Sustainable development by combating Global Warming.

YASHWANT GROUP
FOR A BRIGHTER TOMORROW

YASHWANT ENERGY PRIVATE LIMITED
RESPECT NATURE. PROTECT NATURE.

Presented By:

Mr. Abhijit S. Naik - Managing Director

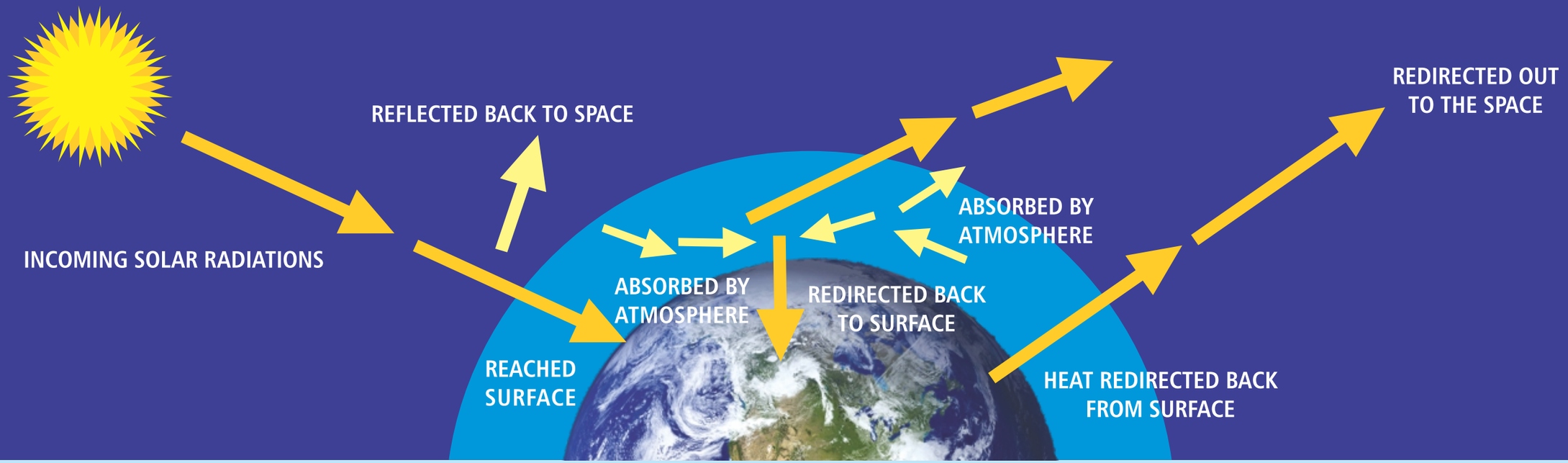
Yashwant Energy Private Limited, Shirala, Maharashtra, India

YASHWANT ENERGY PRIVATE LIMITED
is a private limited company incorporated under the provisions of the Companies Act, 1956 and started it's functioning from 2008.

Company's registered office is situated at Shirala, District Sangli, Maharashtra, India.

Abhijit Shivajirao Naik, Managing Director possesses Master's Degree in Advanced Process Engineering from UK and has hands on experience of running green energy projects.

THE GREEN HOUSE EFFECT



ABSENCE OF ATMOSPHERE (MOON)

Earth would heat up in a day (123^{0}c)

In night would re-radiate all energy back into space and earth would cool down (-233^{0}c)

EARTH

Temperature is bearable due to atmosphere

Atmosphere contains molecules of gases that absorb heat and re-radiate in all directions

