Panasonic India Techno-Park Project

2016.03.14

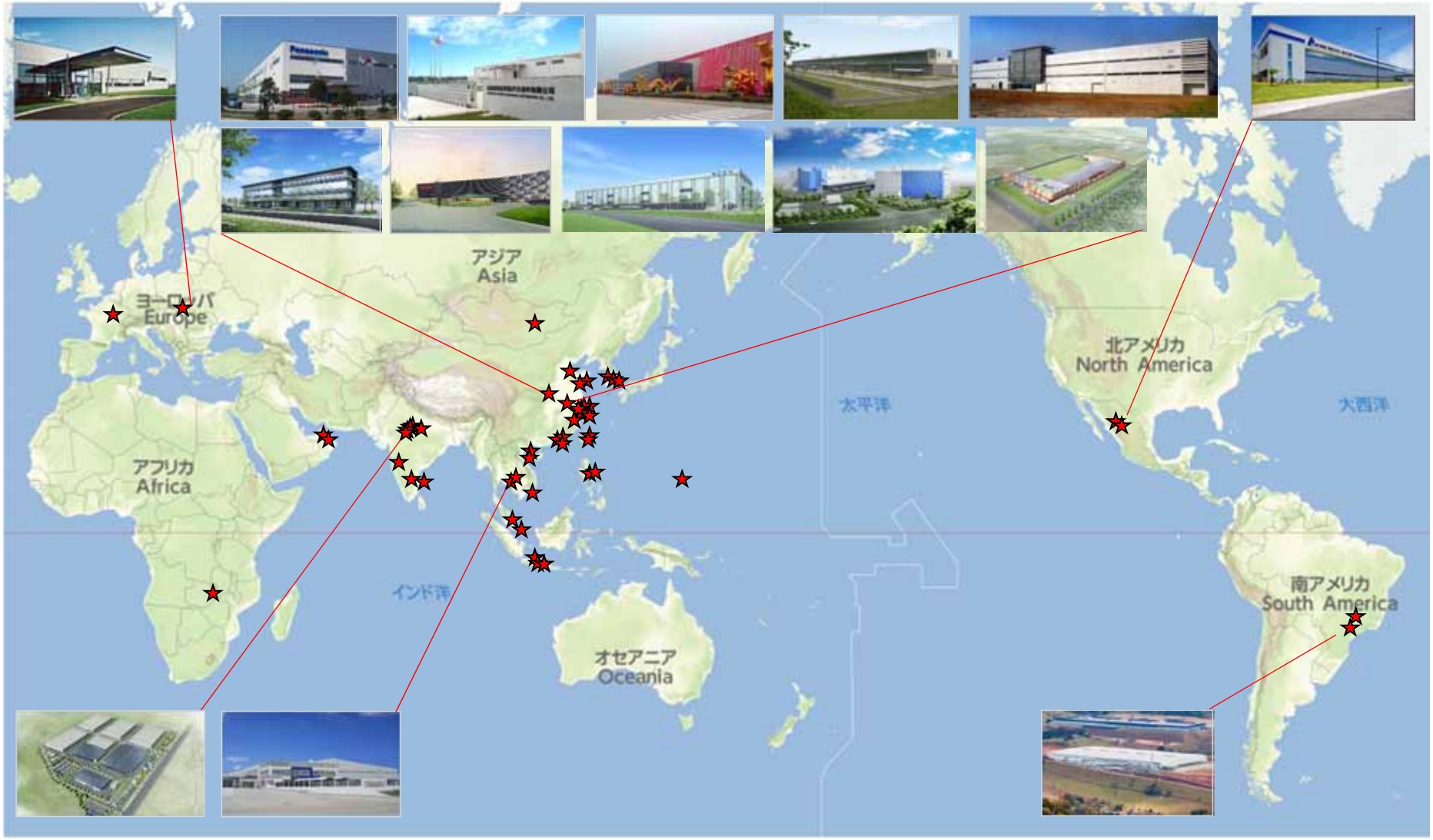
NIKKEN SEKKEI Construction Management, Inc.

About NIKKEN SEKKEI Group

Comprehensive professional consultancy group
Providing one-stop service for
a large variety of planning, design and management

- Established in 1900
- Owns 8 specialized subsidiary companies
- More than 2,400 staff
- Completed over 20,000 projects in over 40 countries

