A2P Energy Solution Pvt Ltd

Biofuel from waste for a cleaner, healthier India

Company registration No	U37200CH2018PTC041886
DIPP No	DIPP34685
Founder	Sukhmeet Singh
Location	Chandigarh
Email	sukhmeet@a2penergy.com
Contact No	+91-8146659318
Company URL	https://www.a2penergy.com/
Founding Year	2018
Stage	Scaling/ Growth Stage
Industry/ Sector Focus	Thermal Power Plants, Cement, Process and Waste recycling

SUSTAINABLE DEVELOPMENT GOALS

7 AFFORDABLE AND CLEAN ENERGY

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

13 CLIMATE ACTION

The ~~Problem~~ Epidemic

35 million tonnes of straw is produced every year: most of it is burned on the fields

HEALTH

"Delhi Most Polluted Capital In the World…"
Published :March 6, 2019

hindustantimes

"Delhi kids have Smaller Lungs compared with children in US due to Air Pollution"

Journal of Indian Paediatrics

ECONOMIC

"Decreasing Farmer's Income Causing Increase in Suicides"

Average of over 1000 farmers suicides a year in Punjab

Indian coal power plants world's most polluting

Carbon emissions from coal-based thermal power plants in India are rising fast and will continue to go up in the near future. These plants are among the most inefficient, polluting and water intensive in the world, warns a recent report

The Third Pole

'70% Of India's Coal Plants May Fail To Control Pollution Even After 7 Years'

Indiaspend

Main Stakeholders In Biomass Fuel Value Chain

Despite the huge demand and availability there are multiple issues with various stakeholders.

Farmers

Biofuel Manufacturers

Buyers

Challenges for Farmers

Farmers

- No **structured selling points**
- **No discoverability** on buyers
- Most biomass ends up **burning** or **non commercial** use

Meeting with farmers for biomass procurement | Burning of biomass on fields in Gujarat

Challenges for Biofuel Manufacturers

Biofuel Manufacturers

- Limited access to **sales points**
- Not able to have longer payment cycles
- Quality/Certifications

Gujarat based biomass briquette manufacturer

Challenges for Biofuel Buyers

1. Reliability

2. Quality and Quantity

3.Lowest Cost/GCV

4. Seasonal Variations

5. Impact Measurement

A2P Energy Solution Private Limited

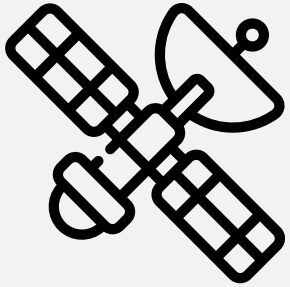
Assess, Explore and Plan for Biomass Usage	Biomass Collection, Storage, Processing and Supply	Biomass/Fuels Trading Platform
Biomass assessment studies using - its tech models built on satellite images - by deploying on the ground assessment teams	Identify Collect Process Fulfilment Steam Based	Connecting buyers, manufacturers and farmers for biomass trading

Biomass Planning : 2 scenarios

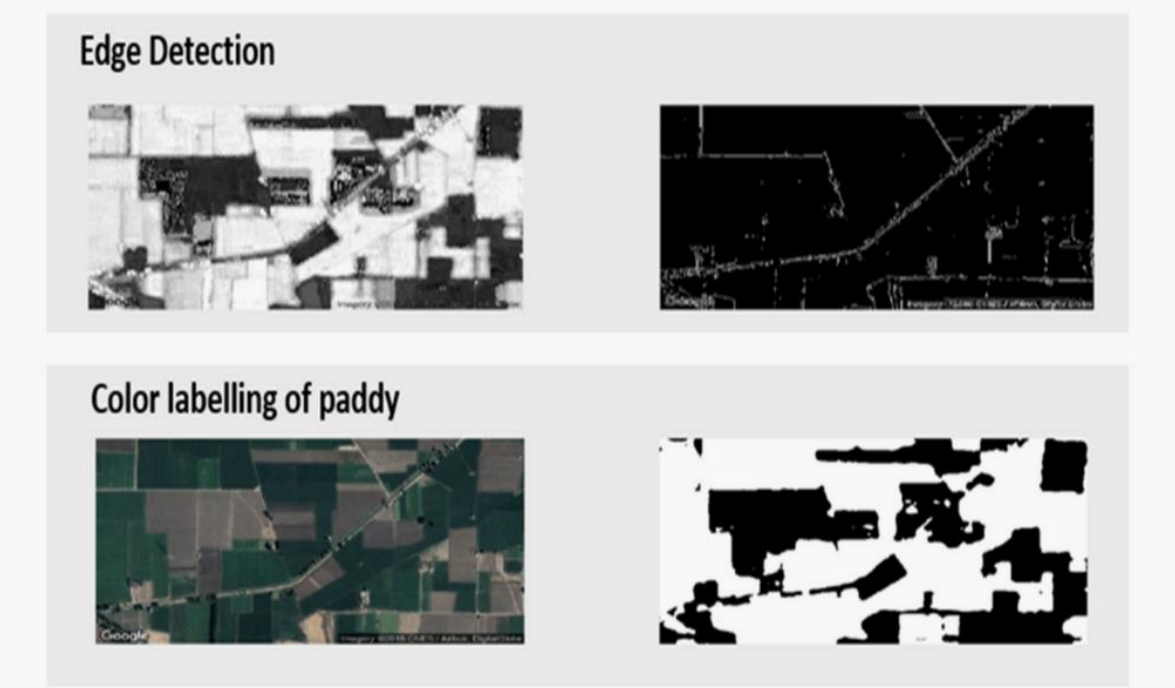
Available	Not-Available
1. Assessment of Biomass in Geography	1. Identify Alternate Crops
2. Onboarding of multiple farmers and suppliers	2. Formation of Farmer groups/FPOs
3. Bidding and Supply	3. Digitization of Material Management System
4. Open and fair pricing system	4. Logistics Management
5. Fixed charges for platform usage	5. Dedicated and continuous supply through FPO’s

