



***Empowering Lives,
Catalyzing Development***



Smart AQUAnet™



Smart Nanogrid™



Smart MEZ™

Developing Sustainable Smart Villages

SunMoksha Power Pvt. Ltd., 768 14th Cross, JP Nagar 1st Phase. Bangalore, Karnataka, India
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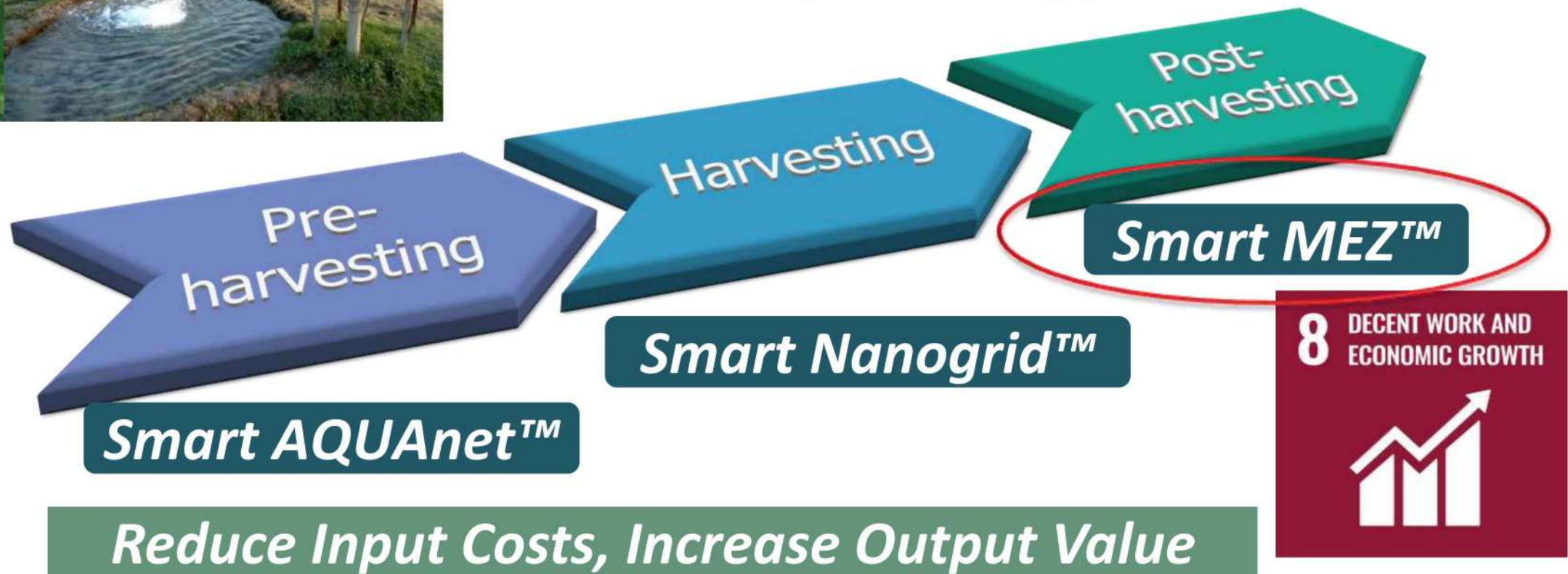
Goal: Empower farmers and villagers with technologies to improve their lives



“पानी है तो किसान है, बिजली है तो रोजी है”

