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NPCS is a well-known technical consultancy that focuses on Project Reports Compilation, and we have been following a tight system and procedure to assure only top quality in accordance with our clients' expectations in this rapidly increasing and changing market. We've created the list of the top projects to start your own business startups.

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Biogas and Compressed Biogas (CBG) Production Handbook (from Waste & Renewable Resources)

October 2024

This book is an invaluable resource for entrepreneurs, startups, and anyone interested in sustainable energy solutions. With the global shift towards renewable energy, biogas production presents an exciting opportunity to convert organic waste into valuable energy resources. This handbook serves as a complete reference, offering insights into the production and utilization of biogas and compressed biogas (CBG).

Starting with the history and advantages of biogas technology, the book delves into the intricacies of biogas production, including the design and functioning of biogas plants. It covers everything from the anaerobic digestion process to the engineering aspects of biogas units, providing practical guidance on setting up and optimizing biogas plants. Entrepreneurs will find specific chapters on how to start a biogas business, plant layouts, and comply with environmental guidelines.

One of the standout features of this book is its focus on compressed

biogas (CBG), a cleaner and more efficient energy source. The book explores the benefits of CBG, its production, and the steps to establish a successful CBG business.

Whether you're looking to launch a biogas startup, expand your existing business, or simply learn more about sustainable energy, this handbook offers the knowledge and tools needed to succeed in the growing field of biogas and CBG production. With detailed explanations, engineering design concepts, it is a must-have resource for anyone committed to a sustainable future.

Demand and Market Growth

No. 10

- **Rising Energy Demand:** With increasing energy consumption, there is a growing demand for alternative and sustainable energy sources. CBG, being similar to natural gas, can be used in existing infrastructure, making it an attractive option.
- Market Potential: The market for CBG is expanding due to its potential to fulfill a significant portion of energy requirements. India's estimated potential for CBG from various sources is about 62 million metric tonnes, which could meet over 9% of the country's current energy needs.
- Policy and Economic Incentives: Governments are creating favorable conditions for CBG production through policies, subsidies, and mandates. For example, India has revised CBG rates and mandated natural gas companies to procure a percentage of CBG, boosting private sector interest

Why Buy this Book?

This handbook is a treasure trove of information, meticulously designed to support startups and entrepreneurs venturing into the biogas industry. It covers Biogas and Compressed Biogas (CBG) Production, ensuring that readers have a well-rounded understanding of the entire process. Whether you're new to the field or an experienced professional, this book provides practical solutions and innovative techniques that can help you optimize biogas production and maximize returns on investment.



Lucrative Business Ideas for Startup

oringa leaf powder production is one of the most promising and sustainable business ventures in today's

global market. Known as the "miracle tree," Moringa (Moringa oleifera) is celebrated for its wide range of health benefits. includina its rich nutritional content. The leaves of the tree can be processed into a fine powder that is used in various products such as supplements, teas, health foods, and cosmetics. As healthconscious consumers are

increasingly seeking natural and organic products, the demand

for Moringa leaf powder is on the rise globally. For startups and entrepreneurs, this business offers an excellent opportunity to tap into a thriving industry with immense growth potential.

Why Startups Should Consider Moringa Leaf Powder Production

There are several reasons why startups and entrepreneurs should invest in the Moringa leaf powder production business. Let's explore some of the key factors that make this industry attractive:

- 1. Growing Market Demand: With the shift towards natural and organic products, the global market for Moringa leaf powder is expanding rapidly. Consumers are increasingly aware of the health benefits offered by Moringa, which includes its high levels of vitamins, minerals, and antioxidants. The global Moringa market was valued at approximately USD 7.9 billion in 2021 and is expected to grow at a compound annual growth rate (CAGR) of over 9% by 2028. This indicates a significant opportunity for entrepreneurs looking to enter a fast-growing market.
- 2. Low Entry Barriers: Compared to other manufacturing industries, the production of Moringa leaf powder has relatively low entry barriers. Moringa trees can be cultivated in regions with hot climates and are drought-resistant, making them easy to grow. This allows new businesses to start with relatively low initial investment, especially in terms of raw materials.
- **3. High Profit Margins:** Moringa leaf powder production offers high profitability. The cost of growing Moringa trees is low, and the leaves can be harvested multiple times a year. This ensures a continuous supply of raw material for

Avis Moringa Lead Manufacture Powder A Profitable Business for Startups and Entrepreneurs

production. Additionally, the processing of Moringa leaves into powder is relatively simple, reducing manufacturing costs and yielding highquality products that can be sold at a premium in the health and wellness market.

PROJECT COST	ESTIMATE
CAPACI	ТҮ
Project Capacity	: 400 Kgs. Per Day
Cost of Plant & Machinery	: ₹ 55 Lakhs
Cost of Project	: ₹ 179 Lakhs
Rate of Return	: 28%
Break Even Point	: 62 %

Sustainable and Eco-Friendly: Consumers today are drawn to products that align with environmental sustainability. Moringa is a fast-growing, resilient plant that can thrive in arid environments with minimal resources. Its cultivation helps fight deforestation and supports local ecosystems. By starting a Moringa leaf powder production business, entrepreneurs contribute to environmental sustainability while tapping into the eco-conscious consumer market.

5. Export Potential: The global demand for Moringa leaf powder is growing, especially in regions such as North America, Europe, and Asia-Pacific. Countries like the USA, India, and the Philippines are large exporters of Moringa products. With the increasing awareness of its health benefits, export opportunities are immense. Entrepreneurs who establish high-quality production standards can gain access to international markets and increase their profitability through exports.

Manufacturing Process of Moringa Leaf Powder

> The production of Moringa leaf powder involves several steps, all of which are essential to ensure the quality and nutritional integrity of the final product.

> > 1. Cultivation: Moringa trees are fastgrowing and thrive in hot, arid climates. Once planted, they require minimal water and maintenance. Moringa leaves can be harvested multiple times in a year.

2. Harvesting: The leaves of the Moringa tree are harvested manually or using harvesting tools. It is essential to harvest at the right time to maintain the maximum nutritional value.

- **3. Washing and Drying:** After harvesting, the leaves are washed thoroughly to remove any dirt or impurities. Drying is a crucial step, and it is typically done using solar dryers or mechanical dryers to preserve the nutritional value of the leaves. Proper drying ensures that the moisture content is reduced to around 5-7%.
- **4. Grinding:** Once the leaves are dried, they are ground into a fine powder using grinding machines. The powder must be fine and smooth to ensure it meets market standards.
- **5. Packaging:** After grinding, the Moringa powder is sieved to remove any larger particles. It is then packed in airtight containers or sachets to prevent moisture absorption and maintain freshness.

Market Overview and Export Potential

The global Moringa products market is on the rise due to increasing awareness of its health benefits. In countries like India, where Moringa is cultivated extensively, production costs are low, allowing for competitive pricing in the international market. Furthermore, developed regions like North America and Europe have a growing demand for natural health supplements, providing lucrative export opportunities for Moringa leaf powder producers.

