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AWARDS 2017**



ITO Metro Station, New Delhi

of Delhi Metro Rail Corporation Ltd

S.A.Verma, General Manager, DMRC



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Stakeholders

Project Owner : Delhi Metro Rail Corporation Ltd.

**Principal Stakeholders: Government of India
Government of Delhi
Japan International Cooperation Agency (JICA)**

Contractor : L&T- SUCG JV

Designer : Mott MacDonald Pvt Ltd



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ITO Metro Station during construction

SUSTAINABILITY
INITIATIVE
- OF THE YEAR -





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Project Description

Area:

19345 sqm

Location:

ITO Junction

Depth:

18 m

Construction method:

Top down

Time taken in project completion:

30 months

Footfall:

24,000 per day

Project Cost:

€ 26.55 Million

Constructed directly beneath one of the busiest intersections of Delhi (175,000 PCUs per day)



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Short film on ITO Metro Station

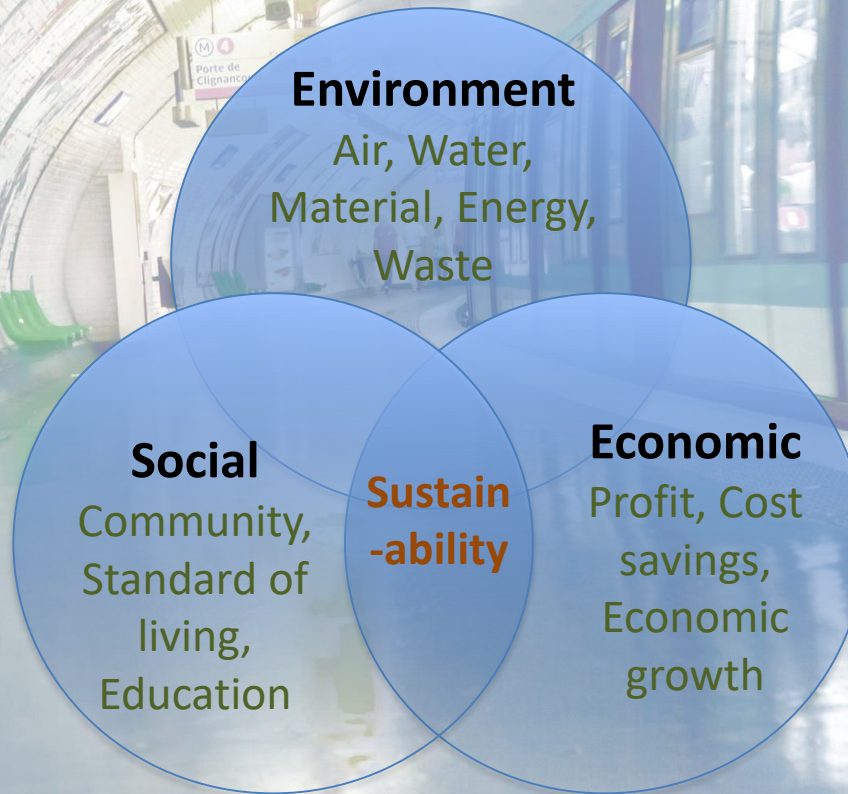
[DMRC ITO Metro Station.mp4](#)



