

# COMPANY PROFILE



**COMPANY NAME: ECONOMIC EXPLOSIVES LIMITED**

**PLANT NAME: ECONOMIC EXPLOSIVES LIMITED, SAWANGA**

## **1. COMPANY PROFILE:**

Solar group was founded by visionary Shri Satyanarayan Nandlal Nuwal. Solar Group has evolved from a single site manufacturing company in 1995 to a globally recognized Industrial Explosives manufacturer today. Solar group is the India's largest explosive manufacturing industry.

With extensive experience, expertise and potential founded on years of experience in the Industrial Explosives segment, Solar group have entered Defence and set up one of the world's most integrated facilities for Ammunition.

Solar group employs a comprehensive suite of robust best practice policies and is committed to the safety, health, and wellbeing of employees, communities and the environment.

Solar group is the topmost explosive manufacturer in India having 24% market share. Having a strong workforce of 7500+ employees.

Solar has 34 Manufacturing facilities Worldwide & Global presence in more than 65 Countries.

### **Global Manufacturing Base:**

- India
- Zambia
- Nigeria
- Turkey
- South Africa
- Ghana
- Tanzania



### **Upcoming Manufacturing facilities**

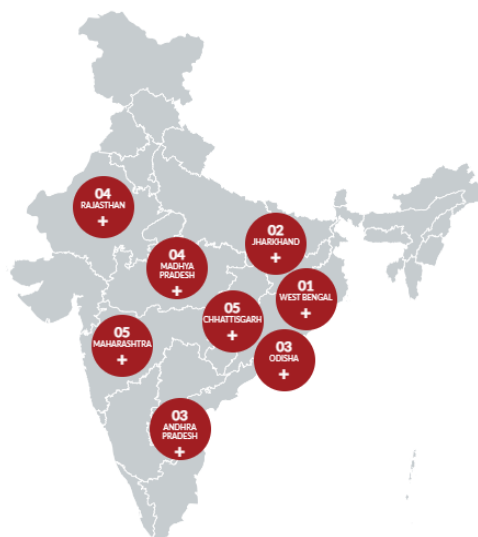
- Australia
- Indonesia
- Thailand

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## Manufacturing Locations in India:

States	Plants
Rajasthan	4
Madhya Pradesh	4
Telangana	2
Maharashtra	6
West Bengal	1
Chhattisgarh	5
Odisha	3
Jharkhand	2
Tamil Nadu	1



## Sectors of presence:

Solar have established footprints in:

- Construction
- Road & Infrastructure
- Mining
- Quarries
- Seismic Exploration
- Tunneling
- Defence
- Hydro Projects



Construction



Road & Infrastructure



Mining



Quarries



Seismic Exploration



Tunnelling



Defence



Hydro Projects

## Plant Profile: Economic Explosives Limited, Sawanga

Economic Explosives Limited (EEL) was established in 1998. It is a whole subsidiary of Solar group which is one of the largest explosive manufacturing facilities. The Plant is located at Centre of India, near Village Shiva – Sawanga, Nagpur. It is around 40 kms away from Centre of India. The factory land area is approx. 700 acres, and the buildup area is 20330 sq. meter & rest of the area is under horticulture & green belt. EEL has mainly three Divisions- *DETONATOR*, *PYRO* and *DEFENCE* which manufactures all types of Detonators & various Defence products. Having a workforce of 2915+ employees.

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## Main Products:

**Detonator Division:** This division manufactures Detonators (initiators) for high explosives used in mining & surface blasting.



Electric Det.



Non-Electronic Det.



Electronic Det.

**PYRO Division:** This division has established production of Multi-Mode Hand Grenade as per TOT obtained from TBRL (DRDO) including other Defence products.



Multi-Mode Hand Grenade (MMHG)