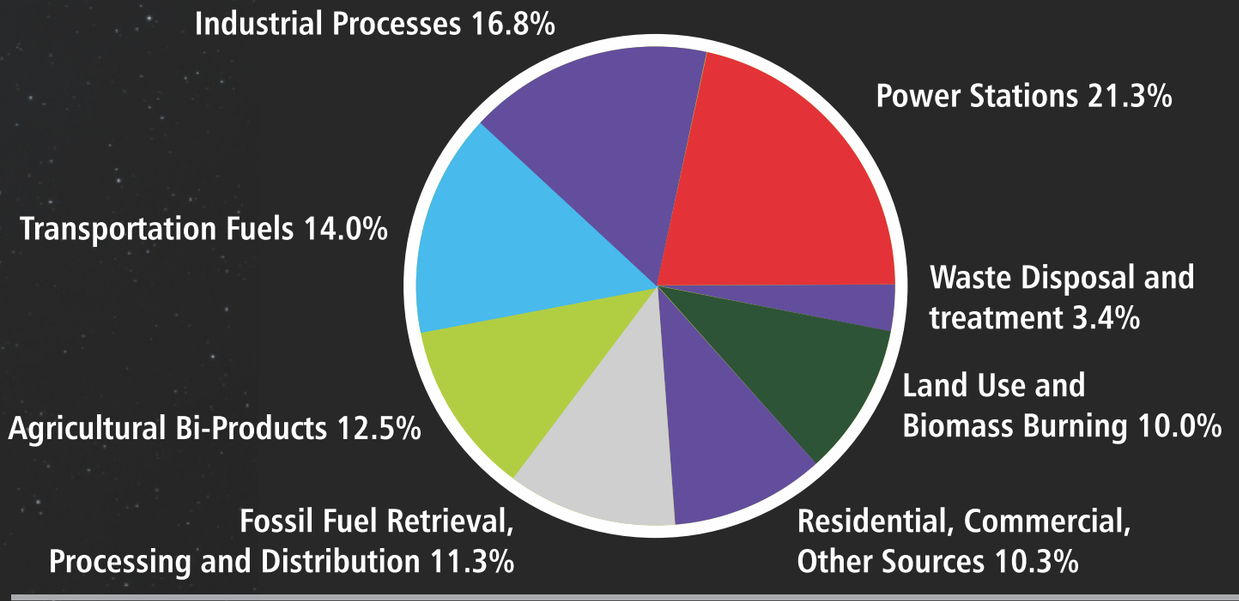
Reduces energy lost in space

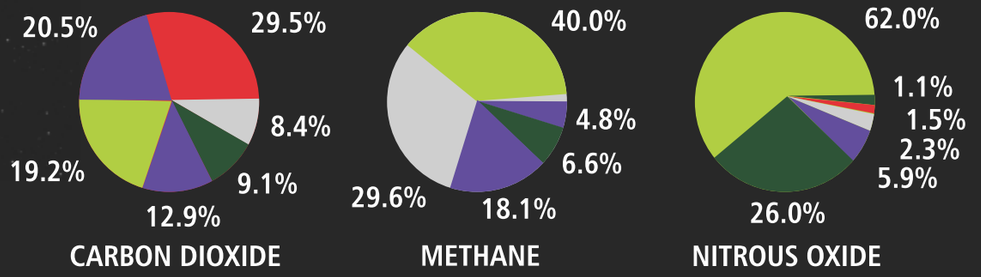
Energy is trapped in atmosphere

MOLECULES TRAP HEAT IN LIKE GLASS WALLS OF GREEN HOUSE
THIS BALANCE OF HEAT MAKES EARTH PLEASANT

LOSS OF ATMOSPHERE BALANCE

ANNUAL GREEN HOUSE GAS EMISSIONS BY SECTOR





MAIN REASONS FOR INCREASE IN EMISSION

HUMAN EXALE
BURNING OF FOSSIL FUEL
DEFORESTATION

ANNUAL EMISSION : 30 BILLION MT CO_2

EVRY YEAR 3% RISE IN EMISSION LEVEL

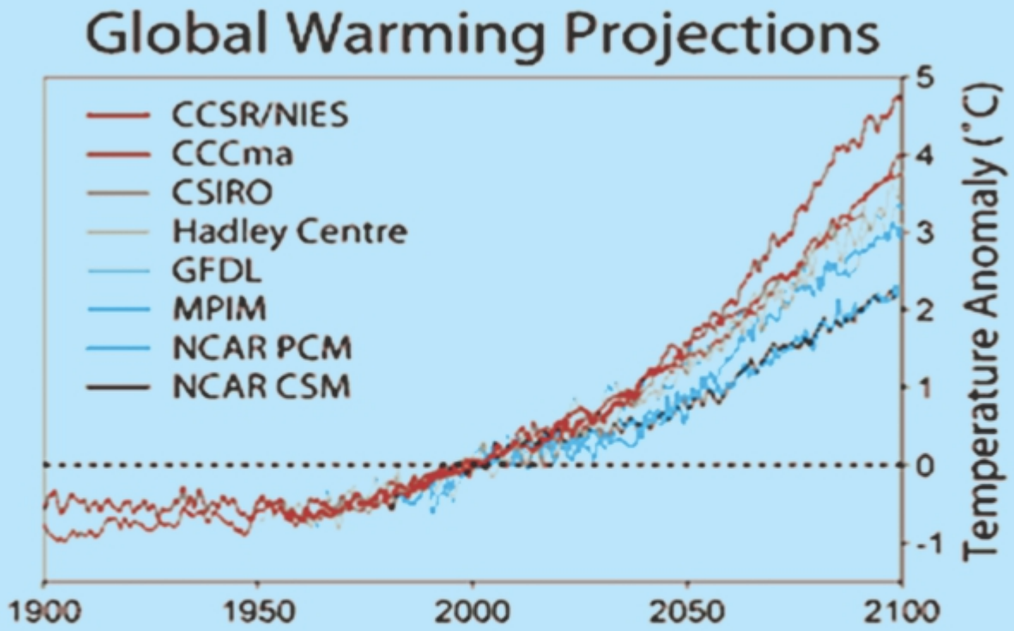
Co_2 LEVEL 1959: 313 ppm
Co_2 LEVEL 1996: 360 ppm

DEFORESTATION AT THE RATE OF 60 ACRE/MIN IN TROPICAL COUNTRIES

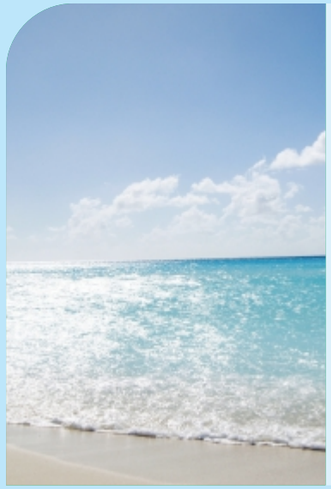
1 TREE ABSORBS AROUND 2MT CO_2 IN 100 YEARS

GLOBAL WARMING is here...

Earth temperature rises average 1°C in a century.



GLOBAL WARMING EFFECTS



RISE IN SEA LEVELS

10 inches since 1990

3 feet rise till the end of 2100

Netherlands: 27% of land below sea level

Bangladesh: 60% of country resides at sea level

Maldives: Average height from sea level 1.5 Mtr

RAINFALL

Heavier downpours

Deeper droughts

EXTREME WEATHER

Occurrence and concentration of severe climate events, such as floods, famines, heat waves, tornados and twisters

EXTINCTION OF SPECIES

Snow leopard in the Great Himalaya

Golden Toad in Monteverde Cloud Forest

Harlequin Frog in Costa Rica

GLOBAL WARMING EFFECTS

CHANGE IN AGRICULTURAL PRODUCTION

Higher yields (more varieties of weeds)

More area under cultivation (sea levels)

FOOD CRISIS

Higher temp and acidity in sea water

Affecting food for fishes

