



PKLS INDUSTRIES PVT LTD

(Renewable Energy & Waste to Energy)

AN ISO 9001:2015 COMPANY

CIN : U45309UP2017PTC094651

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Head Office: Office No 316-17, 1st Floor, Sector-D, Shopping Square 2, Sushant Golf City,
Sultanpur Road, Lucknow (U.P) -226030. (M) +91-9575058348 / +91-7504575555
E-mail: MD@pklsgroup.com/profpk Singh@gmail.com Website: <https://www.pklsgroup.com>

2. INTRODUCTION OF THE PROMOTORS

2.1 The Company

PKLS Industries Pvt Ltd is a company incorporated under Companies act, 1953 in 2017. It has its corporate office at No 316-317, 1st Floor Sushant Golf City, Sultanpur Road, Lucknow (UP), INDIA, Pin 226030.

The PKLS Industries Pvt Ltd (PKLS Group) is a diversified holding company, active in a wide range of industries and businesses mainly in Uttar Pradesh (UP) & Madhya Pradesh (MP), INDIA. PKLS Group is backed by a team professional with a solid experience and track record of successfully setting up and running large companies in India and abroad. PKLS Group is focused on developing business by capitalizing on the potential of INDIA's rapid economic growth.

PKLS Industries Pvt Ltd. is a company working on **Renewable Energy & Waste to Energy** Projects in UP & MP, INDIA. It is planning to venture into manufacturing and marketing of **Renewable & Waste to Energy** projects of (CBG) Compressed Bio Gas, Bio Ethanol, Bio Coal/white Coal/Bamboo farming and its bi-products. It is also planning for backward integration into dairy, poultry, piggeries, bamboo & Napier grass farming to ensure self-sufficiency in **raw** materials for un-interrupted and smooth operations of bio fuels projects. At **PKLS**, we have strong factors which would be of **immense benefit & interest to any investor to** partner in our growth together. These factors include but not limited to the following:

- Manufacture of CBG (Compressed Bio – Gas)
- Manufacture of Bio Fuel (Bio Ethanol)
- Manufacture of Bio Coal/White Coal
- Bamboo/Napier Farming.
- Setting up of Solar power farms
- Providing engineering & contracting services
- Education Division operating under auspices of **M/s PKLS Social welfare Trust**

2.2 Details of the company

S. No.	Particulars	Details
1	Name of the applicant (Promoter)	PKLS INDUSTRIES PRIVATE LIMITED
2	GST	09AAJCP2385N1ZU
3	PAN	AAJCP2835N
4	Incorporation Details	CIN- U45309UP2017PTC094651
5	Type of Company	Private Limited
6	Mobile/Tel No	9575058348
7	Email of the Company	MD@PKLSGROUP.COM/ Profpksingh@gmail.com
8	Place of Registration	Uttar Pradesh
9	Date of Registration	07-04-2017
10	Income Tax No.	AAJCP2835N
11	Contact Person	Dr. L S Singh / Dr PK Singh
12	Designation	MD / Director

2.3 The team behind PKLS



Dr L S Singh – MD & CEO (Founder / Promotor)

Dr L S Singh is a seasoned & matured professional having multiple qualifications –**BSc** (Chemistry), **MA** (Economics), **LLB. (Labour Law & Taxation) WTM** from IIMM, **GDMM & PGDMM** from IIMM, **MBA, Lead Assessor** for ISO 9001:2000 from **RINA Egypt**, Research Fellowship/(Doctorate) (**Ph.D.**) in **ERP –Systems**.

He has 42 years’ rich experience in the field of Overall management as Business Head/CEO/COO/ED/MD for Automobiles, Steel, Cement, Power & Construction Industries.

He has worked with market leaders in India viz. Jaiprakash Associates (**JAYPEE-Cement**), **JSW Steel (Jindal Group)**, **Birla group**, **Lanco Power** and also in Senior/Top management roles abroad in steel manufacturing companies.

Dr Singh is a man with a mission & vision who mentors & guides the team and makes efforts to convert companies’ dreams into reality.