Fuzes



Riot Control Devices



Ammunition



Ignitors



Nipun Mines



Hexa-Copter with Single Payload



Fragmentation Warhead



Hexa-Copter with 4 Explosive Payloads

Ammunition

**Defence Division:** This division manufactures AKASH BOOSTER, PINAKA MK-I & MK-II, BRAHMOS BOOSTER MISSILE.



Warhead Invar



Air Bombs



Rockete



Composite propellants

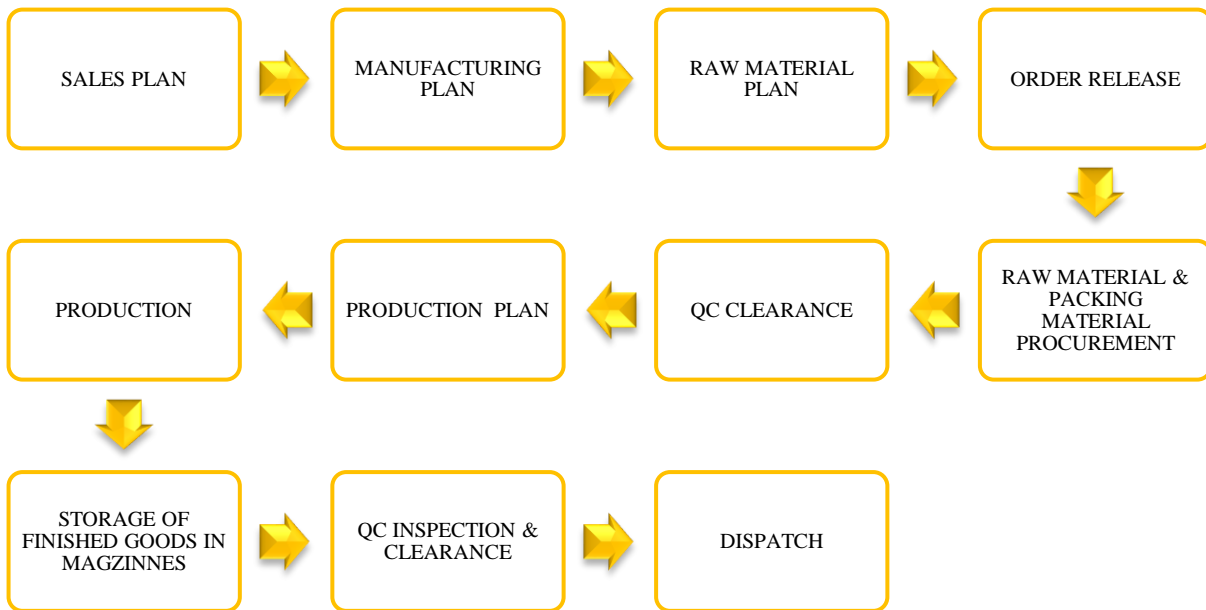


Torpedo's

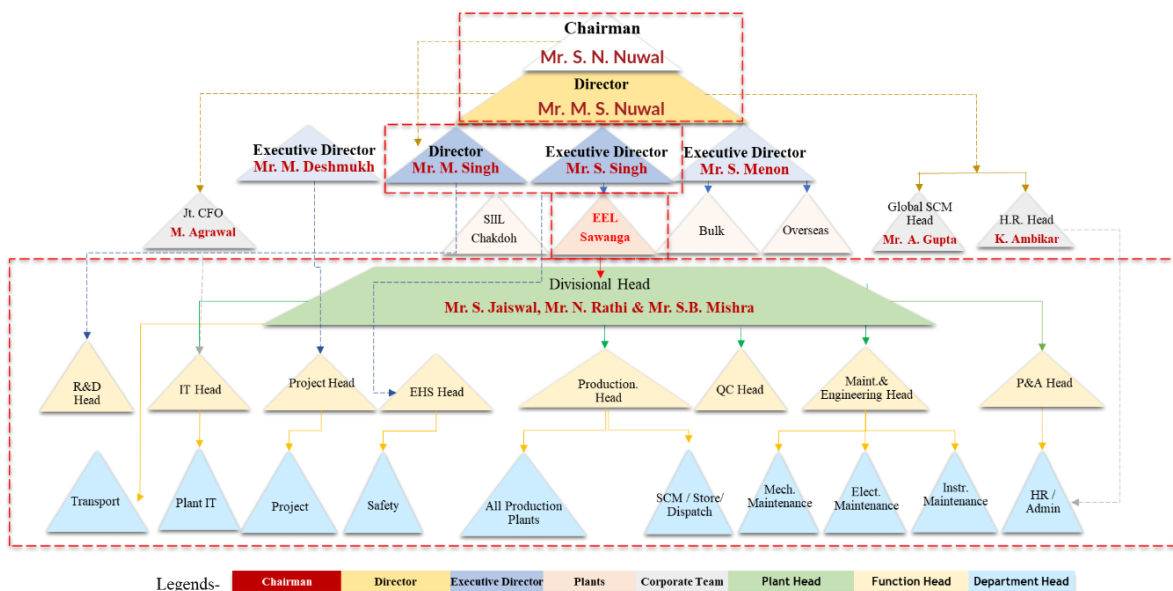
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## Production System:



## Plant Organization:



## Staff:

EEL is helmed by visionaries and business giants who were long associated with the company, together with various function/levels of employees joined our company over a period.