Water is farmer's life, Electricity livelihood

– Mahishanand Sardar, Baharbari Village, Bihar



Jharkhand CM Smart Gram Yojana

- An initiative of Rural Development Department (RDD)
- Holistic accelerated development of villages
 - Local good governance, eGovernance & digital connectivity
 - Health and well-being, sanitation, and waste management
 - Smart agriculture – interventions in sustainable agri practices
 - Water sufficiency – integrated water management, recharge, irrigation, etc.
 - Energy sufficiency – cooking and electricity with smart microgrid
 - Livelihood – Micro Economic Zone (MEZ), locally relevant livelihood and microenterprises
 - For local consumption as well as for national & international exports
 - Skill Development – youth training, tele-education, digital library, non-agriculture livelihood opportunities, rural tourism
- Under the scheme, five pilots have been selected
 - One each in the districts of East Singhbhum, Ranchi, Bokaro, Gumla, Hazaribagh
 - **SunMoksha-Kalamandir team selected for pilot in Kantashola Panchayat, East Singhbhum**



Kantashola Smart Panchayat MEZ – Remote Tribal Area



- Panchayats: **KANTASHOLA**
- No. of Villages: 14
- No. of Household: 1185
- Population: 6060
 - Male: 3142, Female: 2918
 - SC: <12%, ST: >80%, OBC: <5%
 - Households Below Poverty Line >80%
 - Literacy : 35%
- Set Micro Economic Zone (MEZ)
 - Catalyze socioeconomic development
 - Hub-and-Spoke inclusive model



