

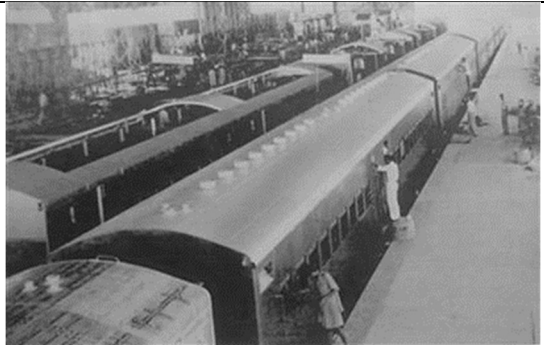


## **BEML Limited**






### **Foundation day – 11<sup>th</sup> May 1964**

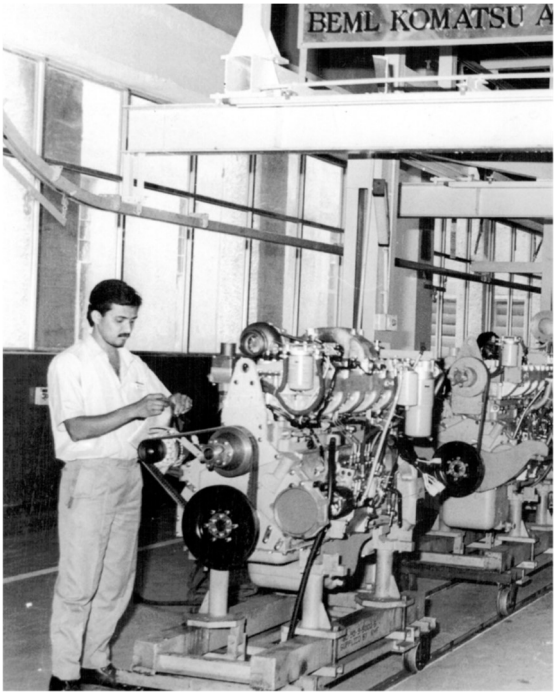


BEML LIMITED (Formerly Bharat Earth Movers Limited) was incorporated under Companies Act 1956, under Ministry of Defence, Govt. of India on **11<sup>th</sup> May 1964** with its headquarters in Bangalore, Karnataka

The new company began production of rolling stock at Rail Coach Division in Bangalore. with initial capital of Rs. 5 crore.

### **Chronology of events:**





<b>Event</b>	<b>Year</b>	<b>Photograph</b>
First Metal Rail Manufacturing facility in India at Bangalore	1965	
First Mining & Construction equipment manufacturing facility in India at Kolar Gold Fields (KGF), Karnataka	1967	
Motor Grader and Bull Dozer equipment exported to Nepal & Bhutan.	1970	





Truck Division was set-up at Mysore, Karnataka for manufacturing off-highway Rear Dump Trucks, Motor Graders and Water Sprinklers.	1985	
Launch in-house R&D Aircraft Towing Tractor for IAF	1985	
Full-fledged R&D was set-up with testing laboratories & CAD centre at Kolar Gold Fields (KGF), Karnataka.	1987	
Hydraulic & Powerline Division was set-up at Kolar Gold Fields (KGF), Karnataka for manufacture of BMP Transmissions & Final Drives for Defence Services and Hydraulic & Powerline Aggregates catering to captive requirements.	1987	
First BEML Tatra High Mobility Vehicles was produced and supplied to Indian Army.	1988	

<p>Engine Division was established at Mysore, Karnataka for manufacturing wide range of Diesel Engines powering BEML's product range.</p>	<p>1991</p>	
<p>The 1<sup>st</sup> mammoth Walking Dragline was manufactured &amp; commissioned at SCCL Ramagundam Project</p>	<p>1994</p>	
<p>First set of DC-EMU manufactured and supplied to Indian Railways.</p>	<p>1994</p>	



Manufactured and supplied 2 nos. Arjun MBT to CVRDE against developmental order.	1995	
Manufactured and supplied 1 <sup>st</sup> set of PMS bridge system to Defence Services.	2002	
Indigenously designed and developed Weapon Loading Equipment 'Bheema- 1000' rolled out and supplied to IAF	2002	
Forayed into Metro Car Business and First Metro Car indigenously manufactured in India supplied to Delhi Metro Rail Corporation.	2004	

