

The image features the logo for MEIN+ARDT, which consists of the word "MEIN" in blue, a red square, and the word "ARDT" in blue. The logo is centered over a blurred background of a train station platform and tracks. In the background, a train is moving rapidly, creating horizontal motion blur. A tall, modern building with many lit windows stands in the distance. To the right, a cable-stayed bridge structure is visible. The overall scene is captured in a long-exposure style, giving a sense of motion and activity.

MEIN+ARDT

CONFERENCE IN KIEV, UKRAINE

Implementing People First PPPs for the SDGs: International Best Practices and Recommendations for Ukraine and Neighboring Countries

Experience of Implementing Large-Scale Infrastructure Projects for Sustainable Urban Development in Singapore, China, Vietnam, Indonesia

5 June 2018

Presented by

Dr. Tham Lai Leng
Singapore

Meinhardt Infrastructure Pte Ltd
Executive Board Director

Meinhardt Group International
Global Strategic Business Group
Director of Business Development



Meinhardt Group Board of Directors



GROUP EXECUTIVE CHAIRMAN
Er. Dr S Nasim



GROUP CEO
Omar Shahzad



WH Wong
Regional CEO
China & North Asia



Nick Organ
Executive Director
Hong Kong



Reuben Chu
Executive Director
Hong Kong



John Pollard
Regional CEO
South Asia



Er. Chan Kok Siong
MD
Meinhardt Infrastructure



Dat Chau
MD
Vietnam

Meinhardt Infrastructure Board of Directors



Er. Dr. Shahzad Nasim
Group Executive Chairman



Er. Chan Kok Siong
Managing Director



Dr. Tham Lai Leng
Executive Director



Er. Foo See Lim
Executive Director

OUR GLOBAL PRESENCE

Global Company, Personal Touch

60+

Years track
record

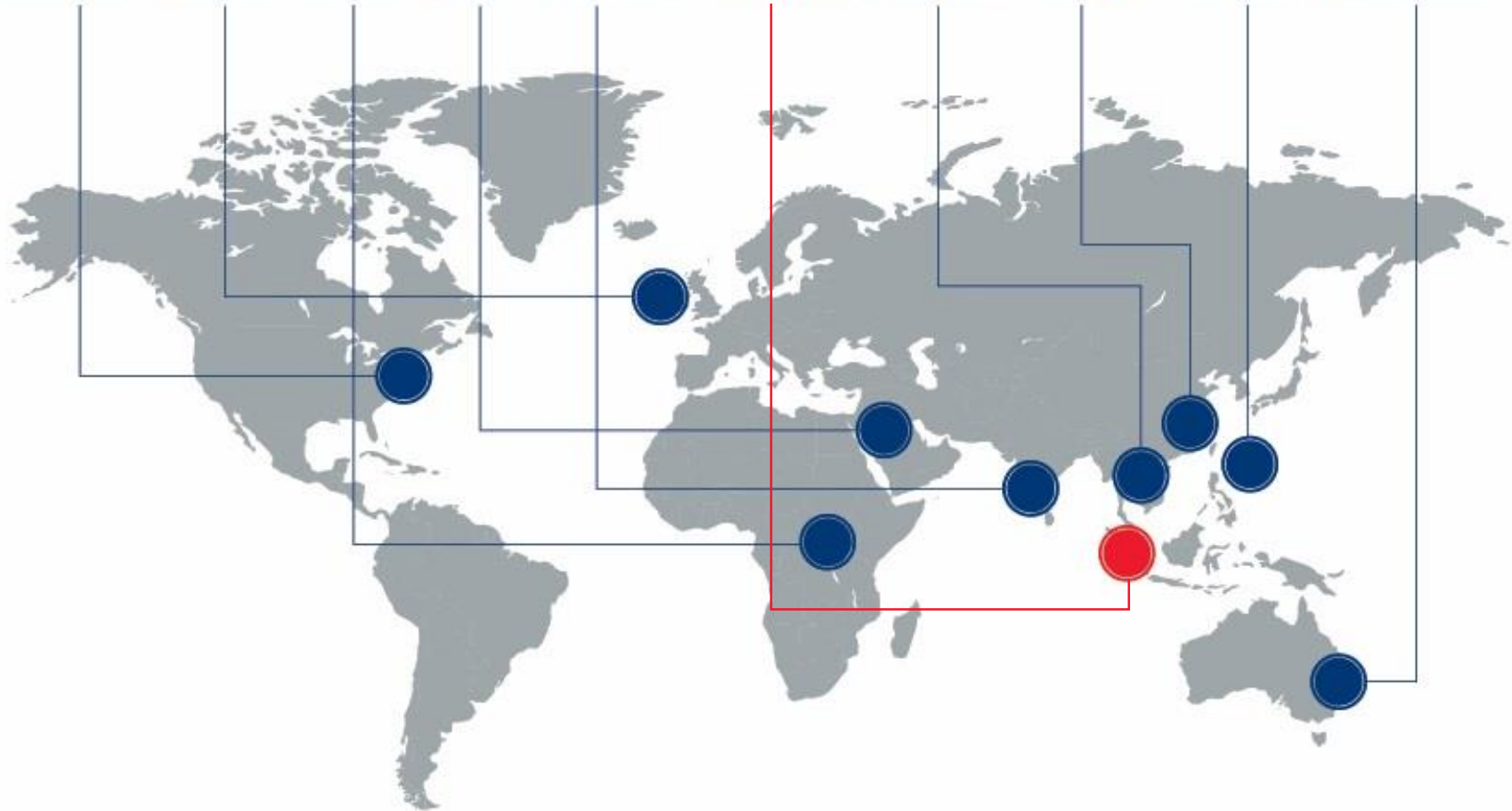
47

Global
Offices

4500

Staff

New York • London • Nairobi • Dubai • Bangalore • **Singapore** • Bangkok • Shanghai • Hongkong • Melbourne



US \$20B

Value of
projects
annually

**Iconic
Projects**

ENR 2017

GLOBAL RECOGNITION

In the last five years, Meinhardt has won over 350+ awards globally.