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Spheres of Sustainability

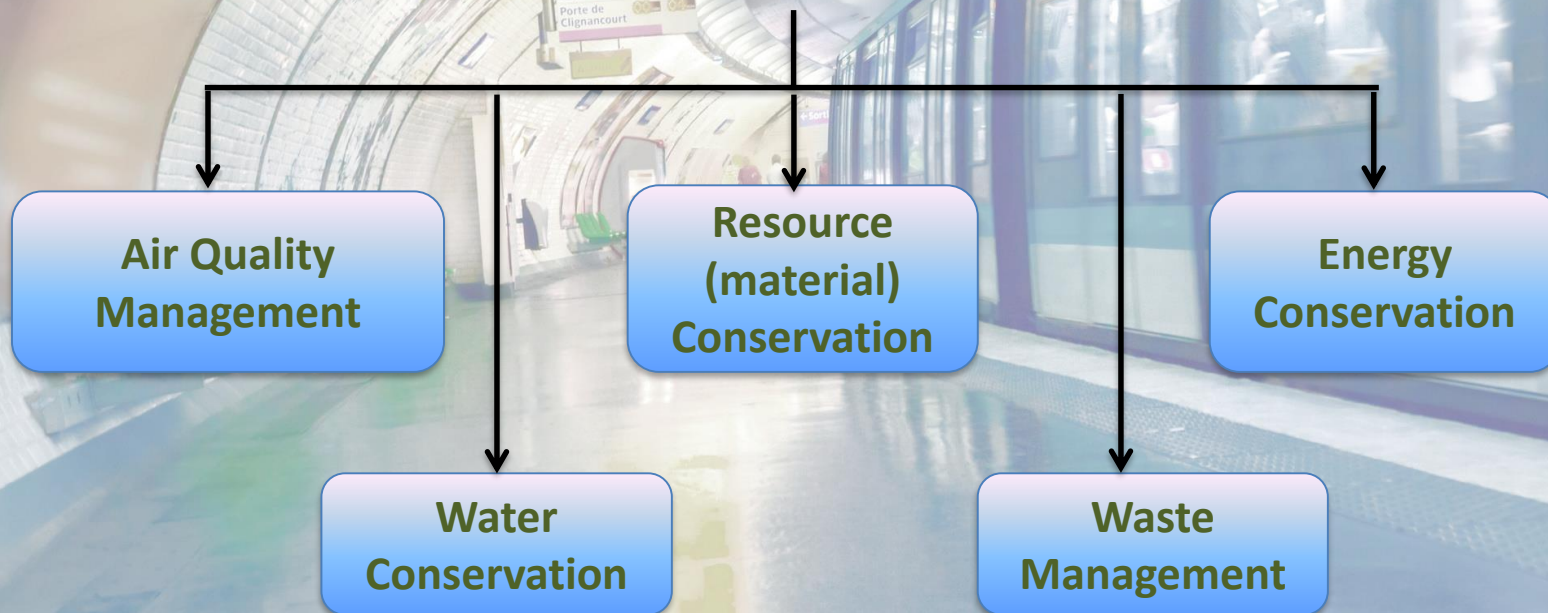




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Environment- Measures Adopted





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Air Quality Management during construction

Monitoring of Particulate Matter during construction

- **Parameter- PM_{10}**
- **Frequency- Fortnightly**
- **Third party monitoring**

Measures taken to minimize dust

- **Proper barricading**
- **Water sprinkling**
- **Dust collector at batching plant**
- **Covering of muck during transportation**
- **Use of Green net**
- **Toe dust cleaning**



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Air Quality Management during operation

- Provision of MERV -8 filters
- CO₂ sensors





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Water conservation during construction

- Provision for recharge of dewatered water through recharge pit
- Reuse of curing water
- Use of RO reject for dust suppression, wheel washing and in toilets



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Water conservation during operation

- Rain water harvesting
- Water meters at all significant installations
- Adequate maintenance of cooling tower to reduce water loss
- AHU filter cleaning through proper tanks/ vacuum plants





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Reduction in water consumption

Station	Water consumption	Remarks
Phase-II stations	17937 KL	Average of Phase-II stations having similar area
ITO	16000 KL	Reduction of 11%



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Resource (Material) Conservation during construction

- 10% recycled materials used in construction
- 85% materials procured locally minimizing Carbon foot print during transportation
- Use of Fly-ash





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10% recycled materials used in construction

S. No	Civil Material Description	% of Recycled Content
1.	Cement	14
2.	RCC	10
3.	Structural Steel	25
4.	Ceramic tiles	40
5.	Glass	18
6.	Stainless steel Grade 304	25



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85% materials procured locally minimizing Carbon foot print during transportation.

Material	Place and Distance from project site
Glass	Canon (Rajasthan) – 230 Km, Cement – Ultratech plant location
Coarse Sand	Shree Balaji (Adarsh Nagar, Delhi) 25 Km
Fine Sand	Abycon (Haryana) – 198 Km
Stone aggregates	Ultratect (Adarsh Nagar, Delhi) 25 Km
Stainless steel	Gurgaon Plant (Haryana)- 43 Km
RCC	Sarai Kale Khan (Delhi)- 8km



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Use of Fly ash

Approx 100 MT of Fly ash has
been used during construction





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Waste management

- Approx 97% Construction & Demolition waste recycles and remaining 3% reused at site itself.