According to industry reports, the demand for Moringa products is set to grow significantly in the coming years due to increasing interest in plantbased and superfood supplements. This presents a fantastic opportunity for entrepreneurs in emerging economies to tap into the export market, especially by meeting international standards for organic certification.

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Start Investing in Fastest Growing Industries

rinted Circuit Boards (PCBs) are at the heart of nearly every electronic device in existence today. From household appliances to complex industrial equipment, PCBs are essential in connecting and powering modern technology. The growing reliance on electronics has resulted in a massive demand for PCBs across various industries. making it one of the most lucrative manufacturing ventures for startups and entrepreneurs.

In this rapidly evolving technological landscape, venturing into PCB manufacturing can offer a promising business opportunity for those looking to capitalize on the ever-increasing demand. For entrepreneurs, investing in PCB manufacturing presents a low-risk, high-reward option with the potential for substantial growth. Here's why:

Why Startups Should Choose PCB Manufacturing

- 1. Consistent Market Demand: PCBs are critical components in an array of devices, including smartphones, laptops, medical equipment, automobiles, and consumer electronics. The consistent demand for these products directly translates to a high demand for PCBs. Startups can thrive in this industry as the growing electronics market shows no signs of slowing down. The introduction of technologies like 5G, artificial intelligence, and the Internet of Things (IoT) is only amplifying the need for innovative PCBs that can meet advanced technical requirements.
- 2. Rapid Growth and Scalability: The global PCB market is experiencing robust growth, driven by advancements in sectors such as automotive electronics, aerospace, healthcare, and telecommunications. According to recent reports, the global PCB market size was valued at approximately \$70 billion in 2022 and is projected to grow at a compound annual growth rate (CAGR) of 4.3% over the next five years. This immense growth creates opportunities for startups to enter the industry and scale quickly as demand rises.
- **3. Export Potential:** PCB manufacturing has tremendous export potential, with regions like North America, Europe, and Asia-Pacific serving as leading importers of PCBs. Countries such as the United States and Germany have significant demand for high-quality, customized PCBs used in defense, aerospace, and industrial applications. Entrepreneurs can tap into this global demand by producing PCBs tailored to specific industry needs, giving them an advantage in the international market.

Printed Circuit Boards Manufacturing: A Golden Opportunity for Startups

PROJECT COST I	ESTIMATE
CAPACI	ſY
Multilayer Printed) Circuit Boards (PCBs	: 400 Pcs. Per Day
Cost of Plant & Machinery	: ₹ 69 Lakhs
Cost of Project	: ₹ 104 Lakhs
Rate of Return	: 26%
Break Even Point	: 70%

4. Diverse Applications: PCBs are used in an incredible variety of products, from small consumer gadgets to large industrial machinery. Startups entering this field can choose to specialize in producing PCBs for specific industries, such as automotive electronics, telecommunications, or medical devices, or offer a broad range of PCB services. This flexibility in application provides a buffer against market fluctuations, ensuring a stable flow of business opportunities.

5. Advanced Technology Integration: The PCB manufacturing process benefits from a high degree of automation, which helps reduce costs and improve efficiency. With modern machines and techniques, even small-scale manufacturers can deliver high-quality PCBs that meet stringent industry standards. This makes it easier for startups to compete with established manufacturers by focusing on innovative solutions, fast delivery times, and superior customer service.

Market Overview

The PCB industry's outlook is exceptionally positive, with emerging trends such as miniaturization, high-density interconnect (HDI) technology, and flexible PCBs shaping the future of electronics. PCBs used in wearable devices, smart homes, electric vehicles (EVs), and renewable energy systems are creating new market avenues. Moreover, the increasing demand for environment-friendly PCBs that use less hazardous materials is expected to drive market growth as manufacturers adopt greener production processes.

In terms of market share, the Asia-Pacific region, led by China, is the dominant player, accounting for the majority of the world's

PCB production. However, this presents opportunities for entrepreneurs in other regions to establish local PCB manufacturing hubs that cater to domestic and international clients who prefer sourcing closer to home.

Manufacturing Process of PCBs

The process of PCB manufacturing involves several key stages:

- **1. Design:** The PCB layout is designed using specialized software to map out the circuit paths and component placements.
- Printing the Circuit Board: A copper-clad board is prepared, and the design is printed onto the board using a photoresist method or etching.
- **3. Etching:** Excess copper is removed from the board, leaving behind the desired copper traces that form the circuit.
- **4. Drilling:** Small holes are drilled in the board to allow for the placement of electronic components.
- 5. Solder Mask Application: A protective solder mask is applied to insulate the board and prevent short circuits.

6. Component Placement: Using automated pick and place machines, components such as resistors, capacitors, and chips are mounted on the board.

- **7. Soldering:** The board is passed through a reflow oven, where solder is melted to permanently attach the components.
- **8. Testing and Quality Control:** The PCB is tested for electrical performance, short circuits, and adherence to the design specifications.

Printed Circuit Board manufacturing is a highly profitable and scalable venture for startups and entrepreneurs. With consistent demand, vast market potential, and opportunities for innovation, PCB manufacturing is a sound investment that offers growth, export possibilities, and access to a rapidly expanding industry. By leveraging modern technology and focusing on quality, startups can position themselves as leaders in this dynamic sector.

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Start Investing in Fastest Growing Industries

disposable plastic syringes he manufacturing industry presents a compelling opportunity for startups and entrepreneurs looking to enter a growing and essential market. With a global market size of USD 14.18 billion in 2022 and an expected compound annual growth rate (CAGR) of 6.2% from 2023 to 2030, this sector offers significant potential for new entrants

Why Startups Should Choose This Business Idea

Startups should consider disposable plastic syringes manufacturing for several reasons:

- **1. Growing demand:** The increasing prevalence of chronic diseases, rising healthcare expenditure, and the need for safe injection practices drive the demand for disposable syringes.
- 2. Technological advancements: Innovations in syringe design and materials provide opportunities for startups to differentiate their products and capture market share
- 3. Government initiatives: Supportive government policies and immunization programs in many countries create a stable demand for disposable syringes
- 4. Export potential: The global nature of the healthcare industry offers significant export opportunities, especially to emerging markets
- 5. Recurring revenue: Disposable syringes are single-use products, ensuring a constant demand and recurring revenue stream.