Ashim Kumar Mukherjee (Chief Advisory Officer)



He is a former bureaucrat from National External Wing (RAW) with a distinguished service career before taking voluntary retirement and then switched over to corporate sector in 2009. He has over 32 years’ experience in corporate regulatory affairs, governance, comprehensive due diligence, business intelligence, strategy, compliance and government liaison. He is highly networked with govt institutions. He was CEO of Eisen Industries Ltd, Mumbai from Oct 2019- Dec 2020.

Currently he is engaged in advisory role under Make in India mission. He is working as advisor and senior consultant to many reputed companies.

He is with us as **Chief Advisory Officer** to the Board of Directors of our company for taking up liaison and approval of the projects with the authorities.

Dr P K Singh (CEO)



He is MSc, PhD (Chemistry) from Rajasthan University, Jaipur. He has worked in public and private sector at various positions for over 40 years, mostly in cement industry. Later he joined an engineering university as a professor and superannuated from the position of Dean (Academics & Research) recently. He is a very mature and seasoned person having vast theoretical & practical experience and knowledge. He is working with us as CEO. He will look after all **green energy** projects of the company.



Er. M E Pawar (CTO)

He is a Graduate Engineer having over 24 years of experience, He is very sound techno-commercially and a dynamic person. He worked with **JSW group** at senior positions in various factories of the group such as Steel, Power, Cement. He did a stint at their corporate office too. He looked after planning and execution of several projects of the group. He is our CTO.



Ajay Kumar Singh (Executive Director)

He is a Graduate **Engineer and an MBA**. He is a dynamic person with 14 years' industrial experience in Cement and Steel sector in India and abroad. He is whole time Director and working as **Executive Director** to take care of day to day operational issues and planning for future strategy of entire operations our group companies.



Mr Harinder Singh (CFO)

He is a Cost & Management Accountant (**CMA**) having over 35 years' experience in companies engaged in production of soaps, detergents, cooking oil, white goods, wheat flour, steel D bars, chemicals, glass, sugar, alcohol, paper and power from natural gas. He has looked after finance and accounts function from planning stage till start of commercial operations and thereafter for many projects. He will lead the team for accounts, finance, commercial and compliance functions of the group company.

3.EXECUTIVE SUMMARY



3.1 BACKGROUND – BAMBOO FARMING PROJECT

Scope and Importance of Bamboo.

- Bamboo is an important part in the socio-economic development of India. It greatly contributes to the economy of the nation. Bamboo is largely produced by the north-eastern states of the country.
- The demand of bamboo in India is around 26 million metric tonnes approximately and is expected to increase in the near future.
- The multipurpose use of bamboo has made it a universal resource for the rural population and its demand is ever-increasing.
- To support this demand the government of India has launched the 'National Bamboo Mission', under the Ministry of Agriculture to promote the growth of the bamboo sector. 'National Mission on Bamboo Application', has been launched by the Department of Science and Technology to provide technological help in the bamboo sector.
- The bamboo is an evergreen flowering plant belonging to the grass family. They are considered as the fastest growing plants in the world. It is observed that some species of bamboo can grow to almost 90 cm in a day. It is believed that there are more than 1400 species of bamboo all round the world. This plant is native to warm tropical and temperate climatic zones. The bamboo plant helps in preserving forests by releasing 35% more oxygen and reducing the carbon dioxide in the atmosphere.
- Bamboo plants have two different growth patterns such as clumping and running. The clumping variety spreads slowly during the growth period, whereas the running variety has aggressive growth behavior. The average height of the bamboo could be estimated around 4.5 to 12 m. Though it is a flowering plant, the frequency of flowering is different all the species. Also, the interval of flowering is extremely large and could range from 65 to 120 years. It is observed that once the bamboo plant starts flowering then it slowly declines and dies.
- **This bamboo project report speaks about the plant, its importance, cultivation methods and needs, etc. At the end of the report, the cost and profit analysis of bamboo farming is presented for reference.**

Varieties of bamboo

Among different species of bamboo found all over the world, there are some commercially cultivated species in India and they are:

- Bambusa balcooa, Bambusa bambos, Bambusa nutans, Bambusa pallida, Bambusa tulda, Bambusa vulgaris, Dendrocalamus brandisii, Dendrocalamus giganteus, Dendrocalamus hamiltonii, Bambusa polymorpha, Dendrocalamus strictus, Oxytenanthera stocksii, Melocanna bambusoides, Ochlandra travancorica, Schizostachyum dullooa, Throstachys oliverii

Keeping in mind of our geographical location and land quality we shall be farming mainly Bambusa balcooa variety.

