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## About Us

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.

## SPECIAL ISSUE ON E-VEHICLES AND BATTERY BUSINESSES

Handbook on

# Electric Vehicles Manufacturing

(E- Car, Electric Bicycle, E- Scooter, E-Motorcycle, Electric Rickshaw, E- Bus, Electric Truck with Assembly Process, Machinery Equipments & Layout)

An electric vehicle (EV) is one that is powered by an electric motor rather than an internal-combustion engine that burns a mixture of gasoline and gases to generate power. As a result, such a vehicle is being considered as a potential replacement for current-generation automobiles in order to solve issues such as:-

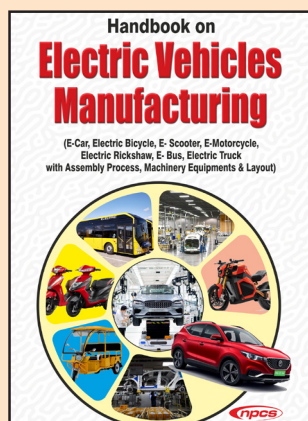
- Growing Pollution
- Global Warming,
- Natural Resource Depletion, and so on.

Despite the fact that the concept of electric vehicles has been around for a long time, it has garnered a lot of attention in the last decade as a result of the rising carbon footprint and other environmental implications of gasoline-powered vehicles.

The global electric vehicle market is expected to increase at a CAGR of 21.7 percent. Increased government investments in the development of electric vehicle charging stations and hydrogen fuelling stations, as well as buyer incentives, will provide chances for OEMs to increase their revenue stream and regional footprint. The EV market in Asia Pacific is expected to develop steadily due to increasing demand for low-cost, low-emission vehicles, whereas the market in North America and Europe is expected to rise quickly due to government initiatives and the growing high-performance passenger vehicle segment.

India's flagship plan for boosting electric mobility is FAME,

₹ 3,695/- US\$ 250-



or Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles FAME Scheme has been authorized by the government, with 86 percent of overall budgetary support has been set aside for the Demand Incentive, which aims to increase demand for EVs throughout the country. This phase will support e-buses, e-3 wheelers, e-4 wheeler passenger cars and e-2 wheelers in order to build demand.

The book covers a wide range of information related to the manufacture of electric vehicles. It includes E- Car, Electric Bicycle, E- Scooter, E-Motorcycle, Electric Rickshaw, E- Bus, Electric Truck with Assembly Process, contact information for machinery suppliers, Directory Section & Factory Layout.

A detailed guide on the manufacturing and entrepreneurship of electric vehicles. This book serves as a one-stop shop for everything you need to know about the Electric Vehicle Manufacturing industry, which is rife with opportunities for startups, manufacturers, merchants, and entrepreneurs. This is the only book on the production of commercial electric vehicles. It's a veritable feast of how-to information, from concept through equipment acquisition.

Handbook on Perfume, Deodorant, Air Freshener, Body Spray, Fragrances, Flavours and Essential Oil Industry with Manufacturing Formulations, Process, Machinery Equipment Details & Factory Layout

# Lithium Ion Battery (LiFePO<sub>4</sub>) Production Business

A lithium-ion cell, sometimes known as a Li-ion battery, is a rechargeable battery in which lithium ions flow from the negative electrode to the positive electrode during discharge and then back to the negative electrode during charging. Due to safety concerns, alternative cathode materials based on elements other than cobalt or manganese have been developed. One of these materials is lithium iron phosphate.

**Features:**

- Higher power density
- Lower discharge rate
- A straight discharge curve
- Lower heating costs
- Increased charging cycles

PROJECT COST ESTIMATE	
<b>CAPACITY:</b>	
<i>Lithium Ion (LiFePO<sub>4</sub>) Battery Back of Power 4.8 KWH : 26 Nos Per Day (No. of Cells 800) for Three Wheeler</i>	
<i>Lithium Ion (LiFePO<sub>4</sub>) Battery Back of Power 18 KWH : 24 Nos Per Day (No. of Cells 3000) for Four Wheeler</i>	
<b>Plant &amp; Machinery</b>	: ₹ 289 Lakhs
<b>Cost of Project</b>	: ₹ 970 Lakhs
<b>Rate of Return</b>	: 29%
<b>Break Even Point</b>	: 54%

- improved security

**Market Size in India:**

Over the projection period of 2018-2023, the India lithium-ion battery market is expected to

develop at a robust CAGR of 29.26%.

The Indian automobile industry is one of the most important in the country, accounting for roughly 7% of GDP.

**Market Size Globally:**

By 2028, the Lithium Iron Phosphate (LiFePO<sub>4</sub>) battery market is expected to reach USD 15.25 million.

The industry's growth is being fueled by increased demand for LiFePO<sub>4</sub> batteries from the automobile

sector. As the demand for battery electric cars has grown tremendously in recent years, the use of lithium iron phosphate batteries has increased significantly.

## Recycling of Lithium Ion Battery Business

Because of the popularity of smart phones and tablets, the demand for lithium ion batteries has surged substantially in recent years. Because these devices include hazardous materials that must be properly disposed of to avoid contamination of the environment, recycling these batteries is now more crucial than ever.

Lithium-ion batteries are becoming more prevalent. They're already used in cell phones, laptops, consumer electronics, and some industrial applications. Telecom towers, solar storage systems, and electric vehicles are all using them. Battery specialists and environmentalists agree that lithium-ion batteries should be recycled for a variety of reasons.

According to estimates, India's yearly lithium-ion battery industry would expand at a 37.5 percent compound annual growth rate (CAGR) from now until 2030, when it will reach 132 GWh. The global lithium-ion battery market will have risen from 2.9 gigawatt-hours in 2018 to around 800 gigawatt-hours by 2030.

PROJECT COST ESTIMATE	
<b>CAPACITY:</b>	
<b>Copper</b>	: 1.4 MT Per Day
<b>Aluminium</b>	: 0.8 MT Per Day
<b>Graphite</b>	: 1.8 MT Per Day
<b>Carbon Black</b>	: 0.3 MT Per Day
<b>Lithium Cobalt Oxide</b>	: 2.5 MT Per Day
<b>Plastic</b>	: 0.2 MT Per Day
<b>Plant &amp; Machinery</b>	: ₹ 200 Lakhs
<b>Cost of Project</b>	: ₹ 422 Lakhs
<b>Rate of Return</b>	: 27%
<b>Break Even Point</b>	: 55%

## Lithium Ion (LiFePO<sub>4</sub>) Cell Manufacturing

The Lithium Iron Phosphate Battery (LiFePO<sub>4</sub> battery) or LFP Battery (lithium ferrophosphate), is a type of lithium-ion battery using LiFePO<sub>4</sub> as the cathode material (on a battery this is the positive side), and a graphitic carbon electrode with a metallic backing as the anode. Cylindrical lithium cells are used for high specific energy density and good mechanical stability.

They are used in telecommunication equipment, instruments, portable radios and TVs, pagers. They are used to operate laptop computers and mobile phones and aerospace application.

The market for lithium-ion battery in India is expected to grow at a CAGR of 34.8% during the

forecast period of 2019 – 2024. In addition to it, the lithium-ion battery has comfortable rechargeable property, lightweight, long-lasting; thus, it perfectly contributes to the electric vehicle market to grow in the forecast period. Thus, due to demand it is best to invest in this project.