2017
Design & Engineering
Safety Excellence Award

One of the most awarded
engineering consultancy



2017
Best Multi-Disciplinary
Engineering Consultancy



2016
Quality Building Award &
Mass Transit Railway
(MTR) Innovation Award



2015
Programme Management
Award (for Shell
programmes)



Meinhardt Infrastructure Projects forming Singapore Skyline

Gardens by the Bay
- Supertrees / Conservatories

Marina Bay Financial Centre

United Overseas
Bank Towers

Helix Bridge



Meinhardt Group Iconic Projects in Marina Bay Area forming Singapore's Skyline

MEINHARDT
Transforming Cities,
Shaping the Future



Meinhardt Credentials to Deliver Projects of All Types and Complexities

Transportation

- Aviation/Airports
- Bridges
- Highways
- Ports
- Railways/Metros
- Tunnels

Infrastructure

- Environmental Management
- Energy Generation and Distribution
- Waste Management
- Water, Wastewater and Environment

Buildings

- Arts and Culture
- Commercial Offices
- Convention Centres
- Hotels and Leisure
- Mixed-use Developments
- Parking Structures
- Residential
- Retail / Shopping Malls
- Sports Facilities / Stadium

Information Technology, Research and Communications

- Data Centres
- Life Sciences and Biotech
- Power Systems
- Telecommunications
- **Smart Cities**

Sustainability

- Energy Audits and Conservation
- Green Buildings and Architecture

Urban Land Development

- Built Environment
- Conservation and Restoration
- Urban Regeneration
- Urban Infrastructure

Industrial and Manufacturing

- Distribution Centres
- Industrial
- Pharmaceutical
- Petrochemical

Civic

- Defense
- Educational
- Healthcare/Hospitals
- Public

Meinhardt has exceptional track record across multiple sectors

METRO / RAIL



Singapore & Hong Kong Metro

- **>60** railways and mass transit projects; over **110** train stations, both underground and aboveground; in excess of **150km** of rail/ metro track length in Singapore, Hong Kong, Macau, China, Malaysia, Indonesia, Pakistan, and UAE

ROADS, HIGHWAYS & BRIDGES



Ayer Rajah Expressway, Singapore

- **7,000+ km** of highways and road networks and **25** major bridges in Singapore, Hong Kong, India, Pakistan, Vietnam, Malaysia, Indonesia, and Australia

MASTERPLANNING & INFRASTRUCTURE



Jazan Economic City, Saudi Arabia (10,380 Ha)

- **50+** large infrastructure masterplanning projects with total area exceeding **150,000 Ha** in Singapore, Indonesia, Brunei, Philippines, Thailand, Malaysia, Hong Kong, China, MENA and Australia

WATER, WASTEWATER & ENVIRONMENT



Deep Tunnel Sewerage System, Singapore

- **2,000+km** of water distribution network
- **700,000m³** of service reservoir storage
- **900,000 m³ /day** of water treatment facilities
- **90** pumping stations
- More than **7,300km** of surface and storm water drainage
- Over **4,600km** of sewers & **40km** of deep tunnel sewers
- Over **1 million m³/day** of wastewater treatment facilities
- **80 km** of aqueducts & transmission pipelines

PORTS AND MARINE



SP- PSA International Port, Vietnam

- **> 18** major ports and jetties in Australia, Vietnam, Indonesia, Malaysia and Hong Kong

POWER & ENERGY



Power Seraya Cogeneration Combined Cycle Plant, Singapore

- **18** major power projects in the last 12 years Worldwide
- Engineered more than **55** major Power Stations with a capacity in excess of **54,000 MW**
- Undertaken over **75** major economic feasibility/development studies
- Audits on over **15** powers station projects

AVIATION



Delhi & Mumbai Airports, India
Global Technical Advisory

- Over the last 10 years, we have been involved in **18** international airports in Singapore, Hong Kong, Thailand, Philippines, India, Pakistan, Cyprus, Oman, UK and Australia

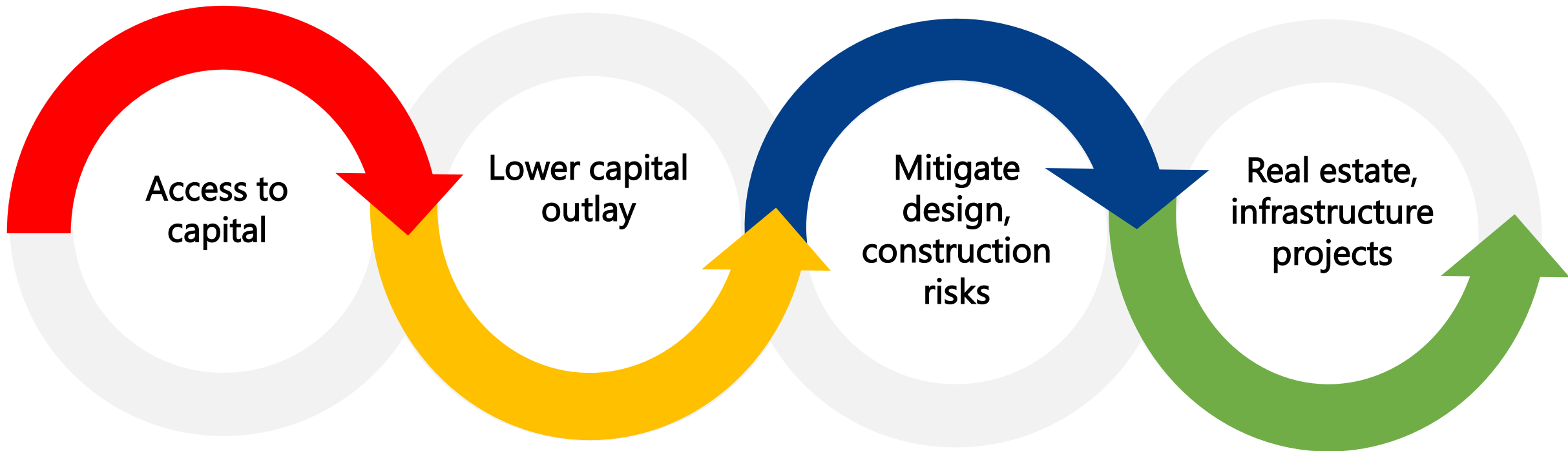
HEALTHCARE



Sengkang Hospital, Singapore

- **>50** hospitals/healthcare facilities, specialist medical centres and research facilities with a total of **11,000+** beds in Australia, Hong Kong, Singapore, Malaysia, Philippines, Qatar and USA