<p>Railway &amp; Heavy fabrication units established at KGF</p>	<p>2005</p>	 
<p>First batch of Indigenously manufactured BFAT (Bogie-Flat Arjun Tank) Wagons were rolled out.</p>	<p>2006</p>	
<p>Established 5MW Wind Mill project in Karnataka towards 'Go Green' initiative.</p> <p>Presently 23MW Wind Mills are in operation meeting 94% captive energy requirement.</p>	<p>2007</p>	
<p>Enterprise Resource Planning software package was implemented across the Company.</p> <p>Further, implemented File Lifecycle Management towards paperless office.</p>	<p>2008</p>	

<p>Palakkad Complex, Kerala was established in record time of less than 6 months for manufacturing of Heavy-Duty High Mobility Vehicles and aggregates of Rail Coaches and Metro Cars.</p>	<p>2010</p>	
<p>Aerospace Manufacturing Division at Mysore was established for manufacturing of Ground Handling Equipment, Air borne structures and Aggregates for Missiles</p>	<p>2011</p>	 
<p>Nation's first Indigenously Designed &amp; Developed Stainless Steel Electrical Multiple Unit (SSEMU) for Indian Railways sub urban Commuting.</p> <p>"Received Raksha Mantri Award under Design Efforts – Own Initiatives Category for the year 2011-12."</p>	<p>2011</p>	



<p>Indigenously Designed &amp; Developed India's first Intermediate Metro car for Delhi Metro Rail Corporation.</p> <p>"Received Raksha Mantri Award under Design Efforts – Own Initiatives Category for the year 2008-09."</p>	<p>2012</p>	
<p>Indigenously Designed &amp; Developed India's Biggest 180 Ton (BE1800E) Excavator which operates entirely on electrical power with zero emission.</p> <p>"Received Raksha Mantri Award under Design Efforts – Own Initiatives Category for the year 2014-15."</p>	<p>2014</p>	
<p>Indigenously Designed &amp; Developed India's Biggest 205 Ton (BH205E) Dump Truck with environment friendly Electric Drive Systems.</p>	<p>2015</p>	
<p>Indigenously Designed &amp; Developed India's Biggest 850HP (BD475) Bull Dozer.</p>	<p>2017</p>	

Indigenously Designed, Developed and supplied First proto of Arjun Armoured Repair & Recovery Vehicle (ARRV) to CVRDE.	2017	A large, green, multi-wheeled military vehicle with a complex mechanical structure, including a large front-mounted winch and various recovery equipment, parked on a sandy surface.
Delivered Nation's First Indigenously Designed & Developed state-of-the-art six car Metro Train set to Kolkata Metro.	2018	A modern, silver and purple six-car metro train set, viewed from the front, on a track with a bridge in the background.
Manufactured and Supplied 20 Ton trailers to Defence Services.	2019	A large, olive-green military truck with a flatbed trailer, parked on a dirt road with trees in the background.
<p>Bagged single largest order of Rs. 3800 Cr. for supply of 504 nos. of Driverless Metro Cars - Unmanned Train Operation (UTO) to Mumbai Metro.</p> <p>Received order for additional 72 cars valuing about Rs.502 Crs. from MMRDA during 2020.</p> <p>Hon'ble Prime Minister of India unveiled Unmanned Train Operation (UTO) – Driverless Metro Car for Mumbai Metro, designed and supplied by BEML Limited.</p>	2019	A blue and yellow driverless metro train (UTO) with the MMRDA logo, shown in a tunnel setting. A photograph showing the Prime Minister of India, Narendra Modi, inside a driverless metro train, interacting with other officials during the unveiling ceremony. The train's destination display shows 'दहिसर (पूर्व)' and 'Dahisar (East)'.



Hon'ble Raksha Mantri launched the following during Atmanirbharta Saptah

Industrial Design Centre

180 Ton Giant Hydro Electric Excavator (BE1800E)

150 Ton Dump Truck (BH150E)

India's first state-of-the-art Heli portable Hydrostatic Drive Crawler Dozer.

Developed Artificial Intelligence Powered Medical Health Diagnostic Systems on High Mobility Vehicle "A first of its kind in India".