Extreme weather affecting the agricultural production through out the globe

DISEASES

Bacteria and viruses can survive better at higher temperature

New diseases: Saars / Swine Flue

Distribution of mosquitos to new areas as humidity and temperature rises

GLACIAL IMBALANCE

GREENLAND: 32 glacial earthquakes between 4.6 and 5.1 on the Richter scale

Huge de-stabilization in progress

This ice would be enough to raise sea level 20 feet if it broke up and slipped into the sea

FIGHT AGAINST GLOBAL WARMING

United Nations
Framework Convention
on Climate Change.

United Nations Framework Convention on Climate Change aimed at combating Global Warming by stabilization of GHGs in the atmosphere

Kyoto Protocol is adopted by 187 countries on 11th December 1997 in Kyoto, Japan

COUNTRY	PER CAPITA EMISSION IN MT CO2	WORLDWIDE CONTRIBUTION IN GHG
WORLD	4.52	100%
CHINA	4.75	21.01%
USA	19.94	20.08%
RUSSIA	11.83	5.59%
INDIA	1.25	4.68%

Kyoto Protocol

KYOTO PROTOCOL

INDUSTRIALIZED COUNTRIES WILL REDUCE THEIR
COLLECTIVE EMISSIONS OF GREENHOUSE GASES BY 5.2%

EMISSION LEVELS WILL BE MEASURED AGAINST A BASE YEAR OF 1990

National REDUCTION limitations:
A) 8% :European Union B) 7%: USA C) 6% Japan

CAUSED A THREAT TO SLOW DOWN ECONOMY

NEW MECHANISM WERE LAUNCHED
1... Emission Trading Mechanism 2... Joint Implementation Mechanism
3... Clean Development Mechanism

BENEFITS OF MECHANISM
1.. Allowance and carbon credits are tradeable instruments
2.. Financial investors can buy them on the spot market

TECHNOLOGY TRANSFER TO DEVELOPING AND LEAST DEVELOPED COUNTRIES

YASHWANT ENERGY PRIVATE LIMITED

RESPECT NATURE. PROTECT NATURE.