NOTE: Because bamboo can grow on otherwise marginal land, bamboo can be profitably cultivated in many degraded lands. Moreover, because of the rapid growth, bamboo is an effective climate change mitigation and carbon sequestration crop, absorbing between **100 and 400 tonnes of carbon per hectare**. In 1997, an international intergovernmental organization was established to promote the development of bamboo cultivation, the International Bamboo and Rattan Organisation.

3.2 STAGES OF BAMBOO FARMING



Land preparation and planting

The site selected for bamboo plantation should be cleared of bushes, grasses and other unwanted materials or plants. The cultivation area should be cleaned so as to facilitate intercropping.

A proper layout is designed and pits are dug for planting. The size of the pit depends on the type of planting material being used. Generally, the pits are made large and deep so that the newly planted bamboo gets established easily. The dimensions of the pit are 60 x 60 cm in heavy rainfall areas. Small pits of size 30 x 30 cm are dug for well rooted seedlings. Where the rainfall is scanty, pits of size up to 1 m are created to improve micro-catchment. The spacing between the seedlings should be 5 x 4 m, so that 1 acre of land can approximately accommodate 500 plants. The offset should be placed 10-20 cm below the ground and should be covered with soil. It is necessary to slightly press the soil around the seedling.

The estimation of cultivating bamboo in one acre of land follows. The values or figures may vary depending on the area of farming and the cost of raw material availability in that area. The data can be used for reference. Spacing between the plants is an important factor to determine how many plants can be accommodated in one acre of land. The minimum number of plants per acre of land when the spacing is 5 x 4 m is 200 approximately. Whereas when the spacing is reduced to 1.25 x 1.25 m then the number of plants that can be accommodated are 2564. **We are planning to cultivate 500 plants per acre and all financial estimates have been made based on this number.** Bamboo keeps growing of its own and multiplies faster. We may get the bamboo for more than 100 years with nominal expense.

1. Propagation

Generally, bamboos propagate through culms, cutting, and rhizomes. Since the rhizome has a store of food and is capable of growing into the culm and establishing itself, this method has a good rate of success.

The vegetative propagation method is perhaps the most practical of large-scale production. The method involves preparing culm cuttings (each with a single node or more effectively with two nodes each), and if found necessary, the use of rooting hormones.

Finally, tissue culture is the method that can produce plants on a very large scale using small plant parts. The tissue culture method requires trained personnel and specialized facilities for maintaining a sterile and controlled environment.

2. Planting

The best time for planting is during the pre-monsoon shower. Actually, this method is successful and requires less watering. Basically, the plantations do not require much care except sufficient moisture to prevent drying up in summer.

3. Inter Cropping

The gestation period in the bamboo plantation is five years. During the first three years, it is possible to cultivate profitable intercrops such as turmeric, ginger, chillies, etc., and various shade-loving medicinal and aromatic plants.

4. Flowering

Most bamboos flower only once in their lifetime and die soon after. Basically, it is a mystery to scientists. The flowering cycle generally varies from 7-120 years and in some the interval is 3 years and a few may even flower annually.

5. Manuring

The application of fertilizer is most important during transplantation from the nursery to the main field. It is preferred to apply fertilizer after harvest and before irrigation. It should be noted that rhizomes continue to be active (growing) except in the coldest part of the year. It is therefore proper to apply small quantities of fertilizers around the year than one/two large doses.

Bamboo responds well to nitrogen and potassium which are found in compost, green manure, wood ash, and chemical fertilizers. Additionally, you can often apply lime to neutralize soil acidity.