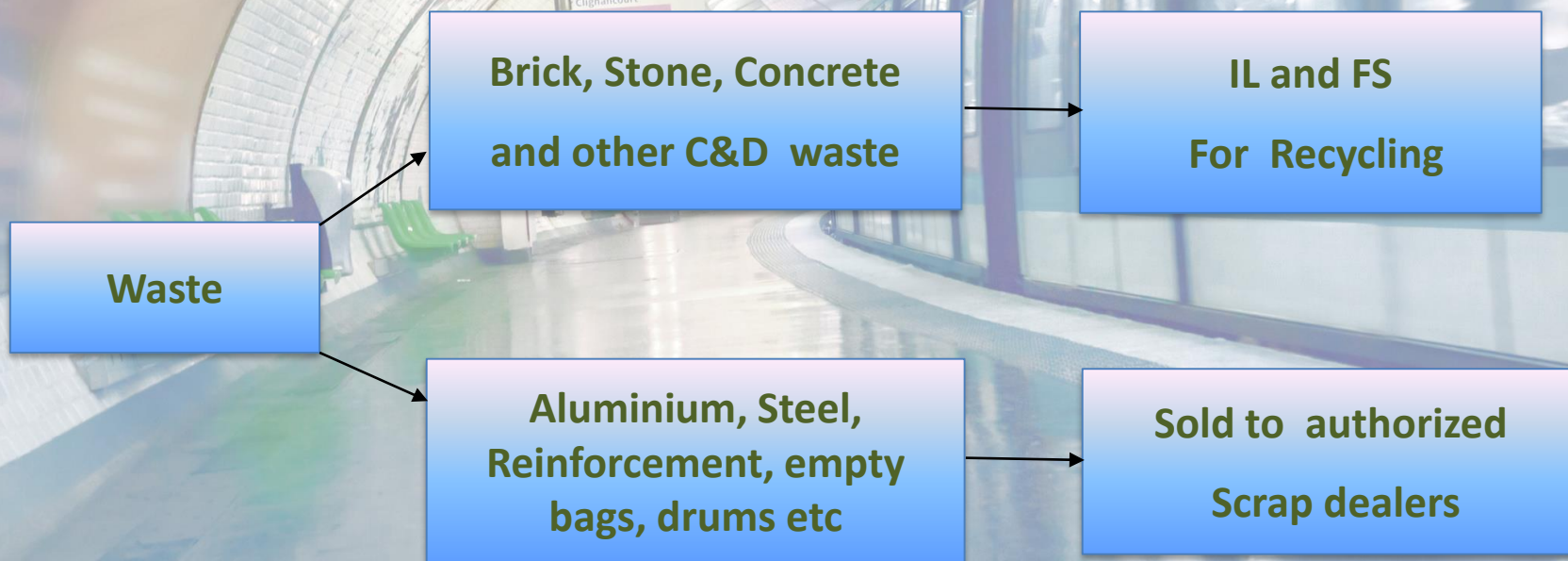




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88% of waste produced was diverted away from landfill site





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Energy conservation measures

- 9 kWp Solar PV installed at station premises
- LED lighting
- Energy efficient HVAC
- Provision of regenerative braking system in Lifts