Market Overview and Trends

The disposable syringes market is characterized by several key trends:

- 1. Shift towards safety syringes: Increasing focus on preventing needlestick injuries is driving the adoption of safety syringes
- 2. Eco-friendly materials: Growing environmental concerns are pushing manufacturers to develop biodegradable or recyclable syringes
- 3. Customization: Demand for specialized syringes for specific applications, such as insulin delivery, is on the rise

Disposable **Plastic Syringes Manufacturing:** A Lucrative Opportunity for Startups and **Entrepreneurs**

4.Automation: Manufacturers are increasingly adopting automated production processes to improve efficiency and reduce costs

Manufacturing Process

The manufacturing process for disposable plastic syringes typically involves the following steps:

- 1. Raw material preparation: Mixing and grinding of high-purity polyethylene (PE) or polypropylene (PP) pellets with additives
- 2. Injection molding: Formation of syringe components such as barrels, plungers, and caps using specialized molds
- 3. Needle production: Cutting, grinding, and honing of stainless steel tubes to create needles
- 4. Printing: Application of graduation marks and other necessary information on syringe barrels

PROJECT COST ESTIMATE

CAPACITY:

Disposable Plastic Syringes 3ml Size : 1296 Boxes Per Day Disposable Plastic Syringes 5ml Size : 1350 Boxes Per Day Disposable Plastic Syringes 10ml Size : 540 Boxes Per Day : ₹ 340 Lakhs **Cost of Plant & Machinerv Cost of Project** : ₹ 637 Lakhs Rate of Return : 28% Break Even Point (B.E.P) : 57%

5. Assembly: Combining all components to create the final syringe product

6. Sterilization: Ensuring the syringes are sterile and safe for medical use

7. Packaging: Sealing syringes in individual sterile packages and preparing them for distribution

Reasons for Entrepreneurs to Invest

Entrepreneurs should consider investing in disposable plastic syringes manufacturing for several compelling reasons:

1. Market growth: The market is projected to reach USD 25.85 billion by 2032, offering significant growth potential

2. Essential product: Disposable syringes are critical medical devices with consistent demand in healthcare settings.

- 3. Diverse applications: Syringes are used in various medical procedures, ensuring a broad customer base.
- 4. Technological opportunities: Advancements in materials and design offer room for innovation and product differentiation.
- 5. Global market: The industry offers export opportunities, particularly in emerging economies
- 6. Regulatory support: Increasing focus on safe injection practices by regulatory bodies drives market growth
- 7. Scalability: The manufacturing process can be scaled up relatively easily to meet growing demand.
 - In conclusion, disposable plastic syringes manufacturing presents a promising opportunity for startups and entrepreneurs. With a growing market, technological advancements, and increasing healthcare needs worldwide, this industry offers a solid foundation for a successful business venture. By focusing on innovation, quality, and efficiency, new entrants can carve out a significant share in this essential medical device market.

Lucrative Business of **Steel Containers** (Cargo Containers)

ontainerized shipping has changed the way that goods and materials are transported, but it can also take a while to learn how it all works. Cargo containers are the most efficient form of transportation when it comes to moving bulk loads over long



The cargo container industry produces a lot of intermodal containers

each and every year. They are used to transport goods all over the world. About 180 million container loads crisscross the oceans each year in about 5000 container ships. International shipping of containerized commodities is indispensable for global trading firms to thrive in the increasingly competitive economic environment.

The global Shipping Containers Market was accounted for US\$ 10,350.1 Mn in terms of value and 306,324 Thousand Units in 2019 and is expected to grow at CAGR of 5.9% for the period 2020-2027. Increasing speed, reliability, and safety of containerization have compelled companies to opt for containers to ship their goods.

PROJECT COST ESTIMATE CAPACITY Cargo Containers (Size 20 Feet) : 34 Nos. Per Day

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Plant & Machinery	:	₹ 3.21 Cr
Cost of Project	:	₹ 18.13 Cr
Rate of Return	:	28%
Break Even Point	:	52%

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Saline Manufacturing: A Promising Venture for Startups and Entrepreneurs for

aline Manufacturing (0.9% Sodium Chloride) is a lucrative business opportunity for startups and entrepreneurs who are looking to invest in the healthcare and pharmaceutical industries. This business idea is highly recommended due to its essential role in medical treatments, significant demand across hospitals and healthcare facilities, and the global need for quality saline solutions. Saline, a simple solution of water and sodium chloride (salt), is used in a variety of medical treatments, ranging from rehydration to cleaning wounds, making it a vital product in healthcare systems worldwide.

Why Entrepreneurs Should Consider Investing in Saline Manufacturing

Saline manufacturing, particularly the production of 0.9% Sodium Chloride, presents a unique and profitable opportunity for several reasons:

- 1. Essential Nature of the Product: Saline solutions are indispensable in medical settings. They are used in intravenous therapy to provide fluids, electrolytes, and medications to patients. The saline solution is also used for cleaning wounds and nasal passages, making it a multiuse product in hospitals, clinics, and even at home. The essential nature of the product ensures steady demand, making it a low-risk investment.
- 2. Growing Healthcare Industry: The global healthcare industry has seen a significant expansion in recent years, driven by aging populations, increasing healthcare expenditures, and advances in medical technology. This growth has resulted in an increased demand for medical consumables, including saline solutions. With healthcare services becoming more accessible. especially in developing countries, the demand for saline is only expected to rise, presenting a stable market for new businesses.
- 3. Rising Global Population and Healthcare Demand: As the global population continues to grow, especially in emerging markets, so does the need for healthcare services. Saline is a basic yet essential product in healthcare that will see continuous demand in tandem with the rising population and improved healthcare infrastructure.
- 4. Low-Cost with Hiah Manufacturing Returns: Saline manufacturing is relatively

straightforward, requiring minimal raw materials-mainly purified

water and sodium chloride (salt).

The process itself is well-established and does not involve complex chemical reactions, making it a low-cost, scalable business model. This lowcost setup, combined with consistent demand, results in high returns on investment, making it a highly attractive business venture for startups.

5. Export Potential: The global market for saline solutions is vast. Many countries rely on imports to meet their healthcare needs. By setting up a saline manufacturing unit. entrepreneurs can tap into international markets. Regions with underdeveloped healthcare infrastructure, such as Africa, parts of Asia, and Latin America, offer excellent export opportunities. With proper marketing and quality assurance, manufacturers can position themselves as reliable exporters, thereby enhancing their revenue potential.

Market Overview and Trends

The global saline solution market is projected to grow significantly over the next decade, driven by the following trends:

- Increasing Healthcare **Expenditure:** Governments worldwide are investing heavily in healthcare infrastructure. This spending includes the procurement of essential medical supplies, such as saline solutions. As more healthcare facilities come online, the demand for saline will continue to rise.
- Technological Advancements in Medical Devices: With advancements in IV infusion pumps and other medical devices, the usage of saline solutions has become more efficient. further boosting demand.

• Rising Chronic Diseases and Surgeries: With increasing incidences chronic diseases of diabetes like and hypertension, coupled with the rise in surgical procedures globally, the use of saline solutions

PROJECT COST	ESTIMATE
CAPACI	ΓY
Dextrose Saline 1000ml Size	: 2,000 Bags Per Day
Cost of Plant & Machinery	:₹ 291 Lakhs
Cost of Project	: ₹ 573 Lakhs
Rate of Return (ROR)	: 26 %
Break Even Point (B.E.P)	: 55%

hydration and medication administration has surged.