About NIKKEN SEKKEI Group



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Introduction

Private Techno-Park for Panasonic

Site area of approximately 300,000m^2

Air-Conditioner Factory, Washing Machine Factory, and Welding Machine Factory

Eco-Friendly Facilities

Laws, Custom, and Standards

Flexibility

1. Project Features

Project Features

The One and Only for Panasonic

→ **P**rospective study for site

“Indian Time” Problem

→ **S**chedule Management

International Competition

→ **C**ost Management

Glocal and Eco

→ **Q**uality Control

Site location

New Delhi

120 min

India Techno-Park

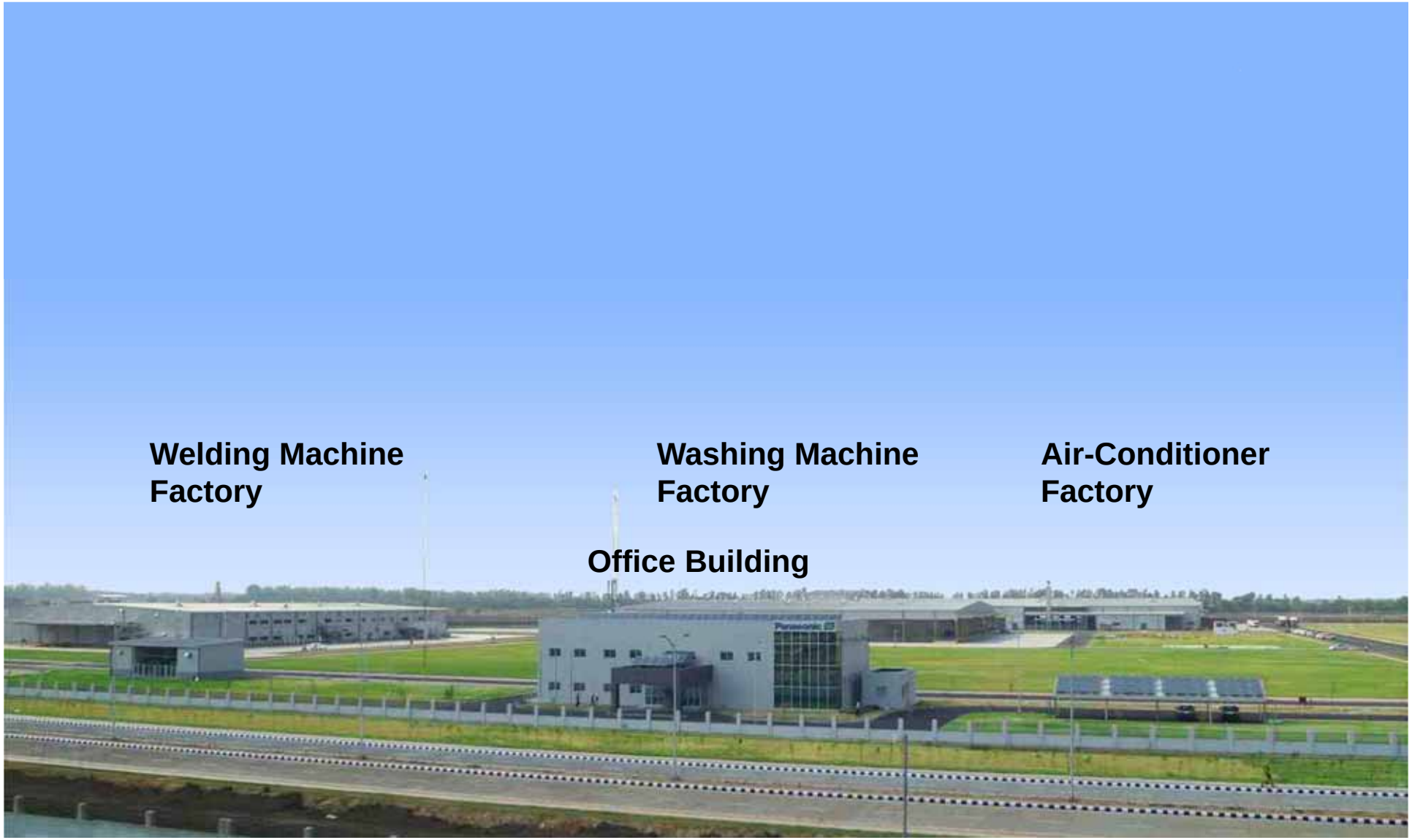
60 min

Airport

Site Layout

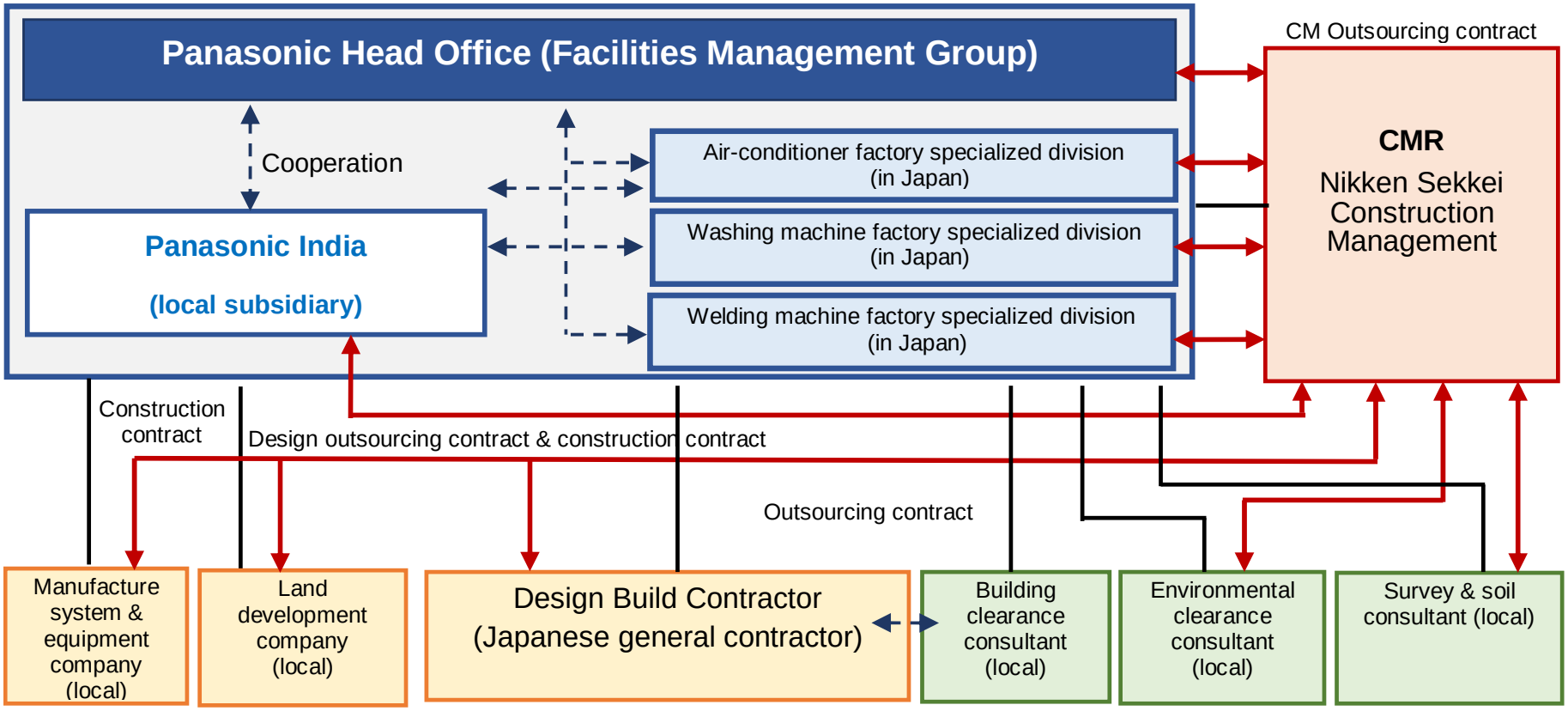
Name of Building	Building Area (㎡)	Floor Area (㎡)	Structure	Floor
Office	**698.98**	**1,289.29**	RC	2F
Air-conditioner factory	**24,018.20**	**25,179.52**	S	2F
Washing machine factory	**11,887.97**	**11,887.97**	S	1F
Welding machine factory	**8,275.68**	**9,686.78**	S	2F
others	**1,766.39**	**1,766.39**	RC/S	1F
Total	**46,647.22**	**49,809.95**	—	—

