SANAATCHI
INDUSTRIAL VISION GROUP

Prestressed Concrete Railway-Sleeper Plant

Complete Turnkey Business Proposal

Made-in-China supplier reference: real prestressed concrete railway-sleeper plant equipment.

bankable study	confirmed feedstock	EPC scope	quality laboratory
investment gate	**supply gate**	**delivery gate**	**release gate**

Prepared for investment planning in Afghanistan and regional export markets. Final specifications, pricing, civil works, and utility loads require supplier quotation and site survey.

Executive Summary

Railway-sleeper plant that controls aggregate/cement, prepares and tensions strand, casts and vibrates engineered sleeper moulds, cures, detensions, inspects and dispatches traceable prestressed sleepers.

Why this project fits Afghanistan

- This is a strategic plant, not a low-entry equipment package.
- Bankable feedstock, utility, permit, market, EPC and financing evidence is required before selection.
- Operate only with an independent laboratory, defined quality release and preventive-maintenance program.

Sanaatchi delivery scope

- Factory setup planning, supplier pre-qualification, and technical comparison
- Complete production-line and individual equipment supply
- Factory layout, utilities, civil-work coordination, installation, and commissioning
- Raw-material sourcing, trial-batch qualification, and repeat supply planning
- International logistics, customs documentation, operator training, spare parts, and after-sales support

Recommended configuration	Proceed only after railway authority design approval, long-term track order, certified strand/cement supply, laboratory, curing yard, rail logistics and experienced prestress engineering are bankable.

Manufacturing Process & Product Portfolio

Integrated process flow

Target products

Product	Typical specification	Primary market
Prestressed railway sleepers	Sleeper design, gauge, concrete strength, strand force, insert layout, dimensional tolerance, fatigue and rail authority standard	Railway authorities, EPC contractors, mines, industrial sidings and approved infrastructure projects

Final capacity, process, resource quality, utilities, permit conditions, emissions, acceptance test and commercial terms require independent engineering review before any order.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Aggregate/concrete batching	Makes controlled mix	Strength and consistency
2	Strand preparation/tensioning	Creates prestress	Force and alignment
3	Moulding/casting/vibration	Forms sleepers	Insert geometry
4	Curing/detensioning	Develops/release strength	Concrete maturity
5	Inspection/yard/traceability	Releases sleepers	Dimensions and load evidence

Equipment models are indicative and will be matched to the selected capacity, local raw-material tests, available utilities, and preferred automation level.

Reference Equipment Gallery

Made-in-China supplier reference: real prestressed concrete railway-sleeper plant equipment.

Made-in-China supplier reference: second real machine configuration for prestressed concrete railway-sleeper plant.

Images are supplier references for configuration discussion; final equipment appearance and model may differ.

Plant, Raw Materials & Utility Requirements

Raw materials

- Cement, graded aggregates, water/admixtures, prestressing strand, inserts, mould release materials, curing supplies and laboratory consumables

Utilities & infrastructure

- Bankable electricity/fuel/water plans, process cooling and treatment, plant fire safety, laboratory, covered stores and qualified operation team
- Environmental permits, emissions control, waste route, maintenance workshop, critical spares and site-specific safety systems

Quality, safety and environmental controls

- Confirm rail authority drawings/orders, strand source, concrete materials, curing yard, lifting/transport, test standard and named prestress engineer
- Control batch mix, strand force, mould geometry, vibration, curing, detensioning, inserts and traceability
- Test concrete strength, dimensions, strand force, rail-seat geometry, cracking, load/fatigue requirements and batch records

A final factory layout must reserve safe forklift routes, maintenance clearances, raw-material segregation, finished-goods storage, fire protection, ventilation, and future expansion space.

Indicative Investment & Implementation Plan

LOW-ENTRY CONFIGURATION	Railway sleepers should only be produced against approved rail authority designs, proven prestress testing and a bankable track order.

Component	Indicative range	Notes
Batching, moulds and tensioning beds	US$40m-135m	Sleeper design/output
Curing, lifting, yard and testing	US$25m-85m	Authority quality scope
Utilities, laboratory and installation	US$15m-50m	Prestress critical
Indicative strategic project total	US$80m-270m	Rail order, land and finance excluded

Implementation sequence

Phase 1	2-5 weeks	Confirm product specification, representative raw material, buyer, capacity, site and utilities
Phase 2	3-7 weeks	Run supplier trials with the buyer material and freeze the balanced machine, tooling and utility scope
Phase 3	8-22 weeks	Manufacture or refurbish, inspect, document and ship the contracted equipment
Phase 4	3-12 weeks	Install, commission, train operators and pass material-specific acceptance tests

Ranges are planning targets for a low-cost entry configuration, exclude land, and remain subject to confirmed capacity, supplier quotation, freight, duties, exchange rates and site conditions.

Next Steps & Contact Information

Recommended next steps

- Confirm target products, hourly output, and packaging formats
- Test representative raw materials and document quality requirements
- Complete site survey covering electricity, water, fuel, drainage, roads, and warehouse space
- Request comparable technical and commercial quotations from shortlisted suppliers
- Finalize financing, logistics, installation, training, and spare-parts plan

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Research and image references

- prestressed-hollow-core-concrete-slabs
- precast-concrete-wall-panels