Finance Integrated with Engineering Consulting



Evolving industry landscape provides opportunity for Meinhardt to leverage its track record and execution capabilities by providing end-to-end expertise

Country Data of Ukraine and Singapore

Country	Area (km ²)	Population	Density (People/km ²)	GDP (US\$)
Singapore	721.5	5,612,300	7,796	296 Billion
Ukraine	603,628	42,418,235	73.8	93 Billion

Country	Average Age	Life Expectancy	Type of Government
Singapore	34.6	83.1	Democratic
Ukraine	40.5	71.3	Democratic

- Area: Ukraine 800 times Singapore
- Population: Ukraine 8 times Singapore
- Density: Singapore 100 times more dense Ukraine
- Gross Domestic Product (GDP): Singapore 3 times more than Ukraine
- GDP per person: Singapore 24 times Ukraine

Country Data of Ukraine & Singapore



City	Area (km ²)	Population (2018)
Kiev	839	2.79 million
Kharkiv	530	1.43 million
Dnipro	405	1.03 million
Donetsk	358	1.02 million
Odessa	234	1 million

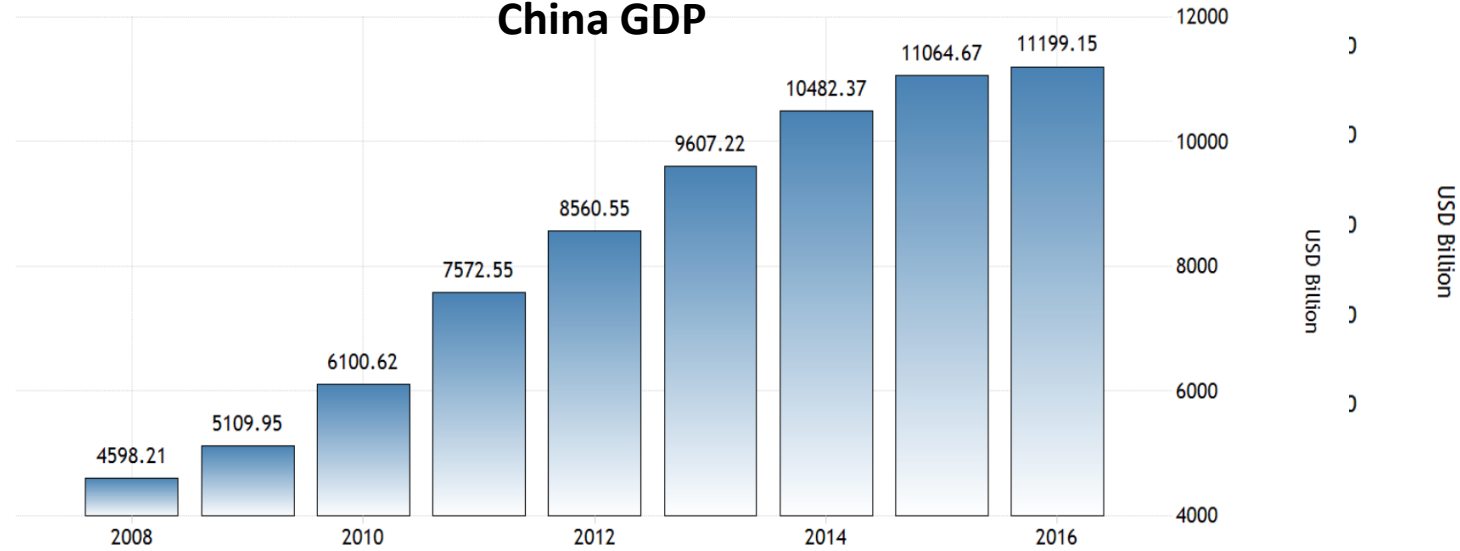
Ukraine & Indonesia Singapore Gross Domestic Product (GDP) Product (GDP)