**Wasteland for
Proposed MEZ**

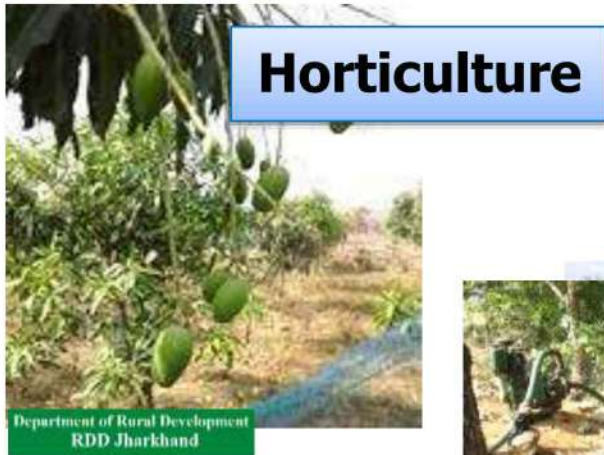




Smart AQUAnet™

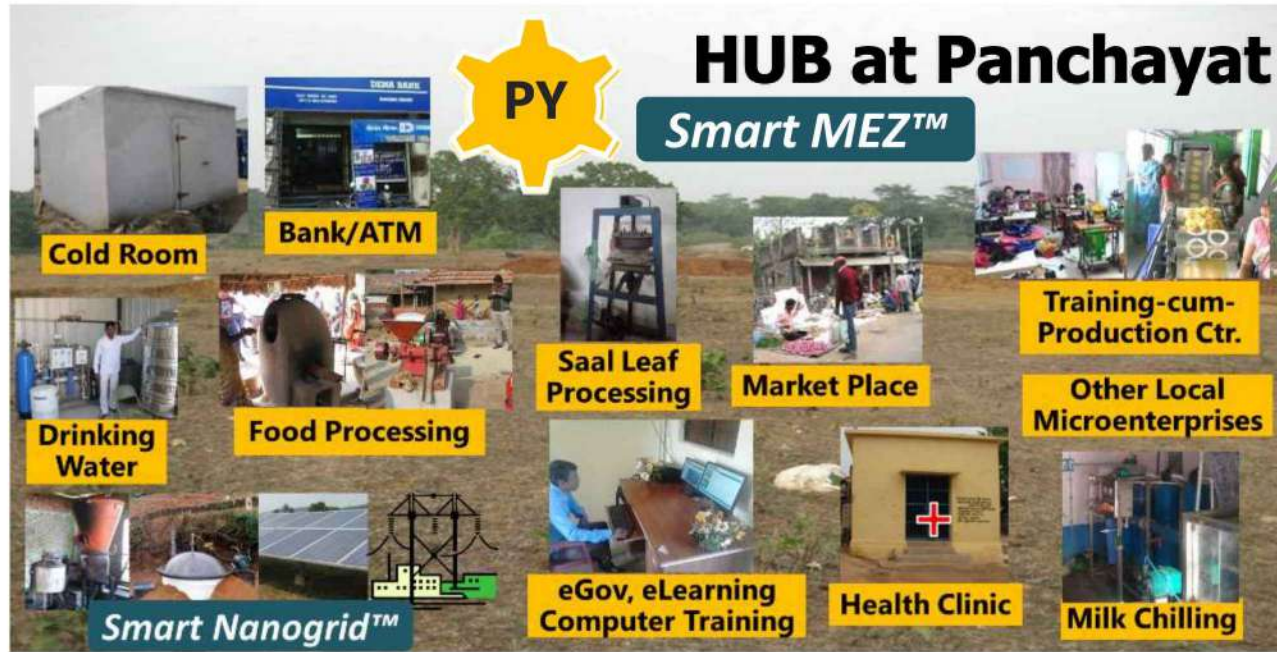
Smart Irrigation

VL



Horticulture

Department of Rural Development
RDD Jharkhand

HUB at Panchayat
Smart MEZ™

PY

Cold Room **Bank/ATM** **Training-cum-Production Ctr.**

Drinking Water **Food Processing** **Market Place** **Other Local Microenterprises**

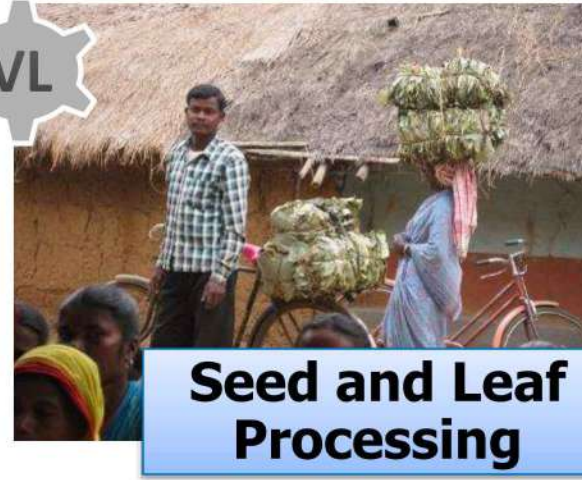
Smart Nanogrid™ **eGov, eLearning Computer Training** **Health Clinic** **Milk Chilling**

