Investment Opportunities in Odisha

Downstream Industries in Plastics

ODISHA
NEW OPPORTUNITIES

Odisha is home to one of the four Petroleum, Chemicals & Petrochemical Investment Regions (PCPIRs) in India at Paradip. With Indian Oil Corporation Limited (IOCL) commissioning its 15MMTPA refinery in the PCPIR, Odisha presents an excellent opportunityfor downstream plastics and polymer products manufacturing industry in the country.

A state-of-the-art Plastics Park spread over 120 acres is being set up at Paradip, strategically situated close to the IOCL refinery with a committed feedstock of polypropylene and ethylene and a well-connected multi modal transportation system. This facility will provide a unique ecosystem for the manufacturers in plastics sector.

Coupled with competitive cost of doing business and best- in class incentive framework, the State offers a compelling value proposition for units in the plastics and polymers sector.

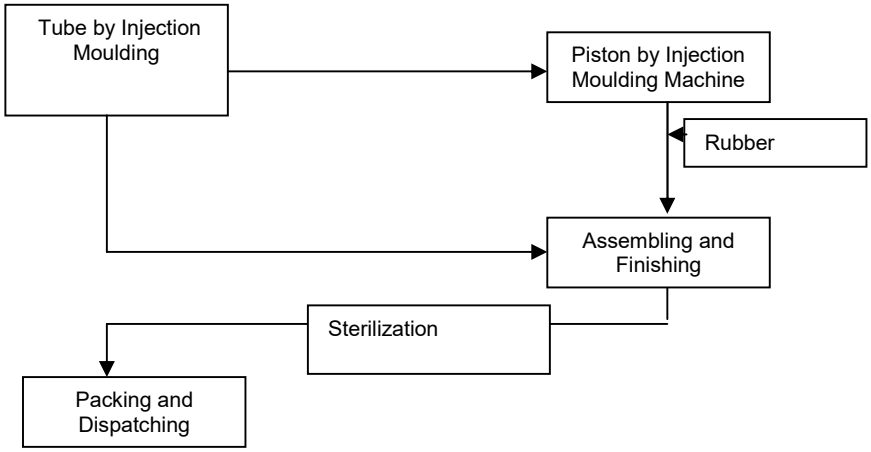
To facilitate the investors in the sector, short profiles have been prepared with key features of various projects that an investor may consider to set up in the State. These project profiles provide information regarding the area required, approximate project cost, process, utility and manpower requirement which would assist the investors in the decision making process. This compendium provides information on 20 such select projects which could be considered for further due diligence by the investors.

I am confident that the investors, particularly in the MSME sector, will find this compendium of 'ready-to-set-up' project profiles useful.

