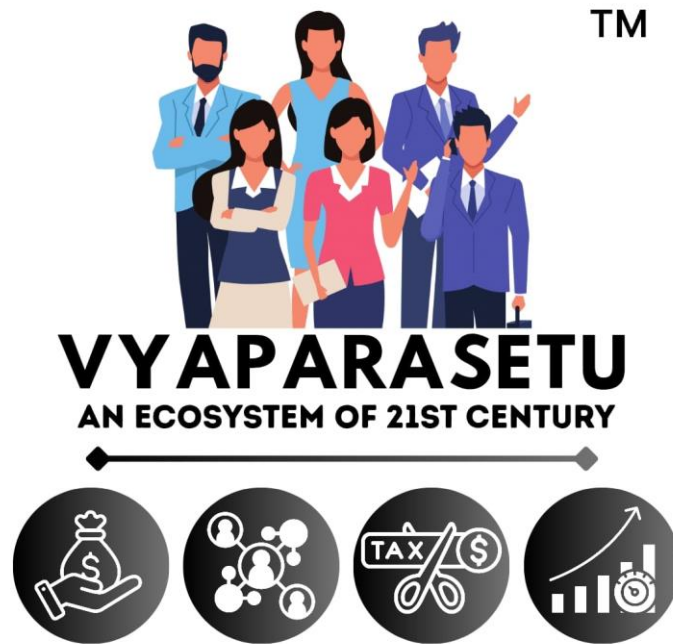




**LED LIGHTING PRODUCTS ASSEMBLY & MANUFACTURING UNIT
ORIENTATION Under Vyaparasetu Ecosystem by:**



1. PROJECT INTRODUCTION

The **LED Lighting Products Assembly & Manufacturing Unit** is a focused electrical and lighting-products manufacturing project designed to enable an aspirant entrepreneur to establish a small-scale, commercially viable LED lighting assembly facility.

The unit will manufacture and assemble three principal categories of LED lighting products:

1. **LED Bulbs**
2. **LED Tubelights / LED Battens**
3. **LED Ceiling Lights / LED Panel-Type Ceiling Fixtures**

The project is specifically designed as an **assembly-oriented manufacturing unit**, where commercially available electronic and electrical components are procured, tested, assembled, electrically connected, finished, tested and converted into market-ready LED lighting products.

The unit will not operate merely as an electrical-products trading outlet. The aspirant will undertake actual value addition through:

- Component inspection
- PCB/driver integration
- LED module assembly
- Soldering and electrical connections
- Housing assembly
- Diffuser fitting
- Wiring
- Product testing
- Burn-in/quality checking
- Labeling
- Packaging
- Finished-product dispatch

The project is intended to create a local manufacturing capability for frequently consumed lighting products while allowing the aspirant to serve electrical shops, contractors, builders, institutions, offices, households, retailers and project-based buyers.

The project is established under the **Vyaparasetu Ecosystem Enabling Partner (VEEP) Initiative of NGO – Youngsters of Hyderabad Youth Welfare Association (YOHYWA)**.

2. SCOPE OF MANUFACTURING

The unit will initially focus on three product lines.

A. LED BULBS

Indicative product range:

- 5W LED Bulb
- 7W LED Bulb
- 9W LED Bulb
- 12W LED Bulb
- 15W LED Bulb
- 20W LED Bulb
- 40W LED Bulb

The aspirant can manufacture products in different colour temperatures according to market demand:

- Cool White
- Warm White
- Daylight

Typical components include:

- LED PCB/module
- LED driver
- Aluminium/plastic heat-management component
- Bulb body
- Diffuser
- B22/E27 cap
- Internal connecting wires
- Soldering materials
- Product label
- Packaging box

B. LED TUBELIGHTS / LED BATTENS

Indicative product range:

- 2-foot LED Batten
- 4-foot LED Batten
- 18W LED Tubelight
- 20W LED Tubelight
- 40W LED Tubelight

Depending on the selected design, the assembly can include:

- LED PCB/LED strip/module
- LED driver
- Aluminium or suitable heat-dissipating body
- Diffuser
- End caps
- Connector/wiring
- Mounting accessories
- Product label
- Packaging

C. LED CEILING LIGHTS

Indicative range:

- 6W Ceiling Light
- 9W Ceiling Light
- 12W Ceiling Light
- 15W Ceiling Light
- 18W Ceiling Light
- 24W Ceiling Light

The ceiling-light range may include:

- Round fixtures
- Square fixtures
- Slim ceiling fixtures
- Surface-mounted LED lights

Components include:

- LED module
- LED driver
- Metal/plastic housing
- Reflector/diffuser
- Connector
- Internal wiring
- Mounting accessories
- Screws/fasteners
- Product label
- Packaging

3. OBJECTIVES OF THE INITIATIVE

The primary objectives of establishing the LED Lighting Assembly & Manufacturing Unit are:

1. Creating a Practical Manufacturing Enterprise

To enable an aspirant to establish an actual production and assembly operation rather than limiting the business to retail trading.