6. Irrigation

During the first year of planting, watering helps obtain higher survival rates, especially in areas where the dry period is longer than two months. Irrigation generally helps to increase productivity at least by three times. Natural water conservation methods like ditches or crescent-shaped trenches and the use of mulch help in moisture conservation.

7. Weed Control

Regular weeding in the initial two to three years is very important for the quicker establishment and faster growth of the clumps. Soon after the rainy season, you must carry out a clear knife weeding session depending on the site condition and the amount of weed present in the plot.

At least an area of 60 cm around the bamboo should be kept clear of weeds, particularly the climbers which can smother the young plants. By the third/fourth year when usually the clump gets established, bamboo starts shedding its own leaf thus preventing the growth of other weeds under the clump

8. Plant Protection

For the initial two years, you must protect the planted area from fire and grazing. Fencing of the plantation with protection against rodents, wild boar, and grazing animals may, therefore, be needed in some areas.

Basically, the plant is a robust species and no serious disease problems are observed in plantations. Of the various diseases that affect bamboo plantations, the rot of emerging and growing culms, bamboo blight, and thread blight are the economically important ones.



3.3 Uses of bamboo

Every part of the bamboo is useful.



MATURE CULMS
Poles for building; suitable for processing and laminating for construction applications.

LEAVES
Bamboo leaf tea. Feed for livestock, cattle, pandas, gorillas, etc.

RHIZOMES
Underground sequestration of carbon, so long as plants are maintained.

ANY & EVERYTHING
The entire plant is useful as biomass for fuel; cellulose can be made into ethanol, textiles, paper or plant-based plastics.

OLDEST CULMS
Cut out thin culms from earliest growth years for pulp or biomass.

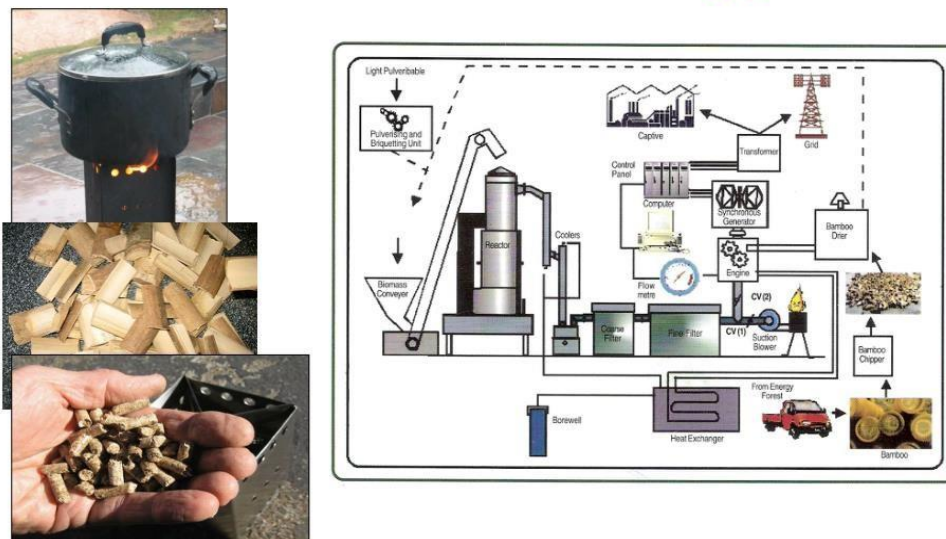
FRESH SHOOTS
Suitable for culinary use.

There are many uses of bamboo out of which a few are listed here.

- **Culinary:** Fencing The shoots of most species are edible either raw or cooked, with the tough sheath removed. Cooking removes the slight bitterness. The shoots are used in numerous Asian dishes and broths, and are available in supermarkets in various sliced forms, in both fresh and canned versions.