2020



Supplied India's first Driverless Metro car to MMRDA	2021	
First Proto of Mechanical Minefield Marking Equipment (MMME – MKII) an AtmaNirbhar product, was developed and rolled out through ToT from R&DE, DRDO.	2021	
The Company has taken-up manufacturing of Medical Oxygen Plant (GO 960) and successfully rolled out through ToT from DEBEL, DRDO for supplying to the hospitals to cater to the rising needs of Covid patients.	2021	

Presently, BEML Limited is a Schedule 'A' Company engaged in the design, development, manufacturing and after-sales –service of a wide range of products for core sectors of economy such as Coal, Mining, Steel, cement, power, irrigation, construction, road building, Defence, Railway and Metro transportation system & Aerospace. BEML is a listed Company and Government of India holds about 54% of the total paid up capital of the Company.

BEML operates in three business segments - Mining & Construction, Defence & Aerospace and Rail & Metro. More than 74% of sales is thru orders obtained on competitive mode.

The products manufactured under the three Business Verticals are: -

DEFENCE & AEROSPACE	MINING & CONSTRUCTION	RAIL & METRO
<ul style="list-style-type: none"> <li>• High Mobility Trucks</li> <li>• Recovery Vehicles</li> <li>• Armoured Recovery Vehicle</li> <li>• Arjun-Armoured Repair &amp; Recovery vehicle</li> <li>• Bridge Systems</li> <li>• Vehicles for Missile Projects</li> <li>• Tank Transportation Trailers</li> <li>• Milrail Wagons</li> <li>• Mine Ploughs</li> <li>• Crash Fire Tenders</li> <li>• Aircraft Towing tractors</li> <li>• Aircraft Weapon Loading Trolley</li> <li>• Ground Support &amp; Ground Handling Equipment</li> <li>• Aggregates of Missile</li> <li>• Airborne Structure &amp; Assemblies</li> </ul>	<ul style="list-style-type: none"> <li>• Bull Dozers</li> <li>• Dumpers</li> <li>• Excavators</li> <li>• Loaders</li> <li>• Motor Graders</li> <li>• Water Sprinklers</li> <li>• Pipe Layers</li> <li>• Wheeled Dozers</li> <li>• Tyre Handlers</li> <li>• Shovels</li> <li>• Under Mining Equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Metro Cars</li> <li>• Electrical Multiple Units</li> <li>• OHE Cars</li> <li>• Rail Coaches</li> <li>• Steel and Aluminum Wagons</li> <li>• Track Laying Equipment</li> <li>• Treasury Vans</li> <li>• Utility Vehicles</li> </ul>

The Company has four manufacturing complexes located at Bengaluru, Kolar Gold Fields (KGF), Mysuru and Palakkad. All the manufacturing divisions of BEML have been accredited with ISO 9001 – 2000 certification.