In US\$

UKRAINE GDP

CHINA GDP

China GDP



VIETNAM GDP

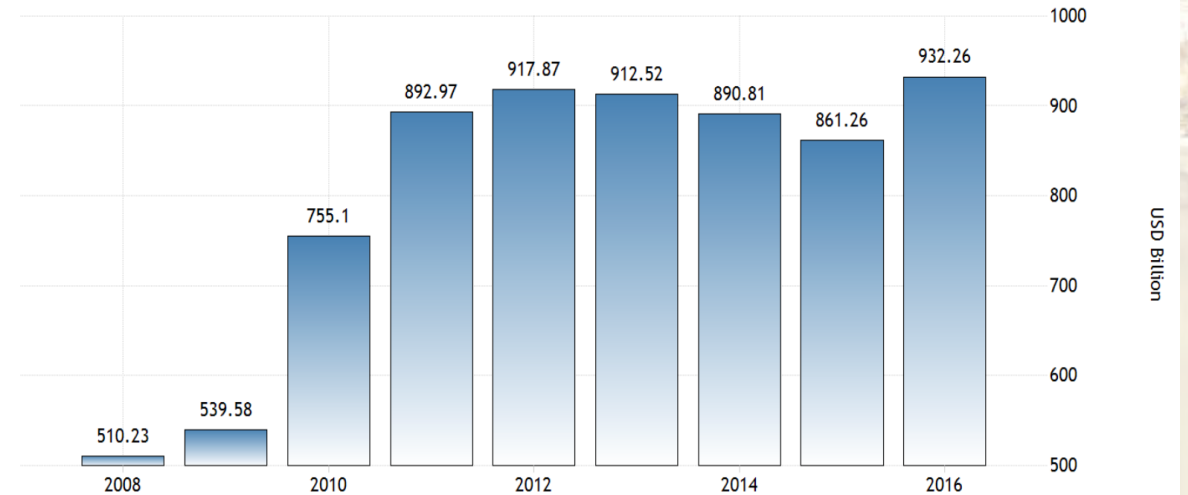
Vietnam GDP



SOURCE: TRADINGECONOMICS.COM | WORLD BANK

INDONESIA GDP

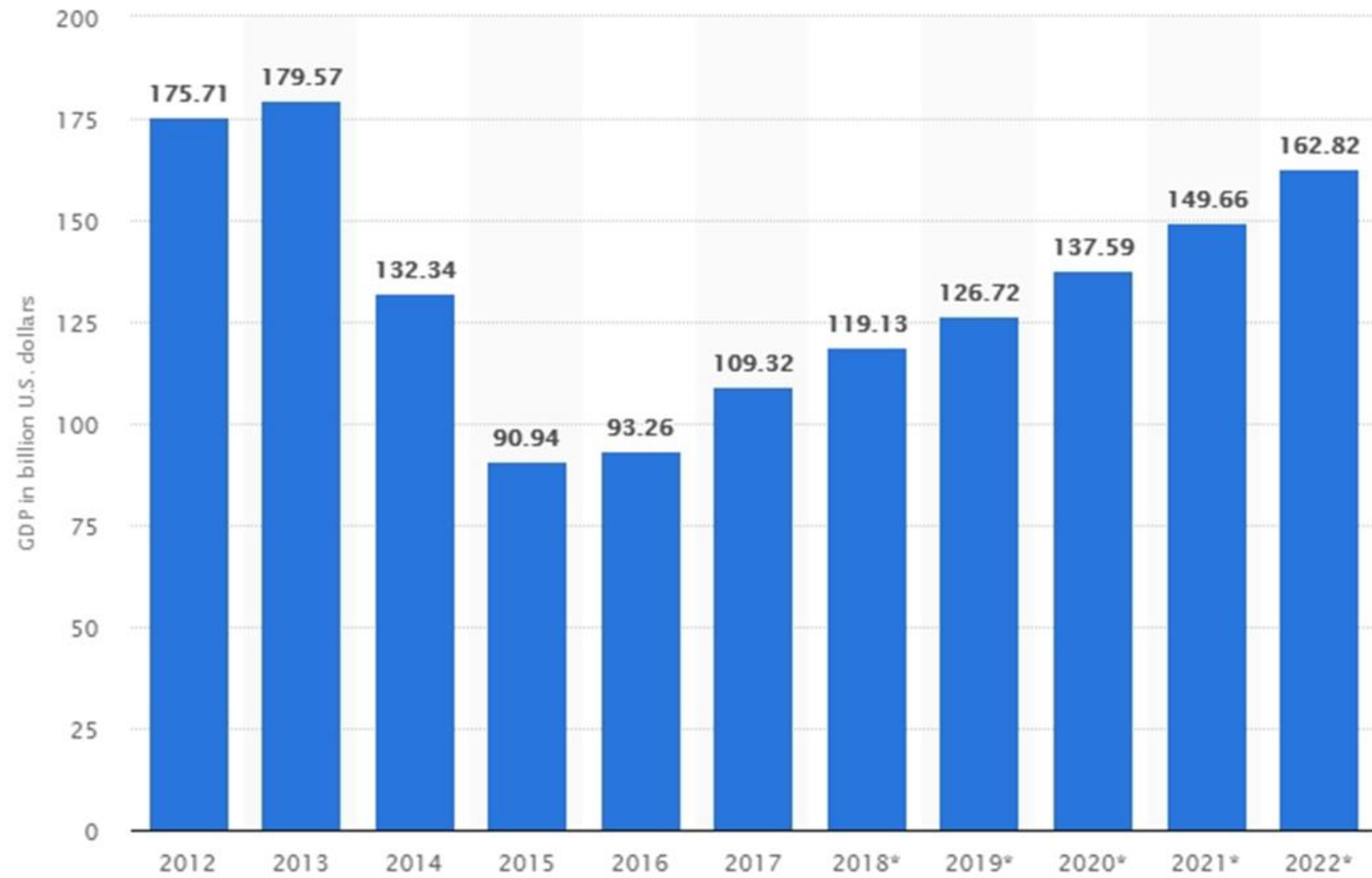
Indonesia GDP



SOURCE: TRADINGECONOMICS.COM | WORLD BANK

SOURCE: TRADINGECONOMICS.COM | WORLD BANK

Ukraine GDP



Implementing Large-Scale Urban Infrastructure Includes

- Master Planning
- Connectivity Transportation – Roads, Rails, Tunnels
- Supply of Clean Water & Water Treatment
- Energy – Power, Wind, Water, Solar, Renewable Energy
- Waste to Energy
- Deep Tunnel Sewage System
- Smart Cities Digital Transformation
- Artificial / Augmented / Autonomous Intelligence
- Engineering using 3D BIM (Building Information Modeling)

Sustainable Urban Development

- Providing housing, business, social and recreational needs
- Accommodating activities that are located outside a city like seaports and airports, water catchment areas, utilities (waste treatment plants and power stations)
- Preserving options for the next generation
- Trade-off inconveniences for the short term in exchange for benefits for the long term
- Optimizing resource consumption, reducing waste and pollution, integrating smart city infrastructures and promoting a shared community to make the country a greener and smarter city