PROJECT COST ESTIMATE	
<b>CAPACITY</b>	: 25000 Nos/Day
<b>Plant &amp; Machinery</b>	: 3618 Lakhs
<b>Cost of Project</b>	: 4626 Lakhs
<b>Rate of Return</b>	: ₹ 25%
<b>Break Even Point</b>	: ₹ 39%

## Lead Acid Battery (Maintenance Free)

Lead acid batteries are the most common large-capacity rechargeable batteries. They are very popular because they are dependable and inexpensive on a cost-per-watt base. Maintenance Free- Sealed Lead Acid (MF-SLA) batteries are available in a few different formats. Their principal manufacturing process, including number of plates and plate thickness determines its designated end user application. SLA batteries tend not to sulphate or degrade as easily as wet cells and are regarded the safest lead acid battery to use.

PROJECT COST ESTIMATE	
<b>CAPACITY</b>	
<b>Lead Acid Battery (Maintenance Free)</b>	: 500 Nos./Day
<b>Plant &amp; Machinery</b>	: ₹ 233 Lakhs
<b>Cost of Project</b>	: ₹ 590 Lakhs
<b>Rate of Return</b>	: 29%
<b>Break Even Point</b>	: 60%

India lead acid battery market is projected to reach \$ 7.6 billion by 2023. Anticipated growth in the market can be attributed to booming demand for automobiles, in addition to increasing focus of the government towards

boosting the penetration of electric vehicles in the country. India Lead Acid Battery Market is projected to grow at a CAGR of over 9% during 2018-24. As a whole there is a good scope for new entrepreneur to invest in this business.

## Demanding Business of E-Rickshaw Assembling

E-Rickshaws are three wheel battery operated vehicles, which are considered as an upgrade to conventional rickshaws, and economically better than auto rickshaws and other fuel variants, these rickshaws, since are battery powered have zero emission, and is often argued to be much better than other rickshaws as they are considered almost pollution free. Such vehicle is constructed or adapted to carry not more than four passengers, excluding the driver, and not more than forty kilograms luggage in total.

The Indian automobile industry is one of the largest growing markets of the world, and contributes highly in the country's manufacturing facilities. Not only this, the automotive industry

### PROJECT COST ESTIMATE

CAPACITY	
E Rickshaw	: 4 Nos./Day
Plant & Machinery	: ₹ 28 Lakhs
Cost of Project	: ₹ 323 Lakhs
Rate of Return	: 24%
Break Even Point	: 56%

in India is further expected to pull up the share of manufacturing in India's GDP to 25% by 2022 from 15% currently, with production of Electric Vehicles being new talk of the town. Entrepreneurs who invest in this project will be successful.

E rickshaws are now one of the preferred modes of transport in streets because of its low maintenance cost, low fuel cost, Eco-friendly, no noise pollution, easy to drive and last but

### PROJECT COST ESTIMATE

CAPACITY	
E-Rickshaw	: 200 NosPer Day
Plant & Machinery	: ₹ 2.06 Cr.
Cost of Project	: ₹ 25.80 Cr.
Rate of Return	: 30%
Break Even Point	: 68%

not the least livelihood, e-rickshaw is a boon to the common man. Without putting in much physical efforts and without investing much amount of money, the earning is quite good for an e-rickshaw driver and hence it is an important means of livelihood for many.

The global e-Rickshaw market is projected to expand at around 9% CAGR during the upcoming period. The growth of the market is attributed

to low cost of transportation and low power consumption. E-rickshaws are widely accepted as an alternative to diesel, petrol, CNG auto rickshaws. The mismatch between any of these components is nasty and may reduce performance. The global e-Rickshaw market

is projected to expand at around 9% CAGR during the period. The growth of the market is attributed to low cost of transportation due better mileage and low power consumption. Increase in sales and production of electric vehicles as an alternative for fuel-based mobility, owing to several government initiatives and environmental regulations on the electric vehicle industry, is projected to drive the e-rickshaw market.

## Profitable Business of Lithium Ion Battery Pack

Lithium ion (li-ion) battery is made up of two electrodes separated by an electrolyte. There are three layers in practically all lithium-ion batteries: two electrodes (the cathode and anode), separated by a separator layer consisting of synthetic organic polymer material. The cathode (top electrode) is negatively charged, whereas the anode (bottom electrode) is positively charged. The separator works as an insulator, preventing charges from easily travelling between the electrodes until electrons are moved through it from one electrode to the next by a device or power source.

### PROJECT COST ESTIMATE

#### CAPACITY:

Lithium Ion Battery Module Cap. 0.4 KWH	: 595.2 Module Per Day
Lithium Ion Battery Module Cap. 4.8 KWH	: 48.8 Module Per Day
Lithium Ion Battery Module Cap. 5 KWH	: 46.8 Module Per Day
Lithium Ion Battery Module Cap. 10 KWH	: 23.4 Module Per Day
Plant & Machinery	: ₹ 36 Cr
Cost of Project	: ₹ 50 Cr
Rate of Return	: 27%
Break Even Point	: 41%

A lithium iron phosphate (LFP) battery is a form of lithium-ion battery that, when compared to other types of batteries, can charge and discharge at rapid speeds. It's a rechargeable battery whose cathode material is LiFePO<sub>4</sub>; hence the name.

During the period of 2019 to 2024, India's lithium-ion battery market is predicted to increase at a CAGR of 34.8%. Factors such as the falling price of lithium-ion batteries and the advent of new and intriguing markets.

The lithium-ion battery market in India is likely to be driven by electric vehicles and energy storage systems (ESS) for both commercial and residential applications. The lack of significant reserves required for lithium-ion battery manufacture is projected to represent a challenge to local production and the lithium-ion battery market in the country.

## Profitable Business Industry of Electric Motors

An electric motor is a machine that turns electricity into mechanical energy. The bearing journals and rotor diameter are finish-machined as a rotor assembly by some motor manufacturers, notably those producing sizes of 5 hp and more. This technique ensures that the bearing journals and rotor diameter are perfectly aligned.

The interaction between the motor's magnetic field and electric current in a wire winding generates force in the form of torque imparted to the motor's shaft in most electric motors.

The following are some of the uses for electric motors.

- Blowers, fans, machine tools, pumps, turbines, power tools, alternators, compressors, rolling mills, ships, movers, and paper mills are all examples of electrical motor applications.

- The electric motor is used in a variety of applications, including HVAC (heating, ventilation, and air conditioning), home appliances, and motor vehicles.

Due to the presence of a large number of participants, including huge corporations and small and medium-sized businesses, the Indian market for electric motors is highly fragmented. During the

period 2020-2026, the India Electric Motors Market is expected to develop at a CAGR of 5.9%. The growing popularity of electric vehicles is propelling the global and Indian electric motor markets to new heights. Due to growing fuel prices and rigorous laws aimed at reducing air pollution levels across the country, demand for automobile electric motors is likely to increase in the coming years. Furthermore, the FAME II programme for 100 percent vehicle electrification, the Make in India programme, and other programmes aimed at helping India realise its goal of becoming a global manufacturing hub will continue to drive demand for electric motors in the country.