At present there are over 2900 Employees, including Workmen. EEL is built on trust and innovation. By staying updated with the market reforms, EEL aim is to overcome challenging obstacles sustainably through strong methodologies, adding value to everything EEL do.

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Employee Details for EEL Plant:

Designation	Category			Total
	Management	Staff	Workmen	
Director	1	-	-	1
Sr. GM	1	-	-	1
GM	3	-	-	3
DGM	3	-	-	3
AGM	5	-	-	5
Sr. Manager	-	7	-	7
Manager	-	16	-	16
Dy. Manager	-	16	-	16
Asstt. Manager	-	24	-	24
STAFF (Supervisor to Sr. Executive)	-	295	-	295
Technician	-	-	89	89
Sr. Operator	-	-	31	31
Operator	-	-	2424	2424
<b>Total</b>	<b>13</b>	<b>358</b>	<b>2544</b>	<b>2915</b>

EEL Plant Operates in continuous process model round the clock.

Shift	From	To
G	09:30 hrs	18:00 hrs
A	06:00 hrs	14:30 hrs
B	14:30 hrs	23:00 hrs
C	23:00 hrs	06:00 hrs

## **2. MILESTONES ON THE JOURNEY OF MANUFACTURING EXCELLENCE:**

Solar management decided to adopt TPM as companywide policy to address following challenges:

- Machineries and Equipments were not available in basic condition
- Machine Operators were mainly responsible for only production activities with the concept of “I Operate, You Maintain”
- No practices applied for maintaining equipment at optimal condition
- Maintenance activities carried out only when machines were not available for production
- Majorly Breakdown maintenance was followed
- Target & analysis for reducing breakdowns were not recorded
- Standard practice for breakdown management was not documented
- Primary information and knowledge transfer about basic conditions of machineries and equipments, types of losses & analytical tools were not implemented
- Systematic method for cost and loss reduction was not followed

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TPM Journey started through plantwide launch on 23<sup>rd</sup> May 2018. Initially to start with TPM was initiated on selected Manager Model Machines. TPM implementation is a continuous process now and since May 2018 it's been horizontally deployed.



TPM Kick Off: Based on the results achieved on MMM, the plant “kicked-off” the program. MD & CEO along with other Management team officially kick off the program for deployment of all eight pillars in all divisions of the plant on 21<sup>st</sup> January 2019.



### **3. BENEFITS ACHIEVED:**

EEL achieved many benefits. Some of the benefits are as below:

- Fostering employee limited motivation through adequate empowerment.
- Skill enhancement of all the operators/employees through OPL's, Know-Why sheets, TTC training & Problem-solving tools.
- Identifying areas of improvement through Kaizen.
- Elimination of defects/complaints up to zero level by collaboration with other functions.
- Strengthening of the 5S activities on the shop floor through total employees' involvement giving company a positive image whenever customers visit.
- Understanding of the conceptual methodology among operators/employees.
- Improving teamwork among the entire organization members – top management to the front line.
- Making machines function with high reliability and consistent performance.
- Increased morale of the team members or front-line members

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- Empowering and formally authorizing operators through TPM training and support to own and take pride in maintaining their own machines/ Equipment.
- Imbibe the culture of continual improvement.

To improve the total employee involvement & promote TPM activities, management has prepared R & R policy to recognize & motivate the people who are actively contributing into the TPM implementation.

## **4. KEY OF OUR MANUFACTURING EXCELLENCE:**

Aim of manufacturing excellence is to implement the best practices for improving key results in terms of PQCDSE. EEL involved all employees to work for manufacturing excellence. Continual improvement activities and periodic review of the results are enablers to meet the key strategies and Business parameters. Following are few highlights noted herewith:

- Development of proactive approach to address break down, accident & defect incidences.
- Strong condition base maintenance approach for enhancing equipment's reliability.
- Continual focus on Quality Management System through ISO 9001.
- Continual focus on Environment Management System through ISO 14001.
- Continual focus on Occ. Health & Safety Management System through ISO 45001.
- Green energy focus through uses of renewal energy and improving Green Belt area.
- Focus on improving knowledge and skill of people through competency development.
- Emphasis on 5'S principal.
- Low cost automation to eliminate losses in product realisation process.

