



Parallel Session 1B – Sustainability

Green Station Designing Principles



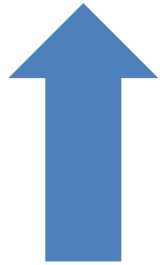
UIC next station
TEHRAN 2019

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Sustainable Environment



Benefits of Indoor and Outdoor Environment

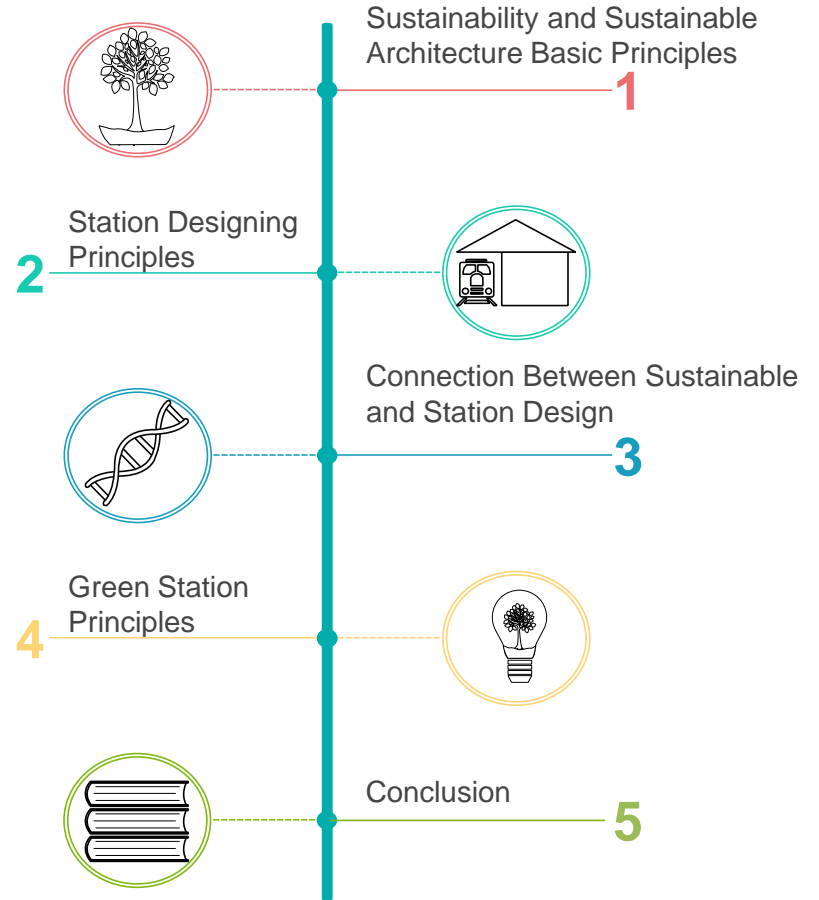


Adverse Conditions Resulting from Construction

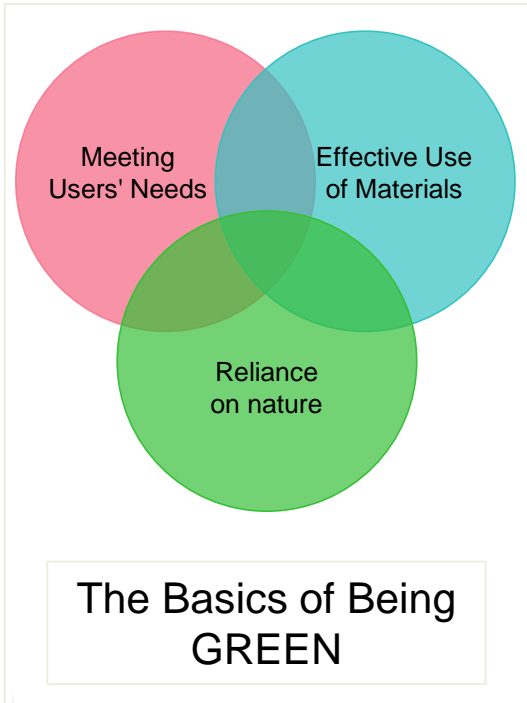


Discussion Framework

- Establishing the fundamentals of different aspects of subject
- Make connections
- Extract the Principles
- Discuss the results