2. Building Local LED Product Manufacturing Capacity

To manufacture commonly demanded lighting products locally and supply them to retailers, contractors, institutions and project buyers.

3. Creating Entrepreneurial Employment

To create opportunities for the aspirant and trained workers in:

- Assembly
- Soldering
- Testing
- Quality control
- Packing
- Inventory
- Sales coordination

4. Supporting Energy-Efficient Lighting Adoption

LED lighting products provide an energy-efficient alternative to conventional lighting technologies and are widely used in residential, commercial and institutional applications.

5. Developing a Scalable MSME Enterprise

The ₹8 lakh setup is intended as an entry-level manufacturing platform that can subsequently be expanded into higher-capacity production, additional SKUs and stronger distribution.

6. Establishing Market-Linked Production

The unit should focus on products that can be repeatedly sold through:

- Electrical shops
- Hardware shops
- Building contractors
- Electricians
- Interior contractors
- Builders
- Institutions
- Offices
- Commercial establishments

4. WHY LED LIGHTING MANUFACTURING / WHY NOW?

LED lighting represents a high-frequency electrical-products category because lighting products are required across virtually every built environment.

Demand exists from:

- Residential houses
- Apartments
- Shops
- Offices
- Schools
- Hospitals
- Warehouses
- Restaurants
- Hotels

- Small industries
- Commercial buildings
- Government/institutional buildings

The business opportunity is particularly suitable for a small manufacturing / assembly enterprise because the aspirant does not initially need to establish semiconductor or LED-chip fabrication.

Instead, the unit concentrates on **component sourcing + assembly + testing + quality control + branding + distribution**. This creates a practical entry point into the lighting manufacturing sector.

5. ELIGIBLE ASPIRANT CRITERIA

The aspirant must:

- Be 21+ years old.
- Have a legally identifiable operational address.
- Maintain a clean and electrically safe assembly area.
- Maintain appropriate storage for electronic components and finished products.
- Demonstrate financial transparency through banking records.
- Follow NGO guidelines and project operating requirements.
- Maintain proper production and sales records.
- Follow electrical safety procedures.
- Use approved/quality components for production.
- Maintain product traceability through batch/production records.
- Follow applicable statutory requirements.

Non-compliance with safety, quality, financial or operational requirements may result in corrective action under the Vyaparasetu operating framework.

6. COMPLETE MACHINERY & EQUIPMENT LIST

The ₹8 lakh project is intentionally configured as a **semi-manual/semi-automatic LED assembly unit**, rather than an expensive fully automated factory.

A. LED BULB ASSEMBLY EQUIPMENT

1. LED Bulb Assembly Workbench

For:

- Component placement
- Driver installation
- Housing assembly
- Wiring
- Final assembly

2. Temperature-Controlled Soldering Stations

Required for:

- Wire soldering
- PCB connections
- Driver connections
- Terminal connections

3. Soldering Accessories

Including:

- Soldering irons
- Solder wire
- Flux
- Desoldering tools
- PCB holders

7. LED TUBELIGHT / BATTEN ASSEMBLY EQUIPMENT

The same assembly infrastructure can be used for LED batten / tubelight production.

Required equipment includes:

- Assembly tables
- PCB holders
- Soldering stations
- Wire cutting tools
- Wire stripping tools
- Crimping tools
- Screwdrivers
- Electric screwdrivers

- Digital multimeters
- Electrical testing equipment

8. LED CEILING LIGHT ASSEMBLY EQUIPMENT

The ceiling-light production section requires:

- Assembly tables
- LED module fixtures
- Driver mounting tools
- Screw fastening equipment
- Wire cutting/stripping equipment
- Soldering stations
- Electrical testing equipment
- Final inspection table

Where required, simple drilling / cutting tools may be used for housing preparation.

9. TESTING & QUALITY-CONTROL EQUIPMENT

Testing is a critical part of the project.

The unit should have:

Electrical Testing Equipment

- Digital multimeter
- AC voltage tester
- Insulation/safety testing equipment as applicable
- Continuity tester
- Power measurement meter
- Test leads
- Electrical test board

Production QC Equipment

- Digital weighing scale
- Vernier/caliper
- Measuring tools
- Temperature monitoring equipment
- Inspection lamps
- Batch identification system

Burn-In / Reliability Testing

A dedicated testing rack should be provided for operating assembled products before packing.