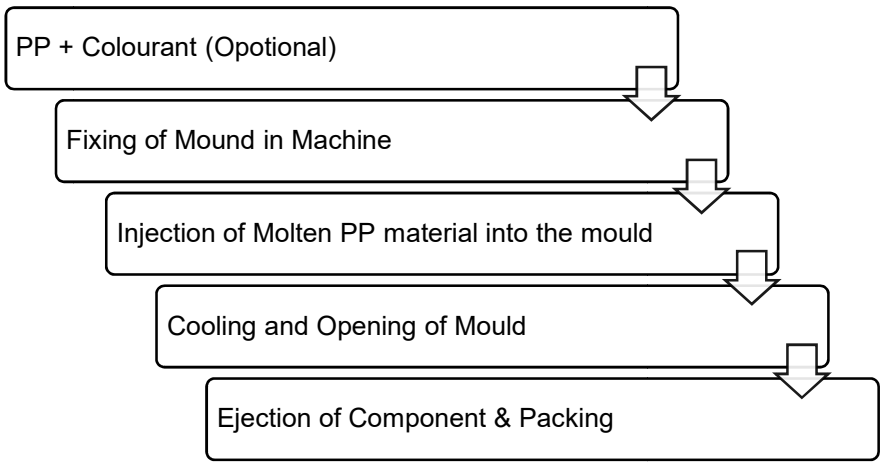
Shri Naveen Pattnaik,
Chief Minister

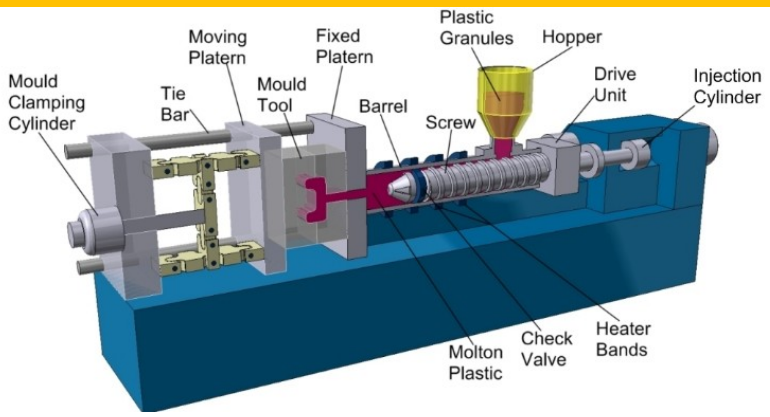
Contents

1. Facility for Manufacturing of Disposable Syringes

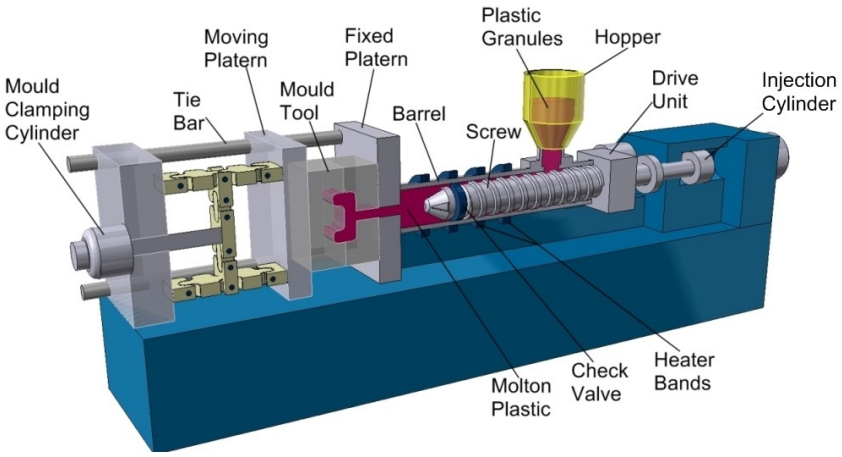
Name of Project	Facility for Manufacturing of Disposable Syringes
Area Requirement	10,000-12,000 sqft
Approx. Project cost	Total cost for Machinery & Mould: INR 133-172 lac 1ml syringe :INR 71 – 94 lac 2ml syringe :INR 81– 101 lac 5ml syringe:INR 83 – 105 lac
Project Scale	Capacity production per annum with 3 shifts per day 1 ml syringe - 2,53,44,000 pieces 2 ml syringe -2,11,20,000 pieces 5 ml syringe - 1,90,08,000 pieces
Process	**Flow Chart**  **Manufacturing Process** • Disposable syringes are moulded using Injection moulding machines and special Hot-Runner moulds, having 16 – 32 cavity mould. • Polypropylene (PP), from IOCLParadip, is the raw material required for Injection Moulding Grade. • Moulding is carried out in chilled condition to get better clarity of the PP used. • The moulded syringes are then assembled with the rubber. • The whole assembly is then sterilized in sterilization plant using ethylene oxide. • The completed syringe is then blister packed in automatic packing machine.
Utilities	• Electricity (connected Load) : Approximately 88 kW • 80 litre/min Water will be circulated through fixed tank capacity is 15,000-20,000 litre
Manpower Requirement	21 workers

2. Facility for Manufacturing of Plastic Crates

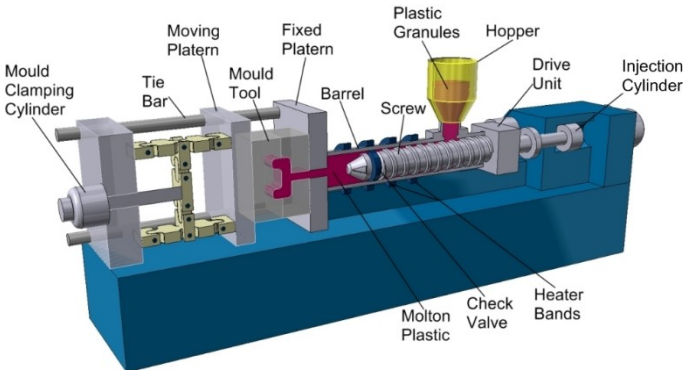
Name of Project	Facility for Manufacturing of Plastic Crates
Area Requirement	15,000 – 20,000 sqft (Bakery and Dairy Crate) 20,000- 25,000 sqft (Fishery Crate)
Approx. Project cost	**Total cost :** Machinery and Mould cost for Bakery Crate (20 L) and Dairy Crate (10-12L) : INR 106-125 lac Machinery and Mould cost for Fishery Crate (80L): INR 126-157 lac
Project Scale	**Capacity:** Production capacity per day @ 120 sec for single crate, for 22 hours) **Bakery Crate:** 1,98,000 Components (annually -300 days) **Dairy Crate:**1,98,000 Components (annually -300 days) Production Capacity per day for Fishery Crate @140 seconds for single crate, for 22 hours **Fishery Crate:** 1,69,500 Components (annually -300 days)
Process	**Process Flow Chart**  **Manufacturing Process** In this injection moulding process, the cold, hard plastic material is loaded into the machine via hopper, plasticized by heating and then injected under pressure into a cold mould, where it sets and is then ejected as the finished products. The three successive main stages that are followed in the procedure of manufacturing 1. Feeding of PP raw material into the hopper 2. Injection moulding process 3. Finishing of the moulded product

Name of Project	Facility for Manufacturing of Plastic Crates
	
Utilities	**For Bakery & Diary Crates** • Electricity (Connected Load) 97 kW • Water about 150 litre/min **For Fishery Crates** • Electricity (Connected Load): 173 kW • Water about 200 litre/min Water will be circulated through fixed tank capacity is 15,000-20,000 litre
Manpower Requirement	13 workers for 1 shift

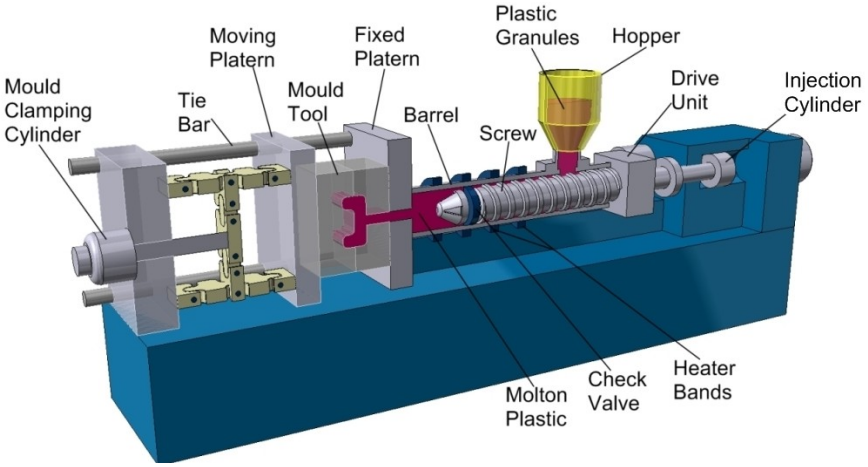
3. Facility for Manufacturing of Armed Chair and Armless Chair

