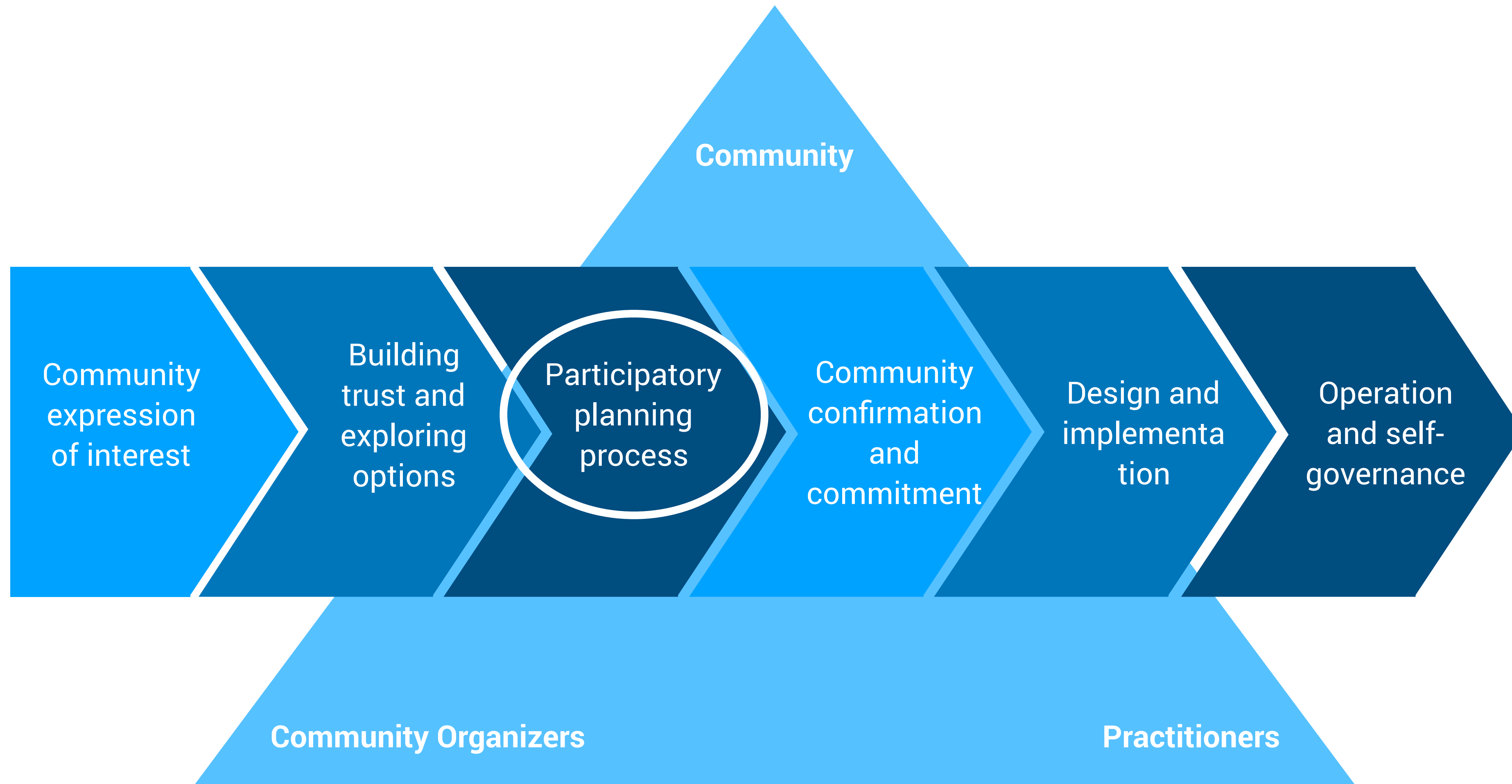
[www.wisions.net](http://www.wisions.net)



The logo for PRECOO consists of the word "PRECOO" in a bold, blue, sans-serif font. The letter "O" at the end is stylized as a circular arrow pointing clockwise.



## BROADER PLANNING PROCESS





## BROADER PLANNING PROCESS



- ▶ Eliciting information from group design activity
- ▶ Education and increasing understanding of the system and limitations (system transparency)
- ▶ Implementing decisions and community mobilization





ACHIEVING A HIGH LEVEL OF **COMMUNITY PARTICIPATION** IN PLANNING,  
MANAGING AND USING AN ENERGY SYSTEM REQUIRES ALIGNMENT WITH  
THEIR VALUE SYSTEM