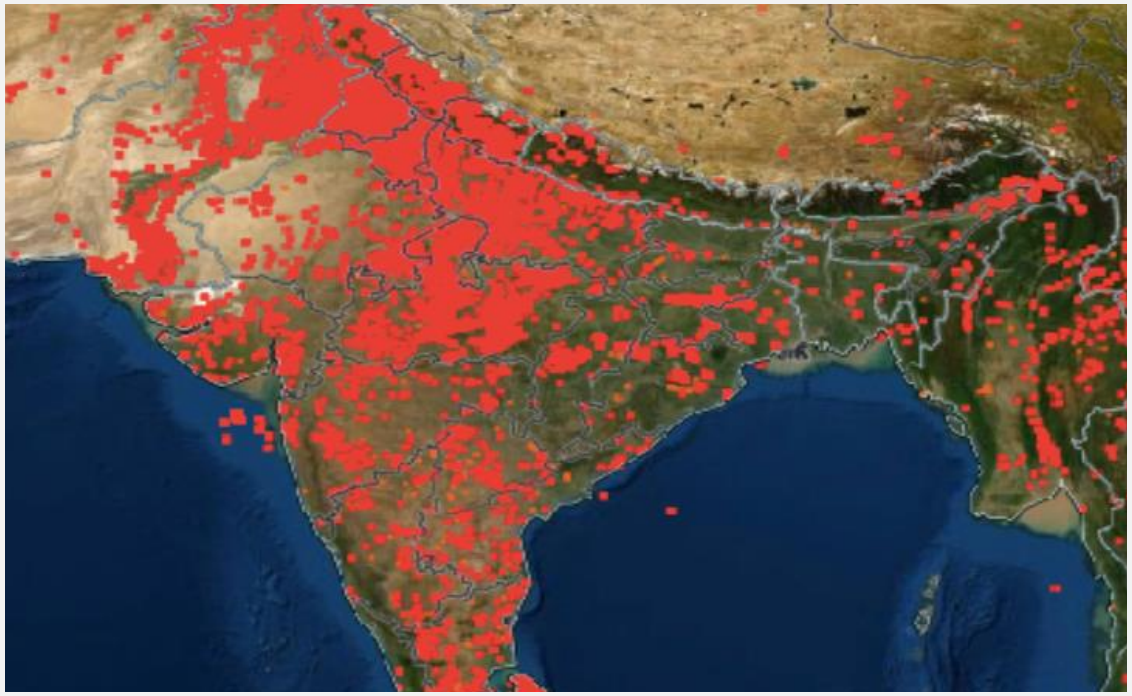
CropBurning.in : Reduce cost of biomass collection through AI driven satellite imagery

Automated straw identification processes for farmer entrepreneurs



Fire detection through geo imaging reduces cos of collection by ~12%. Joint project with Google AI and NVIDIA.

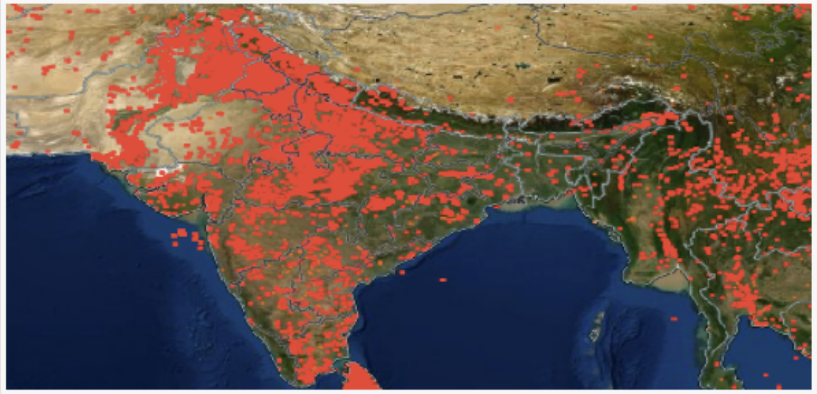




www.CropBurning.in

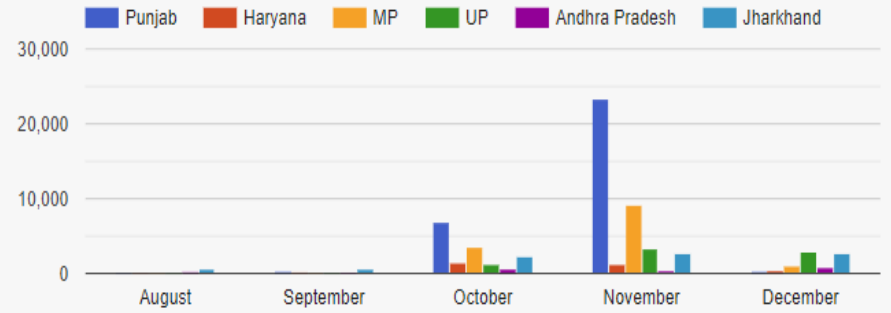
Fire Points in India

View in Detail



Paddy Season Biomass Fire Data for 2023

View in Detail



All India Biomass Fires

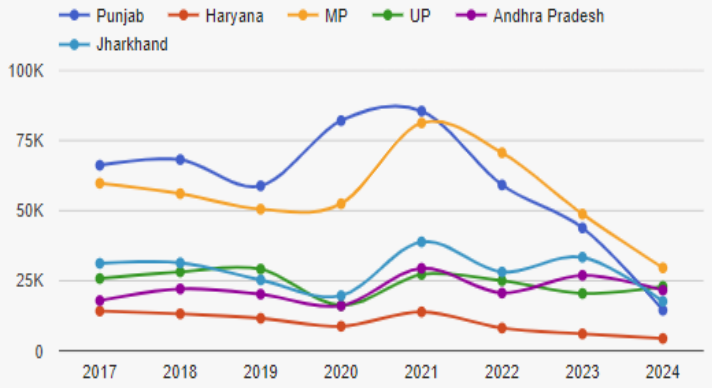
08 Aug 2024

	2023	2024	%
No. of Fire Points in August	3015	290	90↓
No. of Fire Points in July	3376	1090	68↓
No. of Fire Points from Jan to Aug	338583	305974	10↓
Ranking			