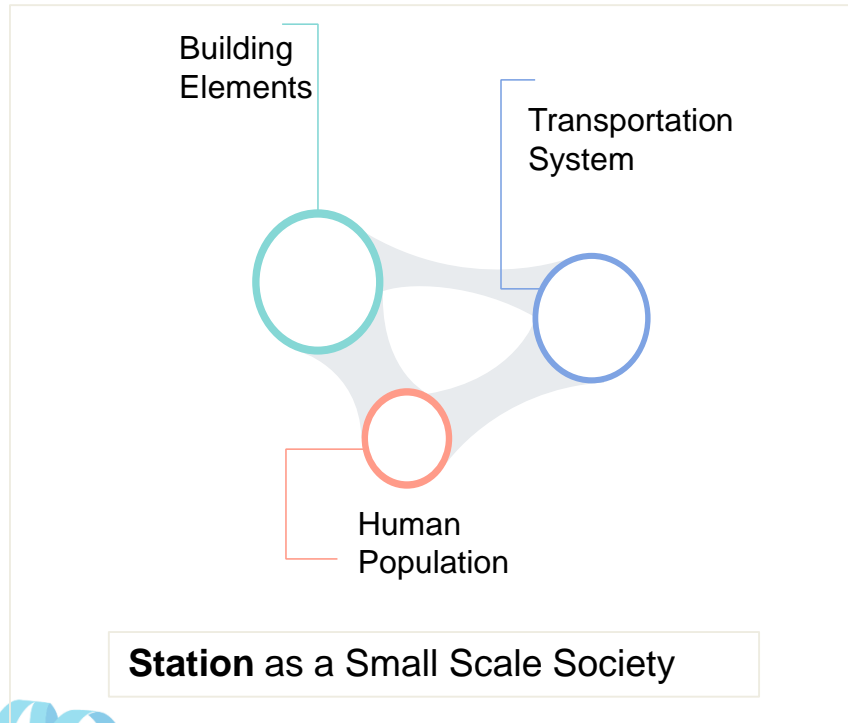


Sustainability and Sustainable Design Principle



- Context Recognition
 - Climate Adjustment
 - Communication with Nature
 - Recognition of Natural Processes
 - Recognition of Environmental Impacts
 - Energy conservation
 - Reduce the Use of New Resources
 - Getting Know of Users
 - Respect Users
 - Holism
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- Strength
 - Beauty
 - Productivity