Products should be checked for:

- Proper illumination
- Flickering
- Abnormal heating
- Driver performance
- Loose connections
- Soldering defects
- Physical damage
- Abnormal noise
- Product failure during test operation

10. RAW MATERIALS & COMPONENTS

The principal raw materials/components will include:

LED BULB COMPONENTS

- LED PCB/module
- LED driver
- Bulb housing
- Diffuser
- B22/E27 cap
- Aluminium heat sink where applicable
- Connecting wires
- Soldering material
- Insulation materials
- Product labels
- Packaging boxes

LED TUBELIGHT/BATTEN COMPONENTS

- LED PCB/LED strip/module
- LED driver
- Aluminium/plastic body
- Diffuser

- End caps
- Connecting wires
- Connectors
- Mounting clips
- Screws
- Labels
- Packaging

CEILING LIGHT COMPONENTS

- LED module
- LED driver
- Fixture body
- Diffuser
- Reflector where applicable
- Wires
- Connectors
- Mounting hardware
- Screws
- Labels
- Packaging cartons

11. COMPONENT SOURCING POLICY

Components should be procured through reliable, GST-compliant suppliers.

Priority should be given to suppliers providing:

- Consistent component quality
- Proper invoices
- Batch identification
- Technical specifications
- Replacement support
- Stable pricing
- Consistent supply

Critical components should not be purchased solely on the basis of the lowest price.

Particular attention should be given to:

- LED modules
- LED drivers
- Capacitors
- PCB quality
- Housing material
- Connectors
- Insulation
- Wiring

A low-quality driver or LED module can significantly increase product failure rates and warranty costs.

12. PRODUCTION WORKFLOW

LED BULB PRODUCTION

Step 1 – Component Receipt

LED modules, drivers, housings, caps, diffusers and other components are received.

Step 2 – Incoming Inspection

Components are checked for:

- Physical damage
- Quantity
- Model/specification
- Batch
- Basic electrical condition

Step 3 – LED Module Preparation

LED PCB/module is prepared for assembly.

Step 4 – Driver Connection

Driver output is connected to the LED module according to the designated product design.

Step 5 – Soldering

Electrical connections are soldered and inspected.

Step 6 – Housing Assembly

The LED module and driver are fitted into the bulb body.

Step 7 – Cap Installation

B22/E27 cap and required connections are fitted.

Step 8 – Diffuser Installation

Diffuser is fitted securely.

Step 9 – Electrical Testing

The finished bulb is powered and tested.

Step 10 – Burn-In / Quality Check

Selected batches/products are operated for quality verification.

Step 11 – Labeling

Product specifications and required identification are applied.

Step 12 – Packaging

Finished products are packed for dispatch.

13. LED TUBELIGHT / BATTEN PRODUCTION WORKFLOW

1. Component receipt
2. Incoming inspection
3. LED PCB/module preparation
4. Driver preparation
5. Driver-to-module connection
6. Soldering
7. Body preparation
8. Module installation
9. Internal wiring
10. End-cap installation
11. Diffuser fitting
12. Electrical testing
13. Burn-in testing
14. Final inspection
15. Labeling
16. Packaging

14. LED CEILING LIGHT PRODUCTION WORKFLOW

1. LED module receipt
2. Driver inspection
3. Housing inspection
4. Module placement
5. Driver installation

6. Electrical connection
7. Soldering/crimping
8. Fixture assembly
9. Diffuser/cover installation
10. Electrical testing
11. Illumination inspection
12. Heat/performance observation
13. Final quality inspection
14. Labeling
15. Packaging

15. SPACE & INFRASTRUCTURE REQUIREMENTS

The ₹8 lakh project does not require a large industrial factory.

Recommended Area:

Approximately 500–800 sq. ft.

The space can be divided into:

1. Component storage
2. Bulb assembly section
3. Tubelight/batten assembly section
4. Ceiling-light assembly section
5. Testing/QC section
6. Finished-goods storage
7. Packing section
8. Office/records area

The premises should have:

- Good ventilation
- Adequate lighting
- Safe electrical wiring
- Proper earthing
- Adequate work tables
- Component storage racks
- Fire extinguisher
- First-aid facility
- ESD precautions where appropriate

- Safe material movement

16. POWER REQUIREMENT

The unit is an assembly-oriented operation and therefore has significantly lower power requirements than a heavy manufacturing plant.

The primary electricity consumption will arise from:

- Soldering stations
- Testing equipment
- Electric screwdrivers
- Small drilling/cutting equipment
- Lighting
- Computers/printers
- Burn-in testing
- General workshop equipment

A suitable commercial electrical connection should be obtained based on the actual installed load.

