



Efficient Manure Value Chain

A step towards doubling farmer income

15-10-2020

An initiative of



NATIONAL DAIRY DEVELOPMENT BOARD

Indian Dairying- Milk and Manure(Dung)

62 Million Households practicing dairying

(NSSO Land and Livestock survey 73rd round 2012-13)

302 Million Bovines (Livestock Census 2019)



MILK

- Milk Production 188 MMT in 2018-19
(BAHS 2019)
- Estimated marketable surplus of 115 MMT

• *Assuming 40% retention by milk producers in the village*



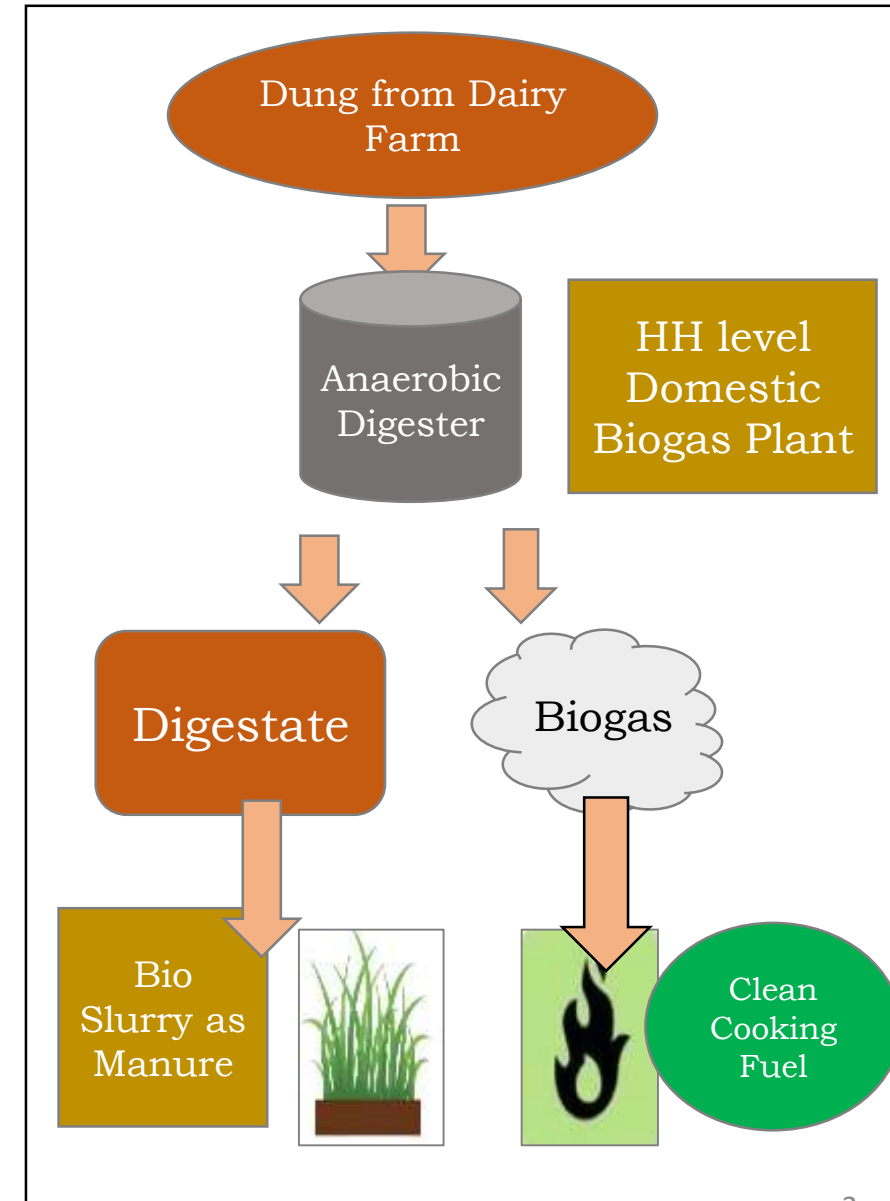
MANURE (DUNG)

- Estimated Dung generation of 1653 MMT in 2018-19
- Recoverable dung of around 992 MMT