WASTE TO ENERGY PROJECTS IN INDIA
CHALLENGES AND OPPORTUNITIES
AGRO PROCESSING SECTOR

CASE STUDY - STARCH INDUSTRY

Agro processing industry - 40 Years

Started with capacities like 25 TPD crushing

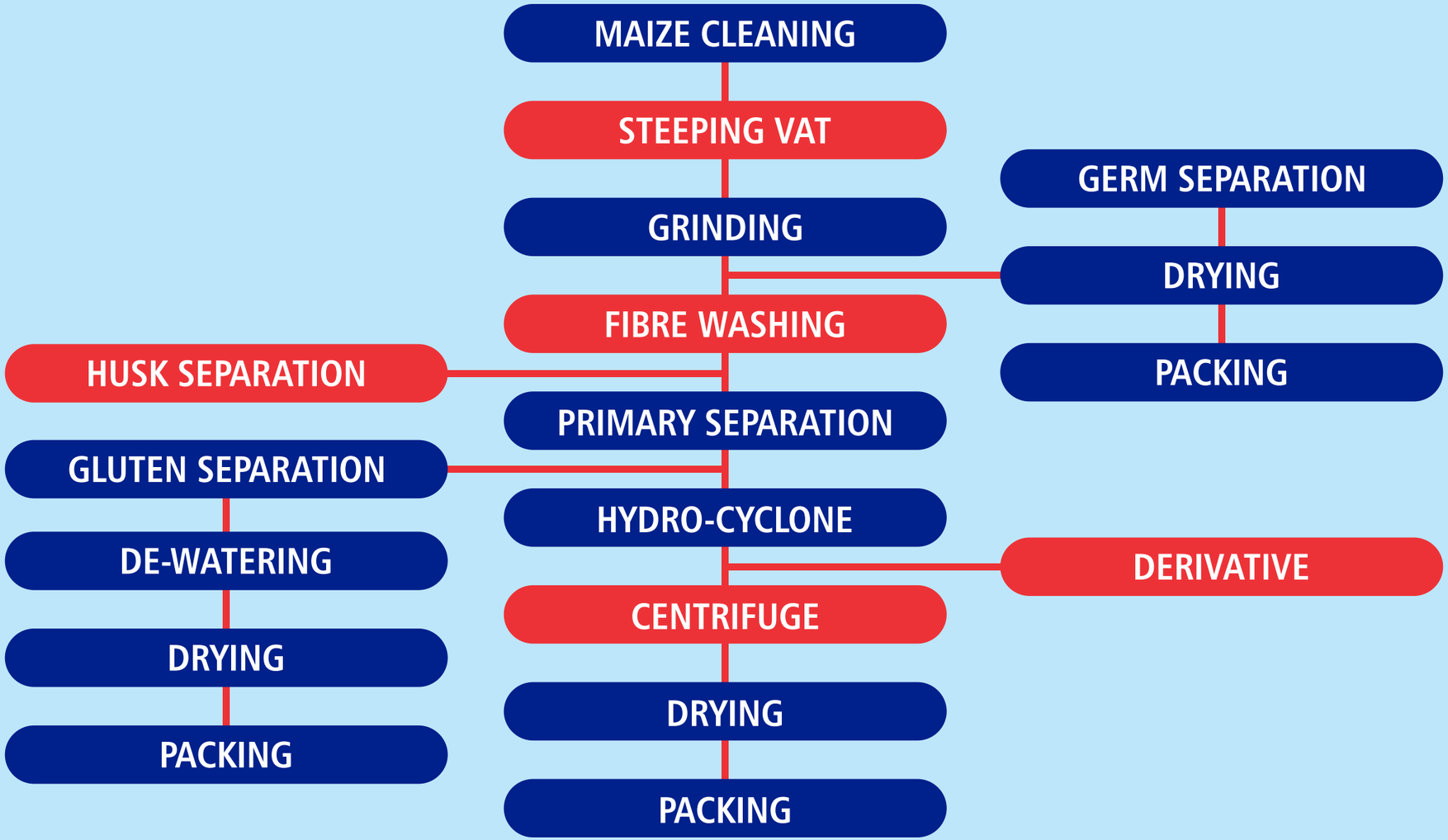
Installations till 700 TPD

India: 4500 TPD installations (+2500 in next 2 Years)