Entire View of the Site



2. Overall Management

Organizational characteristics



Techno-park for Multiple factories

First case for Panasonic

NCM’s Roles and Responsibilities

1. Provide overall project control support for Panasonic FMG
2. Support to create each manufacturing function
3. Guide Panasonic India for land acquisition

1. Research stage for site selection

Survey, soil study, groundwater investigation assistance
Advice on land sales contract

2. Basic plan stage

Identification of requirements by each factory specialized division
Identification of requirements for eco-friendly Techno-Park utilities and infrastructure

3. Planning stage

Techno-Park master plan formulation
Techno-Park guideline formulation

4. Designer/contractor selection stage

Design/construction company prequalification
Preparation of proposal guideline, and implementation/evaluation of proposals

5. Design stage

Basic design/detailed design review
Review of estimated construction cost and advice on construction contract

6. Construction stage

Monitoring of quality and attendance on Client’s inspection
Follow-ups (6-month and 1-year inspections)

3. Main Achievements

Prospective study for site

The One and Only for Panasonic

Development of the most applicable construction site for Panasonic

- **Points of Prospective study**

1) Site storm water drainage gradient

2) Access road level

3) Site development level

4) Surface soil replacement

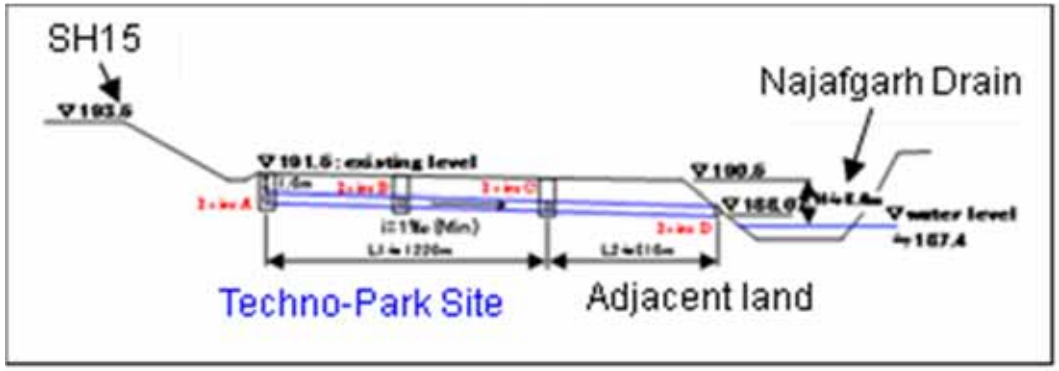
5) Well water quality analysis

Site at the Time of Completion

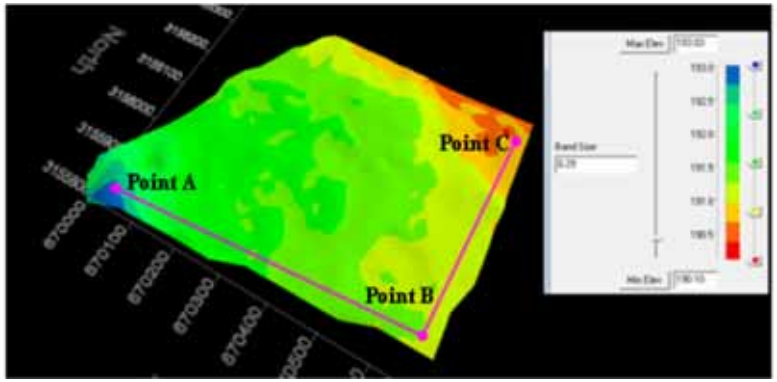
Prospective study for site

The One and Only for Panasonic

• Site storm water drainage gradient

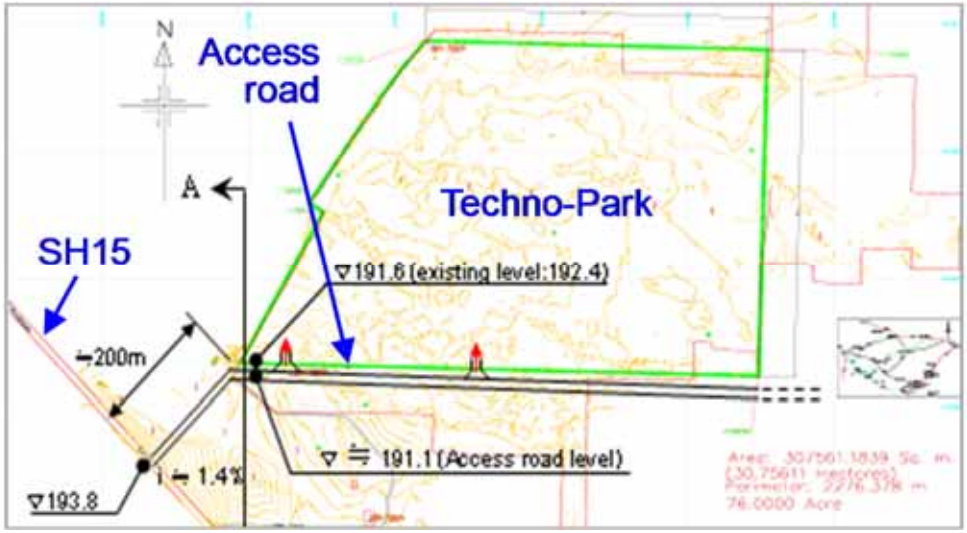


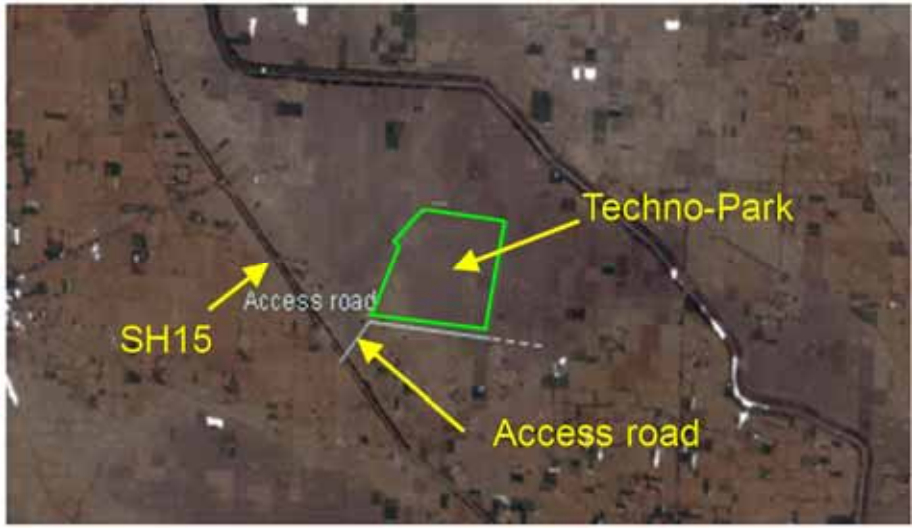
Site Storm water Drainage Gradient Study Drawing