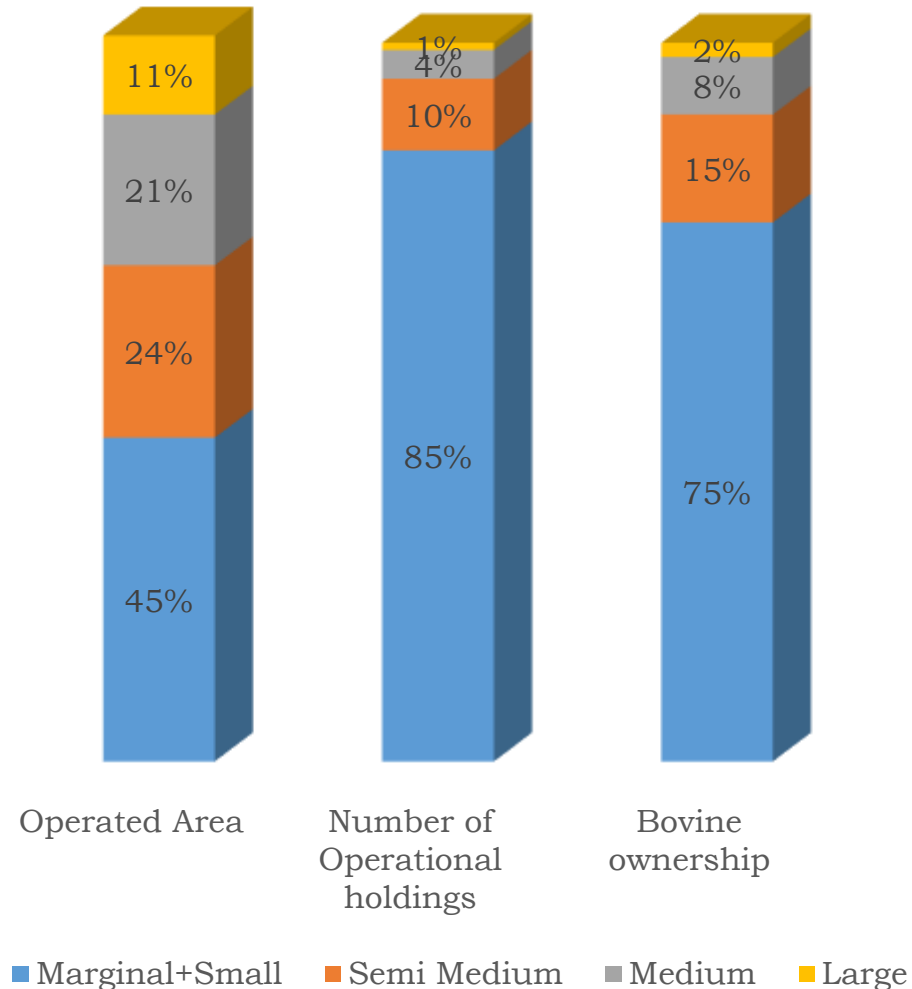
• *Dung generation at an average rate of 15kg/day/animal*
• *Assuming 40% loss (non recoverable) during grazing and movement of animals*

Efficient Management of Recoverable Dung

- ❑ Animal Dung has potential to generate clean cooking fuel and bio fertiliser through anaerobic digestion
- ❑ 992 MMT of animal dung can generate
 - ❑ Biogas equivalent to the 50% of India's present LPG consumption in a year valuing about Rs. 444 Bn
 - ❑ Bio slurry which is equivalent to the 44% of India's NPK requirement valuing about Rs.425 Bn



Indian Dairying- A Small Holder Phenomenon



- ❑ Dairying is predominantly practiced by small and marginal farmers
- ❑ Bovine ownership is more equitable than the land holdings in India

❑ **95% of the dairy farmers in India rear 1 to 5 animals**

NDDDB's Manure Value Chain initiative focusses on small holder dairy farmer associated with farmer owned institutions

Preferences of small holder dairy farmers

- ❑ Individual ownership and captive Gas Consumption
- ❑ Convenience in installation, repairs, maintenance and portability
- ❑ Need consistent Gas Pressure
- ❑ Remunerative disposal mechanism for surplus bio slurry



NDDB's response

- *NDDB piloted new form of technologies (FLEXI) in 18 states*
- *Installed around 1600 plants across India till date*
- *Mechanism to aggregate surplus slurry offered*
- *Processing of slurry to manufacture bio-fertilisers*



Manure Value Chain

Zakariyapura pilot in Anand

- Flexi biogas plants to all 368 small holder **women** dairy farmers (*Avg landholding 1 acre, animal holding 2-3 animals*) at 50%
- A Sakhi Khad cooperative Society
 - Slurry Procurement arrangement -**Quality based**
 - Mechanism to create fund for maintenance and plant replacement