17. MANPOWER REQUIREMENT

The initial unit can operate with a compact team.

Recommended manpower:

1. Production/Assembly Technician – 2

Responsible for:

- LED bulb assembly
- Driver connection
- Soldering
- Fixture assembly

2. Assembly Helpers – 2

Responsible for:

- Component preparation
- Housing assembly
- Packing
- Material handling

3. Testing & Quality Technician – 1

Responsible for:

- Electrical testing
- Burn-in checks
- Batch inspection
- Rejection identification

4. Packing/Inventory Assistant – 1

Responsible for:

- Packing
- Stock counting
- Finished-goods records
- Dispatch preparation

5. Aspirant/Unit Manager – 1

Responsible for:

- Procurement
- Sales
- Financial control
- Customer coordination
- Production planning
- Compliance

Initial Team:

6–7 persons including the aspirant

18. QUALITY CONTROL SYSTEM

Quality control will be implemented at four stages.

Stage 1 – Incoming Component QC

Inspect:

- LED modules
- Drivers
- Housing
- Caps
- Diffusers
- Wires

- Connectors

Stage 2 – In-Process QC

Check:

- Soldering
- Wire connections
- Polarity
- Driver installation
- Mechanical assembly
- Loose components

Stage 3 – Finished Product QC

Check:

- Illumination
- Electrical operation
- Flickering
- Physical appearance
- Housing fitment
- Diffuser fitment
- Labeling

Stage 4 – Pre-Dispatch QC

Check:

- Correct product
- Correct wattage
- Correct quantity
- Correct packaging
- Batch identification
- Physical condition

19. PRODUCT QUALITY PARAMETERS

The unit should monitor:

- Correct wattage
- Stable operation
- Proper electrical connections

- Consistent illumination
- Absence of flickering
- Appropriate heat management
- Proper insulation
- Mechanical strength
- Driver reliability
- Soldering quality
- Housing quality
- Diffuser fitment
- Packaging quality

Applicable Indian standards and regulatory requirements should be followed for the specific products being manufactured and marketed.

20. BRANDING & PACKAGING

The unit can operate under a project-approved brand structure.

Each product package should clearly identify relevant information such as:

- Brand
- Product type
- Wattage
- Input voltage
- Colour temperature
- Batch/lot identification
- Manufacturing details
- Applicable warranty information
- MRP, where applicable
- Customer-care/contact information
- Required statutory markings

Packaging should protect products from:

- Shock
- Moisture
- Dust
- Scratching
- Transport damage

21. LICENSING & GOVERNMENT COMPLIANCE

The aspirant must obtain and maintain applicable registrations and permissions.

These may include:

- GST Registration
- MSME UDYAM Registration
- Local Trade License
- Appropriate electricity connection
- Fire safety compliance where applicable
- Business registration requirements
- Labour-related registrations where applicable
- Product-specific regulatory compliance
- Applicable BIS requirements
- Applicable electrical/electronic product compliance

The exact certification requirements must be determined according to the final product specifications, components, branding arrangement and applicable regulations at the time of commercial production.

22. PROJECT COST

TOTAL PROJECT COST: ₹8,00,000

The project is deliberately designed as a compact **LED assembly and manufacturing unit**, rather than a high-capital automated LED factory.

Proposed Cost Structure

Cost Component	Estimated Cost
LED Bulb Assembly Workstations & Tools	₹70,000
LED Tubelight/Batten Assembly Equipment	₹50,000
Ceiling Light Assembly Equipment	₹40,000
Soldering Stations & Electronic Assembly Tools	₹45,000
Electrical Testing & QC Equipment	₹65,000
Burn-In / Testing Rack	₹35,000
Electric Screwdrivers, Drilling & Hand Tools	₹30,000
Work Tables, Racks & Storage	₹40,000
Initial LED Components & Drivers	₹1,25,000
Initial Housing, Diffusers, Caps & Fixture Materials	₹75,000

Cost Component	Estimated Cost
Wires, Connectors, Consumables & Packaging	₹45,000
Electrical Installation, Safety & Earthing	₹25,000
Branding, Labels & Packaging Development	₹1,40,000
Licensing, Documentation & Registration	₹20,000
TOTAL PROJECT COST	₹8,00,000

23. FINANCIAL STRUCTURE

The project will be financed as follows:

Funding Source	Amount
NGO Subsidy Support	₹2,00,000
Aspirant Investment	₹6,00,000
TOTAL PROJECT COST	₹8,00,000

NGO Subsidy:

₹2,00,000

Aspirant Contribution:

₹6,00,000

Subsidy Ratio:

25% of total project cost

The subsidy is intended specifically to support establishment and operationalization of the approved project and should be utilized strictly for eligible project purposes under the applicable NGO framework.