- **Fuel:** Bamboo charcoal is charcoal made from species of bamboo. Bamboo charcoal is typically made from the culms or refuse of mature bamboo plants and burned in ovens at temperatures ranging from 600 to 1200 °C. It is an especially porous charcoal, making it useful in the manufacture of activated carbon.
- **Construction purposes:** Bamboo, like true wood, is a natural building material with a high strength-to-weight ratio useful for structures. Bamboo has also long been used as scaffolding for construction sites.
- Handicrafts, Making furniture, Panels and particle boards
- **Pulp and paper:** As a widely distributed and fast growing plant, bamboo has emerged as an important raw material for pulping and papermaking to mitigate the shortage of wood resources, at least in the East Asia region.
- **Biomass for bio gas or bio coal:** There are alternative methods of utilizing bamboo as an energy source by converting the lignocellulosic biomass to gaseous fuels. This gas is then able to be combusted for the production of heat and steam, and it can be utilized in internal combustion engines or gas turbines, which results in the production of electricity, as well as mechanical energy. This gas is commonly known as bio gas and when compressed, Compressed Bio Gas (CBG). **Our main objective to farm bamboo is to use it as a feedstock in our own upcoming Bio Gas projects to become self-reliant in feedstock or to convert bamboo bio mass into bio coal/briquettes.**

Bamboo for Energy



4. Site Location:

S. No.	Particulars	Details
1	Name of the Industry	PKLS INDUSTRIES PRIVATE LIMITED
2	Village	Chhataini,
3	Tehsil	Hanumana
4	District	REWA (MP)
5	Graphical Co-ordinates	Latitude: 24°49'00.9"N Longitude: 81°52'22.5"E
6	Climate Conditions	Files attached
7	Humidity	Max: 83% (August) Min: 25% (April)
8	Temperature	Max: 40.5°C (May) Min: 9.1°C (January)
9	Seismic activity:	None
10	Rainfall	Max: 308 mm (July) Min: 5 mm (April)
11	Nearest Village	Chhataini
12	Nearest Town	Mauganj, 17 KM, REWA, 87 KM - District town and headquarters
13	Land Area	100 Acres
14	Soil Type	Alluvial Soil
15	Nearest Water Bodies	1. Gorma river 2. Tudyari river
16	Nearest Highway	NH 135 highway to Rewa (MP).
17	Interstate Boundary	7km, Uttar Pradesh
18	Nearest Air Port	Name: Allahabad Airport Distance from site of the Project: 110 kms

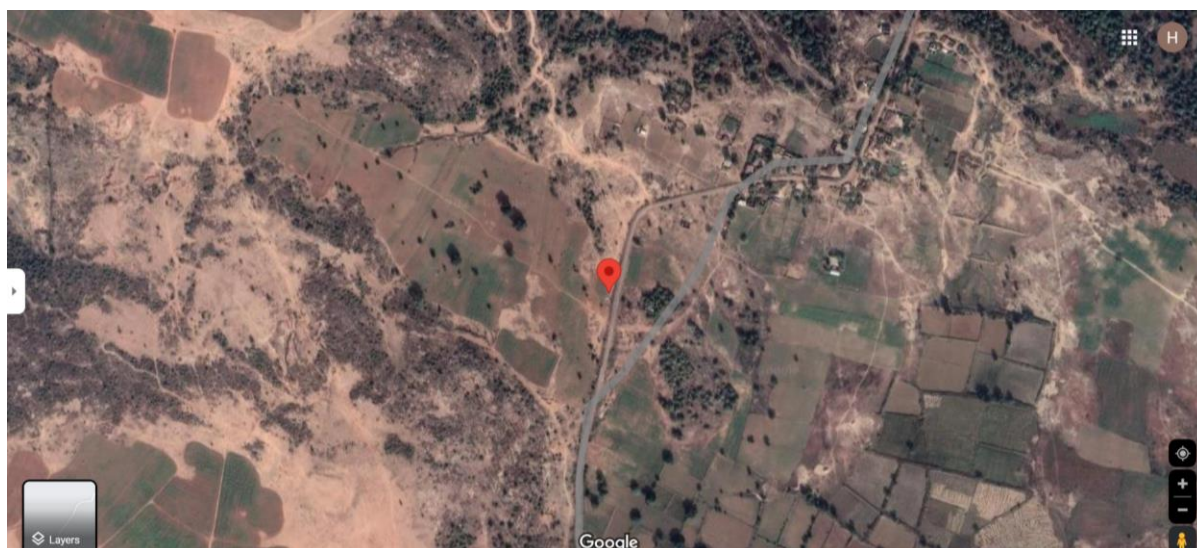
Source of Water

Sufficient rain fall is available in the area along with ground water. This provides sufficient ground water charging in the region. We will use bore hole water for our operations after necessary approvals.