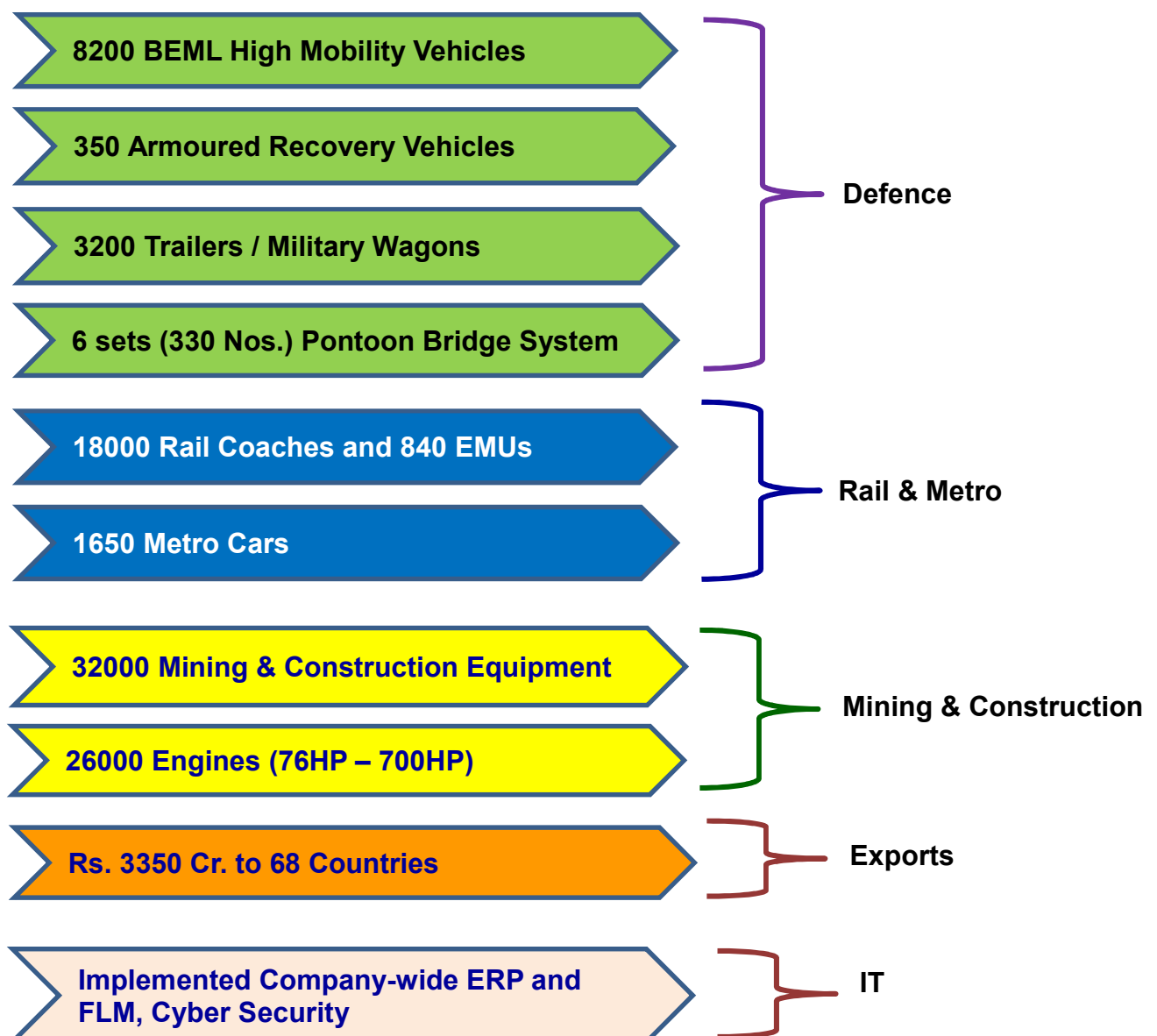
World class R&D set-up was established in 1986. The R&D establishment has CAD Centre, Fluid-power, Powerline, Structural Engineering & Material Science laboratories and is continuously engaged in New Product Development, Upgradation of existing products to meet customer requirements and indigenisation. More than 65% of Company's Sales Turnover is through in-house developed R&D products. The R&D expenditure is around 3% of its turnover.



BEML's products are sold and serviced through a nationwide marketing network of 12 Regional Offices, 14 District Offices & Service Centres spread across the Country and Spare Parts depots within in close proximity to major customers.

BEML's products are exported to various countries including Indonesia, Thailand, Malaysia, Syria, Tunisia, UAE, Jordan, Suriname, South Africa, Sri Lanka, Bangladesh, Zimbabwe etc.

### Achievements @75:



### Actions @75:

List of projects from BEML Limited to be launched during 15<sup>th</sup> to 21<sup>st</sup> November, 2021

Sl. No	Name of Project/ Products	Approx. Value of Project/ Product (In Rs. Crore)	How the project / product will bring about significant changes in operation of the company.
1	Manufacturing facility for Aerospace at Bengaluru	Cost of Project is Rs. 3.0 Crs	<ul style="list-style-type: none"> <li>The facility set up at Aerospace Hangar, Bangalore Complex is for assembly and integration of GSLV light alloy structures.</li> <li>The program planned at new facility is unique in nature which involves realization of 8 types of structures for GSLV Mk-III</li> <li>This program brings significant changes in work culture of the company with regard to project execution as described below: <ul style="list-style-type: none"> <li>The materials involved in the project are special alloys of aluminum and steel which requires special care while processing them.</li> <li>The project team gained the knowledge and augmented their skill set in terms of machining, heat treatment, special treatment, assembly and integration.</li> <li>The detail components are large in size (Ø4m) which requires huge machining facility. The project team has established the suitable supply chain through vendor evaluation processes.</li> <li>The concept of Production Readiness Review (PRR) is brought into place in order to formulate the execution, testing and evaluation processes.</li> <li>The project team involved in setting up of rigorous quality management system for both in-house and outsources activities.</li> <li>New concept of inspecting and validating the assemblies using "Laser Tracker" has been implemented.</li> <li>Assembly and integration of huge structures demands for rigid jigs and</li> </ul> </li> </ul>