24. WORKING CAPITAL STRATEGY

Working capital is particularly important in an LED assembly business because the unit must continuously maintain inventory of multiple components.

The initial working-capital reserve should be used for:

- LED modules
- Drivers
- Housings
- Diffusers

- Caps
- Wires
- Connectors
- Packaging material
- Electricity
- Labour
- Transportation
- Small repair/replacement expenses

The aspirant should avoid blocking the entire working capital in slow-moving finished products. Production should be linked to actual market demand.

25. PRODUCT MIX STRATEGY

The unit should not initially manufacture too many varieties.

Phase 1

Focus on fast-moving products such as:

- 9W LED bulbs
- 12W LED bulbs
- 15W LED bulbs
- 20W LED bulbs
- 20W/22W LED battens
- 12W/15W ceiling lights
- 18W/24W ceiling lights

Phase 2

After establishing demand:

- Additional wattages
- Premium ceiling lights
- Higher-quality commercial battens
- Decorative ceiling fixtures
- Customized institutional products

This reduces inventory complexity during the initial months.

26. MARKET & SALES CHANNELS

The unit should target **B2B and channel sales**, rather than relying exclusively on a retail showroom.

1. Electrical Shops

Supply to:

- Local electrical stores
- Hardware stores
- Lighting shops
- Building-material dealers

2. Electricians

Develop a network of electricians who influence lighting-product selection.

3. Electrical Contractors

Supply products for:

- Residential projects
- Commercial buildings
- Shops
- Offices

4. Builders

Potential applications include:

- Apartments
- Villas
- Independent houses
- Commercial buildings

5. Institutions

Potential customers:

- Schools
- Offices
- Clinics
- Small hospitals
- NGOs
- Community organizations

6. Wholesale Dealers

Bulk supply can increase production utilization and reduce individual-order handling.

7. Corporate & Commercial Buyers

Customized or bulk lighting procurement can be developed as a later-stage channel.

27. REVENUE GENERATION STREAMS

The unit will generate revenue through:

- LED bulb wholesale sales
- LED batten/tubelight sales
- LED ceiling-light sales
- Electrical dealer supply
- Contractor supply
- Builder/project orders
- Institutional orders
- Bulk corporate orders
- Local branded retail distribution
- Customized bulk manufacturing/assembly

28. REVENUE MODEL

Because this is a small ₹8 lakh assembly unit, financial projections should be based on **realistic production utilization rather than assuming full factory-scale output from day one.**

Illustrative mature monthly sales target

Product Category	Indicative Monthly Sales
LED Bulbs	1,500–2,500 units
LED Battens/Tubelights	500–1,000 units
LED Ceiling Lights	300–600 units

Actual output will depend on:

- Product mix
- Selling price
- Component cost

- Number of working days
- Labour efficiency
- Market demand
- Dealer network
- Working capital
- Rejection rate

29. PROFITABILITY APPROACH

Profitability will depend on the difference between:

Selling Price – Component Cost – Labour – Electricity – Packaging – Transport – Warranty/Replacement – Administrative Expenses

The aspirant should not compete only through the lowest price.

Instead, the unit should build profitability through:

- Consistent quality
- Controlled component costs
- Dealer relationships
- Low rejection
- Efficient assembly
- Bulk procurement
- Repeat orders
- Product standardization
- Warranty control
- Faster local supply

A detailed monthly profit figure should be established only after finalizing the exact product specifications, component quotations and selling prices.

30. NGO SUPPORT FRAMEWORK

Under the Vyaparasetu framework, NGO support may include:

- Project orientation
- Vendor coordination
- Machinery/equipment setup guidance
- Production-process guidance
- Assembly training
- Quality-control guidance

- Branding support
- Documentation assistance
- Market-linkage support
- Operational monitoring
- Performance review

The support is intended to reduce initial operational mistakes and help the aspirant establish a commercially sustainable unit.

31. ASPIRANT RESPONSIBILITIES

The aspirant must ensure:

- Proper use of project funds
- Clean and safe premises
- Proper component storage
- Trained manpower
- Production discipline
- Quality control
- Accurate stock records
- Sales records
- Financial records
- GST-compliant invoicing where applicable
- Proper warranty management
- Timely reporting
- Compliance with applicable laws

The aspirant will be responsible for the day-to-day commercial operation of the unit.