Name of Project	Facility for Manufacturing of Armed Chair and Armless Chair
Area Requirement	Armed Chair: 25,000-30,000 sqft Armless Chair:20,000-25000 sqft
Approx. Project cost	Armed Chair: INR 177-214 lac Armless Chair: INR 141-178 lac
Project Scale	**Production Capacity per day per single cavity for 22 hours:** Armed Chair: @65 sec per single cavity -1,220 pieces Armless Chair @50 sec per single cavity -1,584 pieces
Process	In this injection moulding process, the cold, hard plastic material is loaded into the machine via hopper, plasticized by heating and then injected under pressure into a cold mould, where it sets and is then ejected as the finished products. The three successive main stages that are followed in the procedure of manufacturing 1. Feeding of PP raw material into the hopper 2. Injection moulding process. 3. Finishing of the moulded product.  ***Note:*** *The manufacturing process for both Armed Chair and Armless chair is the same*.
Utilities	**Armed Chair** • Electricity (connected Load): 223KW • Water: About 200 litre/min **Armless Chair** • Electricity (connected Load): 84 KW • Water: About 200 litre/min Water will be circulated through fixed tank capacity is 15,000-20,000 litre
Manpower Requirement	11 workers for Armed Chair 17 workers for Armless Chair

4. Facility for Manufacturing of Rocking Chairs

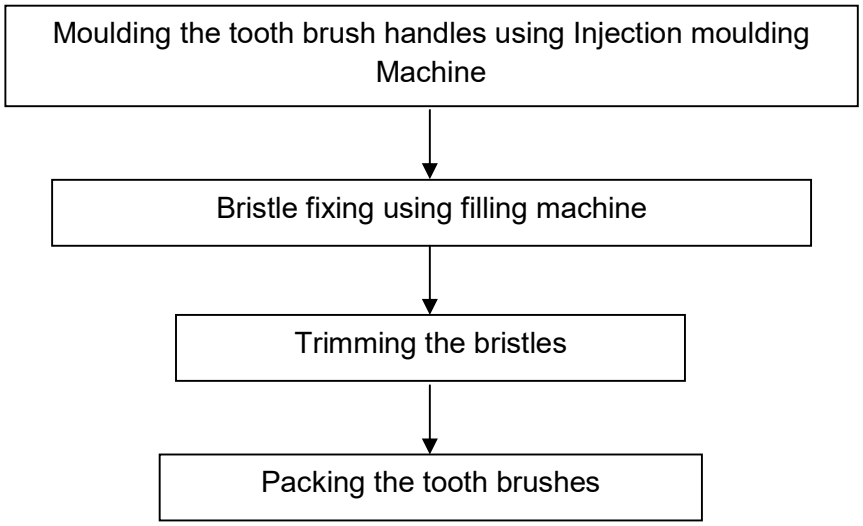
Name of Project	Facility for Manufacturing of Rocking Chairs
Area Requirement	10,000-15,000 sqft
Approx. Project cost	INR 112-170 lac
Project Scale	**Production Capacity per day:** @120 sec for single cavity for 22 hours:660 pieces
Process	**Manufacturing Process** In this injection moulding process, the cold, hard plastic material is loaded into the machine via hopper, plasticized by heating and then injected under pressure into a cold mould, where it sets and is then ejected as the finished products. The three successive main stages that are followed in the procedure of manufacturing 1. Feeding of PP raw material into the hopper 2. Injection moulding process. 3. Finishing of the moulded product. 
Utilities	• Electricity (connected Load) : Approximately 148 KW • 150 litre/min Water will be circulated through fixed tank capacity is 15,000-20,000 litre
Manpower Requirement	14 workers

5. Facility for Manufacturing of Battery Case

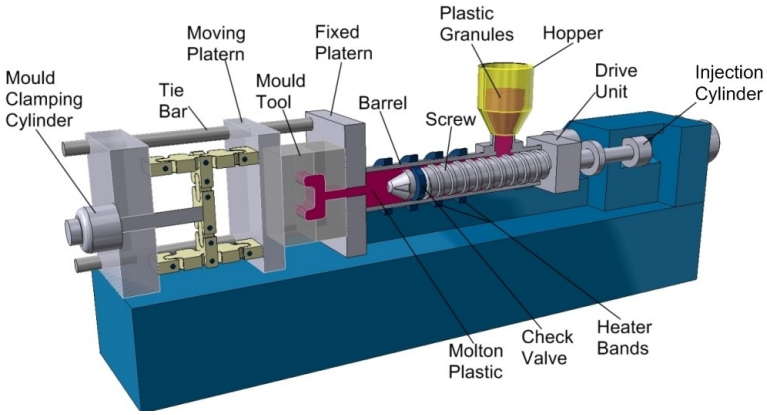
Name of Project	Facility for Manufacturing of Battery Case
Area Requirement	Land required : 1. 1,110 Gram Battery Box: 15,000- 20,000 sqft 2. 1,500 Gram Battery Box: 12,000- 15,000 sqft 3. 2,000 Gram Battery Box : 15,000-20,000 sqft
Approx. Project cost	Total cost (Machinery and Mould): 1. 1,110 Gram Battery Box: ~INR 114-140 lac 2. 1,500 Gram Battery Box: ~INR 124-150 lac 3. 2,000 Gram Battery Box: ~INR 150-176 lac
Project Scale	**Capacity**: Production capacity per day for 22 hours: 1. 1,110 Gram Battery Box : a.1,760 pieces @45 seconds for 1 litre Battery case b.3,168 pieces @25 seconds for single Battery Lid 2. 1,500 Gram Battery Box: a. 1,320@60 seconds for single Battery case b. 3,168 pieces @25 seconds for single Battery Lid 3. 2,000 Gram Battery Box: a. 1,056 pieces @75 seconds for single Battery case b. 3,168 pieces @25 seconds for single Battery Lid
Process	**Manufacturing Process** • PP is fed into the hopper of the injection moulding machine • The mould is held between the two platens which are kept closed by the locking pressure. Prior to mould closure, the metal insert is skilfully kept in the mould. • The material which gets plasticized in the barrel is injected under higher pressure into the Mould which results in a moulded article i.e. Battery Lid with Metal Insert. On similar terms, a Battery Case is also manufactured, but with or without rim, depending upon the mould. • The Battery Case is then finished by removing the injection feed etc. • The second stage processing operations such as printing, labelling are carried out on the Battery housing. 
Utilities	1. 1,110 Gram Battery Box a. Electricity (connected Load) : 150 KW