## **5. ACHIEVEMENT RECORD:**

Category	Index	Division	Unit	BM	Actual Status	Target
				April '19 - June'19	FY 22-23 (April'22- November'22)	FY 22-23 (April'22- March'23)
P	OEE	Detonator	%	73	84.48	85
		PYRO	%	69	83.54	85
		Defence	%	73	NP	80
P	Availability Rate	Detonator	%	83.92	93.52	---
		PYRO	%	78.01	91.9	---
		Defence	%	89	NP	---
P	Quality Rate	Detonator	%	98.50	99.35	---
		PYRO	%	99.46	99.74	---
		Defence	%	100	NP	---
P	Performance Rate	Detonator	%	87.84	90.93	---
		PYRO	%	89.9	91.14	---
		Defence	%	82	NP	---

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P	Manpower Efficiency	Detonator	%	80	86	87
		PYRO	%	76	85.3	87
		Defence	%	NA	NA	NA
P	Output/month	Detonator	%	92	97.6	100
		PYRO	%	75	88.8	95
		Defence	%	57	NP	70
P	Breakdown due to weak JH	Detonator	Nos.	10	0	0
		PYRO	Nos.	3	0	0
		Defence	Nos.	0	0	0
P	BD Hrs.	Detonator	Hrs	66.5	2.8	12
		PYRO	Hrs	4	7.2	1.5
		Defence	Hrs	2	0	0
P	BD Occurrence	Detonator	Nos.	82	6	12
		PYRO	Nos.	15	1	0
		Defence	Nos.	2	0	0
P	MTTR	Detonator	Mins	48	27	31
		PYRO	Mins	106	191	45
		Defence	Mins	1	0	0
P	MTBF	Detonator	Hrs	309	441	412
		PYRO	Hrs	2469	3823	3750
		Defence	Hrs	650	4661	3500
Q	Customer Complaint due to Product Quality	Detonator	Nos.	1	2	0
		PYRO	Nos.	0	0	0
		Defence	Nos.	0	0	0
Q	Customer Complaint due to other issues	Detonator	Nos.	1	2	0
Q	In-process rejection	Detonator	PPM	920	361	0
		PYRO	PPM	2700	2176	0
		Defence	PPM	0	0	0
Q	Defects due to weak JH	Detonator	Nos.	380	0	0
		PYRO	Nos.	6	0	0
		Defence	Nos.	0	0	0
C	Cost Index	Detonator	---	Cannot disclose due to Defence related items		
		PYRO				
		Defence				
S	Major Accident	Detonator	Nos.	0	0	0
		PYRO	Nos.	0	0	0
		Defence	Nos.	0	0	0
S	Minor Accident	Detonator	Nos.	0	0	0
		PYRO	Nos.	0	0	0
		Defence	Nos.	0	0	0



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S	Accident due to weak JH	Detonator	Nos.	0	0	0
		PYRO	Nos.	0	0	0
		Defence	Nos.	0	0	0
M	Kaizen	Detonator	Nos.	13	115	175
		PYRO	Nos.	3	26	36
		Defence	Nos.	18	36	53
M	Employees recognized thru R&R	Detonator	Nos.	---	121	320
		PYRO				
		Defence	Nos.	---	82	160
M	Skill level of Production workmen	Detonator	%	43	78.5	82.4
		PYRO	%			
		Defence	%	40	79	82.1
M	Skill level of Maintenance workmen	Detonator	%	63	79	82.6
		PYRO	%			
		Defence	%	60	80	89.14
Other	<p>1. Do you have a program where all employees can participate in TPM?:  <b>Yes, Through trainings, Quiz, Suggestions Scheme, Kaizen implementation, etc.</b></p> <p>2. Do you have a program allowing employees to be recognized their achievements?:  <b>Yes, There is scheduled "Rewards &amp; Recognition" program to facilitate employees for achievement.</b></p> <p>3. Are top management involved in the audit/verification of completion of TPM pillar steps?:  <b>Yes, Top management holds, review and monitors the progress periodically.</b></p> <p>4. Are all pillar activity boards displayed and reviewed by top management?  <b>Yes, Boards are displayed at defined location and reviewed by top management.</b></p>					