32. MONITORING & REPORTING

Monitoring may include:

Weekly

- Production quantity
- Rejection quantity
- Component shortages
- Equipment condition
- Pending orders

Monthly

- Production report
- Sales report
- Purchase report
- Inventory report
- Revenue analysis
- Warranty/replacement analysis

Quarterly

- Financial performance
- Production efficiency
- Quality performance
- Market expansion
- Compliance review

33. RISK MANAGEMENT & MITIGATION

Risk	Mitigation
LED component price increase	Multiple approved suppliers and bulk procurement
Driver failure	Source tested/reliable drivers and conduct incoming QC
Product rejection	In-process and final testing
Market competition	Focus on quality, dealer service and local supply
Slow-moving inventory	Restrict initial SKU range
Warranty claims	Batch tracking and failure analysis
Cash-flow shortage	Maintain working-capital reserve
Component shortage	Maintain minimum stock levels
Poor soldering	Technician training and QC inspection
Product overheating	Proper module/driver/housing selection
Dealer payment delays	Credit limits and controlled receivables
Regulatory changes	Periodic compliance review

34. WARRANTY & AFTER-SALES SYSTEM

LED lighting products require a controlled warranty process.

The unit should maintain:

- Product batch number
- Production date
- Product model
- Component batch where practical
- Dealer/customer details
- Replacement records
- Failure reason

Returned products should be examined to determine whether failure resulted from:

- Component defect
- Assembly defect
- Electrical surge
- Improper installation
- Physical damage
- Moisture
- Overheating
- Other external causes

This information should be used to continuously improve production quality.

35. INVENTORY MANAGEMENT

Inventory should be divided into:

A. Critical Components

- LED modules
- Drivers
- Caps
- PCBs
- Housing

B. Assembly Materials

- Wires
- Connectors

- Solder
- Screws
- Fasteners

C. Packaging

- Boxes
- Labels
- Cartons
- Protective materials

D. Finished Goods

Separate stock should be maintained for:

- Bulbs
- Battens
- Ceiling lights

FIFO inventory practices should be followed for applicable components and finished goods.

36. IMPLEMENTATION STAGES

Stage 1 – Project Approval

- Aspirant selection
- Project orientation
- Financial structure confirmation

Stage 2 – Premises Finalization

- Site identification
- Electrical assessment
- Layout preparation

Stage 3 – Procurement

- Equipment procurement
- Component supplier finalization
- Initial inventory procurement

Stage 4 – Installation

- Workbench setup
- Testing area setup
- Electrical installation

- Safety arrangement

Stage 5 – Training

Training in:

- LED bulb assembly
- Batten assembly
- Ceiling-light assembly
- Soldering
- Electrical testing
- QC
- Packing

Stage 6 – Trial Production

Production of initial batches.

Stage 7 – Quality Approval

Trial products undergo:

- Electrical testing
- Visual inspection
- Assembly inspection
- Burn-in checks

Stage 8 – Market Onboarding

Dealer/contractor/customer development.

Stage 9 – Commercial Launch

Regular production and sales begin.

37. PROJECT TIMELINE

Stage	Indicative Duration
Documentation & Project Approval	7–15 Days
Premises Finalization	7–15 Days
Equipment Procurement	15–30 Days
Component Procurement	10–20 Days
Installation & Setup	5–10 Days
Staff Training	5–7 Days
Trial Production	5–10 Days
QC & Product Finalization	3–7 Days

Stage	Indicative Duration
Market Onboarding	10–20 Days
Commercial Launch	Approximately 45–75 Days

The actual timeline will depend on premises readiness, equipment procurement and supplier availability.

38. QUALITY CONTROL & PRODUCTION STANDARDS

Daily QC

- Component inspection
- Soldering inspection
- Electrical testing
- Product appearance
- Packing verification

Weekly QC

- Testing-equipment verification
- Production rejection analysis
- Driver/module failure analysis
- Inventory inspection

Monthly QC

- Batch performance review
- Warranty-return analysis
- Supplier performance review
- Production quality audit

Products failing defined quality checks must not be released for sale.

39. BUSINESS SUSTAINABILITY

The business sustainability model is based on three factors:

1. Multiple Product Categories

The unit is not dependent on a single product.

It can manufacture:

Bulbs + Battens/Tubelights + Ceiling Lights

2. Multiple Customer Channels

Sales can be developed through:

Dealers + Electricians + Contractors + Builders + Institutions + Direct B2B

3. Expandable Production

Once the initial unit establishes stable demand, the aspirant can increase:

- Assembly capacity
- Product range
- Dealer network
- Production workforce
- Testing infrastructure
- Packaging capability
- Distribution area

40. EXPANSION ROADMAP

After successful stabilization of the initial ₹8 lakh unit, future expansion may include:

Phase 1

Increase production of existing products.