Name of Project	Facility for Manufacturing of Battery Case
	b. Water: 100 litre/min. 2. 1,500 Gram Battery Box a. Electricity (connected Load): 155 KW b. Water: 100 litre/min 3. 2000 Gram Battery Box a. Electricity (connected Load): 165 KW b. Water: 100 litre/min Water will be circulated through fixed tank capacity is 15,000-20,000 liter
Manpower Requirement	1. 1,110 Gram Battery Box - 13 workers 2. 1,500 Gram Battery Box - 13 workers 3. 2,000 Gram Battery Box -13 workers

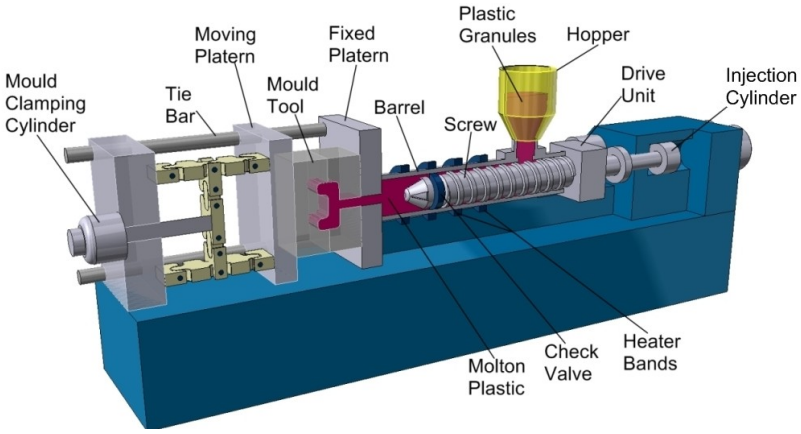
6. Facility for Manufacturing of Tooth Brushes

Name of Project	Facility for Manufacturing of Tooth Brushes
Area Requirement	8,000 – 10,000 sqft
Approx. Project cost	INR 91-115 lac
Project Scale	Capacity: Production capacity per day @20 sec for 16 cavity mould for 22 hours: 63,360 pieces
Process	**Manufacturing Process** Generally, toothbrushes consist of plastic handles and nylon bristles. 
Utilities	• Electricity (connected Load) : ~ 89 kW • Water :100 litre/min water will be circulated through fixed tank capacity is 15,000-20,000 litre
Manpower Requirement	14 workers

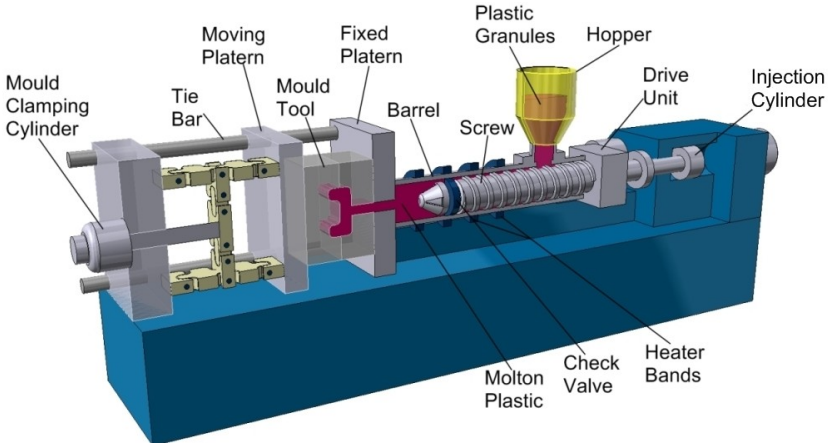
7. Facility for Manufacturing of Lunch Boxes

Name of Project	Facility for Manufacturing Lunch Boxes
Area Requirement	8000 -10,000 sqft
Approx. Project cost	INR 62-82 lac
Project Scale	Production capacity per day @25 seconds for single lunch box for 22 hours: 3,168 pieces
Process	**Manufacturing Process** In this injection moulding process, the cold, hard plastic material is loaded into the machine via hopper, plasticized by heating and then injected under pressure into a cold mould, where it sets and is then ejected as the finished products. The three successive main stages that are followed in the procedure of manufacturing • Feeding of PP raw material into the hopper • Injection moulding process. • Finishing of the moulded product. 
Utilities	Electricity (connected Load) : ~72 KW Water: 80 litre/min water will be circulated through fixed tank capacity is 15,000-20,000 Litres
Manpower Requirement	10 workers