3-D Site Survey Map

• Access road level



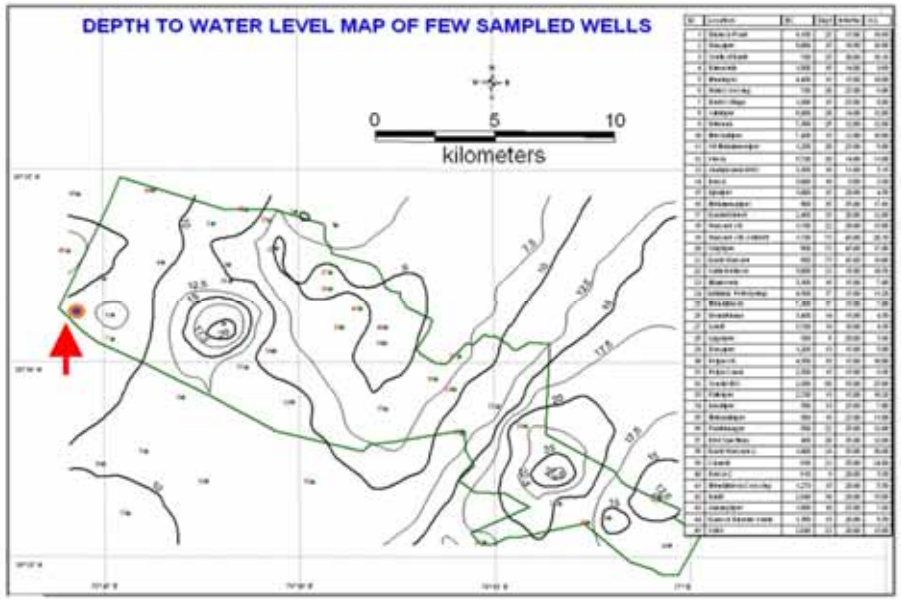


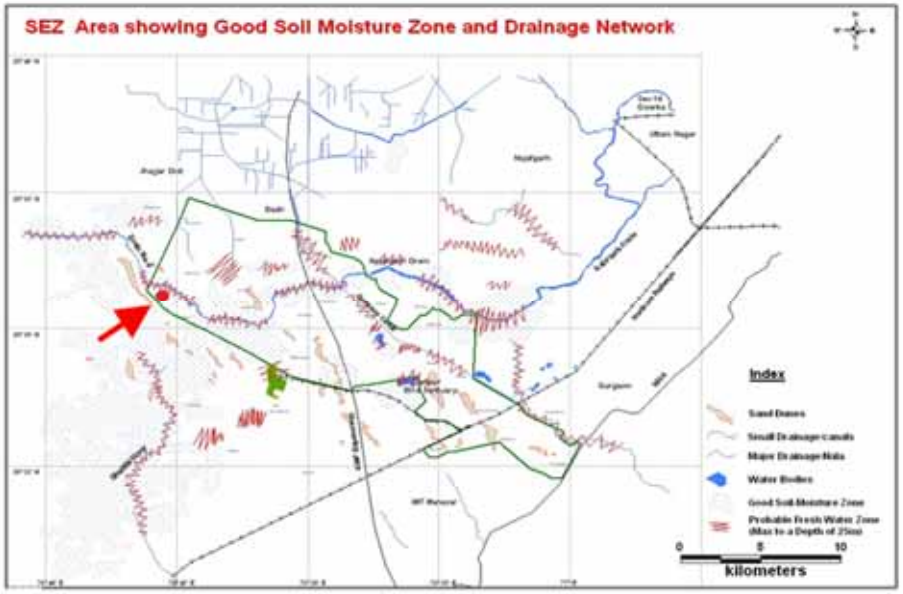
Access route study map

Prospective study for site

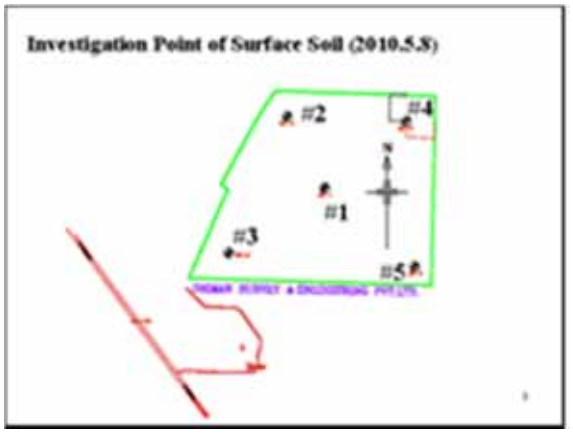
The One and Only for Panasonic

- **Surface soil replacement and Well water quality analysis**





Site Vicinity Underground Water Study Materials

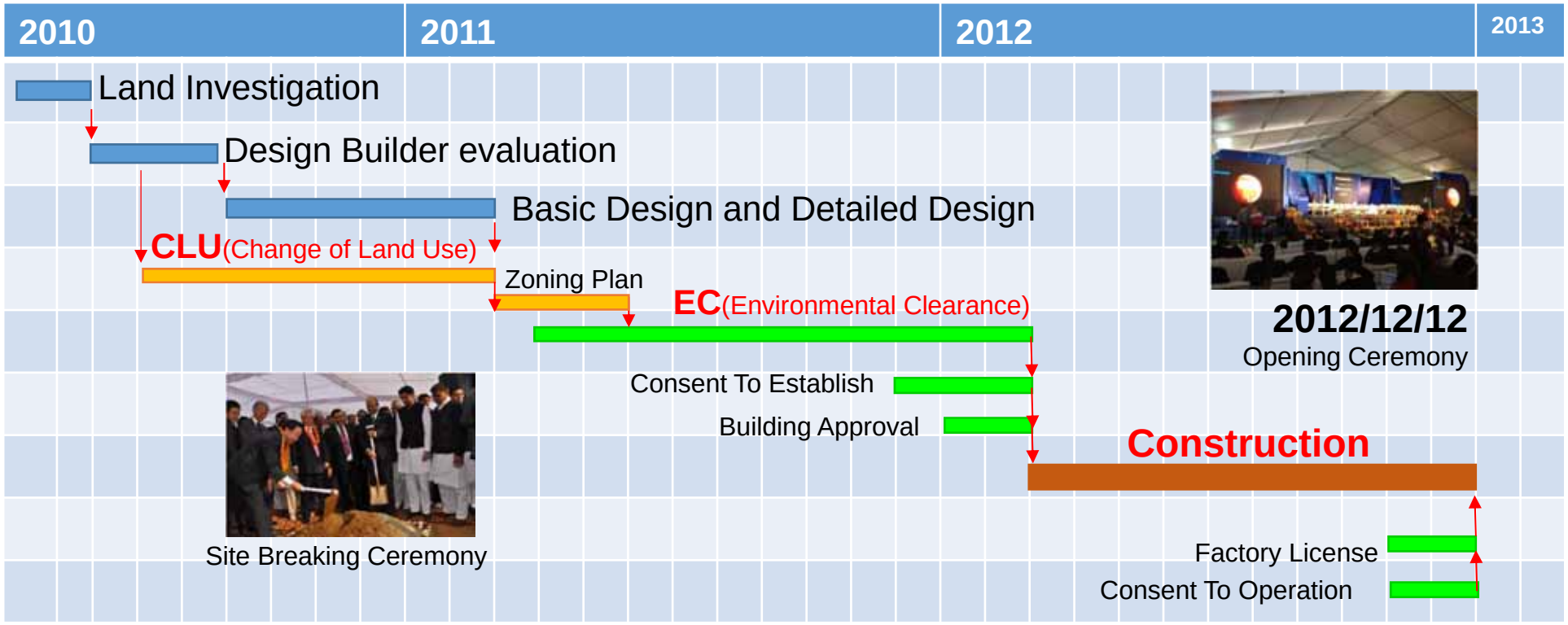