Multi State Biomass Fire Data

View in Detail

08 Aug 2024

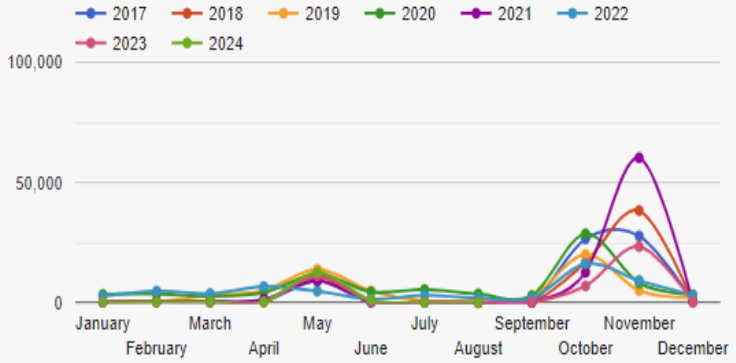


Multi Year Biomass Fire Data

View in Detail

Punjab

08 Aug 2024

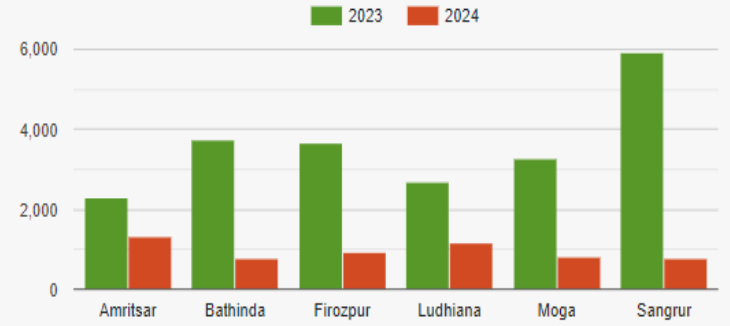


District Level Fire Tracking

View in Detail

Punjab

08 Aug 2024



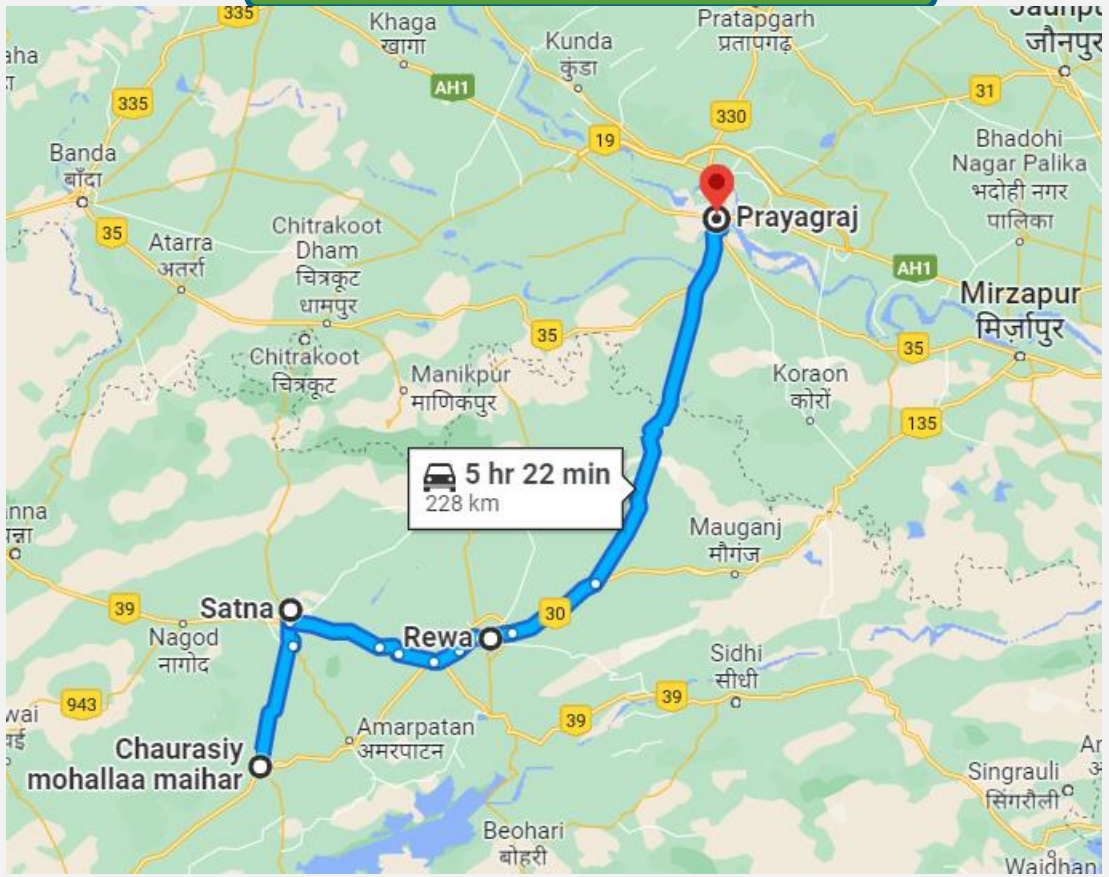
Case Study - 1

The following Case study is for a cement major

Following things were covered in Study:

1. General **availability** of Biomass
2. **Usage** Perspective in region
3. **Supply Risk** and Price Development
4. **Overall Impact** on Costing and Environmental Impact