Manufacturing Process of Saline (0.9% Sodium Chloride)

The manufacturing process for saline solutions involves a few critical steps that ensure the product is safe for medical use:

- 1. Water Purification: The first step involves purifying water to ensure it is free from contaminants, bacteria, and viruses. This is achieved through various filtration methods, including reverse osmosis and ultraviolet sterilization.
- 2. Salt Dissolution: Pharmaceutical-grade sodium chloride (salt) is then dissolved in the purified water. The concentration is meticulously controlled to ensure that the solution has exactly 0.9% sodium chloride.
- 3. Sterilization: After mixing the solution, it is sterilized through heat or filtration methods to eliminate any microbial contaminants. This step ensures the saline is safe for intravenous or other medical applications.
- 4. **Packaging:** The saline solution is then packaged into sterile containers, such as IV bags, bottles, or ampoules. The packaging is done in a controlled environment to prevent any contamination.
- 5. Quality Control: The final step involves rigorous testing to ensure the saline solution meets all pharmaceutical standards. This includes testing for pH balance, sterility, and sodium chloride concentration.

Saline manufacturing (0.9% Sodium Chloride) is a highly recommended business for startups and entrepreneurs. The growing healthcare industry, consistent product demand, low manufacturing costs, and high export potential make it a compelling choice for investors. By leveraging this opportunity,

startups can enter a profitable market with significant growth potential, contributing to the healthcare sector while enjoying robust returns on their investment.

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Most Growing Industries to Start a New Business

ompressed Bio Gas (CBG) is emerging as a promising alternative energy source, especially in the wake of increasing concerns over environmental sustainability and the depletion of traditional fossil fuels. Derived from renewable resources such as agricultural waste, animal manure, and sewage sludge, CBG offers a clean and sustainable way to meet energy demands. For entrepreneurs and startups, entering the CBG manufacturing industry is not just a profitable venture but also a way to contribute to global efforts in reducing greenhouse gas emissions and transitioning to cleaner energy.

Why Should Startups Invest in CBG Manufacturing?

- 1. Sustainability and Eco-Friendly Solutions: The CBG manufacturing process uses organic waste materials like agricultural residue, animal manure, and sewage sludge. These materials are readily available, particularly in rural and farming regions, making CBG production highly sustainable. For environmentally conscious startups, this industry offers an opportunity to establish a business that aligns with global sustainability goals and the circular economy.
- 2. Growing Demand for Renewable Energy: With governments and industries worldwide prioritizing renewable energy solutions, the demand for CBG is on the rise. Many countries are adopting policies to promote the production and use of biofuels, offering subsidies, incentives, and grants for CBG manufacturing units. This trend opens up a wide range of opportunities for startups to tap into the energy market while benefiting from government support.
- 3. Export Potential and Market Opportunities: The global bioenergy market is expanding rapidly, with several countries, particularly in Europe and Asia, increasing their consumption of biofuels like CBG. The export potential for compressed biogas is significant, as nations are seeking eco-friendly energy alternatives. Entrepreneurs entering this market can position themselves for growth, particularly in regions where the domestic demand for biogas exceeds local production capacities.
- High Return on Investment (ROI): CBG production is not only eco-friendly but also

lectronic Waste – or e-waste – is the term used to describe old, end-of-life electronic appliances such as computers, laptops, TVs, DVD players, mobile phones, mp3 players etc. Technically, electronic "waste" is the component which is dumped or disposed or discarded rather than recycled, including residue from reuse and recycling operations.

Recycling of used lithium batteries has primarily focused on extracting active metal cobalt (Co) and lithium (Li).

According to E-Waste Market in India 2015-2019 research, the need to prevent biological hazards is one of the major trends upcoming in this market. Indians become richer and Compressed Bio Gas (CBG) Plant from Agricultural Waste, Animal Manure, and Sewage Sludge A Lucrative Opportunity for Startups

highly profitable. By using low-cost raw materials like waste products, startups can minimize production costs while reaping substantial returns. Additionally, the byproducts from CBG production, such as organic fertilizers and bio-slurry, can be sold to agricultural markets, creating another revenue stream for the business.

Market Size, Share, and Trends

The global CBG market is currently valued at over \$8 billion and is expected to grow at a compound annual growth rate (CAGR) of 8% over the next decade. The demand for clean energy, driven by both industrial and residential sectors, is contributing to this growth. Key trends in the market include:

- Adoption of CBG in Transportation: Many countries are encouraging the use of CBG as a fuel for vehicles, particularly in public transport systems and commercial fleets.
- **Government Initiatives:** Various nations are offering incentives and subsidies for CBG production, including tax benefits and funding for setting up biogas plants.
- Technological Advancements: Innovations in anaerobic digestion and gas purification technologies are making CBG production more efficient and cost-effective.

In terms of market share, Asia-Pacific is currently the dominant player in CBG production, with India, China, and Japan leading the way. Europe follows closely, with strong demand in countries like Germany, the Netherlands, and Sweden. North America is also seeing increased interest, particularly in the United States and Canada, where efforts to reduce carbon footprints are driving demand.

Manufacturing Process of CBG

The CBG production process involves the following steps:

- 1. Collection of Raw Materials: Agricultural waste, animal manure, and sewage sludge are collected and transported to the biogas plant.
- 2. Anaerobic Digestion: These materials are fed into anaerobic digesters, where microorganisms break down the organic matter in the absence of oxygen. This process produces biogas, which consists primarily of methane and carbon dioxide.
- Gas Purification: The biogas is then purified to remove impurities such as carbon dioxide, hydrogen sulfide, and moisture, leaving behind high-purity methane, which is compressed to form CBG.
- 4. Storage and Distribution: Once compressed, the CBG is stored in gas cylinders or tanks for distribution to consumers, industries, or for use as vehicular fuel.

Investing in CBG manufacturing offers startups a unique opportunity to enter the renewable energy market while addressing critical environmental issues. The industry's rapid growth, coupled with government support and technological advancements, makes it an ideal business venture for entrepreneurs looking for a sustainable, profitable, and future-oriented industry. By leveraging abundant raw materials like agricultural waste and animal manure, CBG producers can not only generate clean energy but also contribute to a more circular and eco-friendly economy.`

PROJECT COST ESTIMATE CAPACITY:

Compressed Bio Gas	: 7.2 MT Per Day
By Product Liquid Fertilizer	: 90 MT Per Day
By Product Dry Solid Fertilize	r : 28 MT Per Day
By Product CO2	: 2 MT Per Day
Cost of Plant & Machinery	: ₹ 5.19 Crore
Cost of Project	: ₹ 14 Crore
Rate of Return	: 28%
Break Even Point (B.E.P.)	: 49%



spend more on electronic items and appliances, computer equipment accounts for almost 70% of e-waste material, followed by telecommunication

equipment (12%), electrical equipment (8%) and medical equipment (7%). Other equipment, including household account for the remaining 4%.As a whole any entrepreneur can venture in this project without risk and earn profit.

PROJECT COST ESTIMATE CAPACITY E Woods & Lithium Pottory 20 MT/Day

Recycling Plant	•	20 WI I/Day
Plant & Machinery	:	₹ 225 Lakhs
Cost of Project	:	₹ 540 Lakhs
Rate of Return	:	26%
Break Even Point	:	59%
Break Even Point	:	59%

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iquid carbon dioxide (CO₂) manufacturing is emerging as a lucrative business opportunity, offering significant potential for startups

and entrepreneurs looking to enter the industrial gases market. Liquid CO_2 is widely used in various industries such as food and beverage, chemicals, healthcare, and even the oil

and gas sector. This manufacturing process converts gaseous carbon dioxide into a liquid state through a series of cooling and compression techniques. As the demand for liquid CO_2 grows across the globe, investing in this manufacturing industry can be a highly profitable venture.