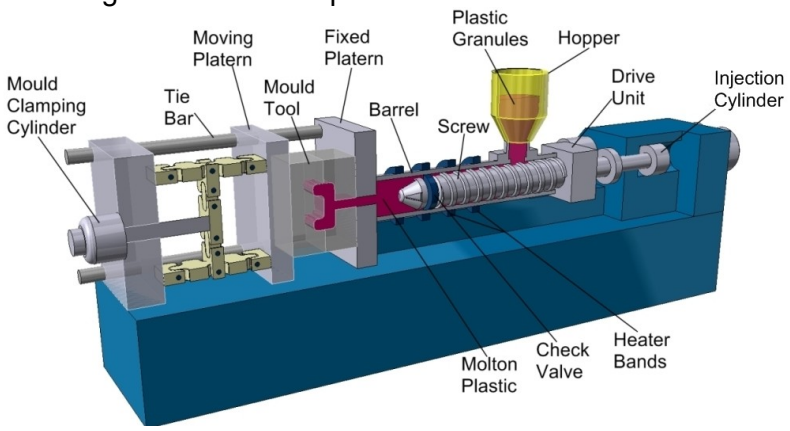
8. Facility for Manufacturing of Buckets

Name of Project	Facility for Manufacturing of Buckets
Area Requirement	12,000-15,000 sqft
Approx. Project cost	for 5L Bucket: (Machinery &Mould) : ~INR 49-59 Lacs for 10 L Bucket (Machinery & Mould): ~INR 49-61 Lac for 5L & 10 L Bucket (Machinery & Mould) : ~INR 51-65 lac
Project Scale	Capacity: Production Capacity per day for 22 hours 5L buckets 11,88,000 pieces per annum 10 L buckets 9,40,400 pieces per annum
Process	**Manufacturing Process** In this injection moulding process, the cold, hard plastic material is loaded into the machine via hopper, plasticized by heating and then injected under pressure into a cold mould, where it sets and is then ejected as the finished products. The three successive main stages that are followed in the procedure of manufacturing • Feeding of PP raw material into the hopper • Injection moulding process. • Finishing of the moulded product. 
Utilities	Electricity (connected Load) : 93 KW • Water: 130 litre/min water will be circulated through fixed tank capacity is 15,000- 20,000 litre
Manpower Requirement	16 workers

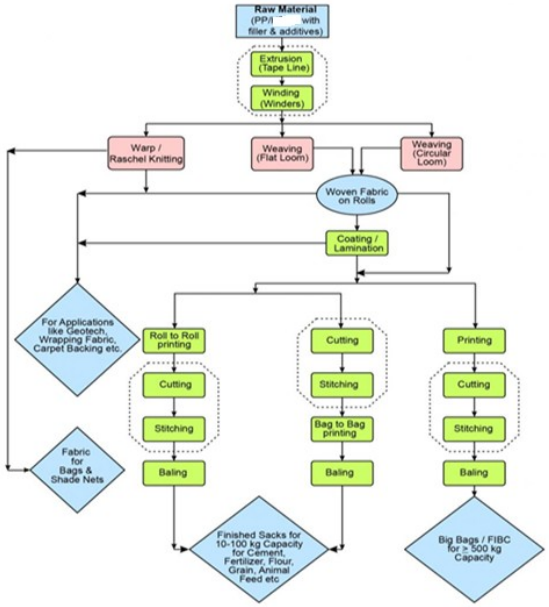
9. Facility for Manufacturing of Caps & Closures

Name of Project	Facility for Manufacturing of Caps & Closures
Area Requirement	5,000-8,000 sqft
Approx. Project cost	INR 78-97 lac
Project Scale	Production capacity per day (for 16 cavity mould, for 22 hours) a. Bottle Cap (without rubber liner) : 63,360 pieces @20 seconds b. Bottle Cap (with rubber liner) : 50,688 pieces @25 seconds
Process	**Manufacturing Process** In this injection moulding process, the cold, hard plastic material is loaded into the machine via hopper, plasticized by heating and then injected under pressure into a cold mould, where it sets and is then ejected as the finished products. The three successive main stages that are followed in the procedure of manufacturing • Feeding of PP raw material into the hopper • Injection moulding process. • Finishing of the moulded product. 
Utilities	Electricity: 107 KW Water: 150 litre/min water will be circulated through fixed tank capacity is 15,000 -20,000 litre
Manpower Requirement	13 workers

10. Facility for Manufacturing of Combs

Name of Project	Facility for Manufacturing of Combs
Area Requirement	6,000-8,000 sqft
Approx. Project cost	INR 58-72 Lacs
Project Scale	Production Capacity per day @ 20 seconds for 16 cavity mould for 22 hours: 63,360 pieces
Process	In this injection moulding process, the cold, hard plastic material is loaded into the machine via hopper, plasticized by heating and then injected under pressure into a cold mould, where it sets and is then ejected as the finished products. The three successive main stages that are followed in the procedure of manufacturing • Feeding of PP raw material into the hopper • Injection moulding process. • Finishing of the moulded product. 
Utilities	Electricity : 72KW Water: 80 Litre/min water will be circulated through fixed tank capacity is 15,000-20,000 lit
Manpower Requirement	9 workers

11. Facility for Manufacturing of Woven Sack

Name of Project	Facility for Manufacturing of Woven Sack
Area Requirement	60,000-70,00 sqft
Approx. Project cost	INR 144 lac
Project Scale	Machine output rate : 110 kg/hr
Process	 • Rafia Tape of PP is first produced by extruder, which is equipped with a suitable die, cooling ring, temperature and process controls etc. From the extruder, the tape is taken off by a set of rollers. • The tape then goes to a slitting unit where it slits into tapes of 6 to 12 mm width depending upon the requirements. The tapes thus made are conveyed to stretching orientation oven in which hot air circulates at controlled temperature. The tapes are stretched to the desired level. • The oriented tapes are passed through a second godet station and then through the stabilizing oven. The stabilized tapes are passed through a third gadget station and then to a cheese winder unit where each tape is wound on a separate cheese. • The monoaxially oriented tapes of PP produced are woven into fabrics in circular looms. The necessary working machine and prim winders are provided. The woven fabric can then be stitched into bags in an industrial stitching machine. After converting the fabric into bags, it is printed with suitable ink wherever necessary • For some cases laminated woven sacks are used. For packaging of fertilizers, it is necessary to laminate the fabric before making it into bags. Whereas, in woven sacks, for cement packaging, lamination is not required.
Utilities	Power consumption: 3.7 KW-Phase 415V 50 Hz Power requirement :