Phase 2

Add:

- Higher-wattage LED bulbs
- Premium battens
- Higher-quality commercial lighting

Phase 3

Introduce:

- Decorative ceiling lights
- Commercial panel lights
- Customized institutional lighting

Phase 4

Develop:

- Wider dealer network

- District-level distribution
- Institutional procurement
- Builder/project contracts

Phase 5

Upgrade into a larger lighting-products manufacturing facility with greater automation and expanded testing capability.

ANNEXURE – A

PROJECT COSTING & INVESTMENT STRUCTURE

A.1 TOTAL PROJECT SETUP COST

Total Project Cost: ₹8,00,000

Cost Component	Amount
Bulb Assembly Workstations & Tools	₹70,000
Tubelight/Batten Assembly Equipment	₹50,000
Ceiling Light Assembly Equipment	₹40,000
Soldering Stations & Electronic Tools	₹45,000
Electrical Testing & QC Equipment	₹65,000
Burn-In Testing Rack	₹35,000
Electric Screwdrivers/Drilling/Hand Tools	₹30,000
Work Tables, Racks & Storage	₹40,000
Initial LED Components & Drivers	₹1,25,000
Housings, Diffusers, Caps & Fixture Materials	₹75,000
Wires, Connectors, Consumables & Packaging	₹45,000
Electrical Installation & Safety	₹25,000
Branding, Labels & Packaging Development	₹1,40,000
Licensing & Documentation	₹20,000
TOTAL	₹8,00,000

A.2 INVESTMENT CONTRIBUTION STRUCTURE

Investor Category	Contribution
NGO Subsidy Support	₹2,00,000
Aspirant Entrepreneur Investment	₹6,00,000
TOTAL PROJECT COST	₹8,00,000

Subsidy:

₹2,00,000

Aspirant Investment:

₹6,00,000

Subsidy Percentage:

25%

The subsidy is strictly tied to approved project utilization.

ANNEXURE – B

NGO MONITORING, SUPERVISION & IMPLEMENTATION FRAMEWORK

The NGO's project-support framework will cover:

1. Aspirant orientation
2. Project approval
3. Premises verification
4. Equipment planning
5. Vendor coordination
6. Component sourcing guidance
7. Installation assistance
8. Assembly training
9. Testing-process training
10. Trial production
11. Quality verification
12. Branding guidance
13. Market-linkage support
14. Periodic performance review

The NGO may inspect the project premises and review project utilization, production records, inventory and operational performance.

ANNEXURE – C

LEGAL COMPLIANCE & OPERATING REQUIREMENTS

The aspirant must comply with applicable:

- GST requirements
- MSME/UDYAM requirements
- Local trade-license requirements
- Electrical safety requirements
- Labour requirements
- Fire-safety requirements where applicable
- Product-specific standards
- Applicable BIS requirements
- Packaging and labeling requirements
- Consumer/warranty requirements
- Tax and accounting requirements

The final compliance checklist should be prepared based on the exact products, specifications, brand structure and applicable regulations before commercial launch.

ANNEXURE – D

RAW MATERIAL PROCUREMENT FRAMEWORK

Primary Components

- LED modules
- LED PCBs
- LED drivers
- Bulb housings
- Bulb caps
- Diffusers
- Aluminium bodies
- Ceiling-light housings
- Batten bodies
- End caps

Secondary Materials

- Wires
- Connectors

- Screws
- Solder
- Flux
- Insulation material
- Mounting accessories

Packaging

- Individual boxes
- Labels
- Cartons
- Protective packing

Supplier selection should consider:

- Product quality
- Consistency
- Invoice compliance
- Replacement policy
- Delivery reliability
- Technical specifications
- Cost competitiveness

ANNEXURE – E

RISK MANAGEMENT MATRIX

Risk Category	Mitigation Strategy
Component Price Fluctuation	Multiple suppliers + planned procurement
Driver Failure	Incoming driver testing + supplier QC
LED Module Failure	Batch inspection
High Rejection	In-process QC
Warranty Cost	Failure analysis + batch tracking
Market Competition	Quality + local dealer network
Slow Inventory	Limited initial SKU range
Working Capital Pressure	Maintain reserve
Electrical Safety	Proper wiring, earthing and testing

Risk Category	Mitigation Strategy
Technician Errors	SOP-based training
Dealer Credit Risk	Controlled credit policy
Regulatory Changes	Periodic compliance review

ANNEXURE – F

PRODUCTION SOP

Every product must pass through the following controlled stages:

Component Receipt → Component QC → Assembly → Electrical Connection → Soldering → Mechanical Assembly → Electrical Testing → Burn-In/Inspection → Final QC → Labeling → Packaging → Dispatch

No product should be dispatched without completing the applicable final quality-control process.