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Energy Conservation

➤ Reduction in Energy Consumption

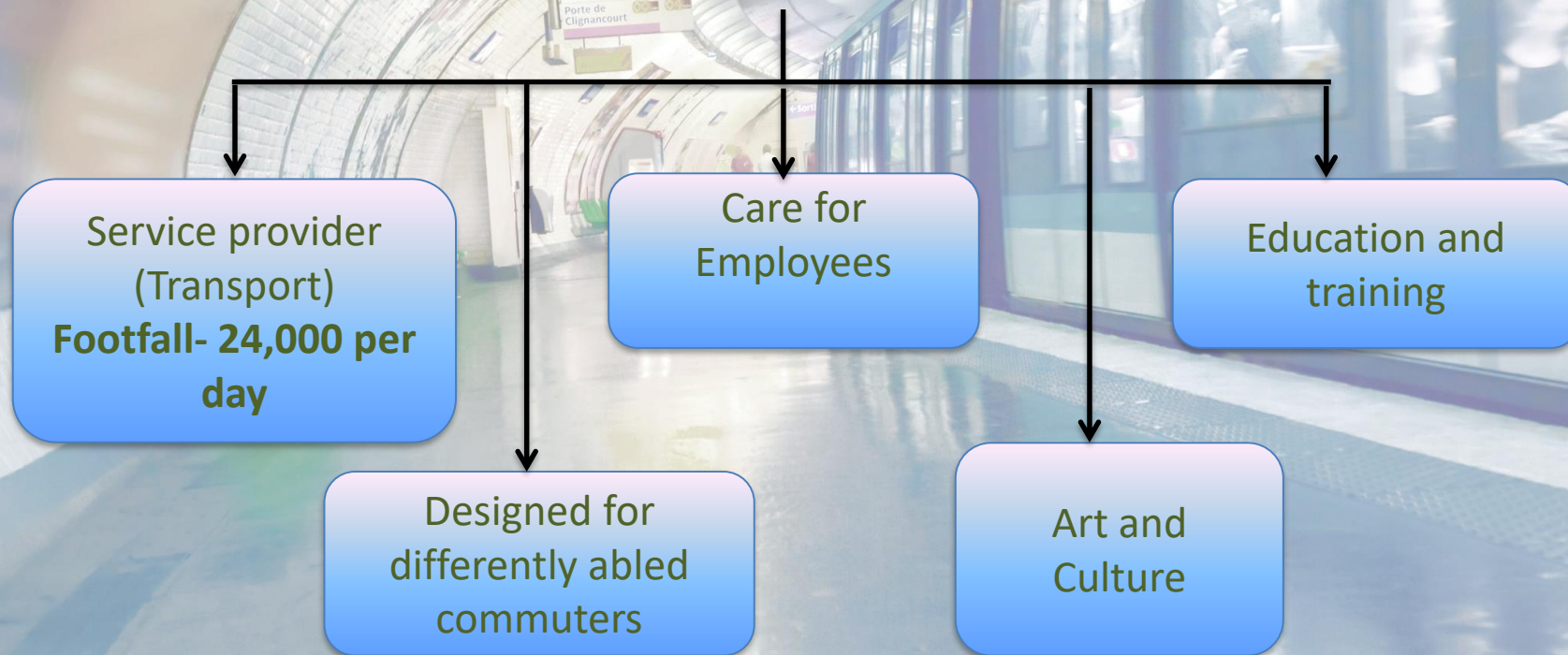
Station	Energy consumption per sqm	% variation
Average of Phase-II stations having similar area	236	
ITO	112	- 52%



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Social Approach





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Service Provider

- **Footfall : 24,000 per day**
- **Benefits achieved-**
 - a) Reduction in traffic congestion
 - b) Reduction in road accidents
 - c) Reduction in travel time
 - d) Reduction in noise and air pollution





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Designed for differently abled commuters

- **Reserved parking**
- **Provision of wheel chairs**
- **Staff Assistance**
- **All lifts equipped with wide access doors, Handrail & control buttons at convenient height**
- **Specially designed AFC gates**
- **Ramps to maintain uniformity in floor levels**
- **Low height ticket counters**
- **Dedicated toilets**
- **Tactile path from all entrances/exit points of the station, along warning strip on the platform edge**
- **Braille buttons inside and outside the lifts**
- **Directional information and signage**



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Art and Culture

- Since the corridor passes through areas of historical importance, the station has been decorated with panels and artworks depicting the glory of the bygone era.
- During construction, adequate care was taken to ensure that the monuments nearby were not harmed in any way by Metro construction.
- Construction only began after taking clearance from the National Monuments Authority





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Economical Benefits

Direct

Earning from
commuters

Indirect

Improved accessibility , landing to
better job opportunities, increase in
real estate cost along corridor
Cost savings due time saving, reduction
in fuel consumption etc



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Direct benefits

- Project cost- **26.55 Million Euro**
- Earning per day- **3,588 Euro**

Indirect benefits

- Employment- **500+** during construction & **30** during operation
- **Other benefits from all operational corridors of DMRC**

Descriptors	2016 (In Million Euro)
Cost of saved time by metro passengers	861
Cost of savings in fuel	463
Saving of Vehicles (capital + Operating) cost	556
Cost of less pollution saved	108
Cost of accident saved	14
Cost of time saved due to decongestion	103
Cost of saved in annual infrastructure maintenance	7
Total Cost of all Benefits	2112



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Green Building Certification

ITO Metro Station has been awarded with **“Platinum”** Rating – the highest Green Building rating by Indian Green Building Council (IGBC).





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**Climate change is a pressing global challenge.
It calls for a collective human action and a
comprehensive response.
The issue is not merely about climate change; it
is about climate justice.**

**Narendra Modi
Prime Minister of India**



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Thank You!


DELHI METRO
मैरा मेट्रो