Maharashtra: 1400 TPD installed capacity

Growth: 300% since last 5 years

THE PROCESS


MAIZE CLEANING
STEEPING VAT
GRINDING
FIBRE WASHING
PRIMARY SEPARATION
HYDRO-CYCLONE
CENTRIFUGE
DRYING
PACKING
HUSK SEPARATION
GLUTEN SEPARATION
DE-WATERING
DRYING
PACKING
GERM SEPARATION
DRYING
PACKING
DERIVATIVE

WASTE GENERATION

STEEPING: CORN STEEP LIQUOR

MAJOR INGREDIENTS
PROTEINS: 35-45%
LACTIC ACID: 20-25%
SUGARS: 6-10%
MINERALS: 8-10%
FIBERS: 5-10%

DE-WATERING AND WASHING

DERIVATIVE PLANT: BACK-WASHING OF ION EXCHANGE

CSL

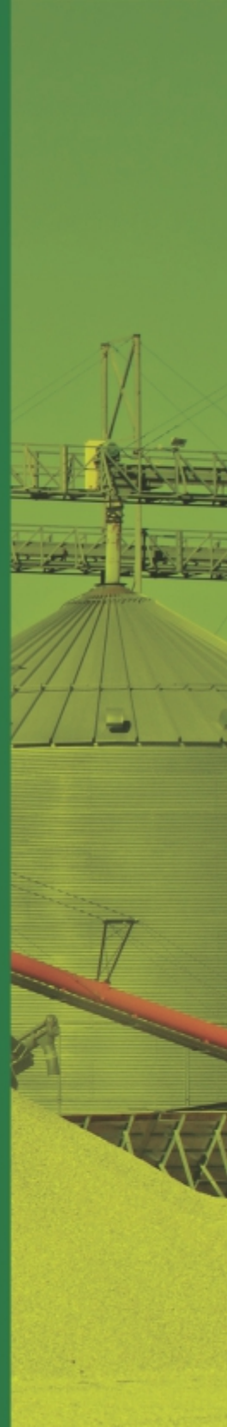
GENERATION: 0.6 M3/MT CRUSHING
COD : 1,20,000 mg/LIT

OTHER WASHING

GENERATION: 3-4 M3/MT CRUSHING
COD : 2,000 mg/LIT

OVERALL

GENERATION: 4 M3/MT CRUSHING
COD : 20,000 - 22,000 MG/LIT



90-92% reduction of COD in Bio-Digester

Potential of 40 M^3 Bio-Gas generation per MT Maize

CH4 Content: 60 - 65%

Calorific Value: 4800 - 5400 $Kcal/m^3$

Power Generation: 2 to 2.2 Kwh/m^3 of Bio-Gas

A CASE STUDY

FOR 100 TPD MAIZE CRUSHING PLANT

Bio-Gas Generation 4000 M^3 / Day

Power Generation 375 KWH

CO_2 Emmision Reduction 12,000 MT / Year

OVERALL NATIONAL PERPSECTIVE

Power Generation 25 MW

CO_2 Emmision Reduction 8,00,000 MT / Year

PRACTICES

CSL was used as culture for manufacturing PENICILLIN as well as in cattle feed

Open lagoon system for COD reduction

Crude lagoons covered by HDPE to recover BIO-GAS

Use of BIO-GAS for drying applications in fiber and protein use of bio gas in boiler for steam generation