Spokes in Surrounding Villages



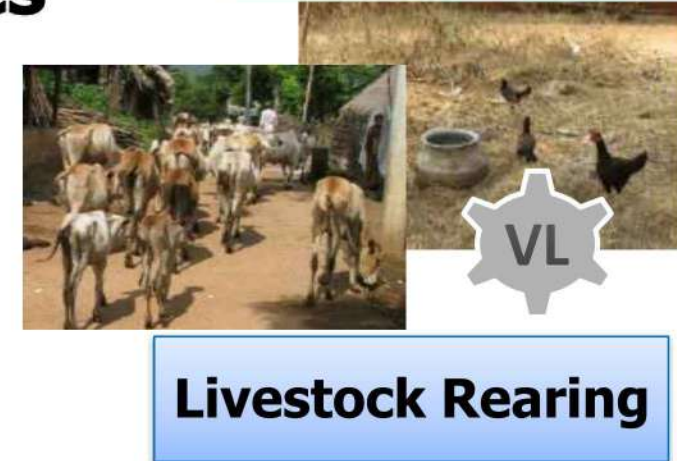
Watershed Management

VL



Seed and Leaf Processing

VL



Livestock Rearing

VL



Market Linkage

Kalamandir
The Calcutta Chapter Art Foundation

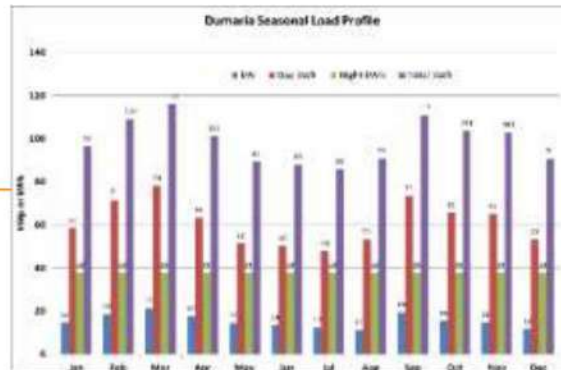


Smart Classes

VL

Selected Micro-Enterprises at Kantashola MEZ

- Oil Expeller/Seed-oil extractor –
 - Mustard, Linseed, Mahua, Kusum, Neem
- Holler Machine
- Pump Set – irrigation
- Pulse/Chiranjivi/Sal decoater
- Puff Rice Machine
- Grinder Machine – turmeric, chilli
- Tamarind fibre remover
- Raw tamarind polisher
- Silai Kendra



- Pump /overhead tank – drinking water
- Cold room
- Health centre
- Refrigeration
- School – computer and tele-education
- Bank ATM (Limited operations)
- Common Service Center – CSC
- Reading Space
- Computer training centre
- Post-Hatchery (Breeder, day/night)

Socio-economic Impact in Kantashola Panchayat

- 14 tribal villages, 1185 household (BPL 1000), 6060 population
- Livelihood creation:
 - 100 Micro-entrepreneurs
 - 170 Support & logistics employment
 - 600 farmers supplying produce into the MEZ
 - 5 solar technicians, 5 market linkages jobs
 - Jobs created in 1st year ~900
 - Double the number of jobs to ~2000 in 2-3 years
- Double the income over next 1-3 years

Goal: Empower farmers and villagers with technologies to improve their lives



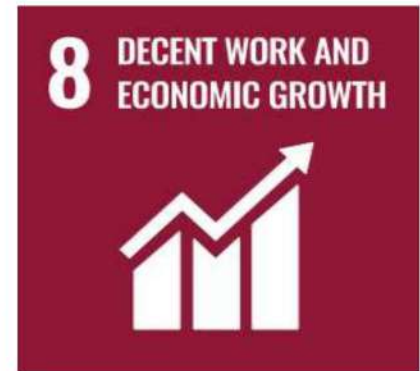
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Water is farmer's life, Electricity livelihood

– Mahishanand Sardar, Baharbari Village, Bihar



Reduce Input Costs, Increase Output Value



Smart AQUAnet™ for Precision Irrigation



Award winning solution under GEF/UNIDO/BEE's [FLCTD Program](#)
(Facility for Low Carbon Technology Deployment)

Mobile/Tablet



IoT Controller



Cloud Network

Sustainable Supply



Smart, Precision Distribution



- IoT, M2M, Cloud with universal protocols
- Any type of pump, any water source
- Realtime remote management through Mobile/Tablet
- Right quantity of water at the right location, at the right time and right price



March 2018



July 2018



- 41 farmers
- 27 acres, 3HP Solar Pump, Piped Distribution
- 10X (₹20K->2L) increase in farmers' annual income!





