

Dissemination of Biogas in Nepal

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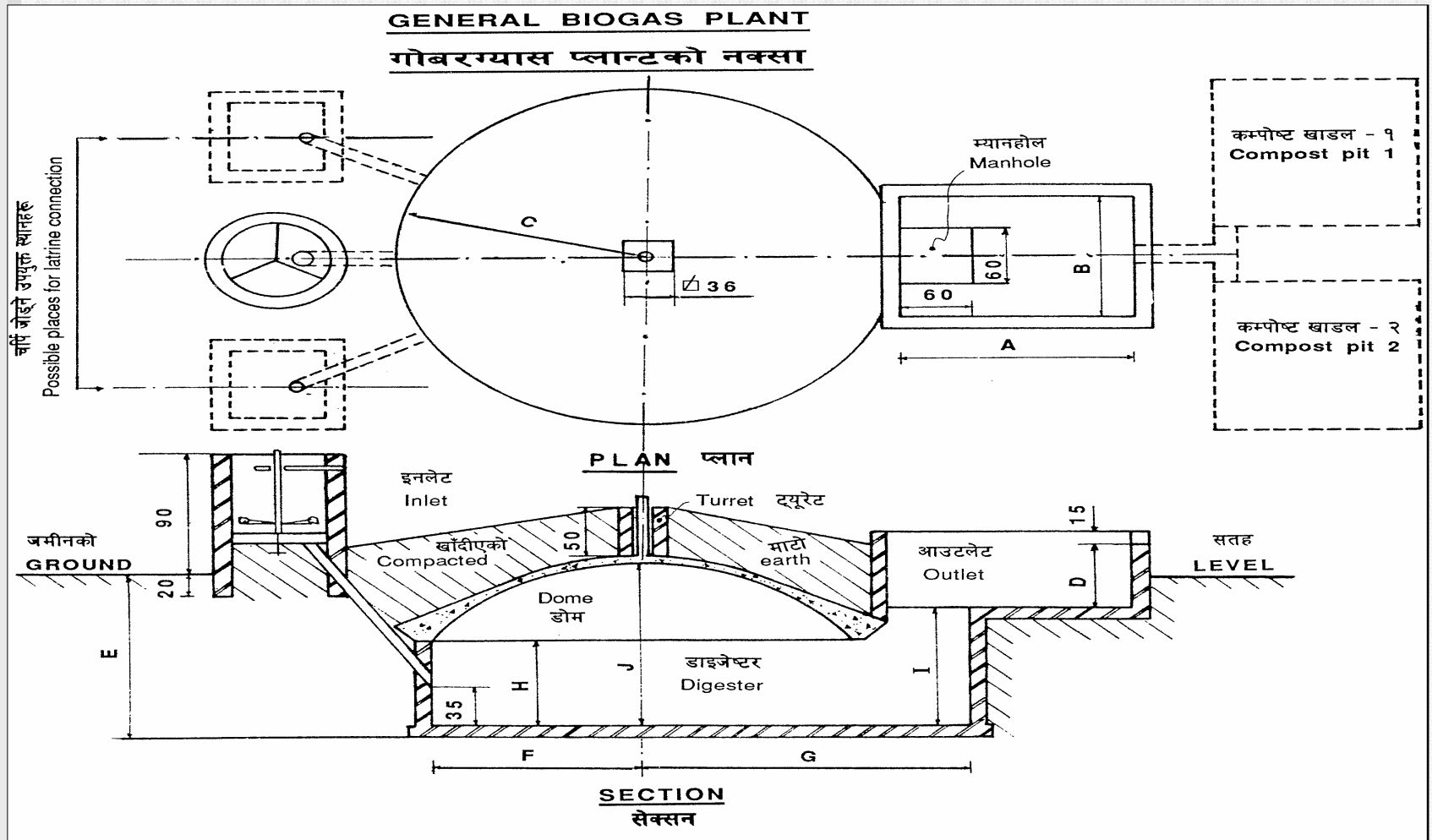
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Technology

