Green Economy and Rural Development

INDIA

Expert Group Meeting on Green Economy and SDGs
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Jeju, Republic of Korea
12th, 2018

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GREEN ECONOMY for whom?

Serves

INDIVIDUAL
Improving material, health and environmental conditions in the short & long term

NATIONAL & Sub national INTEREST

GLOBAL INTEREST?
In FOCUS: INDIA

Source: For population: https://data.worldbank.org/country/india
Household data: SECC 2011
NSSO 2009-10 Key Indicators of Household Consumer Expenditure, monthly per capita expenditure (MPCE) based on modified mixed reference period (MMRP) 2009-10
~70% of its rural HHs still depend on agriculture for their livelihood.

Challenges in farming/agriculture in India

- Declining landholding/capita
- Low productivity
- Declining soil health
  - Nitrogen run off
  - Water bodies and fisheries affected
Drawing focus to small and marginal farmers...

**Avg. monthly income (Rs.) from different sources, consumption expenditure and net investment in productive assets per agricultural HH during July 2012- June 2013 for each size class of land possessed**

Expenditure > Income

**Source:** NSSO 70th Round Report

*Challenges & Opportunities of small farmers in India, International Journal of Academic Research, Vol. 2 Issue 2, April-June 2015*
Farming practices that focus on resource use efficiency can deliver:

- Energy Savings
- Food Security
- Profitability
- Environmental gains of mitigation & adaptation
Various Suppliers driven by demand

Quality inputs and crop scheduling
Quality inputs at affordable price to farmers at right time and scheduling for the season

Farm Testing & Farmers profiling
R&D team carries out tests for Soil (pH, RH, N-P-K ratio), Farm type and other climatic conditions

Crop reminders & Access to information
Through capturing field level data frequently and providing quality extension to farmers

Access to Market
Small growers are linked directly to institutional buyers

Training & field visit by experts
Farm gate training & field visits by scientists for plant protection
The Dehaat Model is a “solutions-oriented approach for a smarter, more inclusive, economically & food secure nation & state”

Dehaat centers are tech enabled localized centers run by micro-entrepreneurs in a sustainable way.

- Farmers’ profile management
- Technology related to best agricultural practices
- M-commerce platform for 400+ agri-input, farm equipment at better rates
- Farm based advisory on real time basis
We have to find ways to produce more on less land and in less time without any quality erosion.

Address at the 86th Foundation day of Indian Council of Agricultural Research

These small farms, though operating only on 44 per cent of land under cultivation, are the main providers of food and nutritional security to the nation, but have limited access to technology, inputs, credit, capital and markets.

The key takeaways of these statements is that resource use efficiency is at the core of sustainable agriculture practices, facilitating higher farmer profits and incomes.
Timeline: CSA program milestones

2012-15
- EDF-FCN work in South India
  - Development of tech platform
  - Established scientific labs across 3 states
  - Developed models for CSA practices (4 Indian crops)

2016
- Development of tech platform
- Established scientific labs across 3 states
- Developed models for CSA practices (4 Indian crops)
- 2,000 farmers surveyed
- 35,000 air samples (NO2 + CH4) analyzed across 5 labs est. by EDF
- Worked with 5 NGOs across their constituents
- 200,000 Farmers
- 25 personnel trained in specialized instrument operation + lab maintenance
- 50 personnel trained in field operations: soil, water & air sampling

2017
- 8 DeHaat centres
- ~5,000 farmers registered
- 1,01,460 farmer touch points (FTPs)
- March “17
- Agreement with GOI to deploy CSA program across jurisdiction + 1 district in another state
- Champion similar platforms within the government
- Open discussions on national policy
- Measure impacts of program across pilot locations

2018-20
- 20,000 HHs of 2 adjacent blocks
- Launch CSA program with GOI in third quarter
- Enabling Environment for Sustainable Agriculture
- 200,000 Farmers
- Phase 1 Champaran Project
- Union Agriculture Minister launches DeHaat App (FV)
- FnF+EDF partnership announced in W. Champaran
- Launch CSA program with GOI in third quarter

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Economic
Job creation & financial inclusion

Social
Empowering farmers & the community

Technological
Innovation, data & transparency

Environmental
Nitrogen use efficiency, water & soil management, organic carbon stock in soil, N₂O & CH₄ emissions

CSA project and its impact

Alignment with Sustainable Development Goals

1 NO POVERTY

17 PARTNERSHIPS FOR THE GOALS

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

13 CLIMATE ACTION

2 NO HUNGER

8 DECENT WORK AND ECONOMIC GROWTH
Access to clean cooking

Over 2/3rd of households in rural India still rely on firewood and chips for their cooking needs.
A household biogas unit serving 5-6 members can mitigate 1.5-3 tons of CO2e per year while also:

1. Reducing Indoor Air Pollution
2. Improving household health
3. Freeing up time used to collect firewood
4. Opening the door for new income opportunities
Proposition for government

<table>
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<th>ADVANTAGES OF BIO GAS PROGRAM DELIVERY est. 15 million households</th>
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| **1** Low Cost  
NPV ₹ 83,217 vs. ₹ 26,638 |
| **2** Foreign Exchange Savings  
of over $1 billion per year every year |
| **3** Job Creation of 220,000 permanent jobs & 300,000 temporary jobs |
| **4** Stimulation of local economy through local wealth creation |
| **5** Green house gas mitigation of 45 million tonnes CO2e |
| **6** Carbon Financing  
Support revenues @ USD 10 per tonne = $450 million per year |
| **7** For 10 million biogas units and slurry created  
savings on 25 million tonnes of urea and subsidies levied |

Bio gas program to augment the existing government schemes: taking clean cooking to the end user
Economic
Job creation & Financial Inclusion

Environmental
Deforestation & Air Pollution

Biogas project & it’s impact

Health & Nutrition

Social
Women’s Safety & Child Health

Alignment with Sustainable Development Goals

Alignment with Sustainable Development Goals
Access to energy, water & cold storage in Rural India

Only 44% of rural households have access to electricity*

Over 300 million still don’t have access to electricity

160 million people at risk of arsenic/fluoride poisoning from groundwater**

8.25 million tons estimated gap in cold storage space***


CSP-550 kW Solar Thermal Plant with Purified Water & Cold Storage

- Solar Field
- Thermal Storage
- Solar Boiler
- Biomass Boiler
- Steam Turbine
- Live Steam
- Generator
- Electricity 550 kW (net)
- Vapour Absorption Chiller
- Cold Storage
- Desal Plant
- Pure Drinking Water
Components for change

NGOs & CBOs

- fCin
- SVUIDHA
- ADATS
- Agrocentre
- Community Reconstruction of Social Service (CROSS)

BUSINESS

- agrevolution
- ATRIA POWER
- IndiGo
- integra
- Mahindra
- YES BANK

FINANCE

- Carbon finance
- Private Equity
- Philanthropy

SUB NATIONAL & NATIONAL GOVERNMENTS

- NABARD
- NITI Aayog