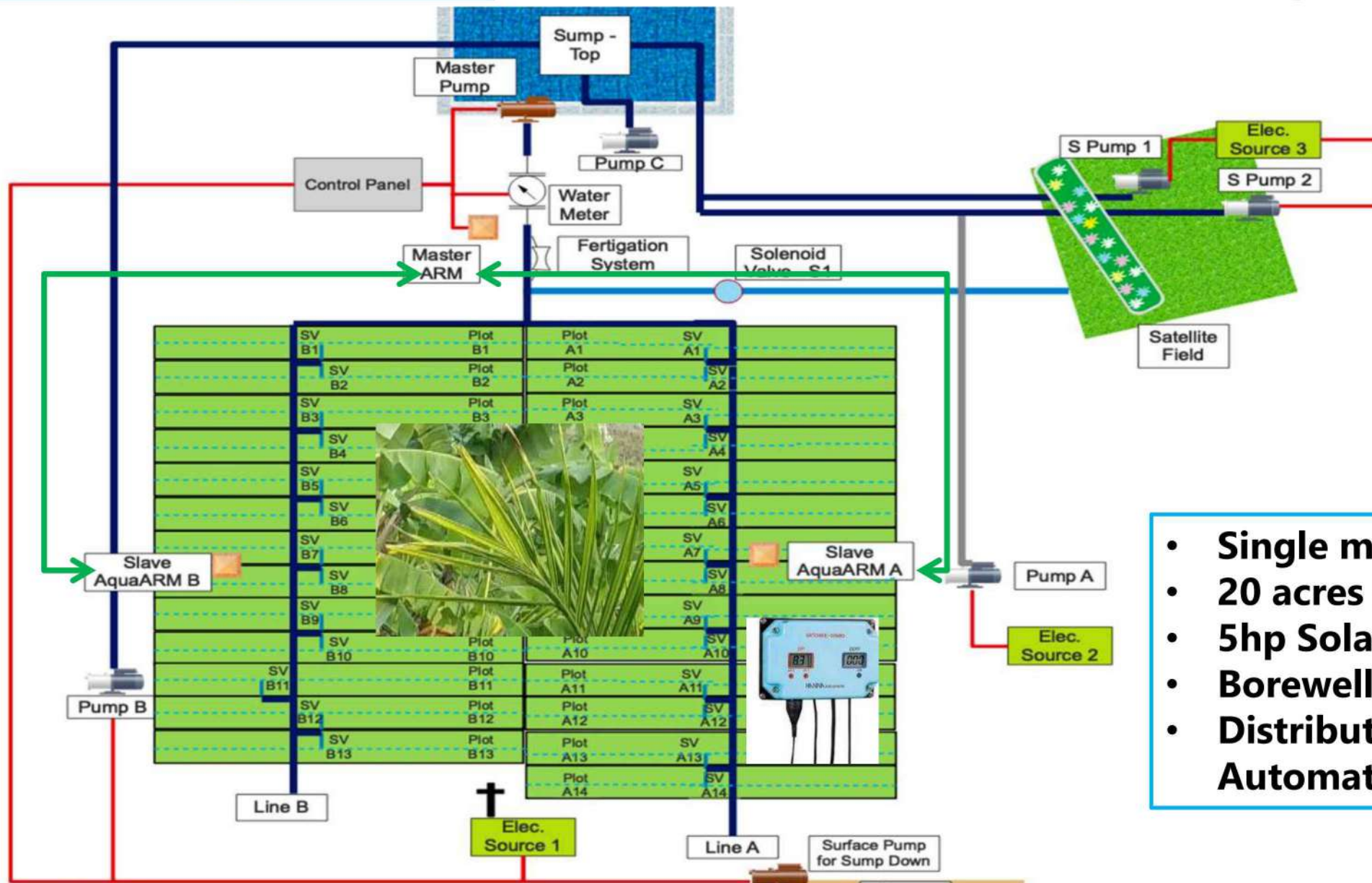
- 32 farmers
- 19 acres, 3hp Solar Pump
- Piped Distribution



- **17 farmers**
- **50 acres, 5hp Solar Pump**
- **River Water with Reservoir**
- **Piped Distribution**



**25 farmers,
20 acres, 3hp Pump,
Water from Check Dam
Piped Distribution**



- Single mid-size farmer
- 20 acres farmland
- 5hp Solar Pump
- Borewell/Sump Water
- Distribution Pipes with Automated Valves

Value: Empower farmers with Sustainable Practices

“पानी के हिसाब से खेती,
ना कि खेती के हिसाब से पानी”