Why Should Startups Choose Liquid CO₂ Manufacturing?

- 1. Increasing Demand Across Multiple Industries: Liquid carbon dioxide is extensively used in the food and beverage industry for carbonation of soft drinks, preservation of food products, and dry ice production. Additionally, it plays a crucial role in chemical processes, metal fabrication, and enhanced oil recovery (EOR) in the oil and gas industry. The healthcare industry also uses CO₂ for sterilization and as an insufflation gas for minimally invasive surgeries. The rising demand for these industries makes liquid CO₂ a product with growing market potential, providing multiple opportunities for startups.
- 2. Sustainable Business Model: Many industries are seeking ways to reduce their carbon footprint, and the production of liquid CO□ from captured waste carbon dioxide aligns with this trend. Startups can position themselves as sustainable ventures by utilizing technologies that capture CO₂ emissions from industrial processes. This can also open doors for government subsidies and financial support under green energy or carbon-neutral initiatives, further enhancing profitability.
- 3. High Export Potential: The global market for liquid carbon dioxide is expected to grow

Liquid Carbon Dioxide Manufacturing: A Promising Venture for Startups

and Entrepreneurs

for dry ice in logistics and healthcare, particularly during the transportation of pharmaceuticals and vaccines. Additionally, the industrial gases market is becoming more consolidated, with leading players expanding their production capacities, indicating a growing demand for

PROJECT COST ESTIMATE CAPACITY

Liquid Carbon Dioxide (LCU2)	: 480 WI per day
Cost of Plant & Machinery	: Rs. 90 Crores
Cost of Project	: Rs. 129 Crores
Rate of Return	: 25%
Break Even Point (B.E.P)	: 53%

steadily, with regions like Europe, North America, and Asia-Pacific being key consumers. With an increasing demand for high-quality liquid CO_2 , especially in sectors like food processing, startups have a prime opportunity to cater to international markets. Countries that rely on imports for their CO_2 requirements present significant export potential, offering long-term growth prospects.

Market Overview and Trends

The global market for liquid carbon dioxide is projected to experience steady growth, driven by its wide range of applications and the rising focus on sustainable production practices. As of 2024, the liquid CO_2 market size is expected to reach several billion dollars, with significant market share in the food and beverage sector. Growth is also fueled by the increased usage of CO_2 in enhanced oil recovery techniques, where the gas is used to extract more oil from mature wells.

Key trends shaping the market include the adoption of carbon capture and utilization (CCU) technologies, as well as the increasing demand

liquid CO₂ across various regions. **Manufacturing Process of Liquid Carbon Dioxide** The production of liquid CO₂ involves several stages, starting with the capture of carbon dioxide gas from industrial processes or natural sources like fermentation or combustion. Once captured,

the gas goes through a filtration system to remove

impurities. Next, the purified CO_2 is compressed in a compressor to high pressures. The high-pressure gas is then passed through a cooling system where it is cooled to its liquefaction temperature, which is around -56.6°C at atmospheric pressure. At this stage, the gas turns into liquid form and is then stored in specialized storage tanks, ready for use or transport.

In some cases, additional purification and drying processes are applied to ensure the liquid CO_2 meets the quality standards required for various industrial applications. The final product can be packaged in bulk containers or transported via tankers to clients.

Conclusion

Liquid carbon dioxide manufacturing offers a stable and growing market for entrepreneurs and startups. With its increasing demand in industries such as food and beverage, chemicals, healthcare, and enhanced oil recovery, liquid CO₂ represents a business opportunity with significant potential for both domestic and international markets. Startups investing in this venture can benefit from growing market demand, sustainable production practices, and a robust export market.

Setting Up a Multispeciality Hospital (200 Bedded)

hospital is a health care institution providing patient treatment with specialized medical and nursing staff and medical equipment. The best-known type of hospital is the Multispeciality hospital, which typically has an emergency department to treat urgent health problems ranging from fire and accident victims to a sudden illness.

A Multi-speciality hospital as a health care organization has been defined in varied terms as an institution involved in preventive, curative/ameliorative, palliative or rehabilitative services. It is meant to treat patients suffering from various ailments. A private hospital is a place where one may get treatment from

ordinary fever to a major surgery operation.

Global Hospital Market stood at USD 4207.46 billion in 2020 and is expected to grow at a CAGR of 6.70% during the upcoming period. This can be attributed to the growing geriatric population

suffering from various chronic diseases including cancer, diabetes, cardiovascular diseases, renal disorders, among others. This in turn has increased the patient pool requiring treatment. Furthermore, increasing awareness and advancements pertaining to diagnostic technologies are expected to create lucrative opportunities for the market growth through 2026.

PROJECT	CO	ST ESTIMATE
	CAP	ACITY
Capacity	:	200 Bedded Hospital
Plant & Machinery	:	₹ 140 Cr
Cost of Project	:	₹ 212.48 Cr
Rate of Return	:	27%
Break Even Point	:	50%

Market Survey Cum Detailed Techno Economic Feasibility Report on all above Businesses are Available. Contact :

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Most Growing Industries to Start a New Business

aracetamol is a popular over-the-counter pain reliever and fever reducer medication that is widely used across the globe. Also known acetaminophen, paracetamol as has become an integral part of many

people's medicine cabinets. It is available in various forms, including tablets, capsules, powders, and liquid suspensions. The drug's active ingredient works by blocking the production of

prostaglandins, which are substances responsible for causing pain and inflammation. As a result, paracetamol provides effective relief from aches and pains, such as headaches, toothaches, menstrual cramps, and muscle soreness.

Advantages of Launching This Business

- Government Support: To lessen reliance on imports, several governments promote domestic manufacture of necessary medications like paracetamol.
- · Growing Health Consciousness: People are becoming more proactive and aware of their health, which has encouraged self-medication for mild conditions. This pattern may increase demand for OTC medications like paracetamol.
- Brand-Building Potential: Although paracetamol is a generic medication, there is a chance to brand it with dependability, quality, or other desirable qualities.
- · Diverse Product Options: Selling paracetamol in

Start Paracetamo Manufacturing Unit

tablet

form is only one aspect of the industry's operations. Paracetamol is available in many different forms, such as syrup, suppository, and injectable.

Indian Market Outlook

The India paracetamol market is expected to grow at an impressive rate during the forecast period on account of the growing awareness among the consumers pertaining to pain management. Additionally, paracetamol is used as an active pharmaceutical ingredient (API) for manufacturing several generic and OTC drugs. This is expected to positively influence the market growth through FY2026. Furthermore, the widespread use of paracetamol in treating a range of conditions including headache, muscle pain, fever, arthritis, cold and cough, backache, toothache, among others is further expected to fuel the market growth over the next few years.