Area Covered for Study



Case Study - 1

General availability of Material through Fire Tracking and Local Study

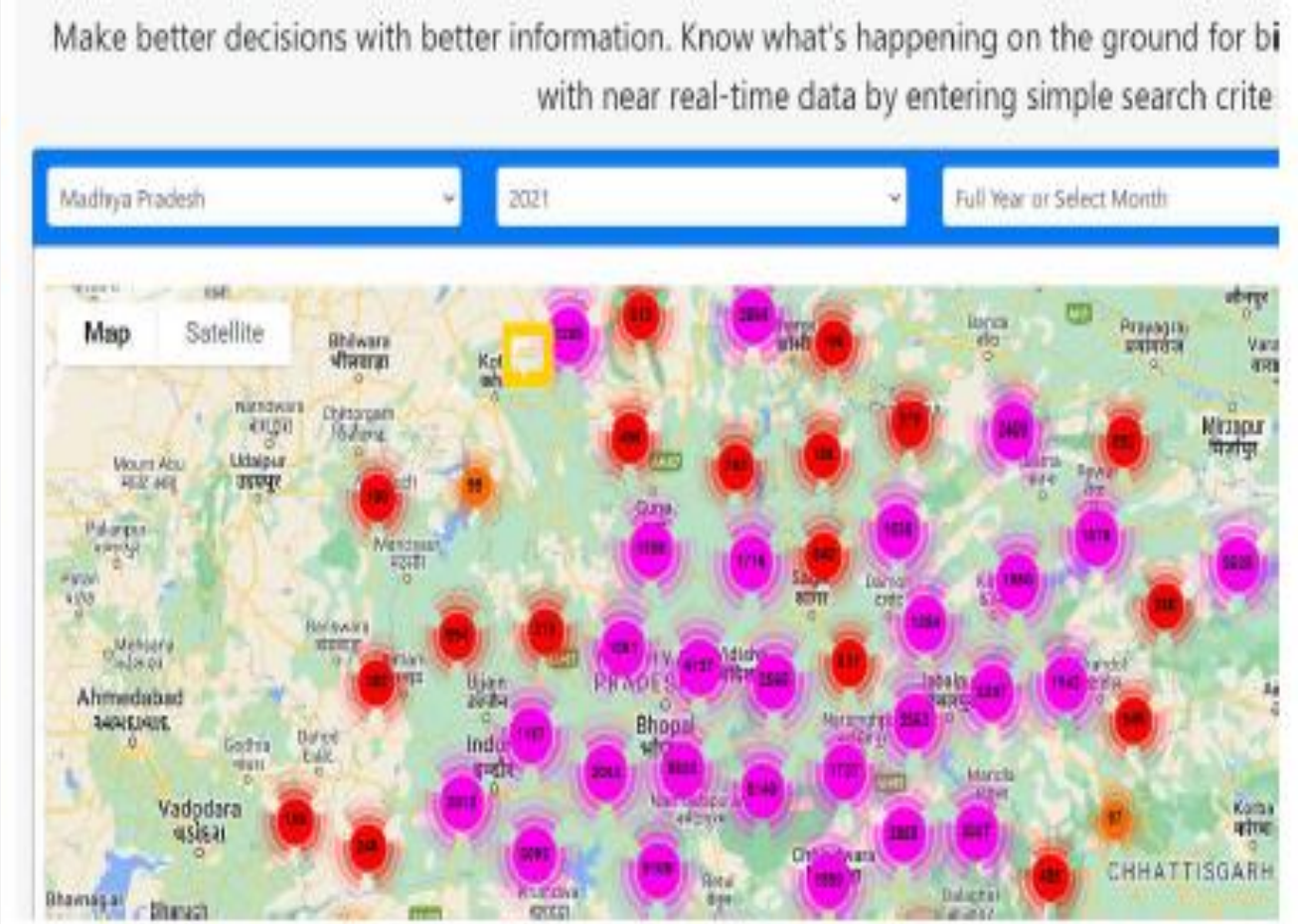


Fig 3: Fire points in and around Satna Region

3.1 General availability of Biomass – Agri Residue

Sr. No	District	Crop	Area in Hectares	Yield Per hectare (kg)	Total Yield (MT)	Stalk Availability without Moisture (MT)
1	Satna	Rice	132000	2460	324741	244530
		Kharif Sorghum	7600	2476	18820	9410
		Barley	20000	3910	78200	39100
		Chick pea	116000	1476	171309	85654
		Pigeon Pea	75000	1537	115280	57640
		Soyabean	59800	581	34800	17400
2	Rewa	Rice	121300	2159	261887	224708
		Kharif Sorghum	26120	2258	58980	29490
		Chick pea	54300	1374	74660	37330
		Pigeon Pea	32900	686	22600	11300
		Soyabean	42500	914	38850	19425
3	Sidhi	Rice	113950	2049	233500	211092
		Kharif Sorghum	23510	2241	52700	26350
		Pear Millet	32500	2342	76140	38070
		Maize	38100	2625	100020	50010
		Barley	18130	3104	56290	28145
		Chick pea	66600	1151	76700	38350
		Pigeon Pea	46200	1277	59020	29510
4	Panna	Rice	58400	2400	140200	108186
		Kharif Sorghum	7600	2319	17630	8815

Case Study - 1

Storage and Transport Mechanism

For Existing Materials : Bidding On the Platform

Farmers

Selling biomass directly

Farmers

Open Market for biomass selling

Credit Facility

Blue Boxes highlights the benefits of platform for each stakeholder

A2P Energy Platform

ABC Corporation

Sawdust Suppliers / Agri waste suppliers

Selling Briquettes or Pellets

Biofuel Manufacturers

Consistent Market

Credit Facility

Better & Transparent Pricing

Quality Assurance

Consistent Supply

Impact Reporting

Benefits of Biomass Study and Bidding

Biomass Availability	Clean visibility of the biomass available after assessment in the region.
Competitive Pricing	Bidding helps in getting the costs down because of more competition
Digital intervention and impact	Single source for entire material management (Invoices/PO's/ Deliveries)

Biomass Planning : 2 scenarios

Not-Available

1. Identify Alternate Crops

2. Formation of Farmer groups/FPOs

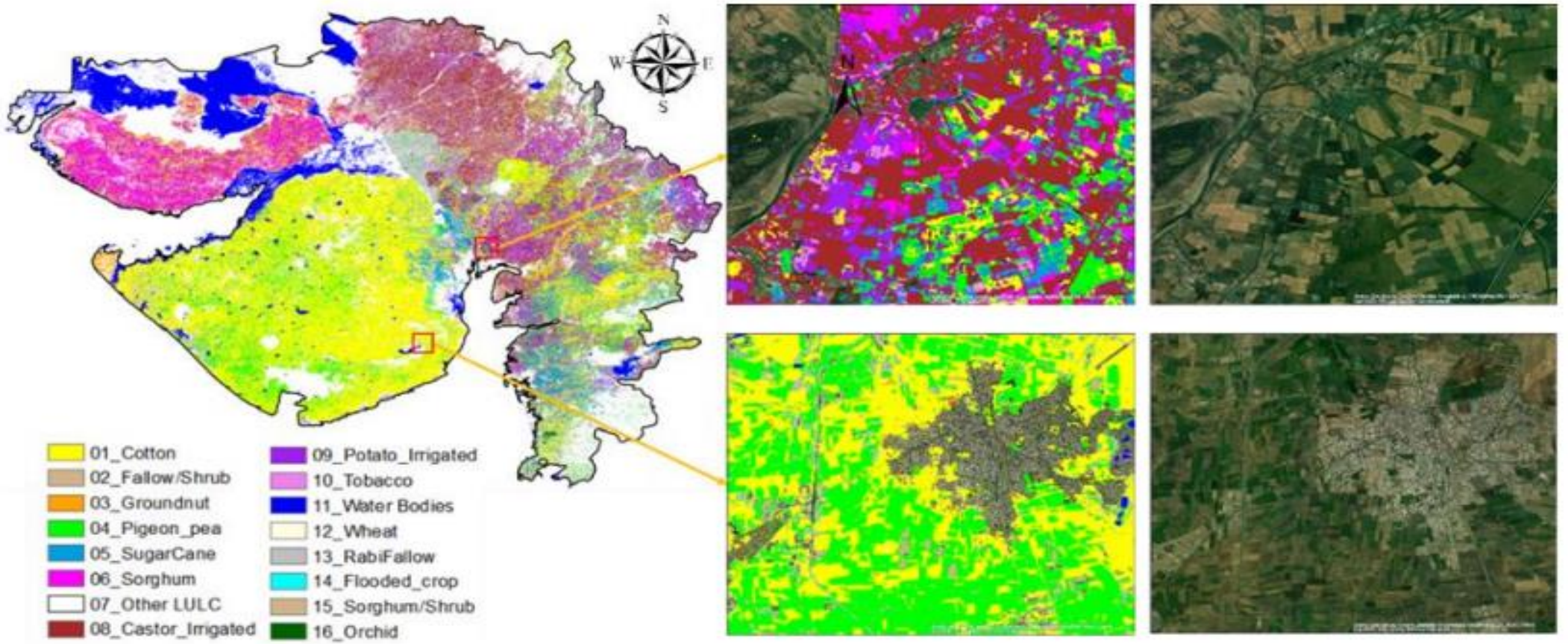
3. Digitization of Material Management System

4. Logistics Management

5. Dedicated and continuous supply through FPO’s

Case Study 2: Raw material Not-Available
Cotton Stalk and Groundnut

Raw material availability is the major challenge for captive plant and cotton stalks are abundantly available in Saurashtra. Approx. 40 Lakhs MT of unused stalk is available in the region.