ANNEXURE – G

SOCIO-ECONOMIC IMPACT

The LED Lighting Assembly Unit is expected to create:

Direct Impact

- 6–7 initial employment opportunities including the aspirant
- Technical assembly skills
- Local manufacturing capability
- Entrepreneurial income opportunity

Economic Impact

- Local component procurement
- Electrical dealer business
- Contractor supply opportunities
- Packaging and logistics activity
- Expansion of MSME manufacturing

Community Impact

- Development of technical skills
- Local employment
- Entrepreneurship development
- Availability of locally assembled lighting products

ANNEXURE – H

NGO SUSTAINABILITY SUPPORT PACKAGE

The NGO may provide continuing non-financial support in areas such as:

- Production guidance
- Vendor coordination
- Quality improvement
- Product-mix planning
- Market-linkage assistance
- Dealer-network development
- Cost optimization
- Operational troubleshooting
- Expansion planning

The support is advisory and ecosystem-oriented and does not replace the aspirant's responsibility for running the enterprise.

ANNEXURE – I

BRAND & INTELLECTUAL PROPERTY

Where NGO/Vyaparasetu branding is authorized:

- Approved brand elements must be used according to issued guidelines.
- Packaging artwork must not be altered without approval where such approval is required.
- The aspirant must not misuse NGO branding.
- The aspirant must not represent the NGO as a manufacturer, owner or financial guarantor beyond the actual approved relationship.
- Unauthorized duplication or misuse of approved branding may result in termination of project association.

ANNEXURE – J

EXIT & ASSET TRANSFER POLICY

1. The aspirant must provide prior written notice for voluntary exit according to the applicable project agreement.
2. Project operations may be terminated for:
 - Illegal activity
 - Serious quality violations
 - Misuse of subsidy

- Financial misrepresentation
 - Misuse of branding
 - Material breach of project conditions
3. Project assets purchased by the aspirant remain subject to the ownership terms specified in the project agreement.
 4. NGO branding and intellectual-property rights do not automatically transfer with machinery or equipment.
 5. Any outstanding compliance, financial or contractual obligations must be settled before closure.

ANNEXURE – K

LONG-TERM VISION & EXPANSION ROADMAP

The long-term objective is to develop the initial ₹8 lakh assembly unit into a structured LED lighting manufacturing enterprise.

The expansion roadmap includes:

- Higher-capacity LED bulb assembly
- Expanded batten/tubelight production
- Expanded ceiling-light range
- Premium lighting products
- Commercial lighting products
- Institutional lighting supply
- Dealer and distributor network
- Builder/project supply
- Private-label manufacturing
- Larger testing infrastructure
- Increased automation
- Regional distribution

The aspirant's immediate objective should be to **stabilize the three core product categories—LED bulbs, LED tubelights/battens and LED ceiling lights—before undertaking major expansion.**

FINAL PROJECT SNAPSHOT

Particular	Details
Project Name	LED Bulb, Tubelight & Ceiling Light Assembly/Manufacturing Unit

Particular	Details
Project Type	Electrical & LED Lighting Manufacturing/Assembly
Total Project Cost	₹8,00,000
NGO Subsidy	₹2,00,000
Aspirant Investment	₹6,00,000
Subsidy Percentage	25%
Recommended Space	500–800 sq. ft.
Initial Manpower	6–7 persons including aspirant
Core Products	LED Bulbs, LED Tubelights/Battens, LED Ceiling Lights
Business Model	Manufacturing/Assembly + B2B/Dealer/Project Sales
Primary Customers	Electrical Dealers, Contractors, Builders, Institutions & Commercial Buyers
Production Model	Component Sourcing → Assembly → Testing → QC → Packaging → Sales
Initial Focus	Standard, fast-moving LED lighting SKUs
Expansion Potential	Premium, commercial, institutional & customized lighting

PROJECT CONCLUSION

The **₹8 lakh LED Bulb, Tubelight & Ceiling Light Assembly/Manufacturing Unit** is structured as a practical entry-level manufacturing enterprise in the electrical-lighting sector. The project deliberately avoids the capital intensity of semiconductor or fully automated LED manufacturing and instead concentrates investment on **assembly infrastructure, testing, quality control, initial component inventory, packaging and working capital**.

The proposed financing structure of **₹6 lakh aspirant investment + ₹2 lakh NGO subsidy** enables the aspirant to establish the core production infrastructure while retaining sufficient funds for initial inventory and operating requirements.

The three-product structure—**LED Bulbs + LED Tubelights / Battens + LED Ceiling Lights**—provides product diversification while keeping the manufacturing process sufficiently standardized for a small assembly unit. The long-term objective is to establish a reliable local LED lighting brand and gradually expand from small-batch assembly into a broader lighting-products manufacturing and distribution enterprise.