### PROJECT COST ESTIMATE

#### CAPACITY:

5 KW Three Phase Induction Motors	: 120 Nos Per Day
10 KW Three Phase Induction Motors	: 120 Nos Per Day
10 KW Brushed DC Motors	: 120 Nos Per Day
Automated Water Pump 5 KW Three Phase Induction Motors	: 120 Nos Per Day
Plant & Machinery	: ₹ 467 Lakhs
Cost of Project	: ₹ 3949 Lakhs
Rate of Return	: 26%
Break Even Point	: 41%

## Business Plan for Setting up

# Automated Vehicle Scrapping and Recycling Unit

The deconstruction of automobiles for spare parts is known as vehicle recycling. Vehicles have value as a source of replacement components as they reach the end of their useful lives, which has given rise to the car dismantling industry. Commercial outlets in the business are often referred to as "wrecking yards," "auto dismantling yards," "vehicle replacement parts providers," and, more recently, "auto or vehicle recycling." Vehicle recycling has been a part of the process for a long time, but manufacturers have been more active in recent years. Before transferring a discarded car to a steel mill, a crusher is typically used to reduce its size.

### PROJECT COST ESTIMATE

Capacity	: 1000 Vehicles per Month
Plant & Machinery	: Rs. 497 Lakhs
Cost of Project	: Rs. 2090 Lakhs
Rate of Return	: 29%
Break Even Point	: 40%

In India, what is the scope of vehicle recycling?

India, being the world's third-largest steel producer, offers enormous potential for vehicle

### PROJECT COST ESTIMATE

<b>CAPACITY:</b>	
Spare Parts	: 375 Units Per Day
Waste Oil	: 450 Units Per Day
Waste Tyre	: 2250 Units Per Day
Engines	: 50 Units Per Day
Steel Scrap	: 60000 Units Per Day
Rubber Scrap	: 200 Units Per Day
Alloy Wheel	: 250 Units Per Day
Battery	: 1,500 Units Per Day
Plant & Machinery	: ₹ 10 Cr
Cost of Project	: ₹ 51 Cr
Rate of Return	: 32%
Break Even Point	: 36%

recycling. Because it is mostly unorganised, auto recycling in India can provide a variety of benefits to the country, ranging from a boost to the automotive sector to fuel savings and job creation.

The recycling business is placing a significant wager on the government's efforts. It is expected to produce business of USD 2.9 billion (roughly INR 190 billion) at first, based on 25% (7 million

### PROJECT COST ESTIMATE

<b>CAPACITY:</b>	
Spare Parts	: 188 Units Per Day
Waste Oil	: 225 Units Per Day
Waste Tyre	: 1,125 Units Per Day
Engines	: 25 Units Per Day
Steel Scrap	: 30,000 Units Per Day
Rubber Scrap	: 100 Units Per Day
Alloy Wheel	: 125 Units Per Day
Battery	: 750 Units Per Day
Plant & Machinery	: ₹ 3 Cr
Cost of Project	: ₹ 25 Cr
Rate of Return	: 30%
Break Even Point	: 40%

vehicles) of all automobiles that might be thrown. In the future years, these figures are likely to rise.

### Market Predictions:

In 2020, the worldwide car recycling market is expected to be worth \$20.6 billion. Between 2021 and 2026, the market is estimated to increase at a CAGR of 5.1 percent.

## E-Waste & Lithium Battery Recycling Plant

Electronic 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 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-Waste & Lithium Battery Recycling Plant	: 20 MT/Day
Plant & Machinery	: ₹ 225 Lakhs
Cost of Project	: ₹ 540 Lakhs
Rate of Return	: 26%
Break Even Point	: 59%

## Recovery of Lead from Scrap Batteries

The recovery of metals from metal scrap has the advantage that it is easier and far less energy dependent than the production of primary lead from ores. Lead is a chalcophile metallic element forming several important minerals including galena PbS, angle site PbSO<sub>4</sub>, crosstie PbCO<sub>3</sub> and minimum Pb<sub>3</sub>O<sub>4</sub>. Recycling lead is relatively simple and in most of the applications where lead is used, such as lead-acid batteries, it is possible to recover it for use over and over again.

### PROJECT COST ESTIMATE

#### CAPACITY

Lead Ingot	: 8 MT/Day
Plant & Machinery	: ₹ 96 Lakhs
Cost of Project	: ₹ 370 Lakhs
Rate of Return	: 29%
Break Even Point	: 54%

The production of lead in India from primary sources accounts for nearly two thirds of the total lead production in the country whereas, the world over, the production from secondary smelters accounts for nearly 60% of the total production of lead. This facilitates the development of new technologies and ensures a high quality product.

## Hybrid Electric Scooter Assembling

A plug-in hybrid electric vehicle (PHEV) is an HEV that can be plugged-in or recharged from wall electricity. PHEVs are distinguished by much larger battery packs when compared to other HEVs. The size of the battery defines the vehicle's All Electric Range (AER), which is generally in the range of 30 to 50 miles. PHEVs can be of any hybrid configuration. PHEVs start in 'all electric' mode, runs on electricity and when the batteries are low in charge.

India electric scooters and motorcycles market size valued at \$24.6 million in 2016, it is expected to grow at a CAGR of 45.4% during 2017- 2025. Some 4,50,000 electric two-wheelers were sold in India in the past eight years. The potential of electric vehicles in this segment is massive, say industry executives, given that more than 17 million two-wheelers are sold annually in the country. This facilitates the development of new technologies and ensures a high quality product.

### PROJECT COST ESTIMATE

#### CAPACITY

Hybrid Electric Scooter	: 50 Nos./Day
Plant & Machinery	: ₹ 95 Lakhs
Cost of Project	: ₹ 279 Lakhs
Rate of Return	: 34%
Break Even Point	: 74%

## Indian Kitchen Spices (Masala Powder)

**Spices Powder and Blended Spices, Readymade Mixes (Red Chilli Powder, Sambhar Masala, Biryani Masala, Chicken Fry Masala, Garam Masala)**

The Indian spices market is worth INR 40,000 crore annually. Key spices produced in the country include pepper, cardamom, chilli, ginger, turmeric, coriander, cumin, celery, fennel, fenugreek, ajwain, dill seed, garlic, tamarind, clove, and nutmeg among others. The market is largely unorganized and the branded segment makes up about 15%.

The population in India is surging and the increasing consumer expenditure on food explains the swelling demand for food in India. Accordingly, the demand for spices is expected to grow in the future which will lead to a prominent growth in the revenues from the sales of spices in India. The revenues from India market are expected to expand to around USD 18 billion in FY'2020, growing with a CAGR of ~% from FY'2016 to FY'2020. The highest contribution to this growth is expected to come from the spice mixes and blended spices.

### PROJECT COST ESTIMATE

#### CAPACITY:

<b>Red Chilli Powder</b>	: 100 Kgs. / Day
<b>Sambhar Masala</b>	: 100 Kgs. / Day
<b>Biryani Masala</b>	: 100 Kgs. / Day
<b>Chicken Fry Masala</b>	: 100 Kgs/ Day
<b>Garam Masala</b>	: 100 Kgs. / Day
<b>Plant &amp; Machinery</b>	: ₹ 35 Lakhs
<b>Cost of Project</b>	: ₹ 195 Lakhs
<b>Rate of Return</b>	: 29%
<b>Break Even Point</b>	: 53%

## Lead Production

**(Litharge, Refined Lead, Red Lead & Grey Lead)**

Lead is a relatively soft metal with bluish-white lustre but on exposure to air, it becomes covered by a dull, gray layer of basic carbonate that adheres closely and protects it from further oxidation or corrosion. It is an important component of batteries, and about 75% of the world's lead production is consumed by the battery industry. Lead is also commonly used in glass and enamel.