Storage Locations

Based on our assessment and field study 3 locations have abundant of raw material availability

3 Prime Locations for setting up Plant

1. BOTAD

2. AMRELI

3. BHAVNAGAR

Geographical and Crop Data

Apart from cotton stalk (Moisture 35-50%) and availability in (Feb – June) there are other crops which are abundantly available in the region.

1. Juliflora (Nov - June)

2. Bagasse (Moisture is 30-40%)

3. Napier (Moisture is 60-70%) (Year Around)

4. Toor

Alternate Crops : Energy Grass Prospects

Energy grass can be grown year around and require minimum intervention. Following is the data regarding Napier.

1. Production/Acre	30 - 40 MT / cycle (Cycle at 45-50 per days)
2. Selling cost for farmers	1200-1500 Rs/MT: Rs 3 Lakh /year
3. Crop Cycle	First crop – 90 days → Second Crop – 60 days
	Every Crop after that - 45 - 50 days

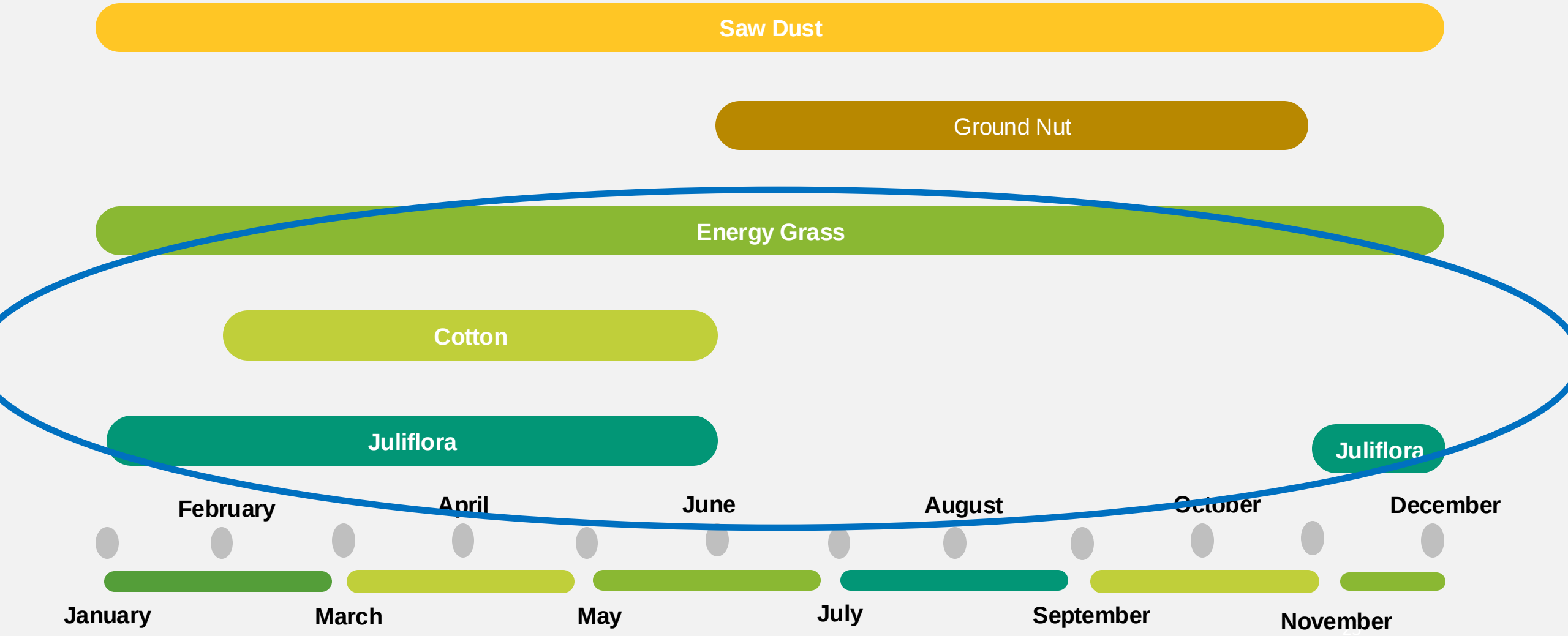
The grass is sown once and reaped after an interval and it regrows again-cycle for 5 years.