Railway Station Designing



Passengers as Customers

Safety and Speed + Providing Demands

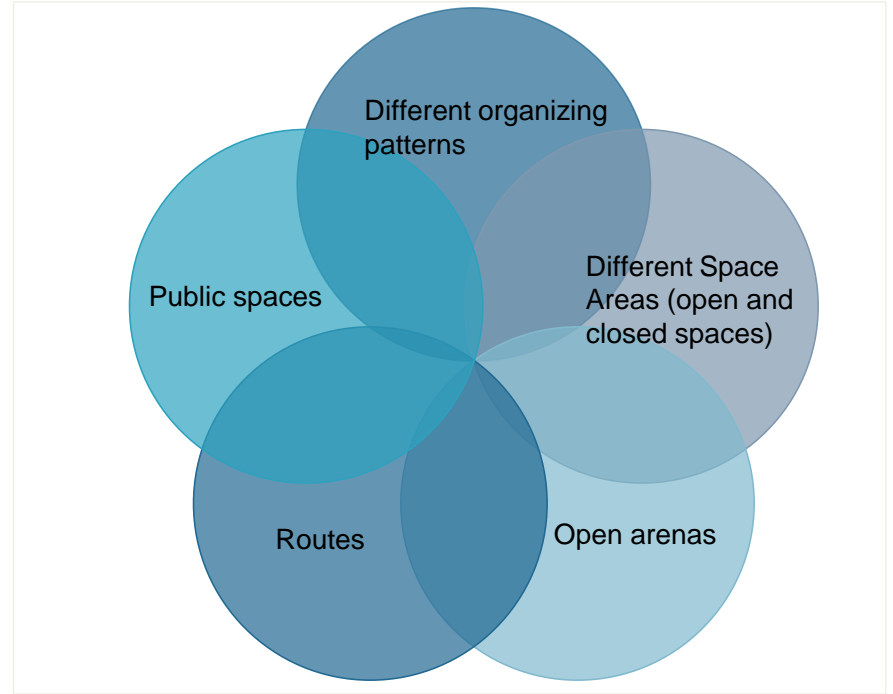
Creative Stations

Railway Station Designing

Minimum Station Parameters Requirements

- 01 **Spatial planning**
- 02 **Service performance**
- 03 **Materials performance**

Service level ↔ Station typology



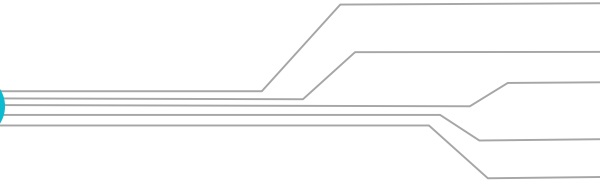
Station Character Elements

Station Design



Sustainable Design

Spatial planning



- Context Recognition
- Climate Adjustment
- Communication with Nature
- Recognition of Natural Processes
- Recognition of Environmental Impacts

Service performance




- Energy conservation
- Reduce the Use of New Resources

Materials performance



- Getting Know of Users
- Respect Users

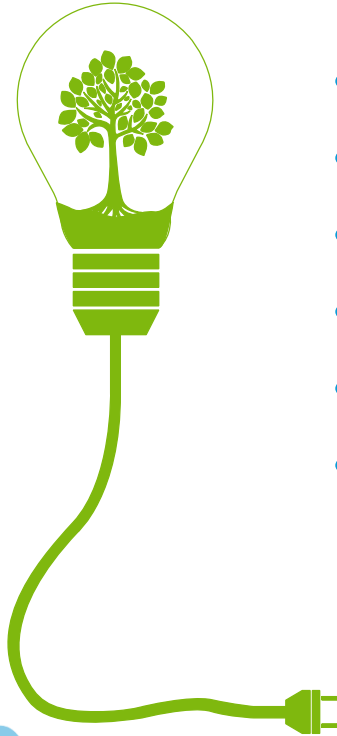
 Holism

Side Aim



Educational Aspect

- Significant time lapse before train departure
- Bringing the importance of resources to the station
- Develop a culture of resources exposure
- People in different ranges
- Guiding public taste
- The beauty of the climatic designs is similar to the current decorations



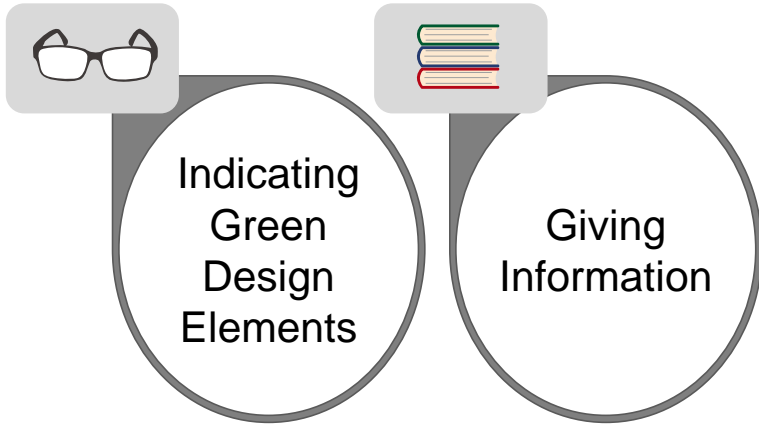
West Kowloon Station in Hong Kong



Hague's central station

Educational Aspect

The function of the station in **visual training** by :