India Lead Acid Battery Market is projected to grow at a CAGR of over 9% during 2018-24. India lead acid battery market is projected to reach \$ 7.6 billion by 2023. Anticipated growth in the market can be attributed to booming demand for automobiles, in addition to increasing focus of the government towards boosting the penetration of electric vehicles in the country. Entrepreneurs who invest in this project will be successful.

### PROJECT COST ESTIMATE

#### CAPACITY:

<b>Litharge</b>	: 960 MT/Annum
<b>Refined Lead</b>	: 1800 MT/Annum
<b>Red Lead</b>	: 440 MT/Annum
<b>Grey Lead</b>	: 525 MT/Annum
<b>Plant &amp; Machinery</b>	: ₹ 82 Lakhs
<b>Cost of Project</b>	: ₹ 361 Lakhs
<b>Rate of Return</b>	: 31%
<b>Break Even Point</b>	: 54%

## Aluminium Cans for Beer and Beverages

Growing health concerns associated with the use of plastics containers is also a key factor influencing market growth. Many beverages are packaged in plastic containers in the U.S. (Plastic Industry Association, U.S.). However, pressure from environmental lobby groups and Government agencies is being felt by many can manufacturers, who are being bounded to reduce the consumption of plastics. Water and carbonated drinks are usually bottled in Polyethylene Terephthalate (PET) bottles. As bans on plastic packaging gains momentum across the U.S., manufacturers, and sellers are turning towards other available options.

### PROJECT COST ESTIMATE

#### CAPACITY

<b>Aluminium Beverage Cans</b>	: 13.3 Lakh Pcs. / Day each 330 ml Size
<b>Plant &amp; Machinery</b>	: ₹ 343 Cr
<b>Cost of Project</b>	: ₹ 399 Cr
<b>Rate of Return</b>	: 23%
<b>Break Even Point</b>	: 36%

## E-Waste Recycling Plant

Electronic wastes are super-fluorous, obsolete, damaged, or abandoned electrical or electronic devices, sometimes known as "e-waste," "e-scrap," or "Waste Electrical and Electronic Equipment," or "WEEE." Any component that is

dropped, disposed of, or discarded rather than repurposed is considered electronic "waste," which includes leftovers from reuse and recycling activities. Because a wide range of surplus electronics (good, recyclable, and non-recyclable) are delivered on a daily basis, some public policy activists refer to all surplus electronics as "e-waste."

In a narrower sense, end-of-life information and telecommunications equipment, as well as consumer products, are sometimes referred to as e-waste. WEEE, on the other hand, is a subset of electronic waste (Waste Electrical and Electronic Equipment).

The global WEEE recycling market is expected to be valued

\$3,854.5 million in 2020, up 3.7 percent from the previous year. During the year, a rise in environmental consciousness and commitment from leading technology businesses and electronic manufacturers to use sustainable manufacturing and supply chain practises boosted the expansion of recyclers. Over the next five years, companies across a number

of EEE product sectors are expected to adopt circular electronics as part of their long-term vision and strategy. The global e-waste management market was worth \$49,880 million in 2020, and is predicted to increase at a 14.3% CAGR from 2021 to 2028, reaching \$143,870 million by 2028.

### PROJECT COST ESTIMATE

#### CAPACITY:

<b>Plastic Granules</b>	: 470 Kgs / Day
<b>Glass Scrap</b>	: 353 Kgs / Day
<b>Copper Scrap</b>	: 294 Kgs / Day
<b>Precious Metals (Nickel, Tin &amp; Zinc)</b>	: 60.00 Kgs / Day
<b>Gold</b>	: 0.0192 Kgs / Day
<b>Silver</b>	: 0.0384 Kgs / Day
<b>Palladium</b>	: 0.0010 Kgs / Day
<b>Plant &amp; Machinery</b>	: ₹ 107 Lakhs
<b>Cost of Project</b>	: ₹ 336 Lakhs
<b>Rate of Return</b>	: 28%
<b>Break Even Point</b>	: 58%

### PROJECT COST ESTIMATE

#### PLANT CAPACITY:

<b>Plastic</b>	: 1.60 MT Per Day
<b>Ferrous Material</b>	: 1.00 MT Per Day
<b>Aluminium</b>	: 0.70 MT Per Day
<b>Glass</b>	: 1.00 MT Per Day
<b>Copper</b>	: 0.70 MT Per Day
<b>Plant &amp; Machinery</b>	: ₹ 86 Lakhs
<b>Cost of Project</b>	: ₹ 314 Lakhs
<b>Rate of Return</b>	: 27%
<b>Break Even Point</b>	: 60%

### PROJECT COST ESTIMATE

#### CAPACITY:

<b>Plastic</b>	: 1.28 MT Per Day
<b>Ferrous Material</b>	: 0.80 MT Per Day
<b>Aluminium</b>	: 0.56 MT Per Day
<b>Glass</b>	: 0.80 MT Per Day
<b>Copper</b>	: 0.56 MT Per Day
<b>Plant &amp; Machinery</b>	: 87 ₹ Lakhs
<b>Cost of Project</b>	: 371 ₹ Lakhs
<b>Rate of Return</b>	: 27%
<b>Break Even Point</b>	: 62%

## Production of Crumb Rubber Powder from Waste Tyres

Crumb rubber is a term usually applied to recycled rubber from automotive and truck scrap tires. There are two major technologies for producing crumb rubber – ambient mechanical grinding and cryogenic grinding. Of the two processes, cryogenic process is more expensive but it produces smoother and smaller crumbs.

Waste tyre recycling technology is very cost effective and performs 100% wastage tyre recycling (No churn left after the process). In this process no chemical ingredients are used, therefore it is environment friendly. Raw material (scrap tyre) is cheap and easily available, Generate economically valuable products out of waste tyres and products have good market value and demand. Also each recycled ton of tyres preserves 10 tons of carbon dioxide (CO<sub>2</sub>) that is a major greenhouse gas.

### Features of Tyre Recycling Plant:

1. Compact structure, small floor area, easy maintenance.
2. Low energy consumption, low operating cost.
3. Easy operation, stable performance.
4. Large capacity, high working efficiency.
5. High automatic control, reducing labor cost.
6. Long service life, low rate of breakdown.
7. Eco-friendly. No sewage and waste gas discharge.

There is a rapid market increase of rubber powder in India. Demand of rubber powder in India is increased by 5%-8%. There is fair scope of this product. Every year over 1.6 billion new tires are generated and around 1 billion of waste tires are generated. However, the recycling industry processed only 100 million tires every year. The tire is extensively designed with several complex processes which makes it indestructible in nature and creates difficulty in the recycling of tires.

Furthermore, the growing implementation of crumb rubber generated from scrap tires is supporting the growth of the tire recycling market. In 2016, over 30% of crumb rubber used on sports fields and 25% of crumb rubber used as playground surfacing which is expected to create a significant disruption of the tire recycling market. Application of rubberized asphalt for the construction of pavements is also generating a pool of opportunities for tire recyclers and is expected to fuel the growth of the tire recycling market in the near future.