Energy Grass Prospects

First Week

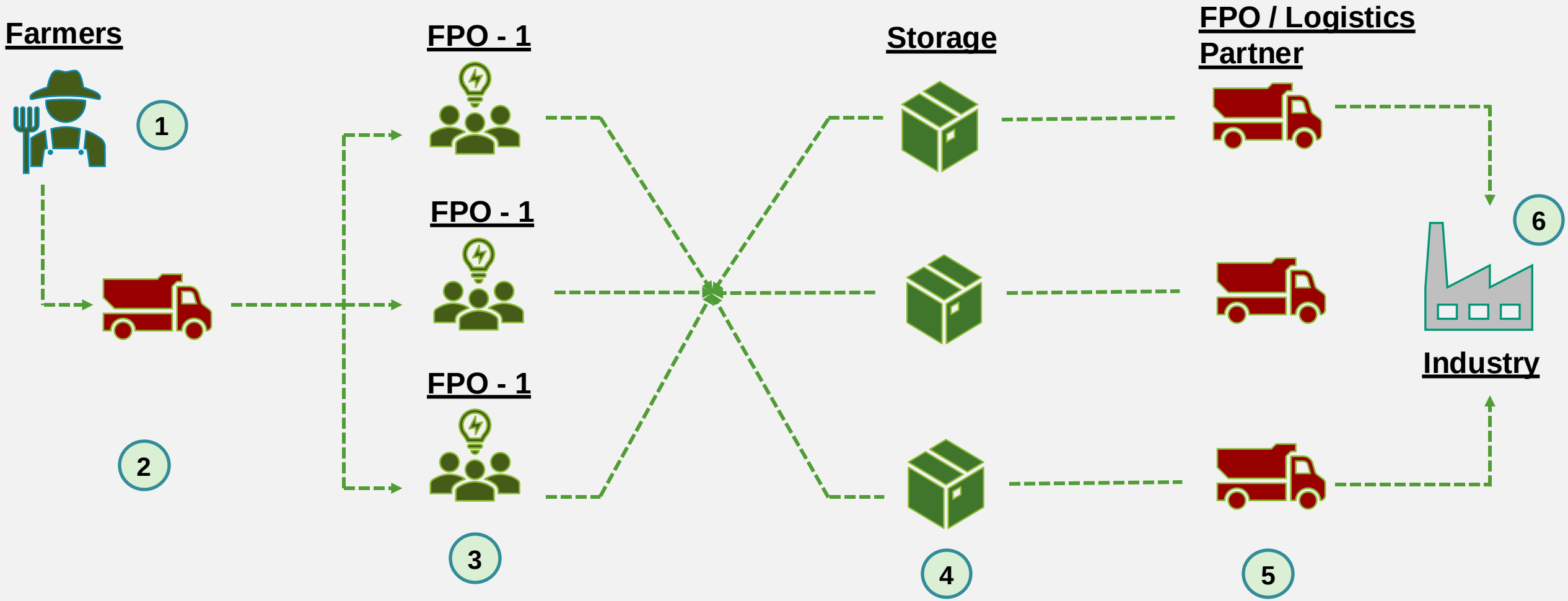
Grows upto 10-12 feet

Raw Material Availability Timeline



Supply Chain Setup

Graphical representation of material/goods flow from farm to Industry



Setup with Farmers/FPOs

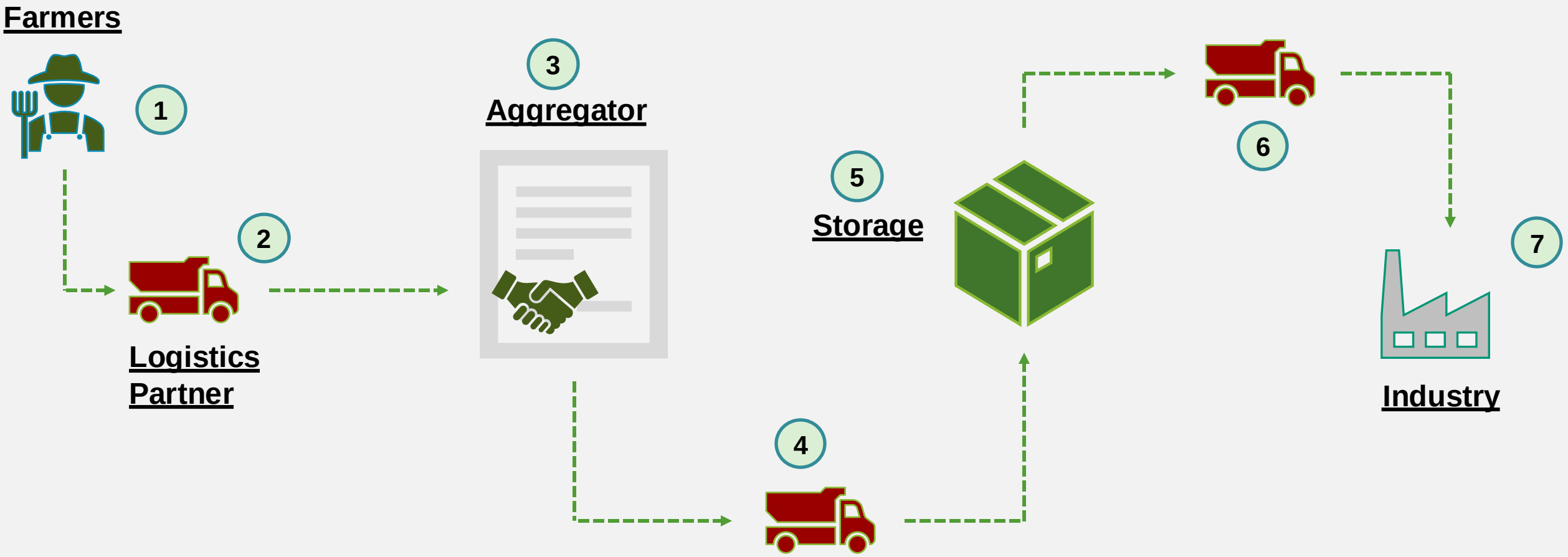
Survey methodology, Identification of Clusters and Engagement with Farmers

Date	Village	Farmer	Acres	Cumulative Acres
17/10/17	Sindra	Kuldeep Singh	9	9
22/10/17	Dhumma	Ragbinder Singh	9.5	18.5
22/10/17	Dhumma	Gurjinder Singh	4.5	23
22/10/17	Dhumma	Amarjeet Singh	4.5	27.5
25/10/17	Sadhror	Amanjeet Singh	3	30.5
25/10/17	Sadhror	Gurdeep Singh	2.5	33
25/10/17	Sadhror	Balbir Singh	1	34
25/10/17	Jansui	Puran Singh	10	44
26/10/17	Jansui	Puran Singh	10	54
27/10/17	Jansui	Puran Singh	7	61
27/10/17	Mirzaupur		2	63
27/10/17	Mirzaupur	Nariender Singh	1	64
27/10/17	Jansui	Soni	2	66
28/10/17	Jansui	Suriender	3.5	69.5
28/10/17	Mirzaupur	Fauji	2.5	72
28/10/17	Jansui	Teja Singh	1	73
28/10/17	Mirzaupur	Santosh Singh	4	77
28/10/17	Jansui	Nishan Singh	5	82
28/10/17	Mirzaupur	Lali	3	85
29/10/17	Mirzaupur	Lali	3	88
29/10/17	Jansui	Sukhwinder Singh	2	90
29/10/17	Jansui	Lakwinder Singh	8	98

List of Farmers where bailing was done in NPL Rajpura

Digitally Controlled

Graphical representation of material/goods flow from farm to Industry



Biomass Digital Market Place

Complete Biomass Life Cycle Management

Biomass Fuel Marketplace

- Buyer
- Manufacturer

QUOTATION & BIDS

- Quotation
- Bids
- Orders

DOCUMENTS

- PO List
- Invoice List
- Duplicate Invoice List

FINANCIAL DATA

All Client: Select Client...