- ❑ Additional income of Rs.1/ltr from slurry sell to farmers
 - ❑ Potential monthly earning of around Rs.3000/-
 - ❑ Payback of biogas plants about a year

FARMER OWNED
AND MANAGED



Slurry
Collection



Slurry Testing



Passbook
Entry and
payment

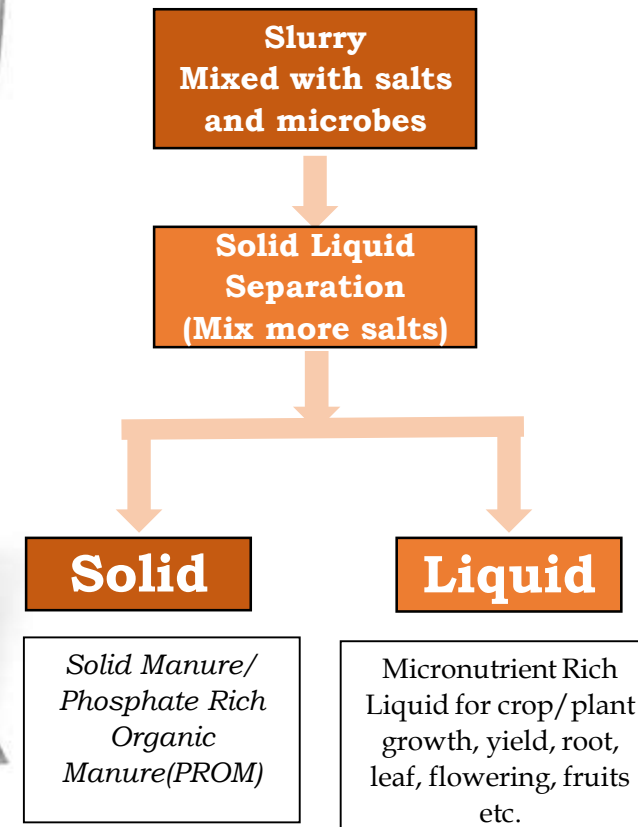
Slurry as Bio Fertiliser

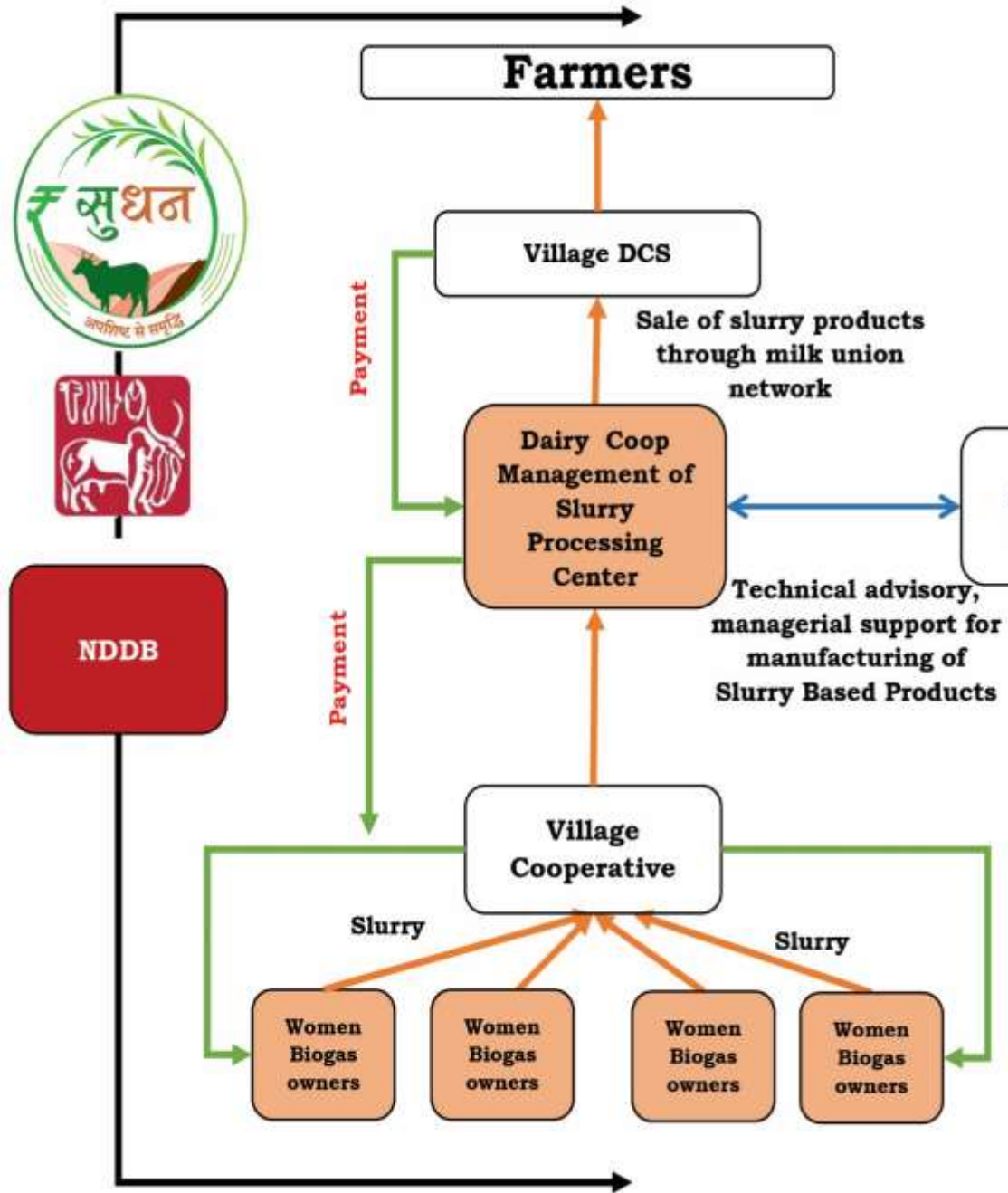
*Processing
Managed by
Entrepreneur or
Farmer owned
Institution*