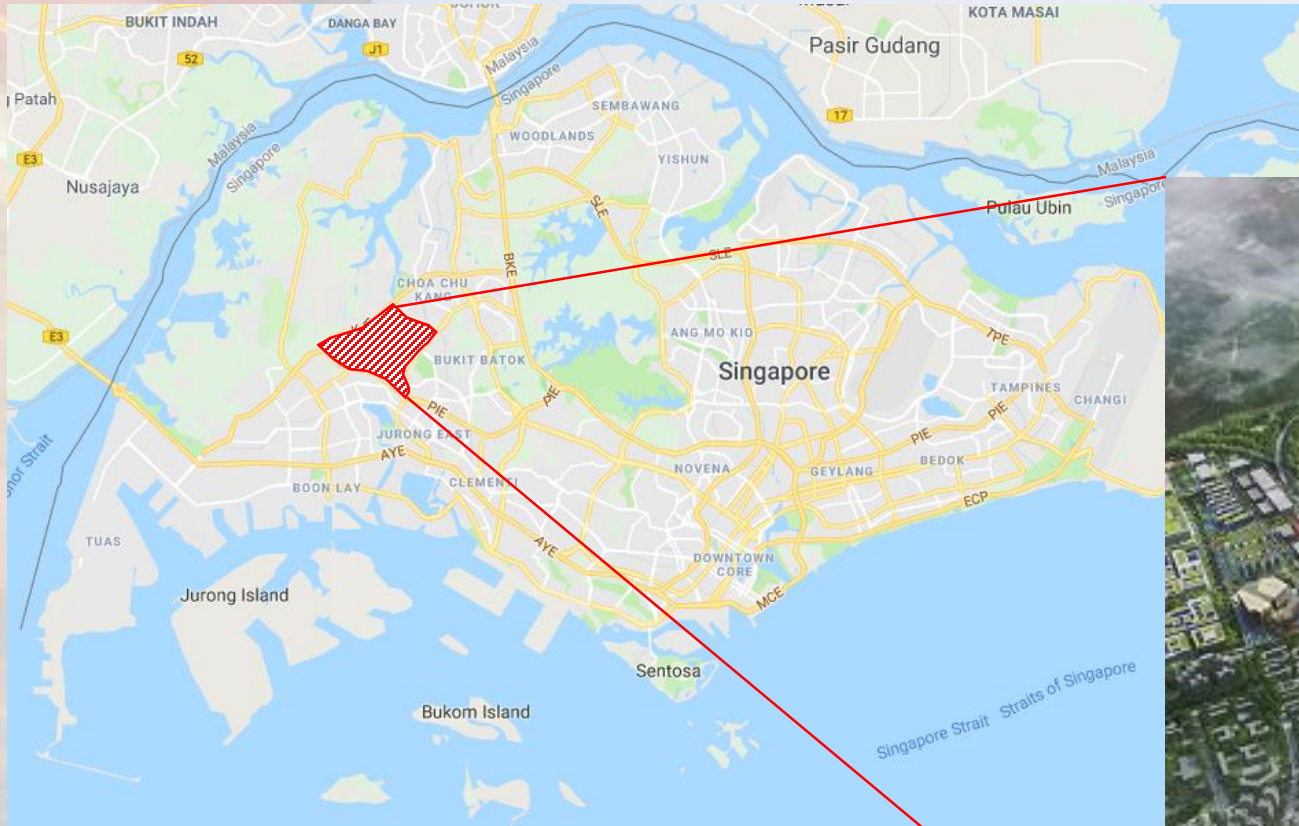
General Master Planning

- Projection of the nation or city long term needs for current and future generations
- With the consideration of:
 - the population & economy growths
 - demands in transportations
 - Social facilities and utilities and
- Developing and planning the Master Plan
- Taking into consideration of development stages
- Planning for future expansion

Singapore Master Planning

- Urban Redevelopment Authority (URA) spearhead the Singapore Master Planning for Towns and coordinating with all other agencies for Master Infrastructure Planning
- Land Transport Authority (LTA) for Road & Rails/Metro
- Power Grid for electrical power transmission underground distribution networks
- Public Utility Board (PUB) for water supply and waste/drainage networks
- Housing Development Board (HDB) for public housing development
- Integrating better with the City/Town planning developments in Singapore
- Example of PPP procurement model is our Sports Hub development

Current On-going Master Planning for Tengah, Singapore



Proposed Infrastructure Includes

- 24th Housing Development Board 's township
- That will transform into a “Forest Town”
- Key ideas in the Master plan:
 - Creating an evergreen “forest town”
 - Moving around the town with ease
 - Walking and cycling around town
 - Creating five housing districts
 - Create a Smart and sustainable town

Tengah Township 2018

- Integrating the surrounding with greenery
- A car-free Town Centre
- Walking and cycling networks within the town, promoting active and healthier lifestyles
- Creating five housing districts with community & nature in mind
- Experiencing quality living with nature and greenery
- Leveraging on Information and Communication Technology to enable 'smart' living' (Sensors, Communications, data)
- Engaging citizens with showroom/exhibition for more understanding of the project



Source: Housing Development Board (HDB)

Master Planning - Indonesia



**Hacaca Industrial Estate @
Marunda, Bekasi, Indonesia**

Area: 100 Ha



**Graha Natura Residential
Development, Lontar,
Surabaya, Indonesia**

Area: 32 Ha



**Sudirman Central Business
District, Jakarta, Indonesia**

Area: 250 Ha

Supply of Clean Water & Water Treatment - Indonesia



Bukit Pandawa Resorts (150 Ha), Badung, Bali, Indonesia

Area: 150 Ha



Pulau H Pantai Mutiara, North Jakarta, Indonesia

Area: 63 Ha

Master Planning - Vietnam



**Phu Cuong Kien Giang
Ocean Urban Complex,
Vietnam**

Area: 147 Ha



**Dai Ninh Commercial,
Tourist, Resort, Ecological
Urban Area Project, Lam
Dong Province, Vietnam**

Area: 3,600 Ha



**Vietnam International
University Township
Ho Chi Minh City, Vietnam**

Area: 942 Ha

Master Planning - China



**Detailed Campus Master Plan – The
Chinese University of Hong Kong**

Area: 49 Ha



**Grand Shanghai
Kunshan, China**

Area: 450 Ha

BELT & ROAD INITIATIVE (BRI)