Soil Investigation for the Site's Surface Layer

Schedule Management

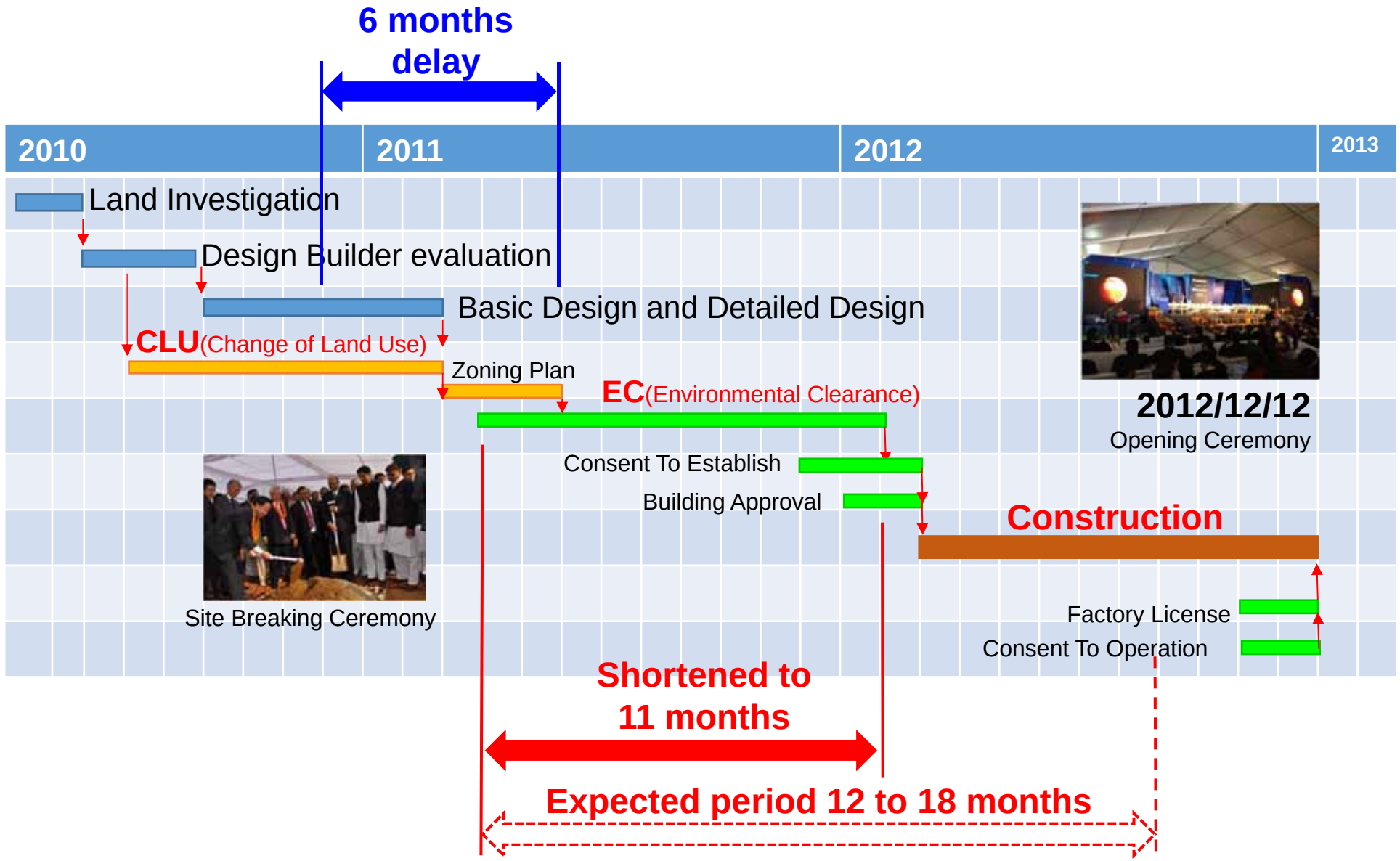
"Indian Time" Problem

Making up for the delay of the CLU application process



Schedule Management

"Indian Time" Problem



Schedule Management

- **Various risks in India which might cause delay**

Time Lags Between Indian and Japanese

Long Absence During Diwali (The Indian New Year holiday)