Name of Project	Facility for Manufacturing of Woven Sack
	Tape line: 48 KW Cheese winder : 4KWx 120=5.4 KW Circular Loom: 4 KW x12=48 KW Stitching and cutting machine: 5KW Water Cooling tower: 8 KW Air Compressor 3HP: 5 KW
Manpower Requirement	38 workers

12. Facility for Manufacturing of Woven Jumbo Bag/Flexible Intermediate Bulk Containers

Name of Project	Facility for Manufacturing of Woven Jumbo Bag/Flexible Intermediate Bulk Containers
Area Requirement	35,000-40,000 sqft
Approx. Project cost	Machinery Cost : INR 685-720 lac
Project Scale	Machine Output : 500kg/hr
Process	**Manufacturing Process** Production of FIBC involves the conversion of PP Granules to long tapes and later woven, cut to size, printed and stitched to be used. The step wise production process is explained below. • Extrusion Here the mix of virgin and recycled PP(optional) granules are being melted and converted into form of tapes in a extrusion plant and at the end of the process are wound on bobbins of required size. This is the first stage of process which determines the tensile strength of the tape. • Weaving Extruded tape bobbins will be loaded in the Circular weaving machine or Flat weaving machine. Here the tapes will be woven to fabric of required specification and will be wound in roll form. These fabrics will become the body fabric of the FIBC. • Lamination (Optional) PP fabric is being laminated with LDPE film for making the fabric moisture proof. This is optional process as per the requirement of the customer. • Cutting The woven PP fabric in rolls will be fed in the automatic cutting machine and will be cut in to cut bit of required size. This Automatic process is adopted to get better accuracy in cut size. • Printing The cut bits that are the body fabric will be fed into the heavy duty printing machine to make the printing impression on the fabric. Heavy duty printing machine, gives the best impression with maximum of three colours. • Webbing Heavier Polypropylene Tapes are woven in to webbing which forms the lifting loop of the Jumbo bag. • Sewing Here all the components used to manufacture Jumbo bags are brought together along with the printed body fabric. All the gathered parts are assembled to a Jumbo bag by highly skilled labours under the supervision of technically qualified supervisors. • Packing / Bailing Here the bags which have been produced will be compressed with the help of the bale press and neatly packed as per the requirement of the

Name of Project	Facility for Manufacturing of Woven Jumbo Bag/Flexible Intermediate Bulk Containers
	customers. • Storage Once the bag is baled, it will be immediately shifted to a clean storage room, from where the dispatches are affected.
Utilities	Tape Extrusion Line: a. Compressor: Capacity Pressure-165 CFM, 6-7 bar, Separate air tank of capacity 1,000litres is recommended for tape line & winders (excluding tape guns b. Air Drying Unit: Capacity 165 CFM, Pressure 6-7 bar, Dew point 3 degree Centigrade c. Chilled War Requirement: Process Requirement 58 TR, flow rate: 42,686 L/hr, Intel Temp: 18 degree centigrade d. Water pressure: 4 bar Filament/Tape Winder : Three phase voltage with mains supply of 3X 415 V/50 Hz or 3X 415V/50 Hz or 3X420V/50 Hz with separate neutral and earth Admissible fluctuations Voltage- 10% to +5% Frequency : +/- 2%
Manpower Requirement	38 workers

13. Facility for Manufacturing of Non-Woven Fabric

Name of Project	Facility for Manufacturing of Non-Woven Fabric
Area Requirement	30,000- 40,000 sqft
Approx. Project cost	Machinery cost : INR 370-400 lac
Project Scale	Machinery Output: 375 Kg/hr
Process	**Manufacturing Process** • The mix of virgin and recycled PP granules (optional) along with additives and colour are fed to the extruder. The molten PP is fed to a spinning die via a filter and measuring pump. After this step the fibres are passed through the orientation zone for stretching to get the required tensile strength. • The fibres are spread /arranged to form the web and then hot rolled to form the fabric. The thickness and weight of fabric will depend on the quantity of fibre that are used to form the web. • The fabric thus formed is trimmed/silted on the sides and wound on a winder to get the roll.
Utilities	Electricity Connected Load: 455 KW Cooling Tower : 80 T/hr
Manpower Requirement	29 workers

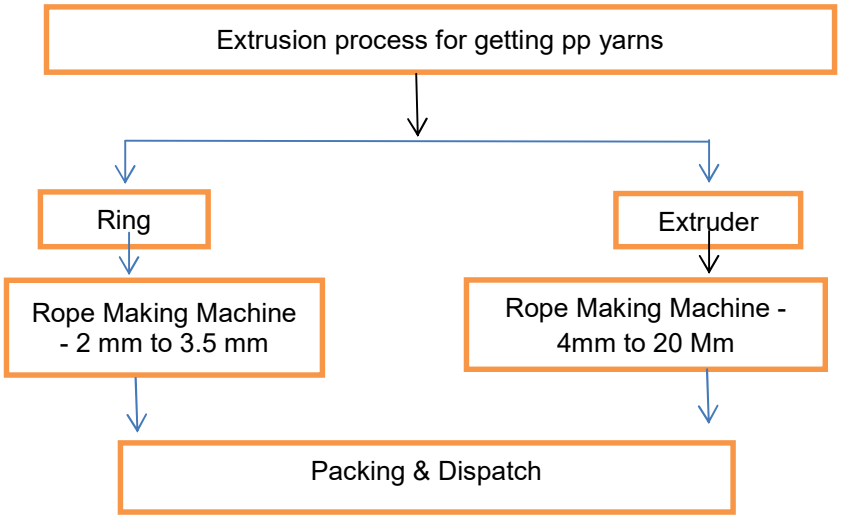
14. Facility for Manufacturing of Blown Film (BOPP)