### PROJECT COST ESTIMATE

#### CAPACITY:

<b>Crumb Rubber Powder</b>	: 24 MT Per Day
<b>By Product Steel Wire</b>	: 4.8 MT Per Day
<b>Plant &amp; Machinery</b>	: ₹ 115 Lakhs
<b>Cost of Project</b>	: ₹ 426 Lakhs
<b>Rate of Return</b>	: 28%
<b>Break Even Point</b>	: 66%

## Biodegradable Plastic Pellets

- Corn Starch Thermoplastic & Polyvinyl Alcohol
- PBAT & Corn Starch Thermoplastic
- PLA + PBAT + Corn Starch Thermoplastic
- PLA + PBAT + CaCO<sub>3</sub>

Among the biodegradable polymers made from renewable resources, starch is probably the most renewable naturally biodegradable polymer source because it is versatile, cheap, and abundant.

It shows compatibility with extrusion processes used in the manufacture of conventional films and in the presence of a plasticizer it produces a material with thermoplastic characteristics, known as thermoplastic starch (TPS). As a result, TPS is often blended with other polymers, such as poly (butylene adipate-co-terephthalate) (PBAT) and biodegradable aliphatic-aromatic copolyester, which combines biodegradability with other de-

sirable physical properties.

The massive use of synthetic plastics, in particular in the food packaging area, has a great environmental impact, and alternative more ecologic materials are being required. Poly(lactic) acid (PLA) and starch have been extensively studied as potential replacements for non-degradable petrochemical polymers on the basis of their availability, adequate food contact properties and competitive cost. Indeed, plastics represent the second most widely used material for food packaging applications, after paper and cardboard.

### PROJECT COST ESTIMATE

#### CAPACITY

<b>Biodegradable Plastic Pellets</b>	: 1,200,000 Kgs Per Annum
<b>Plant &amp; Machinery</b>	: ₹ 128 Lakhs
<b>Cost of Project</b>	: ₹ 407 Lakhs
<b>Rate of Return</b>	: 29%
<b>Break Even Point</b>	: 48%

## Composite Materials

### (Carbon Fibre Composites & Glass Fibre Composites)

The future of the composites market looks attractive with opportunities in the transportation, construction, wind energy, pipe & tank, marine, consumer goods, electrical and electronics, aerospace, and others. The composite materials market is expected to reach an estimated \$40.2 billion by 2024 and it is forecast to grow at a CAGR of 3.3% from 2019 to 2024. The composites end product market is expected to reach an estimated \$114.7 billion by 2024. Thus, due to demand it is best to invest in this project.

### PROJECT COST ESTIMATE

#### CAPACITY:

<b>Carbon Fibre Composite Laminate</b>	: 833.3 Sq. Mt. / Day
<b>M2 width 1500 mm</b>	
<b>Glass Fibre Composite Laminate</b>	: 833.3 Sq. Mt. / Day
<b>M2 width 1500 mm</b>	
<b>Plant &amp; Machinery</b>	: ₹ 115 Lakhs
<b>Cost of Project</b>	: ₹ 452 Lakhs
<b>Rate of Return</b>	: 29%
<b>Break Even Point</b>	: 67%

## Coal Washery Unit

Coal Washing Unit is one of the most important units for up-gradation of Coal in sense of fed value by reducing of ash content in the Coal. It is basically associated with sieve of position to get the quality Coal. Qualities of coal depend upon its ash content. Coal washing is a process of separation mainly based on differences in specific gravity of coal and associated impurities like sand, ash etc. The course will deal theoretical and practical aspects of coal washing processes and equipment.

Coal demand in 2020 is unlikely to be anywhere near 1,500 MT for domestic coal. The Government of India plans to achieve a domestic coal production target of 1.5 billion tonnes

by 2020—an ambitious growth from 2015's production of 612.4 million tonnes. At present 8% of coal production is through underground mining technology. If CIL has to produce even 900 MT by 2020. Thus, due to demand it is best to invest in this project.

### PROJECT COST ESTIMATE

#### CAPACITY

<b>Coal Washing (Job Work)</b>	: 3000 MT/Day
<b>Plant &amp; Machinery</b>	: ₹ 668 Lakhs
<b>Cost of Project</b>	: ₹ 1735 Lakhs
<b>Rate of Return</b>	: 12%
<b>Break Even Point</b>	: 68%

# Sugar Candy (Soft & Hard Boiled)

Candy or Sweet is the most popular type of confectionery over the world, and there is certainly something about this unique product that holds many mysterious qualities. Generally candies are available in fruit based flavors or Milk based flavor and sometimes with centre filling also. The confectionery category includes products such

as chocolate, gum, sugar confectionery, gummies/jellies, hard candy, toffee and fudge. The main reasons for purchasing are convenience, passive health, age, choice and pleasure. The most popular flavour groups are brown flavours, fruit, nuts, mints & menthols and dairy flavours.

The Indian confectionery market includes sugar-

### PROJECT COST ESTIMATE

<b>CAPACITY:</b>	
<b>Hard Boiled Candy</b>	: 18 MT/Day
<b>Soft Candy</b>	: 14 MT/Day
<b>Plant &amp; Machinery</b>	: ₹ 547 Lakhs
<b>Cost of Project</b>	: ₹ 1060 Lakhs
<b>Rate of Return</b>	: 29%
<b>Break Even Point</b>	: 50%

boiled confectionery, hard-boiled candies, toffees and other sugar-based candies. Sugar boiled confectionery has penetrated an estimated 17% of the households only, suggesting a large potential for growth. Considering the 25% penetration in the urban market, the confectionery industry could hope to be in for more promising future. The total volume of the

sugar-boiled confectionery market in the organized sector (comprising plain/hard boiled candies, toffees, eclairs and gums) is around Rs. 23 bn. Add to this the unorganized sector and the market for all types of confectionery is of the order of Rs. 38 bn which increased by 15% over that of the preceding year. Thus, due to demand it is best to invest in this project.

# Tungsten Carbide Rod

Tungsten carbide (WC) is an inorganic chemical compound containing equal parts of tungsten and carbon atoms. In its most basic form, it is a fine gray powder, but it can be pressed and formed into shapes for use in industrial machinery, tools, abrasives, as well as. Tungsten carbide is approximately three times stiffer than steel, and is much denser than steel or titanium. It is comparable with corundum in hardness and can only be polished and finished with abrasives of superior hardness such as silicon carbide, cubic boron nitride.

### PROJECT COST ESTIMATE

#### CAPACITY

<b>Tungsten Carbide Rod</b>	: 2 MT / Day
<b>Plant &amp; Machinery</b>	: ₹ 119 Lakhs
<b>Cost of Project</b>	: ₹ 607 Lakhs
<b>Rate of Return</b>	: 31%
<b>Break Even Point</b>	: 59%

In India, investments of USD 31,650 billion has been proposed by 99 cities under their smart cities plan. 100 smart cities and 500 cities are likely to invite investments worth INR 2 trillion in the next 5 years. Housing for All" program, launched in June 2015 aims to build 20 million urban homes and 30 million rural houses by 2022. Around 60 million new homes are expected to be built in India "between" 2018-2024. Thus, the growing manufacturing activities are instrumental for the growth of cemented carbide which in turn, boosting the market for tungsten carbide during the forecast period.