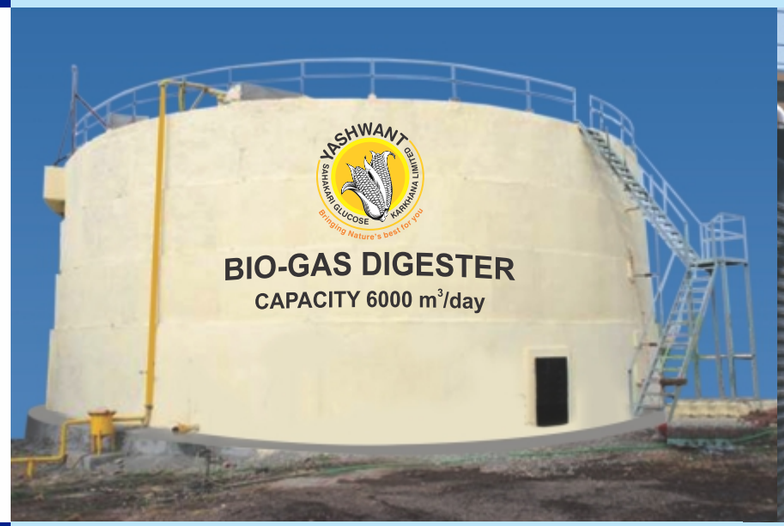
- Establishment of high efficient bio-digesters (CSTR / UASB) at sites opting for open lagoons / covered lagoons
- Higher reduction of cod to generate more BIO-GAS
- Installation of BIO-GAS based power generation plant
- Use the waste heat of flue gas from gas engine in heating applications
- Avail CDM benefits for methane emission reduction (for bio-digester installation) and for power generation

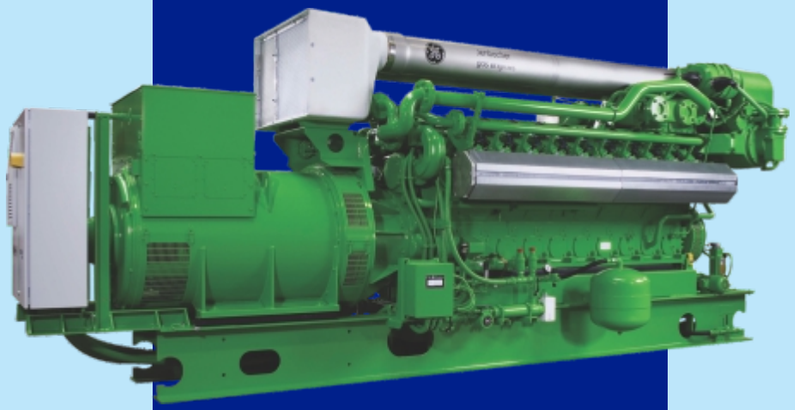
United Nations
Framework Convention
on Climate Change.

Registered Ref. No. 2399

YASHWANT SAHAKARI GLUCOSE KARKHANA LIMITED

Bringing Nature's best for you





1000 KWH BIO-GAS BASED PLANT

AT YASHWANT SAHAKARI GLUCOSE KARKHANA LIMITED

Siddheshwar Nagar, Padali-Shirala, Maharashtra, India

YASHWANT ENERGY PRIVATE LIMITED

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WASTE TO ENERGY PROJECTS IN INDIA
CHALLENGES AND OPPORTUNITIES
DISTILLERY PLANT SECTOR

CASE STUDY - DISTILLERY PLANT

30,000 Liters per day Distillery Plant

Source of effluent spent wash

36,000 Kg COD load per day

CURRENT PRACTICE

- Compositing with pressmud
- Primary, Secondary, Tertiary Treatment
- Evaporation Incineration

PROBLEMS AND ISSUES

- Leakage in Compositing
- Methane emission in to atmosphere during compositing
- Other technologies are energy consuming technologies

POWER EXPORT

DIGESTER

BIO-GAS

BIO-GAS ENGINE

BAGASSE

EFFLUENT

WASTE HEAT

TREATED EFFLUENT

4% DS
CONCENTRATE

EVAPORATOR

50% SOLID

BRIQUETTE

PROPOSED ZERO DISCHARGE SOLUTION

KEY FEATURES OF DISTILLERY PLANT

- No additional energy required for evaporation
- Saleble products - Power and Fuel Briquette
- Provides additional flexibility to distillers to run plant through out the year
- Complies with pollution norms being a “0” discharge plant

PROJECT FEATURES

Capital investment of Rs.14 Cr
(Two Million Euros)

Use of state-of-the-art technology
like Effluent Evaporator and
Bio-Gas Engine

Export of 7 to 8 million units of power

Sale of 3000 MT to 3500 MT
Briquettes

BUSINESS POTENTIAL

Distillery Installations...