“Cultivate crops according to
the water availability, and not
demand water as per type of
crop cultivated”

– Kishore Sahu,
Maudiguda Village, Odisha

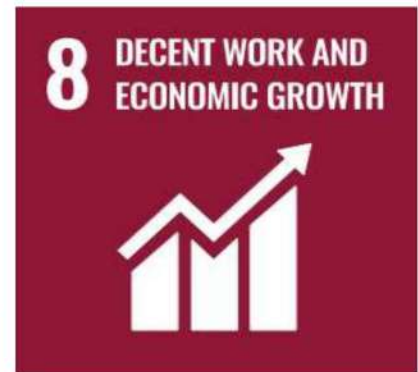
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Smart Nanogrid™ for Consistent, Reliable Renewable Energy



Smart Village Award at Smart Cities Conference and Exhibition



Millennium Alliance Award from USAID/DST's Round4 Clean Energy Challenge

ISGF Diamond Award for "Best Smart Grid Project by Technology Company"



Hybrid Energy sources



IoT Controller



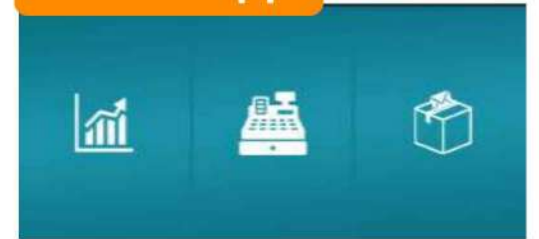
Cloud Server



Smart T&D



MobileApp



Smart Customer Service

- **Meters and sensors with IoT/M2M/Cloud and universal protocols**
- **Right amount of ENERGY at the right location, at the right time, at the right price!**

Smart Nanogrid™

First Smart Microgrid – Chhotkei, Odisha



Chhotkei Village,
Angul, Odisha, India



[Click to watch video report](#)

The village leapfrogs from Tier 1 to Tier 4 of Energy Access¹



Smart Village Award



Millennium Alliance
Clean Energy Award



Smart Nanogrid™

First Smart Microgrid Island in Odisha

Mud Road

Mahanadi River Bed

Agri Land

Smart AQUAnet™

Agri Land

ISGF Best Smart Grid Project by Technology Company

Smart Village Award Top 3

Mahanadi River

HH

PP

Smart Nanogrid™

Agri Land

Kudagaon Island, Angul, Odisha, India

Agri Land

ISGF

The village leapfrogs from Tier 0 to Tier 4 of Energy Access¹

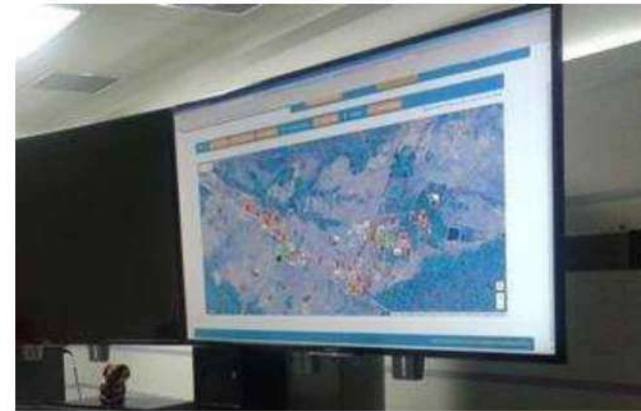


Sustainable, Scalable Model with Local Empowerment

- SunMoksha Smart Solutions are built for rural users and farmers
 - Simple operations with training of local youth.
 - On-going remote technical support from the command center.
 - Remotely supported by professional expert(s).
- Information at your fingertip – transparency in operations



Local Operational Support



Remote Command Center

Transparent, sustainable, scalable operations with real-time remote management.

Sustainability and Scalability – Train local talent for O&M



International research collaborations for rural development



Farrokh Mistree, Ph.D.
Janet K. Allen, Ph.D.