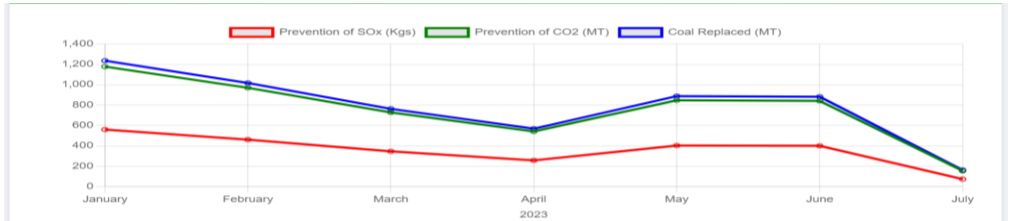
PO No.: Select PO No.

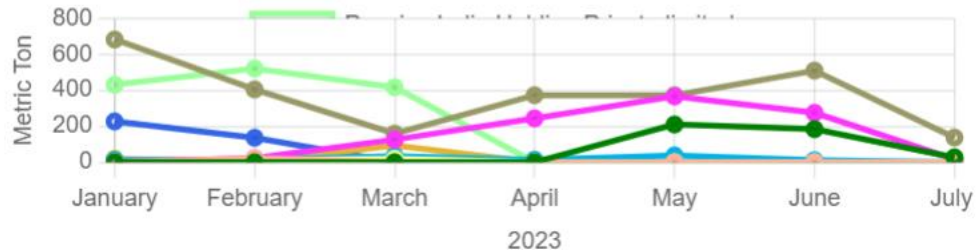
Time Line: All Data

Date: Select Date...

Delivered Quantity (MT)	Total No. Of Deliveries Sent	Active Orders	Completed Orders	Clients Onboarded	Manufacturer Onboarded
11281	591	12	16	10	21

Total Delivered Material (MT) — VIEW IN DETAIL





Value Of Material Traded (INR)
₹95563086

View Impact numbers

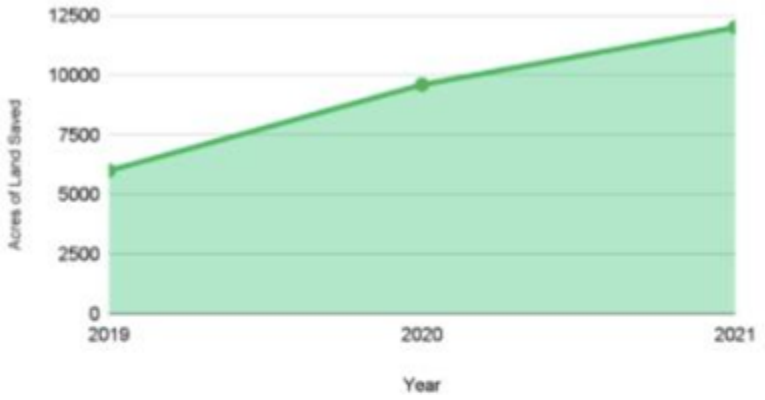
View PO Status

Impact dashboard : will be generated for clients

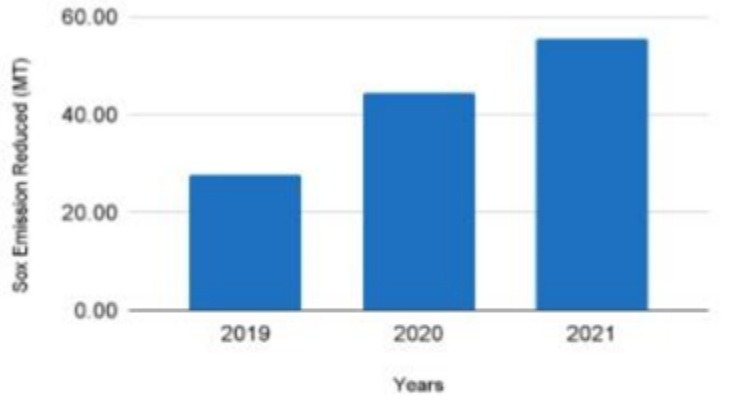
Carbon Points Earned

Year	Carbon Points Earned
2019	21
2020	33.6
2021	42

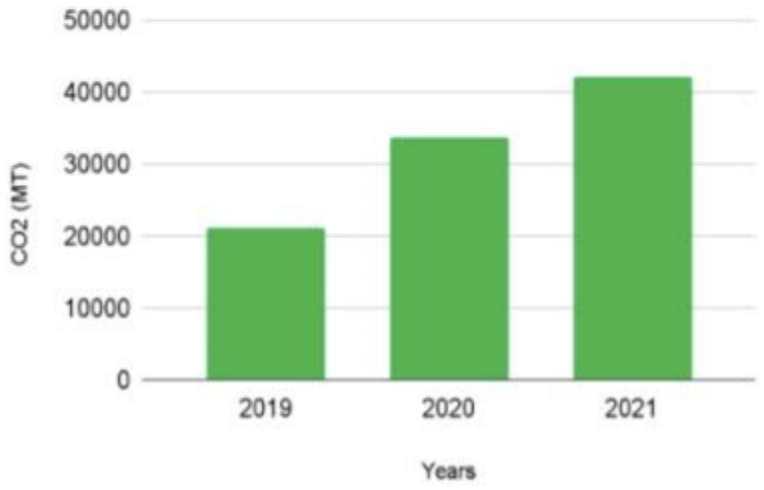
Acres of Land Saved



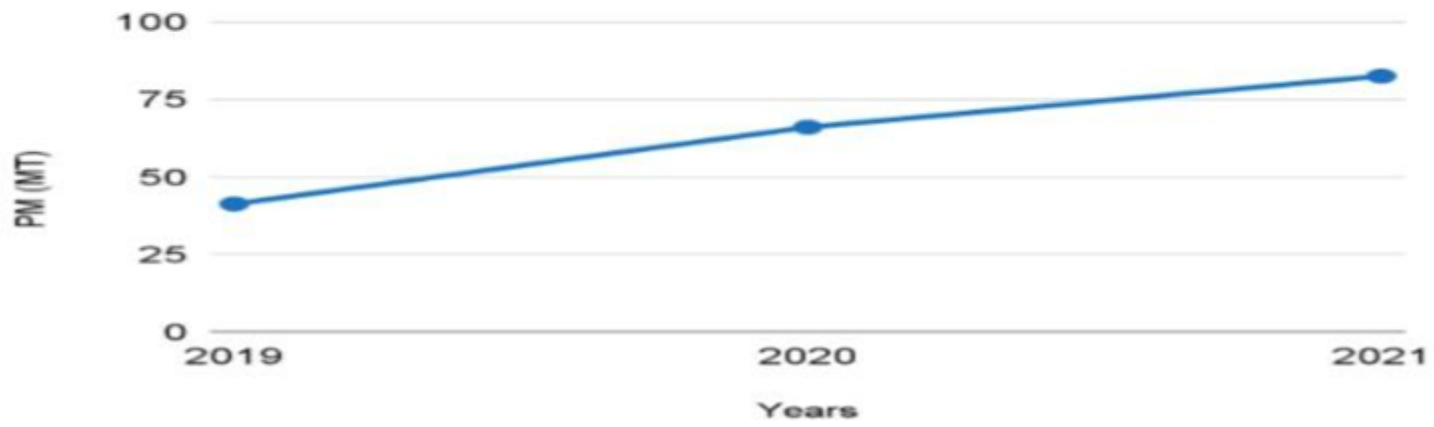
Sox Emission Reduced (MT)