Maharashtra	66
India	328

Collaboration with overseas technology suppliers like Effluent Evaporator and Bio-Gas Engine manufacturers

Financial collaboration with renewable energy funds

Potential of financial investment of 40 million Euros only in Maharashtra

INDUSTRY

Initial capital investment

Change in current practice like replacement of BIO-GAS based dryer to steam heated fiber dryer

TECHNOLOGY

BIO-GAS contains about 1 to 2% H_2S harmful for engine

Requirement of gas purification system

Availability of BIO-GAS engines

POLICY

Access to finance

IT benefits

Custom duties

SUGAR INDUSTRY

Distillery Plant

1.2 Kg COD / Lit Alcohol Manufactured

1200 KWH Plant On 30 KLPD Distillery Unit

Sugar Plant

Effluent 0.5 M^3 / MT of Crushing

3.5 to 4 Kg COD /MT Crushing

GRAIN BASED ALCOHOL PLANT

0.5 Kg COD / Lit Alcohol Manufactured

700 KWH Plant on 30 KLPD Distillery Unit

VEGETABLE OIL INDUSTRY

COD Level:5000 MG / Lit

DAIRY UNIT

COD Level:8000 MG / Lit

POTENTIAL - AGRO PROCESSING

INDUSTRY REQUIREMENTS

- A corpus fund like carbon fund
- Target the waste to energy field as priority sector to banks and financial institutions
- Easy access to technology and suppliers
- PCB conditions to be re-looked considering the CDM investment potential
- It benefits

YASHWANT ENERGY PRIVATE LIMITED

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INNOVATIVE BUSINESS MODEL FOR HOUSEHOLD BIO-GAS PROJECT

Basic Data*

	MAHARASHTRA	INDIA
Population residing in rural area	56 millions	746 millions
Milking livestock	37 millions	485 millions

Rural economy sustaining with milk business

Data indicates availability of 2 animals for 3 persons family

* (ECONOMIC SURVEY OF MAHARASHTRA 09-10)

