Rajasthan Policy Dialogue on PM-KUSUM Component A and Component C

Learning by doing: Monitoring and Evaluation, Implementing Water incentives, Innovative irrigation Technologies, and Agrivoltaics

IISD International Institute for Sustainable Development

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

CUTS International

teri The Energy and Resources Institute

Monitoring and Evaluation

- Solar Energy Data Management and Platforms
  - Remote Monitoring Systems – Component A & C (fls)
    - Capacity Utilisation Factor
    - Grid Availability
    - Generation profile
  - Remote Monitoring Systems for Individual Pumps
    - Integration of RMS with SEDM portal
- Feeder - meter Data
  - Baseline Data on Pump's Average Power Consumption
  - Voltage Status in the Feeder
  - Decisions on Pump sizing
- Economic Impacts
- Impact on Farmer's Energy Access
- Social Impact
- Groundwater Impact

Water Incentives

Punjab's Pani Bachao Paisa Kamao Scheme

- Linkage with PM KUSUM Scheme
- Direct Benefit Transfer
- Demonstration Farms
  - ❖ Promotes Micro irrigation
  - ❖ Crop Diversification
  - ❖ Flow Meters
  - ❖ Remote Operation Devices
  - ❖ 13-15% Water Saving
  - ❖ Increased Productivity and Returns
- Institutional Structure
  - ❖ Consultations
  - ❖ Political and Administrative Commitment
  - ❖ Implementation Committees at Field, District, and State Level

Innovative Irrigation Technologies

- Drip and Sprinkle Irrigation
  - Surface Irrigation
  - Centre Pivot Irrigation
  - Sub Irrigation
- Rainwater Harvesting
- Energy Efficient Pumps
- Benefits
  - Water Conservation
  - Decreased Labor
  - Reduced Conveyance Loss
  - Prevents Soil Erosion
  - Less Weed Growth
  - Affordable
  - Automated Systems

Agrivoltaics

- Co-location of Agriculture and Solar Power Generation Activities
  - Solar Panels on Heightened Stilts
  - Farming In-between and under the Panels
- Business Models
  - Sole Proprietorship
  - Farming at the Existing Solar Plant
- Intended benefits
  - Land Use Efficiency
  - Favourable to Arid, Semi-Arid and Urbanised Areas
  - Additional Revenue Generation
  - Employment Generation
- Successful Implementation of Pilots
- Challenges
  - Unregulated Market
  - Capacity Building Requirement
  - Preference to Electricity Generation
  - Design/ Crop Limitation

International Experience with Agrivoltaics

China	• Installed capacity of agrivoltaics at 1,900 MW • Promotion through PV poverty alleviation and power generation front-runner base schemes • Baofeng Group is developing 1 GW agrivoltaic project in Ningxia province
Japan	• Installed capacity of agrivoltaics at 500-600 MW • Promotion through Feed-in Tariff scheme with preferential treatment to agrivotlaics • New Energy and Industrial Technology Development Organization published new guidelines
Germany	• Installed capacity of 15 MW • German regulator BnetzA invited bids for 403 MW agrivoltaics capacity in 2022 • Fraunhofer Institute for Solar Energy Systems published new guidelines
Italy	• Italy is investing €1.1 billion for development of 2 GW agrivoltaics capacity • National agency ENEA launched National Network for Sustainable Agrivoltaics for developing regulatory framework
France	• France Agrivoltaisme, world's first trade association of agrivoltaics was formed in 2021 • Environment Energy Management Agency (ADEME) defined standard for agrivoltaics in 2022 • Several rounds of tender with more than 100 MW capacity already allocated[6]

Thank You!