High Temperature (Around 50°C)

Rainy Season (From July To September)

Schedule Management

- **Shortening the construction periods**

1) Early Roofing Before Floor Slab

2) Overlapping Construction and Installation Phases

Schedule Management

"Indian Time" Problem

- **Opening Ceremony on "Triple Twelve"**

2012/12/12 "Triple Twelve"

Cost Management

International Competition

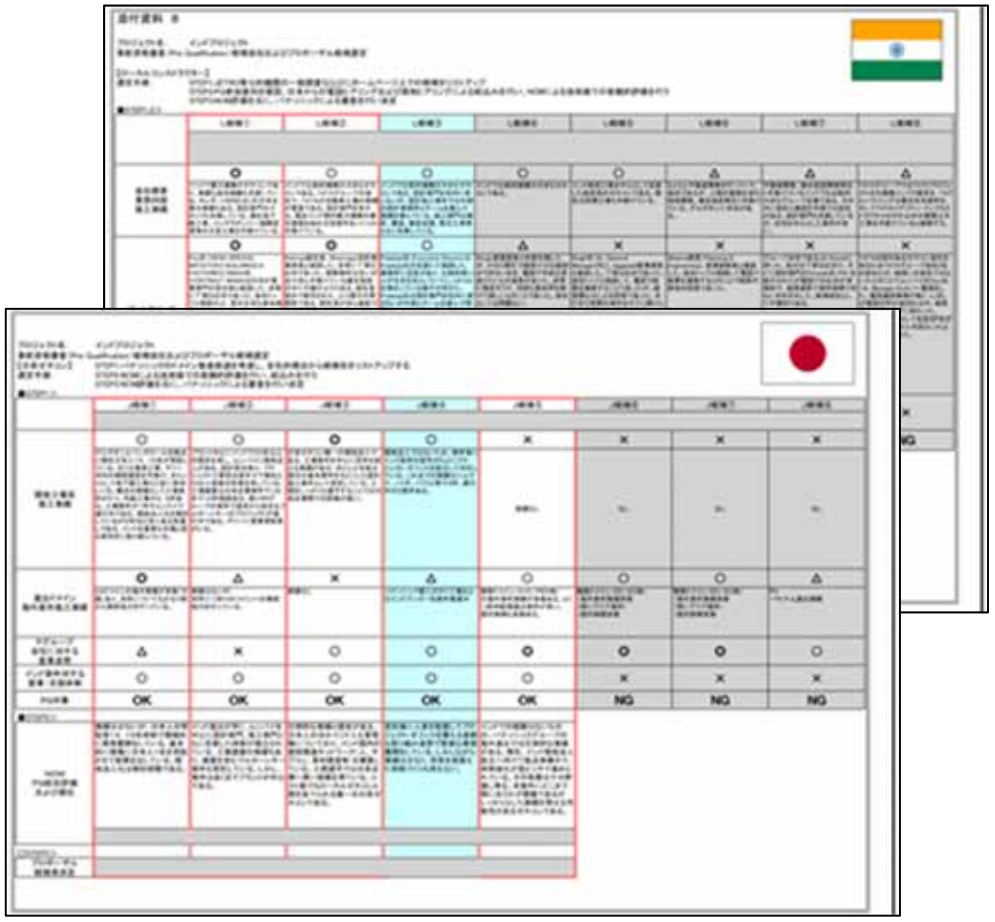
Best scheme for Design and Build
Best ability for Quality, Cost, Schedule and Locality