Advantages of Location

The proposed location offers several advantages in terms of availability of labour, availability of civic amenities and availability of ground water. The project has good revenue potential.

PROPOSED SITE LAND PLAN/MAP:



5. Statutory Clearances Required

Since this is mainly an agricultural activity, no statutory clearances are required except for sanction of power connection for bore wells for farming and some other minor clearance at the local level.

6. ESTIMATED COST OF THE PROJECT

DETAILS OF PROJECT INVESTMENT (BAMBOO FARMING)	
SECTIONS	AMOUNT IN INR LACS
PLANT & MACHINERY AND UTILITY VEHICLES	
BOREWELLS (10 Nos.) @ Rs 1lakh per borewell	10
HARVESTOR AND OTHER ATTACHMENTS FOR TRACTORS, PICKUP	1,25
DRIP IRRIGATION SYSTEM @ RS 25K FOR 1000 ACRES	2,50
TOTAL PLANT & MACHINERY AND UTILITY VEHICLES	385
LAND & DEVELOPMENT (1,000 Acres @ RS 3.5 LAKH PER ACRE)	100,00
ALL CIVIL WORKS INCLUDING INTERNAL ROADS, FENCING, DRAINAGE, SUMPS, LAGOON	1,11

WORKING CAPITAL MARGIN	83
INTEREST ON TERM LOAN DURING CONSTRUCTION	22,48
PRE OPERATIVE EXPENSES @ 1% OF PROJECT COST	
TOTAL LAND AND DEVELOPMENT	124,42
TOTAL PROJECT INVESTMENT	128,27
FUNDING PLAN: DEBT 75% EQUITY 25%- 7 Year Debt with 3 year Moratorium	

7. IMPLEMENTATION SCHEDULE

- 100 acre land has already been purchased and registration is in progress. Approval for power connection for bore wells will be taken immediately after registration. Land development work including fencing and laying of drip irrigation system will start at the same time.
- We expect that bamboo can be planted within 6 months of the registration of land.
- Irrigation and weeding activities etc will be continuously take place throughout the year like any other agricultural activity.
- Harvesting for bamboos will start in the 4th year of life of bamboo in the dry season.

8. ENVIRONMENTAL ACTIVITIES

Green Belt Development

Even though bamboo itself is a very environmental friendly tree, we have planned a green belt as well to mitigate air pollution. Plants generate oxygen, serve as a sink for pollutants, act as a barrier to break the wind speed as well allows the dust and other particulate to settle out there. Green belt will be created along the fence of the plantation.

Water conservation and management

Water conservation and development measures shall be taken including all possible potential for reuse and recycling of water. Water source development shall be practiced by adoption of scientifically design rainwater harvesting system. The water is being used for recharge of aquifers. Rainwater harvesting promotes self-sufficiency and fosters an appreciation for water as a resource. Minimizing Water Consumption is being minimizing by a combination of water saving devices like drip irrigation system. Storm Water Management: Storm water available at the farm will be

harvested for ground water recharge. The run-off water will be directed and collected into a pond suitably located for this purpose on the farm.

9.PROJECTED FINANCIALS

A separate PDF file containing detailed financials has been attached for this project.

NOTE: Financial projections do not Include Incentives and subsidies available to such projects.

The financials do not include revenue generated through intercropping.

10. CONCLUSION AND RECOMMENDATION

Conclusion and Recommendation:

Financial Analysis clearly indicates that farming of bamboo on commercial scale is Environmentally friendly as well as economically a viable and profitable project. Keeping in mind the environmental impact and self-sustainability of the project, it is strongly recommended that the project should be executed in the right earnest at the earliest.

The internal rate of return of the project is high with a payback period of less than 5 years make It financially viable project In every respect. Hence it is essential to execute the project as soon as possible.