Global Market Outlook

Paracetamol Market size was valued at US\$

1.60 Bn. in 2022 and the total Paracetamol revenue is expected to grow at 4.4% from 2023 to 2029, reaching nearly US\$ 2.20 Bn. paracetamol belongs to the analgesics group of medicines commonly known as a pain killer, and antipyretics i.e. fever-reducing

agents are expected to dominate the market in 2029. The recommendation of paracetamol by

doctors helps to boost the market growth for acute pain and ache. Headache and Cold is the second largest application responsible for paracetamol market growth.

Conclusion

Paracetamol is a trusted and effective pain reliever and fever reducer that is widely used and trusted by consumers around the world. Its affordable price, widespread availability, and minimal side effects make it a popular choice for managing common aches and pains. With its booming business, it's clear that paracetamol is here to stay.

PROJECT COST	ESTIMATE
CAPACI	ТҮ
Paracetamol Powder	: 7 MT Per Day
Plant & Machinery	: ₹ 274 Lakhs
Cost of Project	: ₹ 779 Lakhs
Rate of Return	: 27 %
Break Even Point	: 64 %

Market Survey Cum Detailed Techno Economic Feasibility Report on all above Businesses are Available. Contact :

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PLANT & MACHINERY : List of Plant & Machineries, Miscellaneous Items and Accessories, Instruments, Laboratory Equipments and Accessories, Plant Location, Electrification, Electric Load and Water, Maintenance, Suppliers/Manufacturers of Plant and Machineries.

RAW MATERIAL : List of Raw Materials, Properties of Raw Materials, Availability of Raw Materials, Required Quality of Raw Materials, Cost/Rates of Raw Materials.

MANUFACTURING TECHNIQUES : Formulae DetailedProcess of Manufacture. Flow Sheet Diagram.

PERSONNEL REQUIREMENTS : Requirement of Staff & Labour, Personnel Management, Skilled & Unskilled Labour.

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FINANCIAL ASPECTS : Cost of Raw Materials, Cost of Land & Building, Cost of Plant & Machineries, Fixed Capital Investment, Working Capital, Project Cost, Capital Formation, Cost of Production, Profitability Analysis, Break Even Point, Cash Flow Statement for 5 to 10 Years, Depreciation Chart, Conclusion, Projected Balance Sheet, Land Man Ratio.

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Business Ideas: 3.5 - 4 Crore (Plant and Machinery): **Selected Project Profiles for Entrepreneurs**, Startups



- » Titanium Dioxide from Rutile Ilmenite Ore
- » Absorbent Surgical Cotton (Cotton Rolls)
- » Aluminium Cables and Conductors from Molten » Ginger Oil & Ginger Powder Production Aluminium Metal/Aluminium Ingots
- » Aluminium Extrusion
- » Aluminium Fluoride
- » Beer Plant
- » Bentonite Processing & Pulverising
- » Craft Beer
- » Dairy Farming & Dairy Products (Milk, Butter, Ghee, Paneer & Curd)
- » Disposable Baby Diaper
- » Disposable Nitrile Gloves (Nitrile Examination Hand Gloves)

- » Disposable Surgical Face Mask & N95 Masks
- » Paracetamol Tablets
- **Business**
- » HDPE and UPVC Pipes
- » Herbal/Ayurvedic Hand Sanitizer
- » High Tensile Nuts & Bolts (for Automobile Industry)
- » Hospital
- » Hospital 30 Bedded
- » Surgical Cotton Manufacturing Business
- » Integrated Unit Textile Mill and Readymade Garments
- » Invert Sugar Syrup

- » IV Fluids (BFS Technology)
- » Jute Yarn, Jute Sutli & Hessian Cloth Weaving Integrated Unit
- » Linear Alkyl Benzene Sulphonic Acid
- » Low Carbon Ferromanganese
- » LPG Cylinders
- » Hdpe Jumbo Bags (Flexible Intermediate Bulk Containers)
- » Paprika Oleoresin
- » Truck Trailer (Sidewall, Flatbed, Bulker, Tip Trailer & Container Trailer)
- » Disposable Safety Razors
- » Solar Inverter (100 Kva 1000 Kva)
- » Organic Yeast from Organic Molasses

Market Survey Cum Detailed Techno Economic Feasibility Report on all above Businesses are Available. Contact :

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SELECTED BUSINESS IDEAS FOR RIGHT INVEST

» Particle Board from Wheat/Rice Straw

otassium iodide

entrepreneurs looking to enter a

growing market with significant

potential. This compound, essential

in various industries, offers a

lucrative business prospect due to

its increasing demand and diverse

Market Overview and Growth

market is experiencing robust

growth, with projections indicating

a bright future. Valued at \$1.07

billion in 2023, the market is

expected to reach \$1.93 billion

by 2031, growing at a compound

annual growth rate (CAGR) of 7.6%.

opportunity for entrepreneurs.

for potassium iodide:

and treatments.

This substantial growth trajectory makes potassium iodide manufacturing an attractive investment

Several factors contribute to the rising demand

1. Pharmaceutical Industry Expansion: The

2. Radiation Protection: Increasing awareness

of nuclear safety and emergency preparedness

pharmaceutical sector is a major consumer of potassium iodide, using it in various medications

The global potassium iodide

manufacturing presents an excellent opportunity

startups

(KI)

and

- » PVC Edge Banding Tape
- Manufacturing Business
- » Epoxy Hardener Plant
- » Potato Starch
- » Chlorinated Polyvinyl Chloride



for

applications.

Potential

» Copper Flats & Copper Tubes

- » Malic Acid (Powder)
- » Disposable Plate and Cups from Waste Rice Husk
- Powder » Surgical & N95 Masks



Lucrative Business Ideas for Startup

» Synthetic Camphor

- » TMT Bars, Angles & Pipes
- » Tomato Products Tomato Ketchup, Sauce and Soup
- » Truck Body Building





Potassium lodide **Manufacturing:** A Promising Venture for Startups and **Entrepreneurs**

iodate crystals form.

- 4. Reduction Process: 277 parts of formic acid solution are added to reduce the potassium iodate
- 5. Further pH Adjustment: Potassium hydroxide is added to bring the pH to 9-10.
- 6. Heat Treatment: Steam is introduced, and the solution is incubated for 1-2 hours.
- 7. Filtration and Crystallization: The solution is filtered to remove undissolved substances, then evaporated to concentrate and crystallize the potassium iodide.
- 8. Final Processing: The crystals undergo cooling crystallization, centrifugal separation, and drying to produce the finished product

Reasons to Invest

- 1. Growing Market: With a projected CAGR of 7.6%, the potassium iodide market offers significant growth potential.
- 2. Diverse Applications: The compound's use across multiple industries ensures a stable and diverse customer base.
- 3. Pharmaceutical Sector Growth: The expanding pharmaceutical industry, particularly in emerging markets, provides a strong demand driver.
- 4. Emergency Preparedness: Increasing focus on nuclear safety and emergency planning creates a steady demand for potassium iodide.
- 5. Export Potential: The global nature of the market offers opportunities for export to various regions, particularly Asia-Pacific, which is showing the highest growth rate.

6. Technological Advancements: Ongoing research and development in production methods can lead to improved efficiency and cost-effectiveness.