Abhishek Yadav,
Vishnu Vardhan,
Lin Guo



John Hall, Ph.D.
Hailie Suk



Cyber-Physical-Social
Modeling for FWE Nexus:
Microgrids, Water, RE



**Anand
Nellippallil, PhD**
Anju Nair

Bhagabati Pattnaik
Bhawani Pattnaik
Living Laboratory,
R&D, Skill Development



Ashok Das, Ph.D.
Ayushi Sharma



Kirsten Campbell
Social Impact Ph.D.



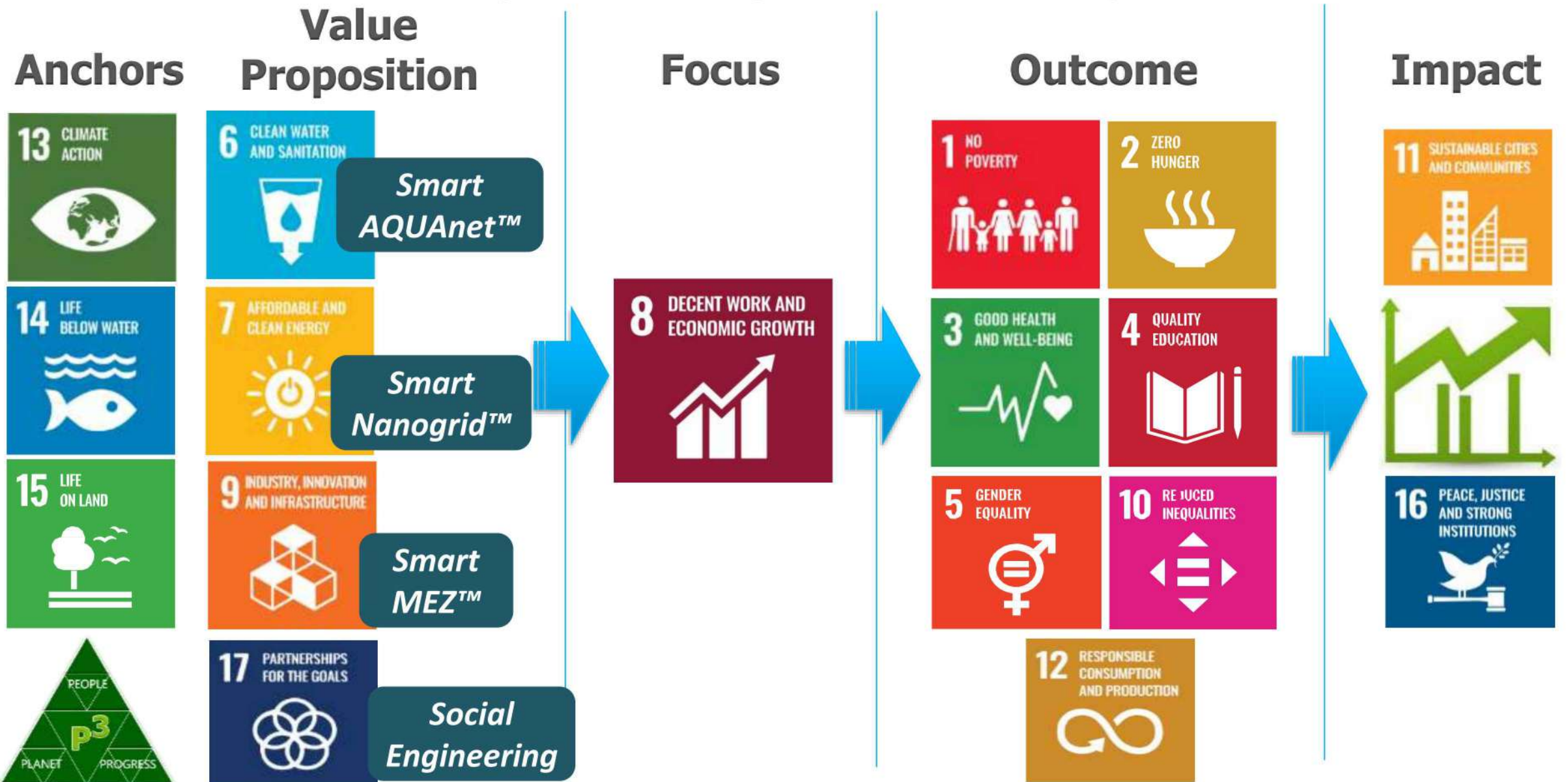
SMART VILLAGES
New thinking for off-grid communities worldwide

