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MEDIA RELEASE No.1 | 9 May, 2023 – **The World Conference on Transport Research Society (WCTRS)**

WCTRS Task Force Ranks Most Efficient Subway Systems in Asia, Europe, and North America.

Cities around the world are constantly seeking ways to improve their public transportation systems, and a new Task Force report from the World Conference on Transport Research Society (WCTRS) is shining a spotlight on the most efficient subway systems in Asia, Europe, and North America. The report, based on a productivity measurement and benchmarking study, identifies the cities that are leading the way in efficient and cost-effective urban transport.

The winning subway systems include Madrid (Europe), New York and Toronto (North America), Shenzhen (China), Kobe (Japan), Gwangju (South Korea), and Hyderabad (India) for Asia.

The Task Force was coordinated by Prof. Tae Oum, the President of the WCTR Society, from the Sauder School of Business at the University of British Columbia, Canada. The Task Force comprised seven country/regional team leaders from Europe, China, Japan, South Korea, India, the United States, and Canada. In addition, the Task Force was guided by an Advisory Committee consisting of top urban transport experts from Asia, North America, and Europe. The purpose of this Task Force is to identify the most efficient subway systems across the globe.

"Efficient subway systems can lead to cost savings for cities, cheaper transit fares, and lower taxes for citizens," said Prof. Tae Oum, who coordinated the WCTRS Task Force. "This study highlights the importance of measuring and benchmarking subway productivity to identify the systems that are delivering the best outcomes for their cities and metropolitan regions."

In this inaugural study, **Shenzhen** (China), **Kobe** (Japan), **Gwangju** (South Korea), and **Hyderabad** (India) led their respective countries in overall efficiency, while **Madrid** was the most efficient system in Europe, and **New York** and **Toronto** tied for most efficient North American system. The Task Force also identified the subway systems with the highest productivity growth rates during the study sample period. The cities with the highest productivity improvement rates are **Changsha** (China), **Osaka** (Japan), **Daejeon** (South Korea), **Lisbon** (Europe), and **Miami-Dade** (North America).

Region	Top Efficient City	Most Improved City
Europe	Madrid	Lisbon (2012-2019)
China	Shenzhen	Changsha (2016-2019)
Japan	Kobe	Osaka (2016-2019)
Korea	Gwangju	Daejeon (2016-2019)
India	Hyderabad	N/A*
US / Canada	New York & Toronto**	Miami-Dade (2015-2019)

**Since many of the subway services in India began operating in 2018, we could not choose the most improved system.*
***New York and Toronto were tied and share the title for the most efficient subway systems in North America.*

The Task Force collected and analyzed systematic data for over 50 cities and metropolitan regions in Asia, Europe, and North America for varying years from 2012 to 2022, depending on data availability. Due to COVID-19 lockdown policies, which were beyond the transit managers' control but heavily influenced subway outputs and inputs, the Task Force based its choice of winning cities on the variable input productivity results only up to the year 2019, ignoring the results for 2020 and later.

The Task Force focused on measuring and benchmarking the productivity of subway operations by identifying how efficiently management used variable inputs at the given level of capital inputs available. Since management has far more control over adjusting the levels of labor and other variable inputs than capital inputs, the variable input productivity level shows how efficiently current management has operated and managed their subway system.

It is important to note that the variable input productivity (VIP) level can be influenced significantly by various factors beyond current transit management control, such as the scale of the subway-urban rail network, population and/or traffic density, the average number of cars per train, passenger density per station, interface between subway-urban rail systems and other transport modes, transit vs auto driver mode shares, the amount of expenditures on environmental issues such as CO_2 reduction and climate change policies, the level of automation in transit systems, etc. Since these factors can influence the measured VIP levels, the Task Force decomposed the VIP growth into these factors beyond management control via a statistical control method and computed the net variable input productivity (Net VIP) index. The Task Force used this Net VIP level and growth rates to select the winning subway systems.

The WCTRS Society plans to release its full inaugural report of the Subway Efficiency Benchmarking Task Force at its **16th triennial world conference in Montreal, Canada, from 17-21 July 2023**. The conference will bring together approximately 1500 professors, researchers, and policy makers from 100+ countries across six continents to participate in stimulating discussions.

We invite mayors and elected officials, urban transport executives, and news media reporters to participate in the 2023 WCTRS World Conference in Montreal, Canada.

For more information, please refer to the following:

For information about the WCTR Society, please visit www.wctrs-society.com
For details on the 2023 WCTRS triennial world conference in Montreal, Canada please visit www.wctr2023.ca

If you have questions and/or strong interest on this WCTRS Task Force work, please contact:

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