7. Health and Nutrition Trends: Growing consumer awareness of iodine's importance in nutrition supports market expansion

Market Trends and Analysis

1. Regional Growth: Asia-Pacific is emerging as a key market, with a projected CAGR of 6.9%, driven by industrial development and increasing consumer awareness.

2. Product Innovations: Development of new formulations and dosage forms, particularly in the pharmaceutical sector.

3. Clean Label Trend: Increasing consumer preference for natural and clean label ingredients in food and supplements.

- 4. Industrial Applications: Growing use in polymer production and as a heat stabilizer in nylon manufacturing.
- 5. Sustainability Focus: Emerging emphasis on environmentally friendly production methods and sustainable sourcing of raw materials.

Conclusion

Potassium iodide manufacturing presents compelling opportunity for startups and а entrepreneurs. The growing market size, diverse applications, and strong export potential make it an attractive investment. With the right equipment, adherence to quality standards, and a focus on emerging trends, entrepreneurs can establish a successful venture in this industry. The compound's critical role in pharmaceuticals, radiation protection, and industrial processes ensures a steady demand, while ongoing research and development open doors for innovation and market expansion. As global awareness of health, nutrition, and emergency preparedness continues to rise, the potassium iodide market is poised for sustained growth, offering a promising future for those entering this manufacturing sector.

PROJECT COST	ESTIMATE
CAPACI	ТҮ
Project Capacity	: 666.7 Kg. Per Day
Cost of Plant & Machinery	:₹ 48 Lakhs
Cost of Project	: ₹ 444 Lakhs
Rate of Return	: 33%
Break Even Point (B.E.P)	: 82%

Market Survey Cum Detailed Techno Economic Feasibility Report on all above Businesses are Available. Contact :

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- 1. lodine Preparation: 765 parts of iodine tablets are added to a reaction vessel with a stirrer and
- 2. Potassium Hydroxide Addition: 337 parts of
- 3. pH Adjustment: The solution becomes purplebrown with a pH of 5-6, at which point potassium

industrial sectors **Manufacturing Process**

The production of potassium iodide involves a series of chemical reactions and processes:

- distilled water.
- potassium hydroxide solution (relative density 1.3) are slowly added while stirring until the reaction is complete.

has boosted demand for potassium iodide as a protective agent against radiation exposure. 3. Food and Beverage Industry: Growing use of potassium iodide as a nutritional supplement and in food fortification programs.

4. Industrial Applications: Expanding use in chemical processes, photography, and other

Most Growing Industries to Start a New Business

ntrepreneurs seeking innovative and sustainable business opportunities should consider venturing into crumb rubber powder manufacturing from waste tyres. This industry not only addresses a critical environmental challenge but also taps into a growing market with significant potential for profitability and expansion.

Crumb rubber powder is produced by grinding end-of-life tyres into small, uniform granules after removing all steel and fiber components The global crumb rubber market is projected to grow from USD 1.77 billion in 2023 to USD 2.47 billion by 2030, at a CAGR of 5.1%. This robust growth trajectory makes it an attractive prospect for startups and investors alike.

Several factors contribute to the appeal of this industry for entrepreneurs:

- Environmental sustainability: Tyre recycling addresses the pressing issue of waste management, as over 1 billion tyres are discarded worldwide annually. By converting waste into valuable products, startups can position themselves as eco-friendly businesses.
- 2. Diverse applications: Crumb rubber powder finds use in various industries, including construction, automotive, sports surfaces, and infrastructure. This versatility ensures a broad customer base and multiple revenue streams.
- **3. Government support:** Many countries are implementing regulations to promote tyre recycling, creating a favorable regulatory environment for startups in this sector.
- Cost-effective raw materials: Waste tyres are readily available and inexpensive, contributing to potentially high-profit margins.
- 5. Technological advancements: Ongoing innovations in production processes are improving the quality and consistency of crumb rubber, expanding its potential applications.

Crumb Rubber Powder from Waste Tyre Manufacturing: A Promising Venture for Startups

The manufacturing process for crumb rubber powder involves two primary methods: ambient mechanical grinding and cryogenic grinding. Ambient grinding is more common and costeffective, while cryogenic grinding produces smoother, smaller crumbs but at a higher cost.

Key machinery required for crumb rubber powder production includes:

- 1. Tyre shredder
- 2. Granulator
- 3. Magnetic separator
- 4. Fiber separator
- 5. Screening system
- 6. Packaging equipment

Market trends indicate growing demand for crumb rubber in various applications. In the construction sector, it is increasingly used in asphalt modification, enhancing road durability and reducing noise. The sports industry utilizes crumb rubber for synthetic turf infill and playground surfaces, benefiting from its shockabsorbing properties. Additionally, the automotive sector incorporates crumb rubber in components like floor mats and splash guards. The export potential for crumb rubber powder is significant, particularly to regions with stringent environmental regulations and a focus on sustainable materials. North America currently dominates the global market, holding a 46% share in 2022, driven by a booming automotive industry and increasing infrastructure projects.

However, the Asia Pacific region is expected to witness the fastest growth, presenting opportunities for exporters to tap into emerging markets. Startups entering this industry can differentiate themselves by focusing on product quality, investing in advanced processing technologies, and developing innovative applications for crumb rubber. Collaborating with research institutions to explore new uses and improve production efficiency can provide a competitive edge.

Moreover, the industry's alignment with circular economy principles makes it attractive to environmentally conscious consumers and

 PROJECT COST ESTIMATE

 CAPACITY

 Crumb Rubber Powder
 : 10 MT Per Day

 By Product Steel Wire
 : 2 MT Per Day

 Cost of Plant & Machinery
 : ₹ 78 Lakhs

 Cost of Project
 : ₹ 326 Lakhs

 Rate of Return (ROR)
 : 27%

 Break Even Point (B.E.P.)
 : 55%

businesses. Startups can leverage this aspect in their marketing strategies to build brand value and customer loyalty.

In conclusion, crumb rubber powder manufacturing from waste tyres presents a compelling opportunity for entrepreneurs. With

its strong market growth, diverse applications, and positive environmental impact, this industry offers a unique blend of profitability and sustainability. By investing in this sector, startups can contribute to solving a global waste management challenge while building a successful and socially responsible business.

and take proper care of their nutrition.

In order to ensure that their pets get

adequate nutrients, consumers

prefer pet food supplements that

are organic and natural, to avoid any adverse effects on pets. Egg

its competitive landscape.

These are also paving the

road to growth over the

forecast period. One such

development is outlined

below. Entrepreneurs who

invest in this project will be

membrane protein powder is mainly used

in pet supplements to reduce bone disorders and

comfort them in case of seasonal allergies. Hence,

this evolving demand for pet supplements is driving

the global egg membrane protein powder market.

through certain developments that are shaping

The global eggshell membrane market is going

successful.

gg shell is a solid waste, with production of several tons per day. Eggshell is mostly sent to the landfill with a high management cost. It is economical to

transform the egg shell waste to create new values from these waste materials. The eggshell wastes could convert to a) biodiesel production as solid base catalyst to use for biodiesel production, pollutants minimization, reducing the production costs of biodiesel and making the process to produce biodiesel fully, ecologically and friendly, b) absorbent of heavy metals from wastewater as serious environmental problem in the ecosystem, c) biomaterial in order to bone tissue replacements due to the rise in the number of patients, d) fertilizer and calcium supplement as nutrition for human, animals, plants, etc. Numbers of research articles have been included in this review, which describe a methodical growth in this subject matter.