Sir Brian Heap, Ph.D.
Bernie Jones, Ph.D.

Technical & Business
Models for Smart Villages



SunMoksha Theory of Change – SDG Perspective



About SunMoksha

- Founded by professionals with decades of experience in India and Silicon Valley
- Invested Years for Research in Energy, Water, and Rural Development
 - Led to the development of Smart Nanogrid™, Smart AQUAnet™ and Smart MEZ™
- Implemented research into the field
 - First "Smart Village", first "Smart Island", first "Smart Irrigation" in Odisha, and "First Smart MEZ™ in Jharkhand, India
- Gained global attention for its success and received numerous awards
- Focus: Technology Development, Project Implementation and Consulting

Technology

Develop and Commercialize Sustainable Technologies

Projects

Field-deploy Technologies

Consulting

Commercialize Intellectual Capital

International Awards and Recognition



Mar 2020 – ISGF Best Smart Grid Project by Technology Company



Dec 2018 – FLCTD Award



July 2017 – USAID-DST Millennium Alliance Award



May 2016/19 – "Smart Village" Award at Smart Cities Conference and Exhibition



Mar 2016: Mr. Piyush Goyal, Former Energy Minister, GoI



February 2016 – Felicitation by Mr. Upendra Tripathy, Secretary, MNRE

Systematic Transformation of Villages to Gram Swaraj



sun moksha



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MEZ

Cold Room

Drinking Water

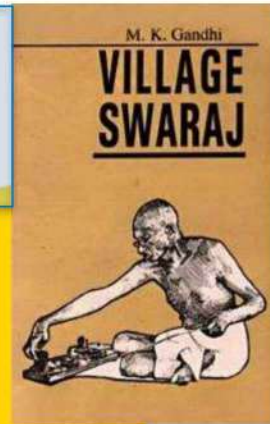
Food Processing

Market Place

eGov, eLearning Computer Training

Smart Nanogrid™

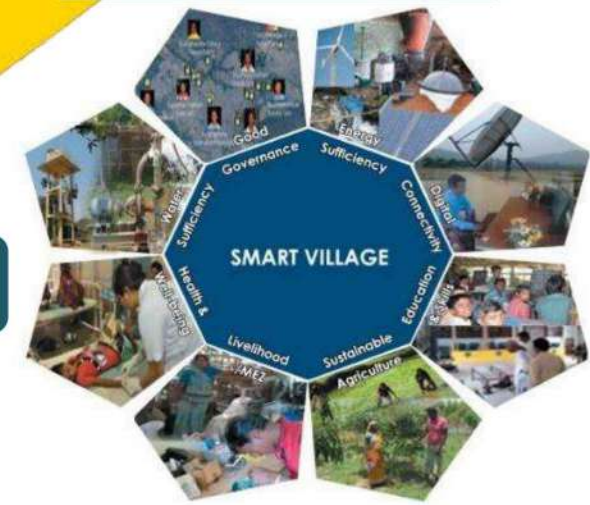
ग्राम स्वराज



Market Linkage



Smart Village



Smart MEZ™

Smart Nanogrid™

Smart AQUAnet™



SunMoksha – Empowering Lives, Catalyzing Development

Thank You!

www.sunmoksha.com



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