The market for tungsten carbide is anticipated to grow at a moderate CAGR of over 3.5% during the forecast period. Growth in the manufacturing activities across the globe is generating demand for tungsten carbide. Tungsten carbide is highly dense material constituting of tungsten and carbide. This alloy is resistant to heat, rust, scratches, and pitting. As a whole any entrepreneur can venture in this project without risk and earn profit.

# Aqua Fish Feed

Fish feed are placed in the middle of the aquaculture value chain. Raw materials of marine or land based origin are mixed with other important ingredients to feed pellets, which through their transformation in the fish are important for the final quality of the fresh fish or the processed fish products for the consumers. Fish farmers in India have increased access to high-quality feed this year, as Cargill has opened its first feed plant dedicated to fish species in the country. The plant, located in Vijayawada and acquired from Mulpuri Foods & Feeds, reflects the company's commitment to bring farmers safe, high-quality aqua feed solutions, according to a press release. It marks an important step in Cargill's work to develop its aqua feed business in India and across Asia.

### PROJECT COST ESTIMATE

<b>CAPACITY:</b>	
<b>Fish Feed</b>	: 60 MT / Day
<b>Prawn Feed</b>	: 60 MT / Day
<b>Plant &amp; Machinery</b>	: ₹ 845 Lakhs
<b>Cost of Project</b>	: ₹ 1702 Lakhs
<b>Rate of Return</b>	: 27%
<b>Break Even Point</b>	: 55%

The India Aquaculture Feed Market was valued at USD 1.20 billion in 2017 and is expected to register a CAGR of 10.4% during the forecast period (2018-2023). India feed mills have the capacity to produce 2.88 million metric ton. Andhra Pradesh is the largest feed consuming state in India. The coastal line of the country is about 7,517 kilometers with 195.20 kilometers of river and canal systems. The country consists of 14 rivers, 44 medium rivers, and many small rivers. The country also has tanks and ponds. By these sources, it is clear that the aquaculture industry is huge in India which provides huge opportunity and potential for aquaculture feed industry. As a whole any entrepreneur can venture in this project without risk and earn profit.

# Ciprofloxacin Hydrochloride

Ciprofloxacin is a synthetic chemotherapeutic antibiotic of the fluoroquinolone drug class. It is a second-generation fluoroquinolone antibacterial. It kills bacteria by interfering with the enzymes that cause DNA to rewind after being copied, which stops synthesis of DNA and of protein. Ciprofloxacin is not to be used in infants as they have not developed sufficient enzymes to metabolize the drug. Severe adverse reaction will occur in this patient group.

Ciprofloxacin is used to treat a number of infections including: infections of bones and joints, endocarditic, gastroenteritis, malignant otitis externa, respiratory tract infections, cellulites, urinary tract infections, prostitutes, anthrax, chancroid, among others. This medication is used to treat a variety of bacterial infections. Ciprofloxacin belongs to a class of drugs called quinolone antibiotics. It works by stopping the growth of bacteria. This antibiotic treats only bacterial infections. It will not work for virus infections (such as common cold, flu). Using any antibiotic when it is not needed can cause it to not work for future infections.

The global API market is poised to grow at a CAGR of around 6.6 per cent over the next decade to reach approximately US \$238.8 billion by 2025. The prominent trends that the market is witnessing include, growing geriatric population, rapid growth in biopharmaceuticals sector and technological advancements in API manufacturing.

### PROJECT COST ESTIMATE

#### CAPACITY

<b>Ciprofloxacin Hydrochloride</b>	: 600 Kgs/Day
<b>Plant &amp; Machinery</b>	: ₹ 201 Lakhs
<b>Cost of Project</b>	: ₹ 580 Lakhs
<b>Rate of Return</b>	: 27%
<b>Break Even Point</b>	: 58%

Indian pharmaceutical sector is expected to grow to US\$ 100 billion, while medical device market is expected to grow US\$ 25 billion by 2025. Pharmaceuticals export from India stood at US\$ 20.70 billion in FY20. Pharmaceutical export include bulk drugs, intermediates, drug formulations, biological, Ayush and herbal products and surgical. India's biotechnology industry comprising biopharmaceuticals, bio-services, bio-agriculture, bio-industry, and bioinformatics is expected grow at an average growth rate of around 30 per cent a y-o-y to reach US\$ 100 billion by 2025. Thus, due to demand it is best to invest in this project.

# A Complete Business Plan for Lithium Ion Battery (Battery Assembly)



A lithium-ion battery, often known as a Li-ion battery, is a rechargeable battery in which lithium ions flow via an electrolyte from the negative electrode to the positive electrode during discharge and then back again during charging. A lithium-ion battery's positive electrode is constructed of an intercalated lithium compound, while the negative electrode is commonly graphite. With the exception of LFP cells, lithium-ion batteries have a high energy density, no memory effect, and a low self-discharge rate. Either energy or power density can be emphasised in cells. However, because they

contain flammable electrolytes, they can pose a safety risk. Which, if damaged or wrongly charged, can result in explosions and flames.

- **More Compact Design:** Li-ion batteries are smaller and lighter than traditional rechargeable batteries when compared to their capacity, and are thus used in portable consumer electronics devices where weight and form factor are important selling points.
- **Lower Self-discharge and Longer Shelf Life:** While compared to other rechargeable batteries, Li-ion batteries have a lower self-

## PROJECT COST ESTIMATE

### PLANT CAPACITY

90 Volt, 180 AH Lithium Ion Battery Pack	: 100,000 Nos Per Annum
Plant & Machinery	: ₹ 1017 Lakhs
Cost of Project	: ₹ 4978 Lakhs
Rate of Return	: 34%
Break Even Point	: 52%

## PROJECT COST ESTIMATE

### CAPACITY

90 Volt, 180 AH Lithium Ion Battery Pack	: 56 Nos./Day
Plant & Machinery	: ₹ 503 Lakhs
Cost of Project	: ₹ 1382 Lakhs
Rate of Return	: 31%
Break Even Point	: 56%

## PROJECT COST ESTIMATE

### CAPACITY

48 Volt, 20 AH Lithium-Ion Battery Pack	: 3498 Nos Per Day
Plant & Machinery	: ₹ 5053 Lakhs
Cost of Project	: ₹ 7215 Lakhs
Rate of Return	: 29%
Break Even Point	: 45%

## PROJECT COST ESTIMATE

### CAPACITY:

48 Volt, 60 AH Lithium-Ion Battery Pack	: 10 Nos Per Day
48 Volt, 80 AH Lithium-Ion Battery Pack	: 10 Nos Per Day
48 Volt, 100 AH Lithium-Ion Battery Pack	: 10 Nos Per Day
60 Volt, 20 AH Lithium-Ion Battery Pack	: 10 Nos Per Day
60 Volt, 30 AH Lithium-Ion Battery Pack	: 10 Nos Per Day
72 Volt, 20 AH Lithium-Ion Battery Pack	: 10 Nos Per Day
72 Volt, 40 AH Lithium-Ion Battery Pack	: 10 Nos Per Day
12.8 Volt, 8 AH Lithium-Ion Battery Pack	: 10 Nos Per Day
12.8 Volt, 12 AH Lithium-Ion Battery Pack	: 10 Nos Per Day
12.8 Volt, 20 AH Lithium-Ion Battery Pack	: 10 Nos Per Day
12.8 Volt, 30 AH Lithium-Ion Battery Pack	: 10 Nos Per Day
Plant & Machinery	: ₹ 165 Lakhs
Cost of Project	: ₹ 538 Lakhs
Rate of Return	: 29%
Break Even Point	: 67%





discharge rate of about 1.5 percent per month, allowing for a longer shelf life when not in use due to the slower drain.

