Centre for Livable Cities Lecture Series
Uncovering the Underground

Peter Stones
Senior Engineer | Arup Singapore

Project Manager –
Benchmarking Study & Establishment of Underground Space Planning Guidelines in Singapore for the URA
Infrastructure and Underground Space Planner
Jurong Lake District Master Plan for the URA
Underground Pedestrian Network Master Plan for MRT Jakarta

Author
Underground Space Development: Key Planning Factors
International Efforts

Planning

Shanghai, China – Shallow underground space use approaching saturation, deep underground space is targeted under a new planning initiative to scale up infrastructure stock. (Li and Fan, 2018)

QingDao, China – Assessment of Urban Underground Space across the city and vertical layout planning already undertaken. (Qiao et al, 2018)

Hong Kong, China – Tools have been developed to inform optimal cavern configurations for energy consumption and operational costs. (Ross et al, 2018)

Projects

Helsinki – Blominmäki Waste Water Treatment Plant
- Cater to 1,000,000 residents
- >150,000 m³ per day
Progress in Singapore

Understanding the Underground

BCA INLIS Borehole Data Access

Underground Planning

Dedicated Underground Space Plans are being prepared e.g. Jurong Lake District and Changi Airport
The Future
Handling Complexity

Closing Knowledge Gaps

Traditional Utility Capture Method
Existing Utilities plus Digital Representation
Many Thanks!

Peter.Stones@arup.com
References