Different dimensions of people's presence at the station

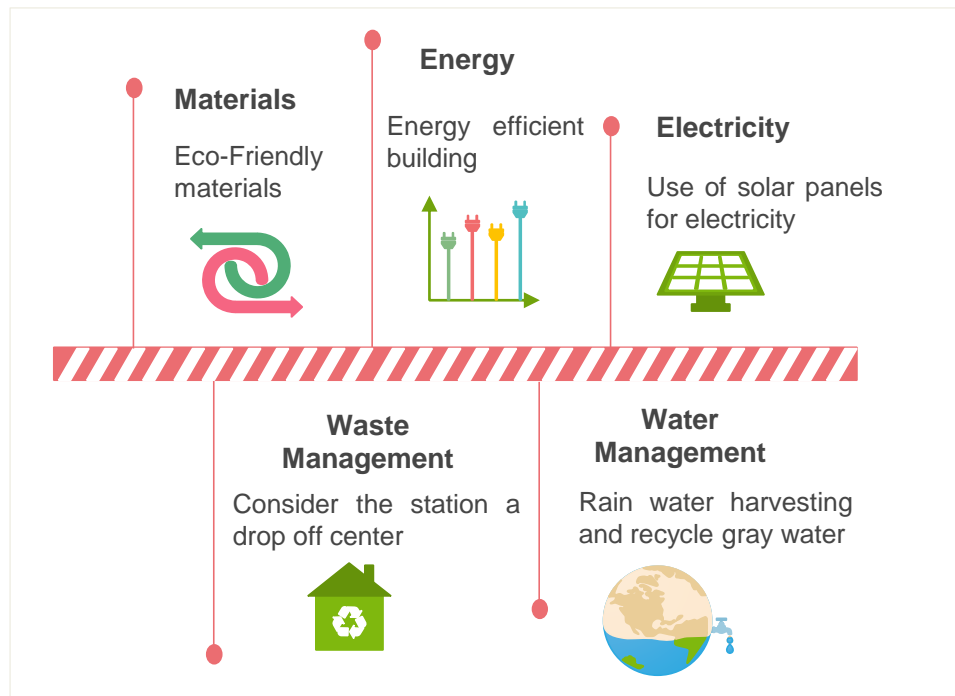


Green Station



Goals

- Maximize environmental comfort
- Effective planning
- Simple and modular design
- Minimize current costs
- Maximize usable spaces
- Reduce installation costs
- Reduce the cost of building maintenance
- Preservation and improvement of natural values



Energy consuming reduction in stations

Green Station

Different aspects of Sustainability in 4 general axes



BUILDING

- Optimizing energy consumption and minimizing usable energy
- Strategic planning and design methods based on passive practices
- The amount and type of materials
- Durability and structural adaptability