- ❑ Sell of slurry in bulk to non biogas owner/ needy farmers
- ❑ Manufacturing of slurry based fertilisers by **simple solid/liquid separation method** in village/cluster of village
- ❑ Sell of bio fertilisers and **advisory services** through **network** of village level dairy cooperatives/ Agri societies

Demonstration in farmer fields and scientific study by Agri University

- Average growth in yield 20.6%
- Savings on use of chemical fertiliser by 25%





Manure Management Model evolved in Anand Gujarat

SuDhan-
an NDDB trademark can be used by dairy POIs/cooperatives across the country



Development of 100 clusters

- ❑ Dairy Coop/ Producer Company as implementing agency
 - To identify farmers and Manage Manure Value Chain
- ❑ One village- One cluster. 100 biogas plants per village
- ❑ *100 clusters to have 10,000 biogas plants and 20 slurry processing units*
- ❑ *Total investment of around Rs 40.2 Cr for 100 clusters*

EACH DAIRY COOP TO SETUP			
S N	Particular	No.s	Investment Rs. Lakhs
1	No. of villages/clusters	5	
2	No. of Beneficiaries/Biogas plants (Rs.0.35 lakhs per plant)	500	175
3	Slurry procurement and processing unit (5-10 MTPD capacity)	1	35
Total investment per Dairy Cooperative/ 5 clusters			210

Training/Capacity building/human resource support costs extra

- ❑ Payback for farmer on investment of plant at 50% is about a year
 - ❑ *Savings on LPG and sell of about 40% of slurry at Rs.1/ltr*
- ❑ Payback on slurry processing plant is about 4 years
 - ❑ *Processing about 30% of surplus slurry available*
 - ❑ *Sale of liquid and solid bio fertiliser Rs. 15/ltr and 20/ Kg*

Role of Stakeholders

Ministry of DWS, GoI

- Act as central coordinating agency
- Disbursement of funds to state Governments.
- Discussing, planning and finalising manure management initiative under GOBAR-DHAN scheme of SBM (G).

State Government (Relevant Department)

- Finalising projects locations in consultations with Dairy Coops/ Producer Companies and NDDDB
- Disburse funds (including central share and other state funds)
- Devising implementation guidelines and monitoring projects through local(district) agencies

National Dairy Development Board/Ministry of Fisheries ,Animal Husbandry and Dairying

- Coordinate with all the three agencies for designing and finalising state specific manure management projects.
- Support dairy cooperatives/ milk producer companies
 - to take up projects and handhold through training and capacity building
 - in field implementation of the projects and necessary compliances

Dairy Cooperatives/Milk Producer Companies

- Finalising projects locations in consultations with state government, local(district agencies)
- Receiving funds and providing the fund utilization documents
- Implement the projects as per approved plan and complying state guidelines
- Set up Village level manure societies as required
- Manage the Manure Value Chain



Thank You