BRI covers more than ½ the world's population

40% of world's GDP

More than US\$2.5 trillion of annual trade value by 2025

M Meinhardt has offices in most of the countries along BRI

Sustainable Urban Development in Singapore

Transportation

- Planning and building Metro stations in residential towns can benefit residents and businesses
- Providing greater travel convenience
- Having easy access to other facilities like schools, sports hub, hospitals, parks and social infrastructures
- Bringing public transport within walking distance to many households
- Promoting public transport moving Singapore towards a “car-lite” future
- Reducing carbon emission
- Improving the quality of living

Experience in Implementing Large-Scale Infrastructure

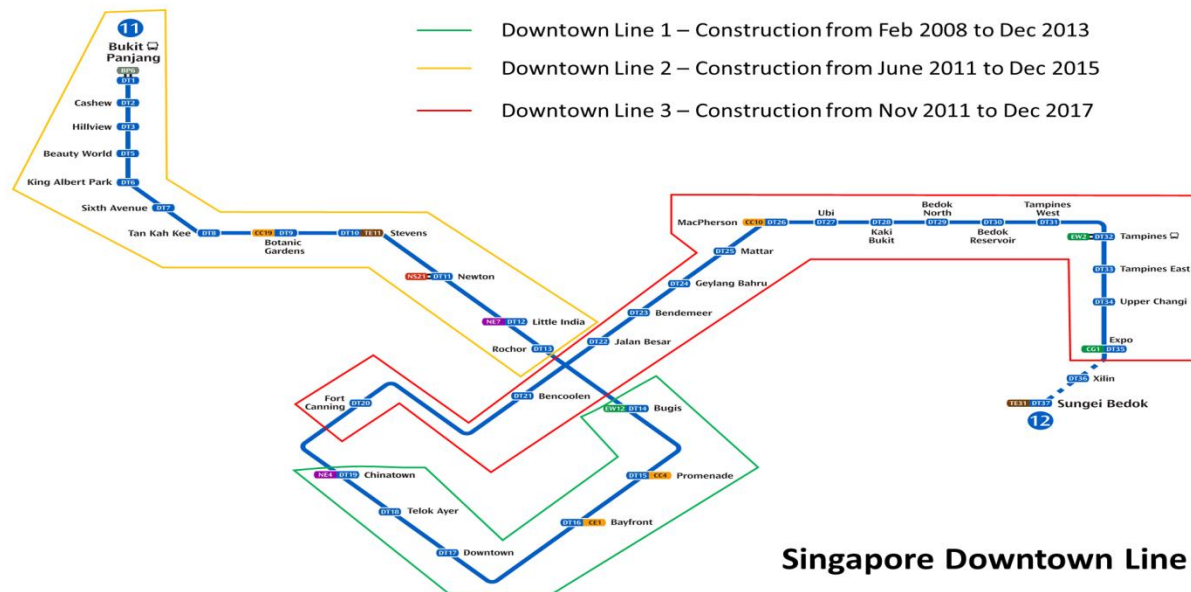
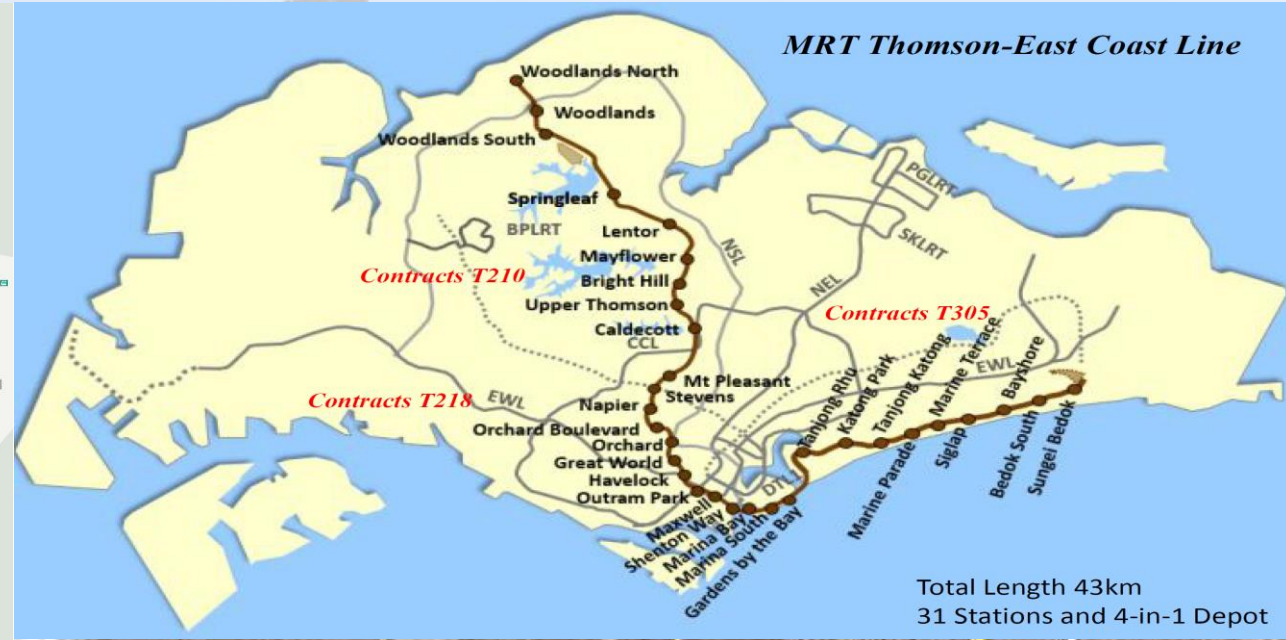
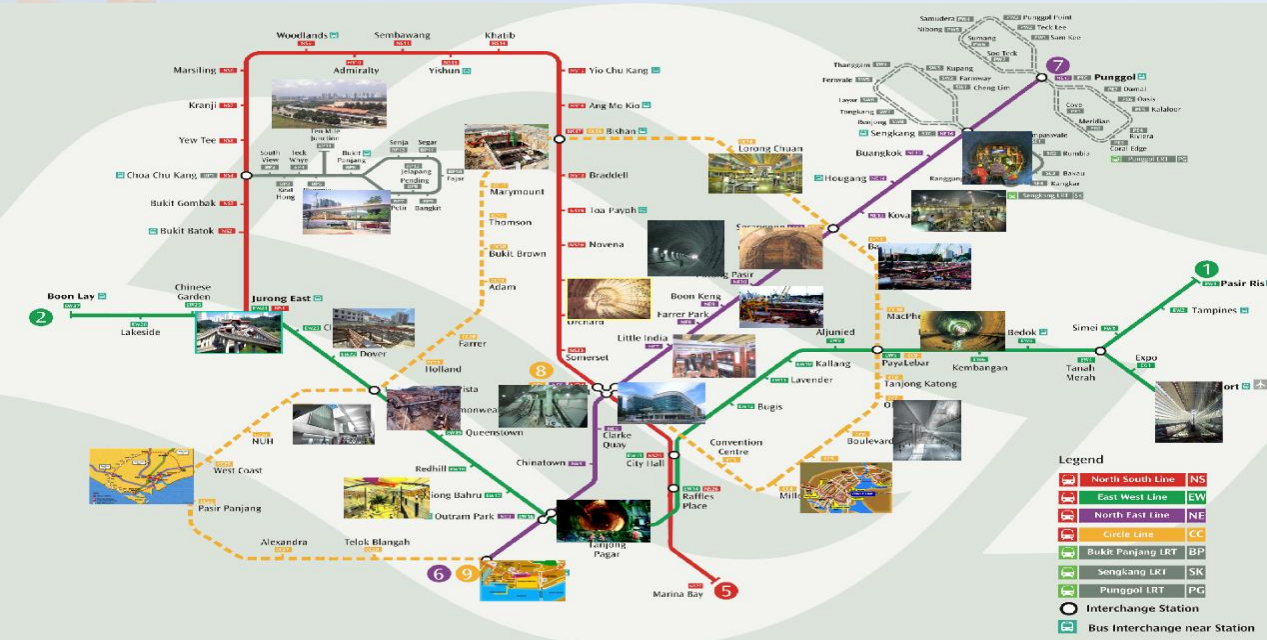