The egg is the most nutritious natural product. Eggs are rich in protein, vitamins and minerals.



The poultry industry in India has made remarkable progress and grown into an organized and highly productive industry. Dried egg powder can be stored and transported at room temperatures. It is quite stable and has a long shelf life. There is enough scope of an egg powder manufacturing plant, with a suitable capacity. Whole egg powder is consumed in hotels, hospitals, restaurants, and

military establishment etc.

The eggshell membrane powder market is expected to grow at a CAGR of ~13% during the forecast period 2019-2029. The pet food supplement industry is an emerging industry, as consumers are becoming fonder of their pets

PROJECT COS	T ESTIMATE
CAPACITY	
Eggshell Powder	: 2 MT / Day
Plant & Machinery	:₹11 Lakhs
Cost of Project	:₹ 42 Lakhs
Rate of Return	: 30%
Break Even Point	: 79 %

Market Survey Cum Detailed Techno Economic Feasibility Report on all above Businesses are Available. Contact :

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Highly Profitable Business Ideas for You

ompressed Biogas (CBG) from cow dung, Napier grass, and fresh mud is a growing industry that holds immense potential for startups and entrepreneurs. The demand for cleaner, renewable energy sources has been steadily increasing due to environmental concerns and rising energy costs. Compressed Biogas (CBG) presents a sustainable solution by utilizing organic waste materials, such as cow dung, agricultural residues like Napier grass, and fresh mud. For startups, this business offers not only profitability but also the opportunity to contribute to a greener economy.

Why Startups Should Choose Compressed Biogas Manufacturing

1. Sustainability and Environmental Impact

One of the primary reasons for entrepreneurs to invest in CBG production is its role in sustainability. Biogas is a renewable energy source,

reducing dependence on

fossil fuels. By converting organic waste into energy, startups can mitigate waste management problems while reducing greenhouse gas emissions. This helps in addressing environmental challenges, which is a key concern in today's world. With governments and international bodies pushing for cleaner energy, businesses involved in renewable energy production are bound to thrive in the coming years.

2. Abundant Raw Materials

The production of CBG from cow dung, Napier grass, and fresh mud is highly feasible due to the easy availability of raw materials. India, for example, has a large cattle population, ensuring a continuous supply of cow dung. Napier grass, a fast-growing perennial grass, can be harvested multiple times a year, providing an abundant source of biomass. Fresh mud, an easily accessible resource, can be sourced from various agricultural or natural lands. The availability of these raw materials in large quantities at low cost makes this business highly cost-effective for entrepreneurs.

3. Growing Market Demand

The global demand for cleaner energy is rapidly increasing. Countries are moving towards reducing their carbon footprints and achieving sustainable development goals (SDGs). CBG can be used as a fuel for transportation, industrial applications, and power generation, making it a versatile energy source. Governments are also incentivizing the adoption of biofuels through policies and subsidies, further enhancing market growth. The Indian government's National Policy on Biofuels, for instance, aims to promote the production and use of biofuels, including CBG, which presents a massive market opportunity.

Market Size, Share, and Trends

The global biogas market size was valued at over USD 60 billion in 2023 and is expected to grow at a compound annual growth rate (CAGR) of around 5.8% from 2024 to 2030. The CBG sector, in particular, is gaining attention due to its high methane content and its potential to replace traditional fossil fuels like CNG (Compressed Natural Gas).

India is one of the largest markets for biogas production, driven by the availability of raw materials and government initiatives promoting renewable energy. The market share for CBG is expected to grow significantly as the nation aims

Compressed Bio Gas (CBG)

from Cow Dung, Napier Grass, and Fresh Mud

A Promising Venture for Startups and Entrepreneurs

- Gas Analyzers: These are needed to monitor the quality of the biogas, ensuring it meets market standards.
- 6. Pipeline Network: For transporting raw materials into the plant and moving biogas to storage or distribution points.

7. Power Generators: In cases where biogas is used for electricity production, generators convert the energy stored in biogas into usable power.

Manufacturing Process

1. Collection of Raw Materials: Cow dung, Napier grass, and fresh mud are collected from farms and agricultural sites.

2. Anaerobic Digestion: These materials are fed into anaerobic digesters, where microorganisms break down the organic matter in the absence of oxygen. This process generates biogas, primarily composed of methane and carbon dioxide.

3. Purification: The raw biogas

to increase its renewable energy capacity to 175 GW by 2025. In this context, the Indian market for CBG offers huge potential for new entrepreneurs and startups looking to make their mark in the **4** renewable energy sector.

Export Potential

CBG also holds immense export potential, especially in countries transitioning to greener economies. European nations, in particular, are keen on reducing their carbon emissions and are looking for alternative energy sources like biogas. Entrepreneurs in India and other developing nations can tap into this growing export market by focusing on quality production and adhering to international standards. Moreover, the demand for biogaspowered vehicles in Europe and other developed nations further boosts the potential for exporting CBG.

List of Machinery for CBG Production

To set up a CBG manufacturing plant, startups will require the following equipment:

- **1. Anaerobic Digesters:** These are used to break down organic materials, such as cow dung and Napier grass, under anaerobic conditions to produce biogas.
- 2. Biogas Storage Tanks: For storing the biogas generated in the digesters before it is compressed.
- **3. Biogas Purification Units:** These units are essential for purifying the biogas by removing impurities like hydrogen sulfide and carbon dioxide, ensuring high methane content.
- Compressor: Used to compress the purified biogas to store it under pressure as CBG.

undergoes a purification process to remove impurities like hydrogen sulfide and excess carbon dioxide, leaving behind highquality methane gas.

- **4. Compression:** The purified biogas is then compressed using a compressor, turning it into Compressed Biogas (CBG). This is stored in high-pressure cylinders for distribution.
- **5. Distribution:** The final CBG product can be transported and distributed to various sectors, including transportation, industrial use, and household cooking.

Investing in CBG manufacturing from cow dung, Napier grass, and fresh mud offers a sustainable and profitable business opportunity for entrepreneurs. The growing demand for renewable energy, combined with the abundant availability of raw materials, makes this a highly feasible venture. Entrepreneurs can take advantage of government incentives, export potential, and the expanding market for biogas to establish themselves in this burgeoning industry. With the right machinery and processes in place, startups can tap into a market that is not only environmentally friendly but also highly profitable.

PROJECT COST ESTIMATE	
CAPACITY:	
Compressed Bio Gas : 22 MT Per Day	
By Product Liquid Fertilizer : 431 MT Per Day	
By Product Dry Solid Fertilizer : 184 MT Per Day	
Cost of Plant & Machinery : ₹ 74 Crore	
Cost of Project : ₹ 119 Crore	
Rate of Return : 26%	
Break Even Point (B.E.P) : 35%	

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