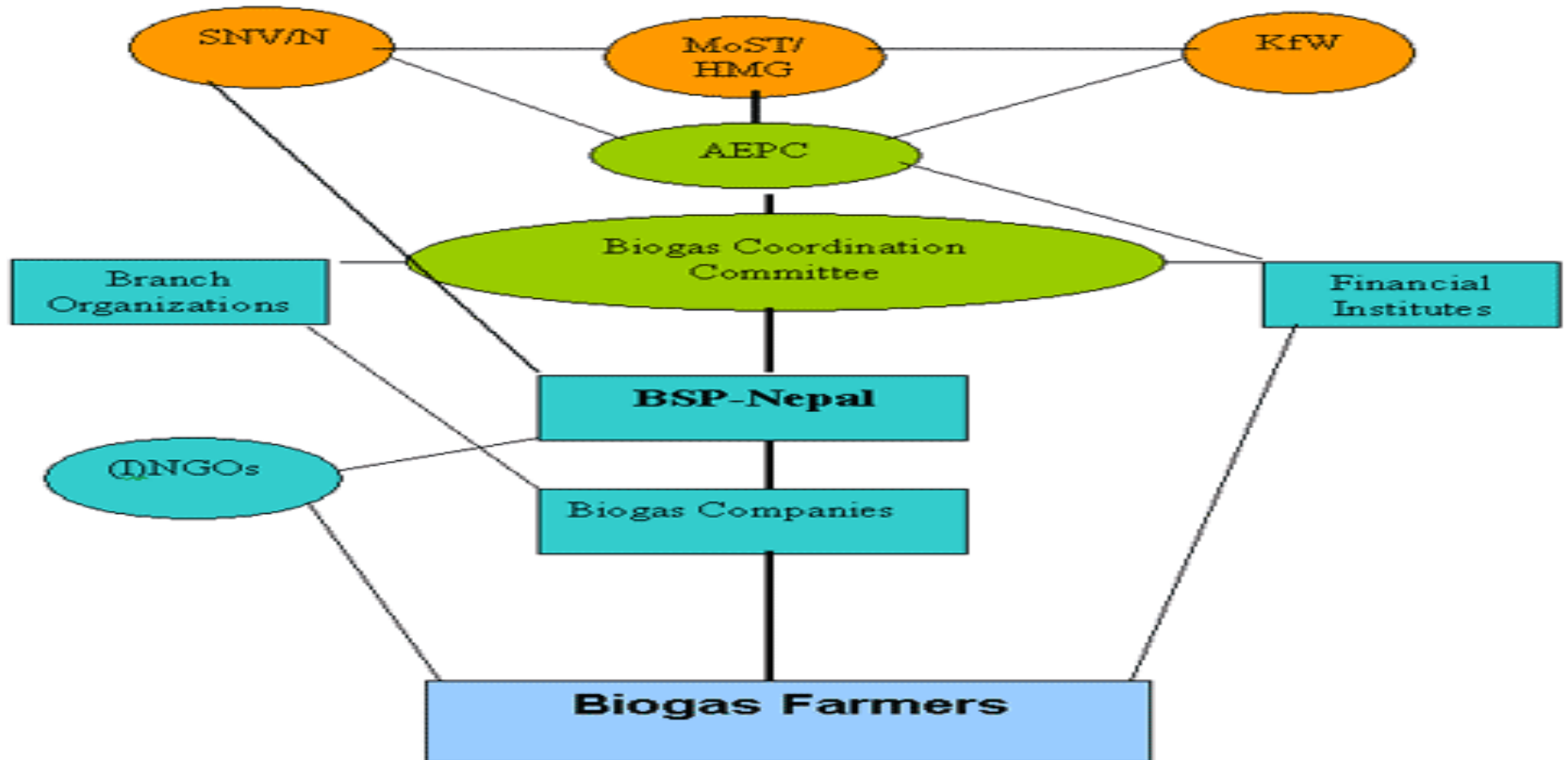


Current Status

- More than 120,000 installed (110,000 BSP)
- 97% are in operation
- 65% are toilet attached
- 80% are small size plants (4 & 6 m³)
- 80% slurry utilized (Compost)
- 43% loan plants
- IRR – 49%
- Average cost = NRs. 25,000 (US\$ 350)

Implementation Modality

**Institutional Linkages of BSP- Nepal
(Biogas Programme IV Phase)**



Strategies

- Uniform technical design
- Quality control and monitoring of production, installation and after sales service of biogas companies (BSP: ISO 9001-2000)
- Continuous R&D
- Outreach and awareness programs
- Financial support (Subsidy ~ \$100)
- Micro-credit facilities

Achievements

- 49 private biogas companies developed (40 companies for installation on competitive basis)
- 13 workshops strengthened
- 35 NGOs mobilized
- 5000 persons technically trained
- 70 MFIs mobilized

Benefits

- Saving of more than 3 tons of firewood per biogas plant per year
- Each plant produces approx. 1.75 ton composted fertilizer per year
- 80% of biogas is used for cooking
- Saving of 32 liters of kerosene per year per plant
- Around 5 ton CO₂ eq reduction per plant per year

Benefits contd..

1. Household survey, 2000 (n = 100 hhs)

Disease	Problems in the past (HHs)		Present status of HHs	
	Yes	No	Improved	Remained same
Eye infection	72	18	69	3
Cases of burning	29	71	28	1
Lung problem	38	62	33	5
Respiratory problem	42	58	34	8
Asthma	11	89	9	2
Dizziness/headache	27	93	16	11
Intestinal/diarrhea	58	42	14	44

2. BSP EIA study 2002 found that presence of respiratory disease is 4% more on HHs without biogas (n = 600 with biogas and 600 without biogas)

Benefits contd..

Disease	Decrease	Increase	No disease
Eye infection	20	-	80
Cough	53	-	47
Headache	33	3	67
Nauseous	5	-	95
Chest pain	15	1	85
Lethargy	11	-	89
Respiratory disease	41	-	59
Malaria	8	2	92
Typhoid	10	4	90
Overall (%)	22	1	77

Visit to Health Post	Percentage
Increase	5
Decreased	57
Do not visit	16
Remains the same	22

n = 100 households
Biogas Users Survey 98/99

TSP Concentrations...

- The increases in the TSP concentration:
Biogas-LPG-Kerosene-Charcoal-rootfuel-dungcake-wood-crop residues (Kirk Smith et al, India 2000)

Fuel/stove	TSP in microgram per m ³		
	Flue gas	Background	Net conc in flue gas
Biogas	0.8	0.55	0.25
LPG	0.68	0.36	0.32
Kerosene pressure	1.06	0.58	0.48
Charcoal	2.02	0.53	1.49
Root-IVM stove	2.43	0.41	2.02
Dung-IVM stove	4.05	0.28	3.77
Mustard IVM stove	6.49	0.75	5.74

Challenges and strategies

- How to reach more poor?
- How to reach remote and low temperature areas?
- How to make biogas sector sustainable?
- How to reduce Cost ?
- High Subsidy to rural poor
- Research on low cost plant and cold climate plant.
- Linking with other activities / programmes in grass root level.
- Maintain Quality for reliable services.
- Accessible loans through Micro Finance Institutes
- Making Biogas company more effective & efficient

Thank you!!!