Ayer Rajah
Expressway

Lead Consultancy



Experience in Implementing Large-Scale Infrastructure



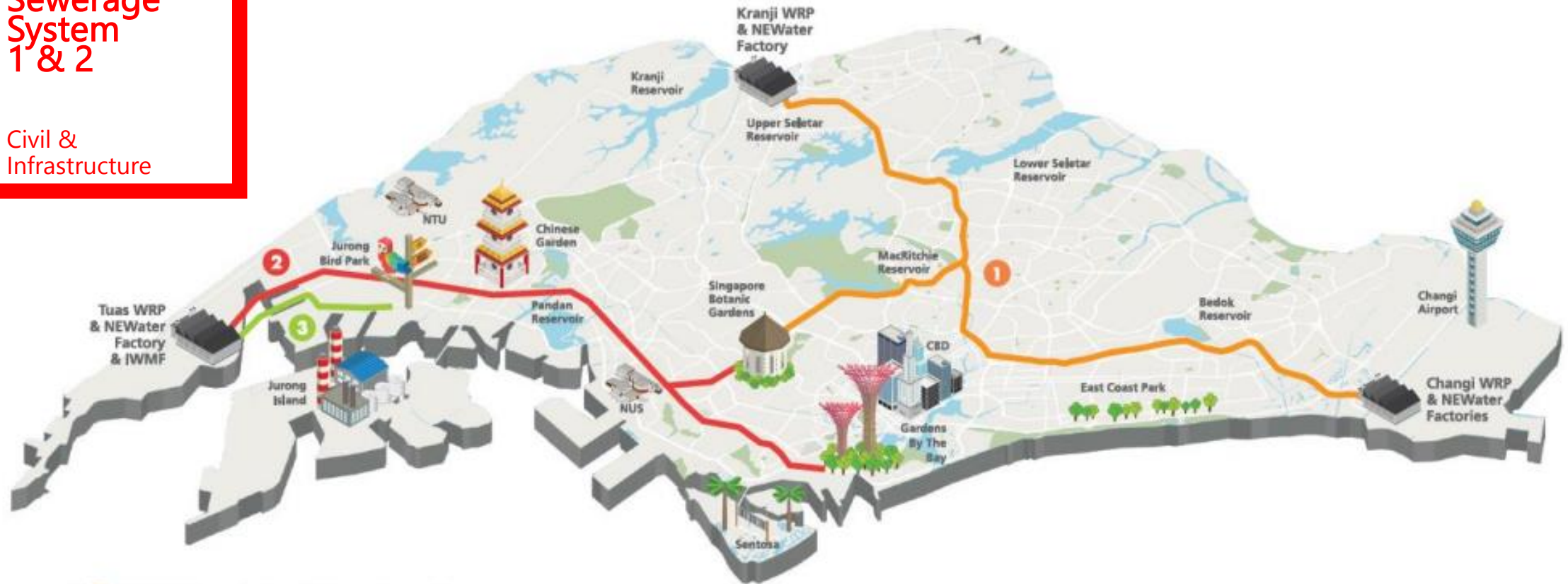
Singapore Downtown Line 3

- The longest section of the entire underground Mass Rapid Transit (MRT) System
- 21 km consisting of 16 Stations
- Client: Land Transport Authority of Singapore (LTA)
- Lead Consultant : Meinhardt Infrastructure
- Services Provided: Architectural & Advanced Engineering Study and Architectural Engineering Consultancy Services
- Completion: December 2017
- Total duration of up to 10 years
- Estimated Cost of Construction: SGD \$1.03 billion (USD \$1.01 billion)