Design Build Contract

International Competitive Proposal

Pre-Qualification Screening

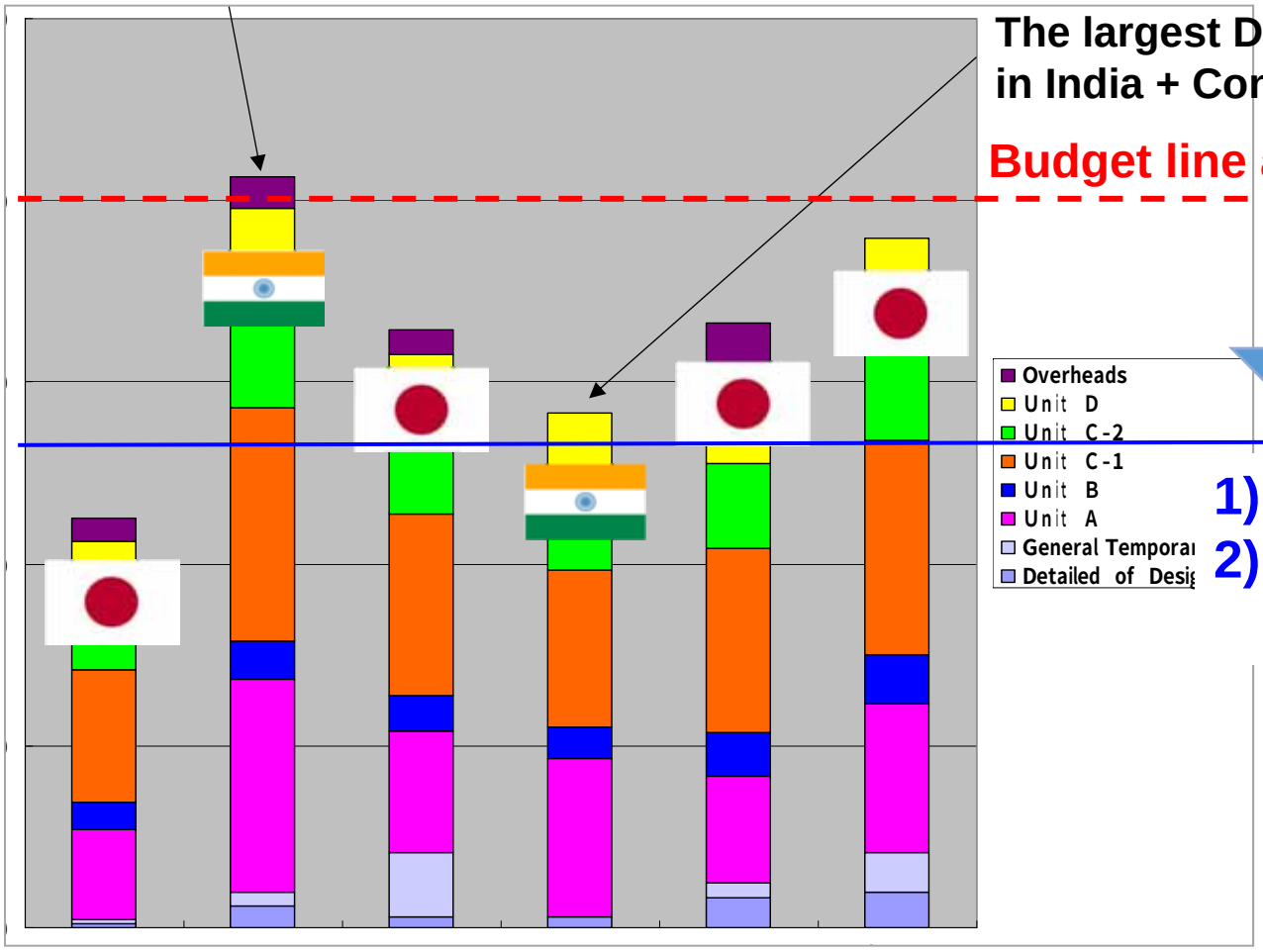
Creation of a Fair Competition



Cost Management

• Result of International Competition

The largest Contractor in India



30% down

Final Contract Fee

1) VE+CD
2) Adjusting for detailed condition

Cost Management

• Points of Cost Management

1) Clear Rules for Design Changes

- Limit Total Cost
- Fix Unit Prices

2) Against Price Hike in India

- Steel Frame Ordered in Advance
- Publicly-Available Indicators

Steel Frame Ordered in Advance

Cost Management

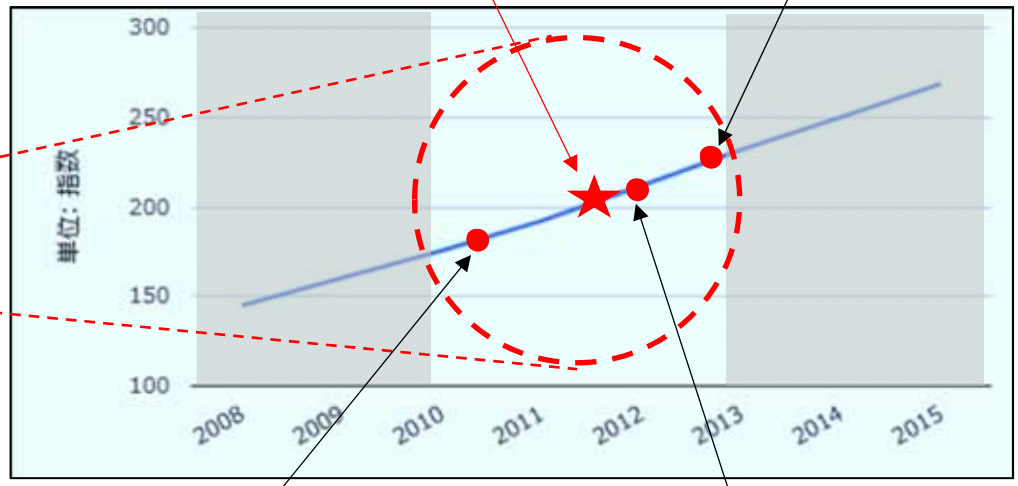
• Price hike in India

Completion

Steel Frame Ordered in Advance

Price Hike

50 points up



Design Build Contractor Evaluation

Commencement

Quality Control

Environmental Friendliness and Response to the Characteristics of India

Realization of Eco-Friendly Techno-Park

Guidelines for Panasonic Global Quality

Specifications Respecting Local Condition

Quality Control

• Eco-Friendly Facilities

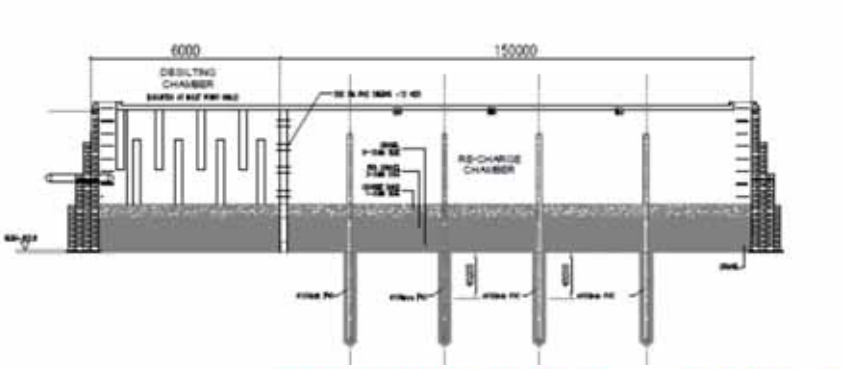
Wastewater reuse (water treatment)