- **Fast Charging:** Lithium-ion batteries charge faster than other rechargeable batteries including lead acid, nickel-metal hydride, and nickel-cadmium.

- **Low Maintenance:** Lithium-ion batteries do not need to be maintained in order to function properly.

- **High Open-Circuit Voltage:** Due to their chemistry, Li-ion batteries have a higher open-circuit voltage than other batteries such as lead acid, nickel-metal hydride, and nickel-cadmium.

Lithium-ion (Li-ion) batteries, also known as secondary batteries, are rechargeable batteries in which lithium ions move from the negative electrode, usually made of carbon, to the positive electrode made of a metal oxide (nickel, manganese and cobalt) during discharge, and back when charging.

(1) The Li-ion batteries are used in cameras, calculators.

(2) They are used in cardiac pacemakers and other implantable device.

(3) They are used in telecommunication equipment, instruments, portable radios and TVs, pagers.

(4) They are used to operate laptop computers and mobile phones and aerospace application.

From 2021 to 2030, the global lithium-ion battery market is expected to grow at a CAGR of 12.3%, growing from USD 41.1 billion in 2021 to USD 116.6 billion in 2030. The market's growth can be attributed to increased demand for lithium-ion batteries in electric vehicles (EVs) and grid storage, since they offer high-energy density and lightweight solutions. Due to a growth in the registration of electric vehicles and a decrease in the price of lithium-ion batteries, the market size is predicted to grow throughout the forecast period. Market expansion is predicted to be fueled by an increase in electric vehicle sales as well as a shift in customer preferences. The rising number of solar installations and nuclear power plants, as well as the launch of wind energy projects, are likely to propel market growth over the forecast period.

## PROJECT COST ESTIMATE

### CAPACITY:

48 Volt, 60 AH Lithium-Ion Battery Pack	: 5.0 Nos Per Day
48 Volt, 80 AH Lithium-Ion Battery Pack	: 5.0 Nos Per Day
48 Volt, 100 AH Lithium-Ion Battery Pack	: 5.0 Nos Per Day
60 Volt, 20 AH Lithium-Ion Battery Pack	: 5.0 Nos Per Day
60 Volt, 30 AH Lithium-Ion Battery Pack	: 5.0 Nos Per Day
72 Volt, 20 AH Lithium-Ion Battery Pack	: 5.0 Nos Per Day
72 Volt, 40 AH Lithium-Ion Battery Pack	: 5.0 Nos Per Day
12.8 Volt, 8 AH Lithium-Ion Battery Pack	: 5.0 Nos Per Day
12.8 Volt, 12 AH Lithium-Ion Battery Pack	: 5.0 Nos Per Day
12.8 Volt, 20 AH Lithium-Ion Battery Pack	: 5.0 Nos Per Day
12.8 Volt, 30 AH Lithium-Ion Battery Pack	: 5.0 Nos Per Day
Plant & Machinery	: ₹ 72 Lakhs
Cost of Project	: ₹ 293 Lakhs
Rate of Return	: 29.95%
Break Even Point	: 70.65%

## PROJECT COST ESTIMATE

### PLANT CAPACITY:

Lithium Ion (LiFePO4) Battery Back of Power 4.8 KWH (No. of Cells 800) for Three Wheeler	: 26 Nos. Per Day
Lithium Ion (LiFePO4) Battery Back of Power 18 KWH (No. of Cells 3000) for Four Wheeler	: 24 Nos. Per Day
Plant & Machinery	: ₹ 3 Cr.
Cost of Project	: ₹ 10.28 Cr
Rate of Return	: 32%
Break Even Point	: 57%

## PROJECT COST ESTIMATE

### CAPACITY

Lithium Ion Battery Pack	: 150 Nos Per Day
Plant & Machinery	: ₹ 155 Lakhs
Cost of Project	: ₹ 708 Lakhs
Rate of Return	: 27%
Break Even Point	: 63%

## NAME OF BOOKS

₹ / US\$

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- Handbook on Fine Chemicals, Vitamins, Amino Acids And Proteins ..... 1450/- 150
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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.

- Prepared by highly qualified and experienced consultants and Market Research and Analyst Supported by a panel of experts and computerised data bank.
- Data provided are reliable and upto date collected from suppliers/ manufacturers, plant already commissioned in India.
- NPCS Reports are very economical and immediately available on demand where as commissioned Feasibility Studies are time consuming and costly.

**FOR ASSESSING MARKET POTENTIAL, INVESTMENT DECISION MAKING CORPORATE DIVERSIFICATION PLANNING ETC.**

NPCS Engineers and Consultants have prepared Market Survey Cum Detailed Techno Economic Feasibility Report on the following products which are most viable and profitable.

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

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# SELECTED BUSINESS IDEAS FOR RIGHT INVESTMENT

## Cashew Value Added Products



- » Activated Carbon from Cashew Nut Shell
- » Cardanol From Cashew Nut Shell Liquid (CNSL)
- » Cashew Cultivation
- » Cashew Fruit Juice from Cashew Apple
- » Cashew Nut Kernels & Shell Liquid
- » Cashew Nut Processing
- » Cashew Nut Processing with CNSL
- » Cashew Nut Shell Liquid & Kernel Processing
- » Cashew Nut Shell Liquid (CNSL)
- » Cashew Nut Shell Liquid (Using Waste Shell)
- » Cashew Nut Shell Oil
- » Cashew Processing
- » Cashewnut Processing (Dried & Fried)
- » CNSL Based Resin In Powder & Liquid Form
- » Coconut and Cashew Feni
- » Roasted Salted Cashew Kernel from Cashew Nut



## Cement and Cement Based Products

- » AAC Blocks (Autoclaved Aerated Concrete Blocks) Fly Ash Based
- » Admixtures for Concrete
- » Admixtures Plant (Water Retarding Admixtures for Concrete)
- » Asbestos Cement Corrugated Sheet
- » Calcium Silicate Insulation Board
- » Cement
- » Cement from Rice Husk
- » Cement Grinding Unit
- » Cement Plant
- » Cement Roofing Tiles
- » Cement Water Proofing Compound
- » CLC Blocks (Cellular Light Weight Concrete Blocks) with Steam Curing Method
- » Clinker Grinding for Cement
- » Concrete Admixtures (Additives)
- » Concrete Block & Ready Mix Concrete
- » Concrete Railway Sleepers
- » Glass Reinforced Concrete (GRC)
- » Gypsum (Hydrated Calcium Sulfate) Plaster Board
- » Hydrated Lime
- » Meter Gauge Concrete Sleeper
- » Mini Cement Plant
- » PCC Electric Poles
- » Polymer Modified Cementitious Tile Adhesives
- » Portland Cement
- » Precast Concrete Compound Wall
- » Prestressed Concrete Cement Poles
- » Pre-Stressed Concrete Electric Poles by Spinning
- » Prestressed Concrete Poles for Electrical HT and LT
- » Prestressed Concrete Sleepers
- » PSC Electric Poles
- » PVC Solvent Cement
- » Railway Sleepers
- » Ready Mix Concrete (RMC)
- » Ready Mix Concrete with Concrete Blocks
- » Sanitary Ware Products (Wash Basin and Bathroom Closets)
- » Water Based Cement Primer
- » Water Proofing Liquid and Powder (Concrete and Mortar Admixture)
- » White Cement