Prevention of CO2 in to Atmosphere(MT)



Prevention of PM in to Atmosphere (MT)



Leadership Team with 110+ years of Rich Industry Experience

Sukhmeet Singh

Founder & CEO,
ISB

- 20+ years in technology including 6 years as an entrepreneur
- Focused on climate change, biofuels and creating a positive impact

Robert Berry

Board Member
Ex-head, European Bioenergy Research Institute

- 30+ years in development of B2B software for performance instrumentation & measurement of complex systems
- Leading capabilities in bioenergy and photonics

Priyadeep Kaur

Board Member, Product & Technology
Symbiosis

- 20+ years of startup + corporate tech experience
- Launched multiple products/platforms like Sports Panther, CoWorkingOps and Prodigy Numbers and CleanEnergy Trade

Pritish Chatterjee

Sales & Growth,
ISB

- 14+ years in B2B Sales.
- P&L leader - led sales and digital marekting
- Experience in the energy sector, online marketplaces, insurance.

Nitin Gupta

Strategy & Operations,
ISB

- 18+ years in consulting, corporate strategy & business transformation recognized for driving growth.
- Hands-on leader; experience in setting up & scaling across 0 to 10 Cr (solving for Jio scale) and 100 to 500 Cr setups.

Simranjeet Singh

Partner Network & Supply Chain,
Ex Reliance Power

- 12+ years In the power sector handling supply chain, production, quality and testing
- Hands-on supply chain leader with strong problem-solving capability

Traction

Winner: 1st Prize in **StartUp India** competition

Tweeted by Govt. of India

- Eight Global and National Awards, including from UN
- More than 10 partnerships: R&D labs and Unilateral Organization like WWF and UN
- Featured in more than 30 press articles

Partnerships

MAKE IN INDIA

EBRI
European Bioenergy Research Institute

INDIAN INSTITUTE OF TECHNOLOGY MADRAS

THE OGLESBY CHARITABLE TRUST

UNDP

WWF

Aston University
Birmingham

United Nations Award: Jan 2020

Winner of Global Maker Challenge: July 2019. Russia

September 1, 2022

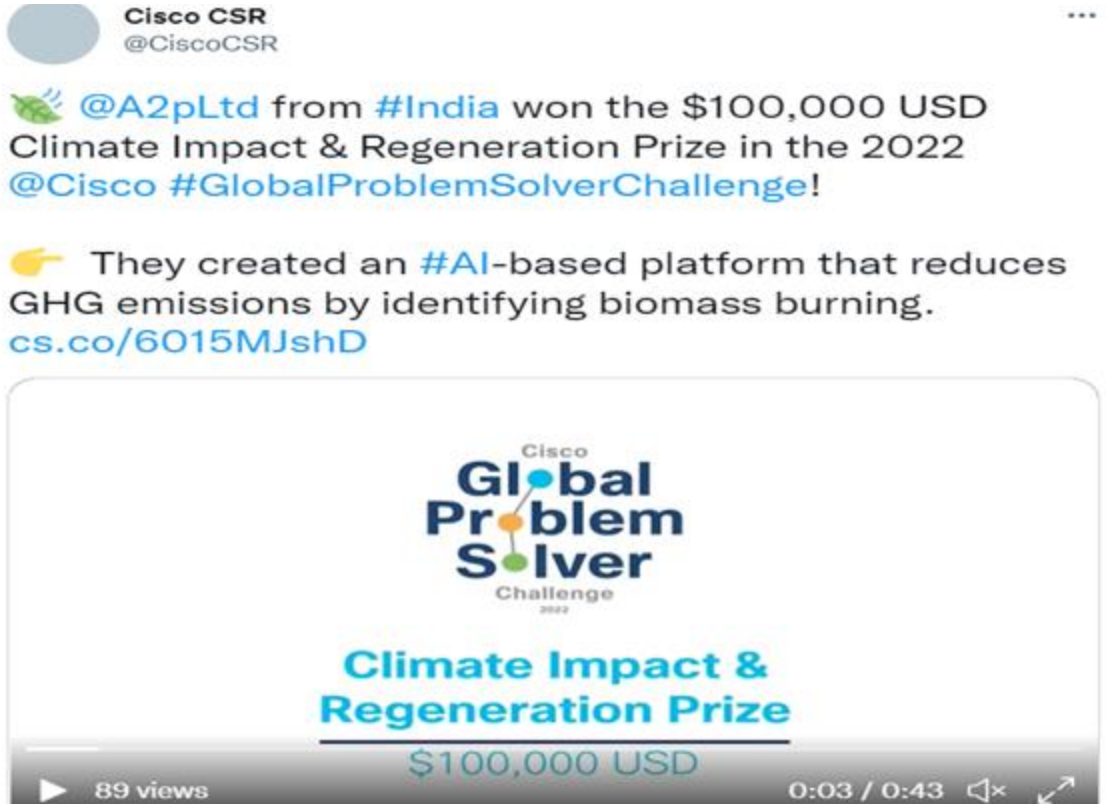
3 Comments

Corporate Social Responsibility

A2P Energy: How a tech platform is reducing agricultural pollution and increasing clean energy use in India

Alexis Raymond

A2P Energy won a global climate award of $100,000 from CISCO in Sep 2022



Pictures of the operations

Thanks

Sukhmeet Singh
sukhmeet@A2Penergy.com
8146659318
www.A2PEnergy.com

Long term - On Ground Operations

Farmers Produce Organization – FPO's

FPO is a generic name, which means and includes farmer- producers' organization incorporated/ registered either under Part IXA of Companies Act or under Co-operative Societies Act of the concerned States and formed for the purpose of leveraging collectives through economies of scale in production and marketing of agricultural and allied sector.

FPO	Activities Under
1. Are both Govt and Private	1. Storage Can be done
2. Govt has planned to form 10000 FPO's	2. Facilitates Logistics
3. 100 – 2000 Farmers are in FPO's	3. Will have Separate Transaction Account
4. 15 Lakh Equity is from Govt	4. Will be led by 10 chosen personnel