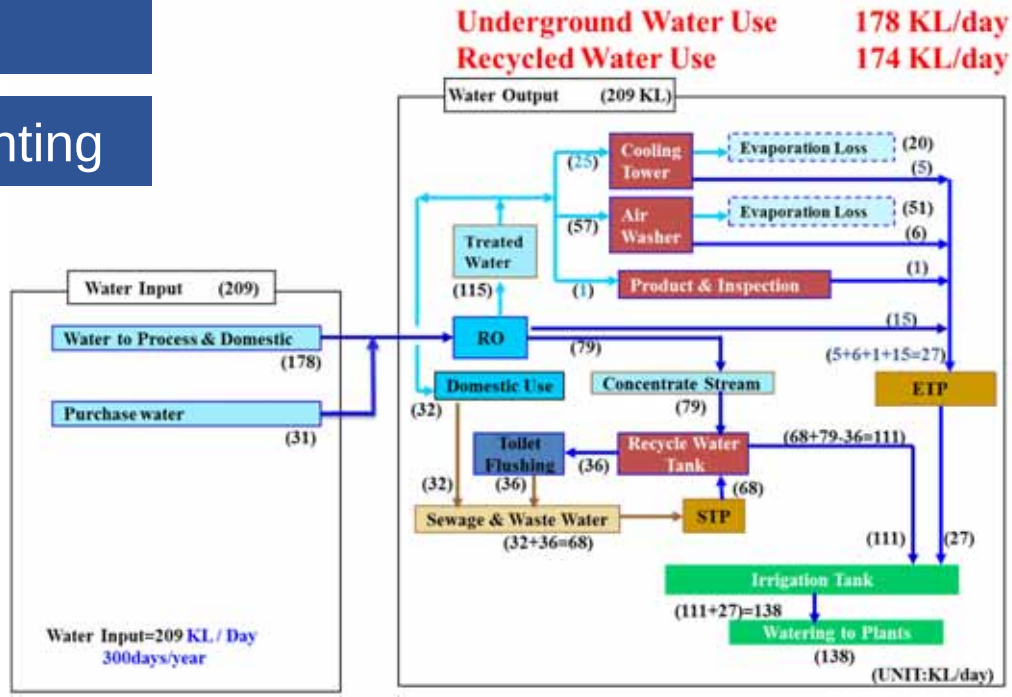
Rainwater infiltration tank

Photovoltaic facilities

Solar water heating facilities

Skylights for reducing daytime lighting

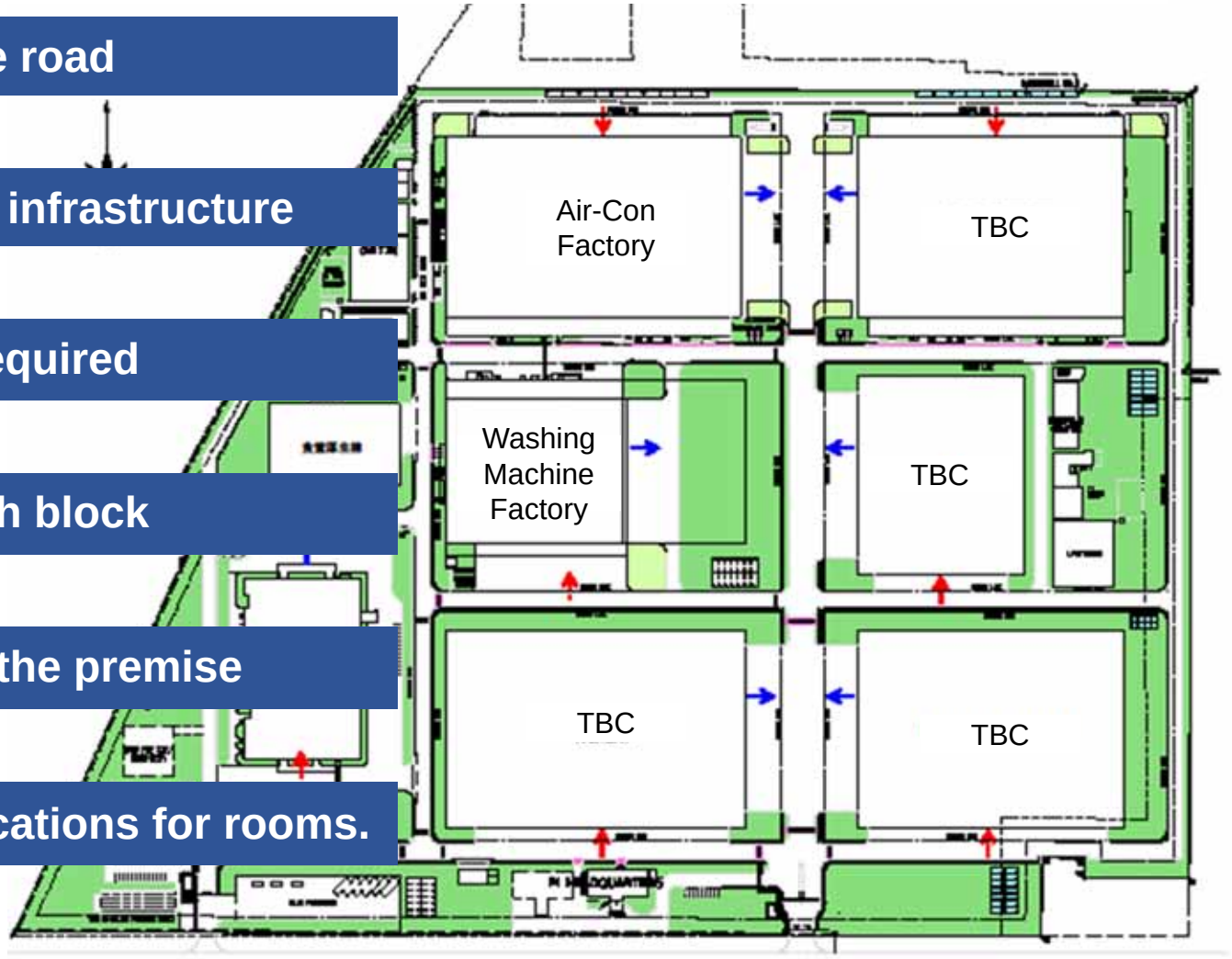




Quality Control

• Design Guidelines for Panasonic Global Quality

- Flow line rules for the road
- Concept for common infrastructure
- Ratio of green area required
- Setback rules for each block
- Security rules within the premise
- Unification of specifications for rooms.



Quality Control

- Various measures to adapt for India

Indian Climate Conditions	Brick wall & Rich insulation
Usual Familiar Method	Wet joint Method
Global Quality	Dry joint Method

Summary

The One and Only for Panasonic

“Indian Time” Problem

International Competition

Glocal and Eco

Flexibility
For
Global Projects

Safety Prayer Ceremony rooted in the Local Culture

END