Name of Project	Facility for Manufacturing of Blown Film (BOPP)
Area Requirement	15,000- 20,000 sqft
Approx. Project cost	Extruder: 40mm: INR 25-30 lac 65mm :INR 45-50 lac
Project Scale	Capacity :Machine output rate: 15-20 Kg/hr
Process	**Manufacturing Process** Extruder Die Head Bubble Cooling system Nip Roller Collapsible Frame Winder Corona discharge • PP is first melted by subjecting it to heat and pressure inside the barrel of an extruder and finally forcing the melt through a narrow slit in a circular die. The resulting thin film has a form of a tube, also called a “bubble” (blown film). As the film comes out of the die, it is cooled and then rolled up on a core. • Air is introduced in the center of die to blow up the tube like a balloon. • Air ring blows onto the hot film to cool it from inside and outside of the tube. • The tube passes through nip rolls where it is flattened. • Collapsed tube is taken back down the extrusion tower via more idler rollers. • On winder the tube or film is wound into rolls.
Utilities	Power Requirement: 40 mm dia: 30 KW 65mm dia : 50 KW
Manpower Requirement	14 workers

15. Facility for Manufacturing of Box Strap

Name of Project	Facility for Manufacturing of Box Strap
Area Requirement	5000 to 8000 Sq.ft
Approx. Project cost	INR 30-40 lac
Project Scale	Machine Output Rate: 65Kg/hr
Process	• PP homo-polymer along with colorant and reprocessed material is fed into the hopper of the extruder which was present with the processing temperature. • Extruder started and molten material passes through the die. The molten strap so produced is quenched in the water tank. • The strap is then fed to the first godet unit for pulling the strap. • The strap is then fed to the hot water tank for heating the strap in order to make it stretchable .The hot strap is pulled by stretching godet unit. • The stretched strap is then passed through the stabilizing hot air oven for maintaining the temperature to get proper orientation and the strength. It is then cooled by pulling through a cold water tank with the help of last godet unit. • The final strap so obtained is checked for its properties and processing parameters are set for the right process, which gives the required properties. • The strap is then wound on to bobbins and rolls of marketable lengths are packed and shipped
Utilities	Power: 3-phase 440V+10% 50 Hz +_ 5% Electricity Connected Load : 133 KW Electric Running Load : 80 KW Water cooling Tower: 10 TR Water Recirculation System : 2 HP Pump and Related Piping Arrangement
Manpower Requirement	14 workers

16. Facility for Manufacturing of Ropes

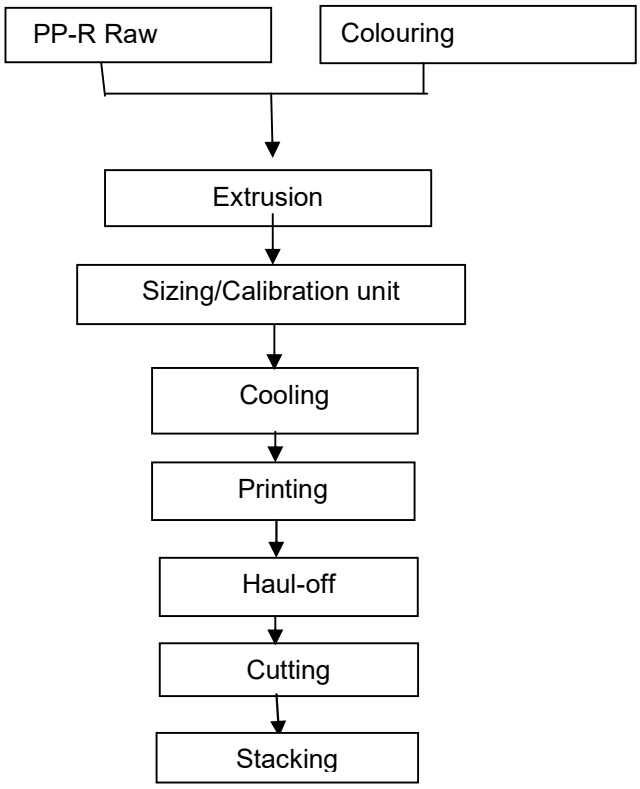
Name of Project	Facility for Manufacturing of Ropes
Area Requirement	50,000 to 60,000 sqft
Approx. Project cost	INR 290-310 lac
Project Scale	Production Capacity • 6 mm: 30 kg/hr • 8 mm: 60 kg/hr • 10 mm: 170 kg/hr • 12 mm: 175 kg/hr
Process	 **Manufacturing Process** Extrusion • Plasticgranulesare extruded and monofilament is produced from the die-head and drawn in water bath and subsequently dried by hot air as well as stretched Yarn Twister • Ring twisters are used to twist the bunched strands for 2 mm to 3.5 mm ropes for getting higher outputs • Extruder twisters are used for twisting the yarns for 4 mm and above rope sizes. • The twisted yarns are converted into rope by a combined strander/ rope making • Machine and coiling in one single operation. The resulting rope is wound into a bundle and packed.
Utilities	Electricity: 197 KW
Manpower Requirement	36 workers