Experience in Implementing Large-Scale Infrastructure

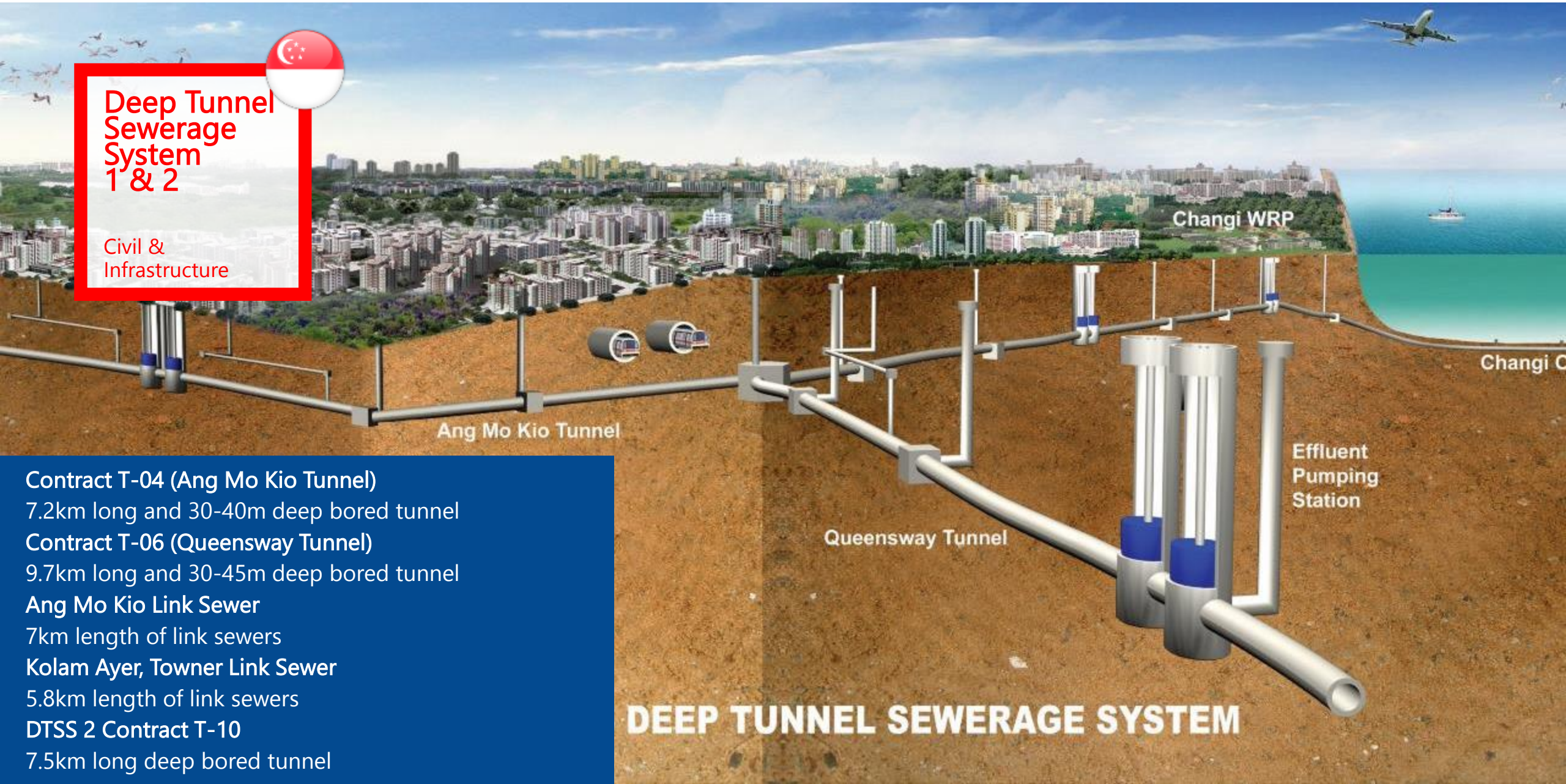
Deep Tunnel Sewerage System 1 & 2

Civil &
Infrastructure



- ① DTSS Phase 1 Used Water Tunnel
- ② DTSS Phase 2 Domestic Used Water Tunnel
- ③ DTSS Phase 2 Industrial Used Water Tunnel

Experience in Implementing Large-Scale Infrastructure



Deep Tunnel Sewerage System 1 & 2

Civil &
Infrastructure

- Contract T-04 (Ang Mo Kio Tunnel)
7.2km long and 30-40m deep bored tunnel
- Contract T-06 (Queensway Tunnel)
9.7km long and 30-45m deep bored tunnel
- Ang Mo Kio Link Sewer
7km length of link sewers
- Kolam Ayer, Towner Link Sewer
5.8km length of link sewers
- DTSS 2 Contract T-10
7.5km long deep bored tunnel

DEEP TUNNEL SEWERAGE SYSTEM

Experience in Implementing Large-Scale Infrastructure



Sports
Hub
Singapore



For more information:

Meinhardt Group

Connection One

168 Jalan Bukit Merah

Singapore 150168

www.meinhardtgroup.com

Meinhardt Infrastructure

18 Sin Ming Lane, Midview City

#06-13 Singapore 573960

www.meinhardtinfrastructure.com

Tel: (65) 6664 9784 / 6664 9785