ENERGY

- Supply of station needs from photovoltaic panels
- Piezoelectric materials

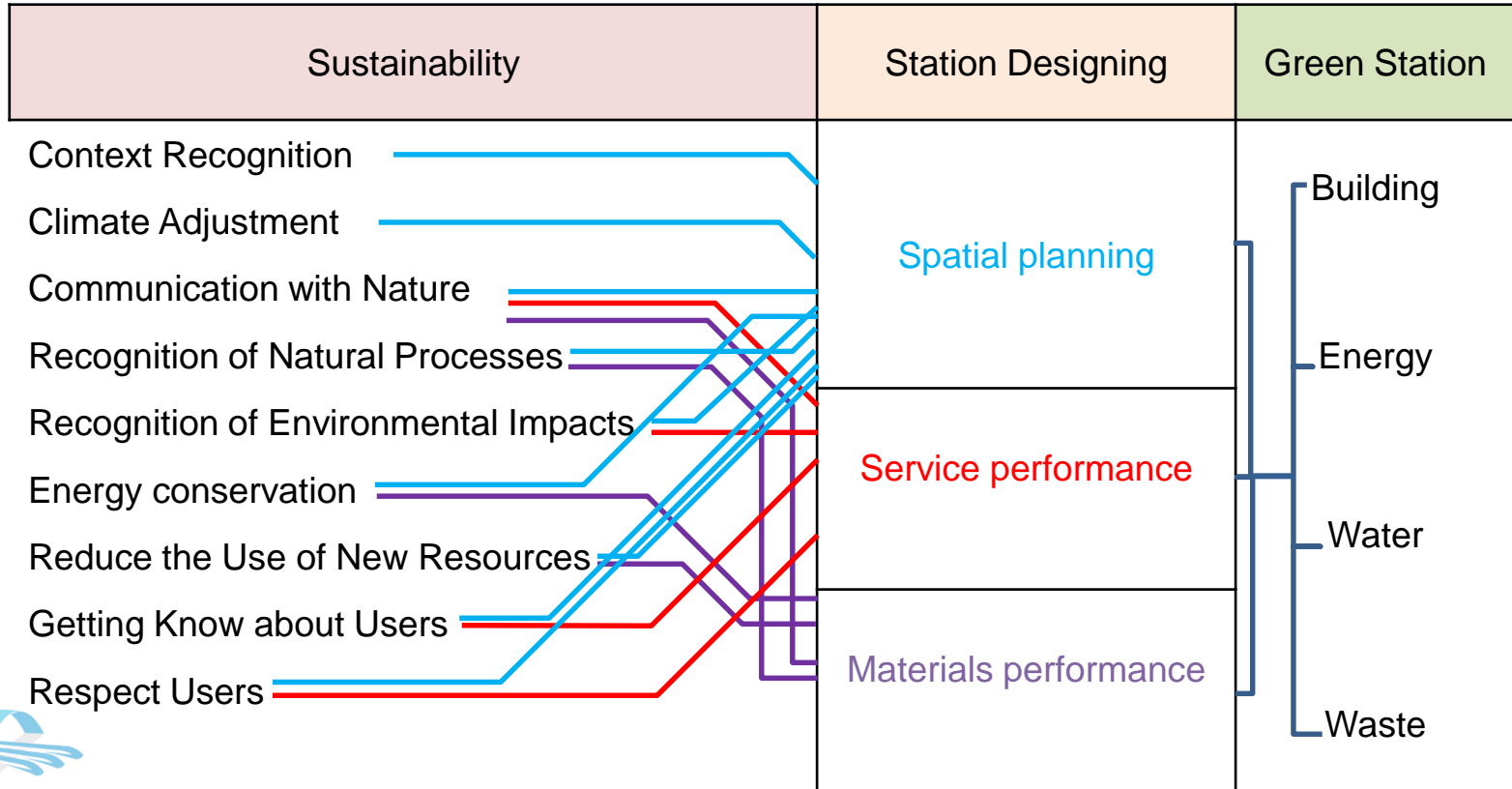
WATER

- Rainwater collection (from parking spaces and pavements/ roofs)
- Wastewater treatments

WASTE

- Consists of 4 steps (Collection- Separation- Disposal- Recycling)

Final connectivity diagram



Conclusion

- 1) Understanding and examining the **context** of the plan
- 2) Organized spaces with similar **functions**
- 3) **Suitable arrangement** of spaces by taking a set of environmental conditions
- 4) **Minimal use** of mechanical installations
- 5) Consider the individual features of the **users**
- 6) Providing a suitable context for establishing the context of **sustainability education** through visual communication
- 7) **Maximum use** of natural light
- 8) Enable the station to interact with **nature**
- 9) Use of **native materials**



Thank you
for your kind attention