17. Facility for Manufacturing of Fishing Net

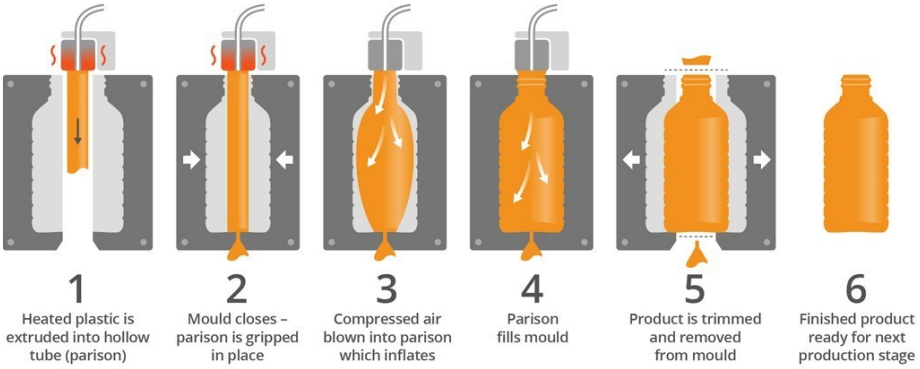
Name of Project	Facility for Manufacturing of Fishing Net
Area Requirement	15,000-20,000 sqft
Approx. Project cost	INR 60-80 lac Machine Output : 150 Kg/hr
Project Scale	Production Capacity per day @ 100 Kg/hr, for 22 h, 2,200 Kg
Process	**Manufacturing Process** • The fishnet twine or yarn is available in bobbins. This yarn is loaded on to the creel stand of the fishnet machine. The same type of yarn is also filled into spool by means of spool winder machine. The filled spools are then loaded into the machine. • Yarn on creel stand forms the warp. • Yarn on the spool forms the weft. • The fish net making machine knots these together and the net is produced. This is wound on to a roller. • When net of predetermined length is produced it is cut. The net is then unwound from the roller. It is then checked for any breakage of yarn on a mending stand. Any breakage found is mended/ rectified by hand. • The net is then washed in tank. • It is then stretched lengthwise in a length stretching machine. Here the net is heated to about 120 to 150 0C and ironed to fix the knots. The net is then bundled on a bundling machine, weighted and then packed.
Utilities	Power: 3-Phase 440V +10% , 50 Hz, 75 Hz Electricity (small) connected load : 2.2 KW Electricity (Large) connected load: 3.75 KW
Manpower Requirement	19 workers

18. Facility for Manufacturing of PPR Pipes

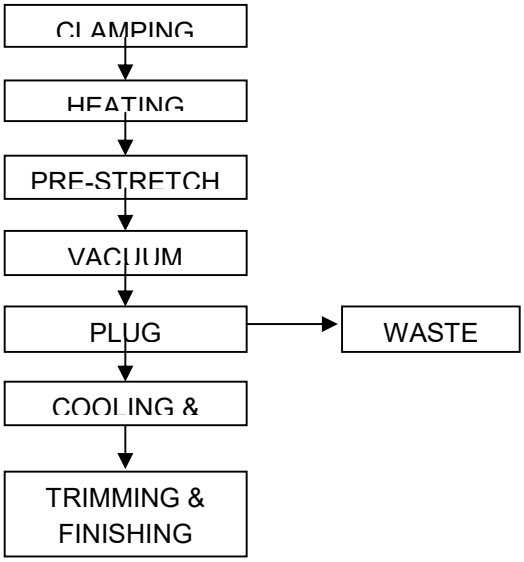
Name of Project	Facility for Manufacturing of PPR Pipes
Area Requirement	30,000-35,000sqft
Approx. Project cost	INR 50-68 lac
Project Scale	Production capacity per day @100 Kg/hr for 22 hours- 2,200 Kg.
Process	• Material is fed to the extruder hopper either automatically or manually. • Start the extruder and increase the speed to get the required thickness and adjust the temperature of extruder barrel to get proper melting and homogeneity of pipe molten material. Feed the molten material to the calibrator fitted to the vacuum tank. • Hook the pipe to the lead line and start the haul off. Set the haul off speed to control the pipe thickness and vacuum. Adjust vacuum of vac. Tank to get proper roundness, smoothness of pipe surface. • Set the length of pipe to be cut and cutter cuts the pipe after sensing the length set automatically. • The printer is set on the pipe to print the pipe details on the pipe. The cut pipes are collected and bundled
Utilities	Electricity: Approximately 120 KW, 3 Phase 440 V+10% 50 Hz
Manpower Requirement	13 workers



19. Facility for Manufacturing of Blow Moulding Containers

Name of Project	Facility for Manufacturing of Blow Moulding Containers
Area Requirement	10,000 to 12,000 sqft
Approx. Project cost	Total Machinery and Mould cost : 1. 500 ml container: ~INR15-20 lac 2. 3 Litre container : ~INR 30-40 lac 3. 10 Litre container : ~INR 45-55 lac
Process	**Manufacturing Process** PP granules are fed in to an automatic extrusion blow moulding machine and is subjected to heat and pressure in an extruder. The semi-molten plastic in extruder is passed through the nozzle and air is blown into the mould to force the molten plastic against the sides of the mould. The final product is then cooled before removal from the mould. The article is then trimmed to remove flashes.  1 Heated plastic is extruded into hollow tube (parison) 2 Mould closes – parison is gripped in place 3 Compressed air blown into parison which inflates 4 Parison fills mould 5 Product is trimmed and removed from mould 6 Finished product ready for next production stage
Utilities	Electricity: Connected Load of 120 KW Power: 500 ml: 15 HP 3 Litre : 28 HP 10 Litre : 45 HP Water: 20 Tr/hr
Manpower Requirement	25 workers

20. Facility for Manufacturing of Disposable Caps

Name of Project	Facility for Manufacturing of Disposable Caps
Area Requirement	15,000- 20,000 Sq .ft.
Approx. Project cost	Cost (Machinery and Mould) : ~INR 117-149 lac
Project Scale	Production capacity per day @ 25 shots/minute for 22 hours- 3,96,000
Process	**MANUFACTURING PROCESS** Thermoforming is the process of converting a thermoplastic sheet into a three-dimensional. 
Utilities	Electricity (connected Load): 130 KW Water: 50 litre/min Water will be circulated through fixed tank capacity is 15,000-20,000 litre
Manpower Requirement	22 workers for 1 shift

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