			fixtures. The project team is successful in design and development of fixtures and related special requirements.
2	Medium Bullet Proof Vehicle Mark-II	Rs. 2.65 Crs/ vehicle	<p>MBPV is a bullet proof vehicle which conceals crew and troops from Ballistic Arm Fire, Hand Grenades, and Fragment Simulated Projectiles etc. With survivability as major objective carries troops to operate in counter-Insurgency environment.</p> <ul style="list-style-type: none"> <li>• Swinging half axles for cross country mobility on BEML 4X4 chassis.</li> <li>• High power-to-weight ratio and all-wheel drive for maximum traction</li> <li>• Customizable protection from Stanag-I to Stanag-III</li> <li>• Crew capacity – 10 members.</li> <li>• High Altitude operational capability up to 18,000 feet</li> <li>• Optional attachments: Ground penetration radar, Mine rollers, Surveillance systems, Electronic warfare systems, Jammers and Remote weapon system</li> </ul> <p>This is armouring solution BEML is providing to Indian Army requirement.</p>
3	190T Electric Dump Truck, Model: BH205E	48.65 Crs.	<p>Keeping in tune with the ever-increasing needs of Mining Industry and to meet growing demand for High Capacity Mining equipment in our Country, true to the concept of “Make in India”,</p> <p>BEML indigenously Designed and Developed 190 ~ 205 Ton High Capacity Electric Dump Truck “Model BH205E”.</p> <p>The equipment is engineered with many advanced features like AC drives, keeping in mind the market expectation for the next 10-15 years.</p> <p>This equipment is being deployed at M/s NCL, one of the subsidiaries of M/s CIL who is the largest coal producers in our country.</p>
4	Tactical Unmanned Aerial Vehicle	Rs.5.5 Crs/ Vehicle	<p>An Unmanned Aerial Vehicle (UAV), commonly known as Drone is an aircraft without a human pilot aboard. Drones often vary widely in their configurations depending on the platform and mission. There are different classifications for the drones based on different parameters. Drones can be classified on the basis of mission, weight,</p>



			<p>range &amp; endurance, maximum altitude, wing loading and engine type.</p> <p>UAVs cover a wide range of weights starting from micro UAVs which weigh only a few grams, right up to the size of an aircraft weighing few tonnes. The cost of these drone starts from a few thousands and runs into few hundred crores based on their specifications (especially in case of armed drones).</p> <p>UAVs vary in size weighing a few grams to the size of an aircraft weighing few tonnes. The corresponding cost varies from a few thousands to hundreds of crores (specially in case of armed drones).</p>
5	Track Width Mine Plough for T-90 Tanks	Rs.0.32 Cr/Nos	<p>T-90 TWMP (Track Width Mine Plough) is being developed to meet the demands of the modern Main Battle Tank (MBT). The TWMP gives a tank the ability to rapidly force a passage through mined obstacles by creating a cleared path for armoured fighting vehicles to follow. The system is designed to remove mines from the track width of the host vehicle. The system gives a tank the ability to protect itself from the threat of surface laid or buried AT or AP mines. The T-90 Track Width Mine Plough is a self-contained unit, the only connections to the vehicle being its mounting arrangement and connection to the tank electrical power system.</p> <p>BEML has received contract from MoD for the supply of 1512 nos TWMP worth Rs.498 Crs. Project is under execution.</p>
6	Trawl Roller with Mine Ploughs for T-72 Tanks	Rs.3 Cr/Set	<p>Trawl assembly is equipment designed to create a Vehicle Safe Lane (VSL) of 5.39 m width through a mine field using four number of trawl tanks in tandem.</p> <p>TRAWL roller is a demining device mounted on a tank, designed to detonate anti-tank mines. It allows engineers to clear a lane through a minefield which is protected by enemy fire. It is a combination of roller &amp; plough type. The full set of equipment comprises roller sections, plough sections, mounting frames, MSD, electrical equipment, pneumatic system, and a repair kit. Each roller system has metal forged roller, which apply a higher ground pressure than the tank's tracks.</p> <p>BEML is envisaging business from MoD for supply minimum 70 nos. of TRWAL.</p>

			Approximately value of business proposal is Rs.210 Crs.
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**Resolves @75:**

- To design and develop emission compliant engines for Mining & Construction and Defence products
- Work towards zero import
- Focus on exports of High Mobility Vehicles, Aircraft towing tractor in the area of Defence and Rail coaches, EMUs, Metro Cars, Maintenance vehicles in the area of Rail & Metro business.
- Design & Development of AI based products and implementation of the same on existing products
- Companywide Cyber Security Compliance