## Ceramic and Ceramic Products, Industrial Ceramic Products, Pipes, Floor and Roof Tiles, Tableware, Wall Tiles, Sanitary Ware, Porcelain, Stoneware, Pottery, Ceramic Wall & Floor Tiles, Vitrified Tiles, Decorative Tiles



- » Ceramic Crockery Products (Bone China)
- » Ceramic Foam Filters
- » Ceramic Glazed Wall Tiles
- » Ceramic Heater Plate
- » Ceramic Table Ware, Hotel Ware, Stone Ware/Bone China
- » Ceramic Wall and Floor Tiles
- » Conversion of Industrial Vitrified Tiles into Commercial Vitrified Tiles
- » Glazed Wall and Floor Tiles
- » Grinding Media Ball
- » High Alumina Ceramic
- » Insulators (HT & LT)
- » Melamine Crockery
- » Non-Glazed Ceramic Tiles
- » Oxygen Gas Lancing Pipes, Ceramic Coated Pipes, Oxygen Lancing Tube used in Steel Plants, Furnace and Foundries
- » Porcelain Insulator
- » Porcelain Insulator (LT & HT)



## Cereal Processing (Rice, Dal, Pulses, Oat, Wheat), Sugar and Value Added Products

- » Atta Chakki Plant
- » Atta, Maida Suji & Wheat Bran (Roller Flour Mill)
- » Baby Cereal Food
- » Baby Food Products (Infant Cereals, Porridge Mixes, Fruits Purees, Savoury Meals, Infant Milk, Baby Biscuits, Mueslis)
- » Basmati Rice Mill
- » Besan Plant (Gram Flour)
- » Corn Flakes in Various Shapes & Design
- » Dall Mill (Split Dalls Pulses for Chhilke-Wali Moong, Urad, Arhar, Channa, Masoor)
- » Dall Mill of Yellow Peas Chana & Lentil (Pulses)
- » Flour Milling
- » Food Processing Unit (Pulses & Dates)
- » Maize Processing Unit
- » Maize Products (Starch, Glucose, Dextrose, Sorbitol)
- » Modern Rice Mill
- » Parboiled Rice Mill with Rice & Corn Flakes
- » Poha (Rice Flakes)
- » Processing Of Food Grains/Pulses & Retail Packaging
- » Puffed Rice (Muri)
- » Rice and Corn Flakes
- » Rice Bran Oil
- » Rice Flake (Poha)
- » Rice Flakes from Broken Rice (Used in Beer Industry)
- » Rice Mill (Parboiled Rice)
- » Rice Mill, Rice Bran Oil with Captive Power Plant (Integrated Unit)
- » Rice Powder, Puttu and Wheat Powder
- » Roller Flour Mill (Atta, Maida & Suji)
- » Silicon from Rice Husk
- » Value Added Products of Broken Rice
- » Wheat Flour
- » Wheat Germ Oil
- » Wheat Puff (Puffed Wheat)
- » Wheat Starch and Wheat Gluten
- » White Oats Processing

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

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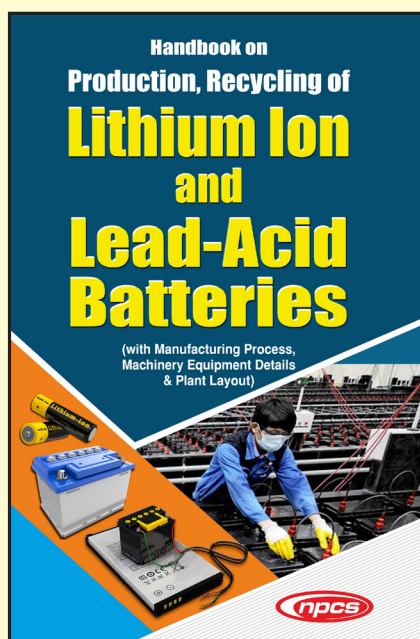
# Handbook on Production, Recycling of Lithium Ion and Lead-Acid Batteries

(with Manufacturing Process, Machinery Equipment Details & Plant Layout)

₹ 2,995/- US\$ 250-

India is one of the world's largest battery manufacturers. Furthermore, there is an increase in global demand for batteries, and Indian battery producers are preparing to satisfy this need. The Indian battery sector has grown by 25% year over year and is expected to increase even more in the future. Batteries, such as Sealed Maintenance Free (SMF), lead-acid, or lithium-ion batteries, now power virtually everything else on the world.

The global battery market was worth USD 108.4 billion and is predicted to increase at a CAGR of 14.1%. The increasing demand from the automotive application is responsible for the market's rise. Rechargeable batteries are utilised in non-rechargeable batteries and electric vehicles in the automobile industry. The rising global popularity of consumer electronics is expected to increase the use of lithium-ion batteries as a product category. Portable electronics, such as LCD displays, smartphones, tablets, and wearable devices like fitness bands, are in high demand, increasing market growth. Because of technical developments in terms of increased efficiency, cost-effectiveness, and product innovation, the market is predicted to rise significantly. Battery demand is likely to be driven by strict emission requirements imposed by government agencies in industrialized countries such as the United States and the United Kingdom, as well as an increasing focus on fuel efficiency.



The demand for lithium-ion batteries is predicted to increase by more than 500 percent in the future. Many predictions suggest that demand will outpace supply, virtually assuring a price increase. All of the businesses in this field have unique opportunities to invest in the future of energy storage and transportation.

The global lithium-ion battery market size was valued at USD 53.6 billion and is expected to grow at a compound annual growth rate (CAGR) of 19.0%. The market's expansion can be ascribed to the rising demand for lithium-ion batteries in electric vehicles (EVs) and grid storage, since they provide high-energy density and

lightweight solutions. The market size is expected to grow due to an increase in the registration of electric vehicles.

The global lead-acid battery industry is growing significantly across the globe and it is likely to register a CAGR of 5.2% during the forecast period. Growing SLI applications in the automobile sector, increase in renewable energy output, and rising demand for energy storage devices are some of the causes driving up demand for lead-acid batteries. As the telecom industry expands in nations like the United States, Brazil, India, and the United Kingdom, there is a growing demand for UPS systems as a backup power source, resulting in a higher usage of lead-acid batteries as a cost-effective energy source.

The book covers a wide range of topics connected to Batteries, as well as their manufacturing processes. It also includes contact information for machinery suppliers, as well as images of equipments.

A complete guide on Production, Recycling of Lithium Ion and Lead-Acid Batteries manufacture and entrepreneurship. This book serves as a one-stop shop for everything you need to know about the Battery manufacturing industry, which is ripe with opportunity for manufacturers, merchants, and entrepreneurs. This is the only book that covers Production, Recycling of Lithium Ion and Lead-Acid Batteries in depth. From concept through equipment procurement, it is a veritable feast of how-to information.

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