CURRENT PRACTICES

USE OF COW DUNG

Utilization for manure
Dried and used as fuel

COOKING FUEL USE

Wood, Kerosene, LPG, Dry Cow Dung

USE OF BIO MASS FOR FUEL CAUSING SERIOUS RESPIRATORY AND VISUAL HEALTH PROBLEMS FOR THE WOMEN

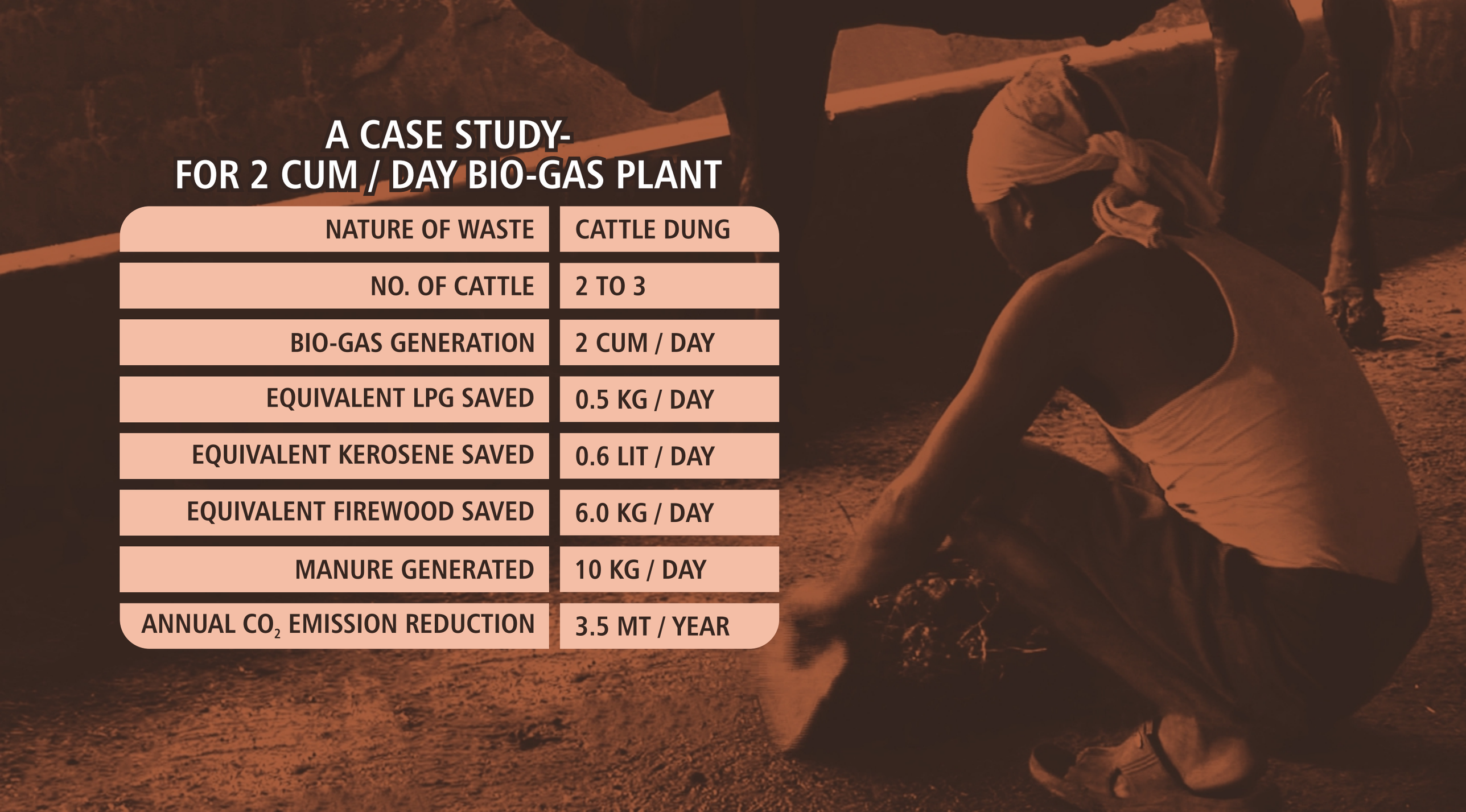
DEFORESTATION BY THE USE OF WOOD AS FUEL

(Average 2.5 MT consumed in a year by a family)

BASIC OVERVIEW OF HOUSEHOLD BIO-GAS

- Use of non-conventional energy for fuel
- Promoting organic farming by using slurry
- Reducing emission of green house gases
- Improvement in sanitation & overall health
  Reduction of the contamination of ground water by treating human and animal waste
- Reducing deforestation
- Mitigation of drudgery of rural women, reduce pressure on forests and accentuate social benefits

SOCIO COMMERCIAL BENEFITS OF
HOUSEHOLD BIO-GAS PLANTS



A CASE STUDY-
FOR 2 CUM / DAY BIO-GAS PLANT

NATURE OF WASTE	CATTLE DUNG
NO. OF CATTLE	2 TO 3
BIO-GAS GENERATION	2 CUM / DAY
EQUIVALENT LPG SAVED	0.5 KG / DAY
EQUIVALENT KEROSENE SAVED	0.6 LIT / DAY
EQUIVALENT FIREWOOD SAVED	6.0 KG / DAY
MANURE GENERATED	10 KG / DAY
ANNUAL CO_2 EMISSION REDUCTION	3.5 MT / YEAR

FINANCIAL

Initial capital investment

Access to finance

TECHNOLOGY

Rusting problems for ms dome type units

Leakages in concrete models

Uneasy handling and installation of the units

Geographical issues

POLICY

Heavy taxation compared to other renewable sectors

Number of targets under NBMMP

PROJECT FEATURES OF PRE-FABRICATED BIO-GAS PLANT

FINANCIAL FEATURES

COST OF THE UNIT	**Rs. 20,000.00**
Farmer Contribution	Rs. 5,000.00
Loan	Rs. 15,000.00
5 YEARS MONTHLY INSTALLMENT	**Rs. 350.00**
FARMER'S BENEFITS	
Central Financial Assistance (if Avl.) (NBMMP)	Rs. 9,000.00
Savings in Cooking Fuel (Per Month)	Rs. 600.00
Organic Manure (Annual Minimum Income)	Rs. 2,500.00

Social benefits like creation of job opportunities for erection of the plants and their maintenance

SUCCESSFUL INSTALLATIONS...

Thank You...

— Team Yashwant Energy Private Limited