

# High Speed Railway and its Station Area Development for Smooth Transfer with Urban Transit Systems

Friday, 2<sup>nd</sup> November 2018

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# Introduction

- 20 to 30 % of global CO2 emission: from transport in each city.
- Transport: Secondary demand, followed by various daily activities.
- Best solution to reduce transport emission: to realize “short distance” b/w home and places for daily activities
- Better solution: use low carbon public transit systems, shifting from private transportation

# Basic unit of CO<sub>2</sub> emission for Passenger and Cargo/Freight transportation



Source: The Follow-up Study for MAHSR Corridor; JICA & JIC; Jan. 2018

CONTENTS	Passenger	Cargo/Freight
	g-CO <sub>2</sub> /passenger-km	g-CO <sub>2</sub> .ton-km
Individual car/truck	141	1,159
Commercial truck		240
Airplane	98	
Bus	67	
Ship		39
Railway	20	21

Source: MLIT, Japan

# Tokyo Station - No. of Lines and Passengers

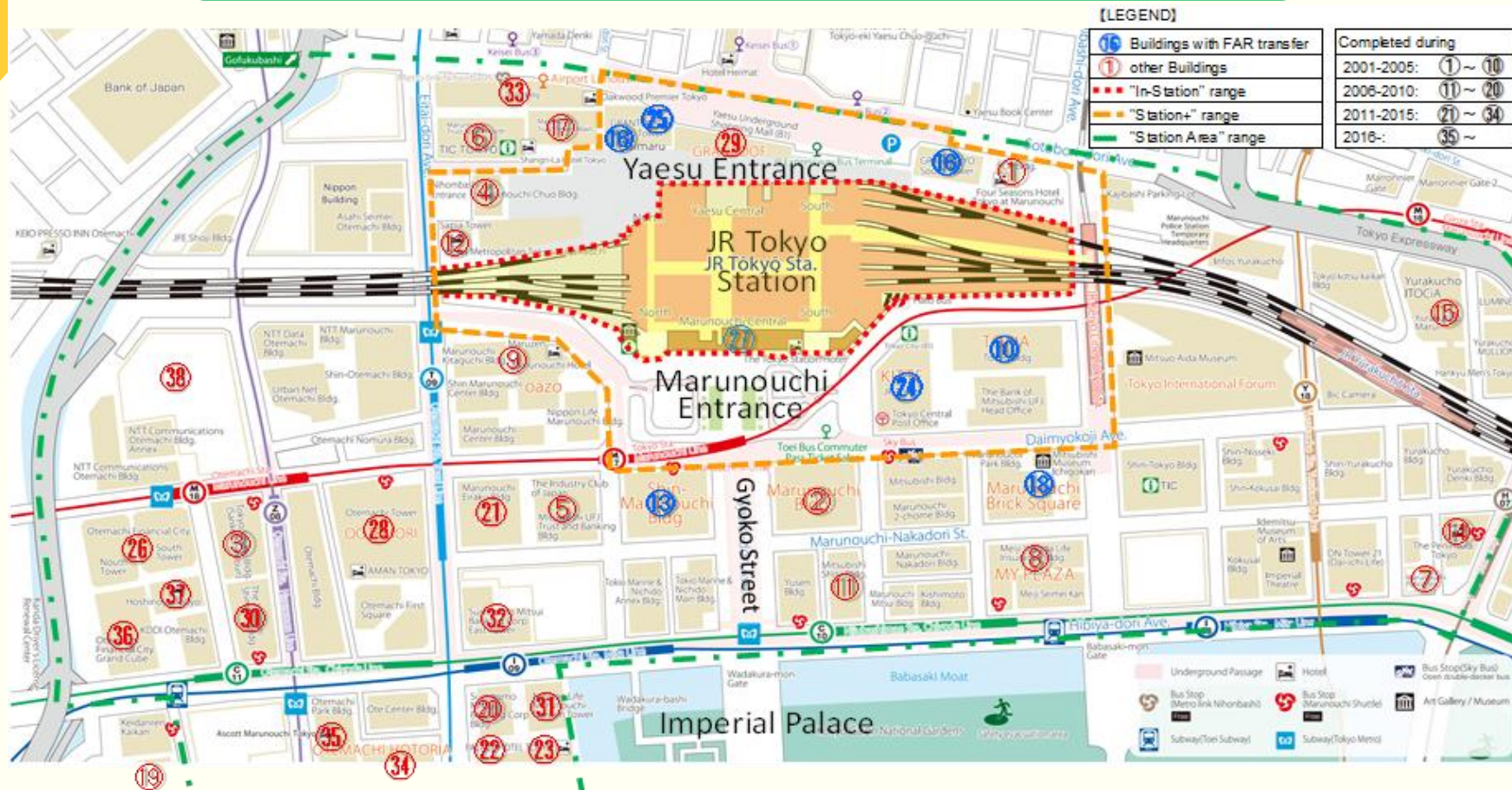
Location	Type	Operator	Daily passengers to get on/off (planned)
In-Station	<b>Shinkansen (Bullet Train)</b>	JR East ( 6 lines)	157,236
		JR Central (1 line)	195,600
	Conventional Railway	JR East ( 10 lines)	905,098
<b>In-Station sub-total (17 Lines)</b>			<b>1,257,934</b>
Station+	Bus, Taxi, Indv. Car	Public & Private	<i>(1,021,000)</i>
	Metro (Subway)	Tokyo Metro (1 Line)	211,558
<b>Station+ sub-total (1 Line)</b>			<b>1,232,558</b>
Station Area	Metro (Subway)	Tokyo Metro (5 Lines)	653,845
		Tokyo Metropolitan Gov. (1 Line)	94,834
<b>Station Area sub-total (6 Lines)</b>			<b>748,679</b>
<b>Total (24 Lines)</b>			<b>3,239,171</b>

Source: JR East, JR Central, Tokyo Metro, Tokyo Metropolitan Government, etc.





# In-Station, Station+ & Station Area



Contents		land area (m2)	Building Height (m)
In-Station		92,400	
Station+	Marunouchi Entrance	43,300	46.1
	Yaesu Emntrance	30,360	205
	Others	101,740	
<b>Station+ Total</b>		<b>175,400</b>	
Station Area		899,200	
<b>Total</b>		<b>1,167,000</b>	



# Sale of the unnecessary “Transferable Development Rights” (TDR)

Maru-no-uchi Park Bldg.  
FAR: 1,300% → 1,430%  
(130% plus)

Shin Maru-no-uchi Bldg.  
FAR: 1,300% → 1,665%  
(365% plus)

JP Tower KITTE  
FAR: 1,300% → 1,520%  
(220% plus)

GRANTOKTO North Tower  
FAR: 900% → 1,304%  
(404% plus)

Tokyo Building  
FAR: 1,000% → 1,266%  
(266% plus)

GRANTOKTO South Tower  
FAR: 900% → 1,304%  
(404% plus)

Restoration of Maru-no-uchi Station Bldg.



Source: East Japan Railway Company

Source: Ministry of Land, Infrastructure, Transport and Tourism (MLIT)  
<http://www.mlit.go.jp/common/000162567.pdf>

**FSI > 16**

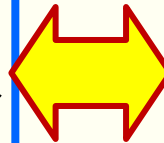
# Two (2) different Functions combined in the Station-front

## Primary priority

“flow” function

-Transit b/w railway & other modes

⇒ pedestrian path & barrier free facilities



“stop” function

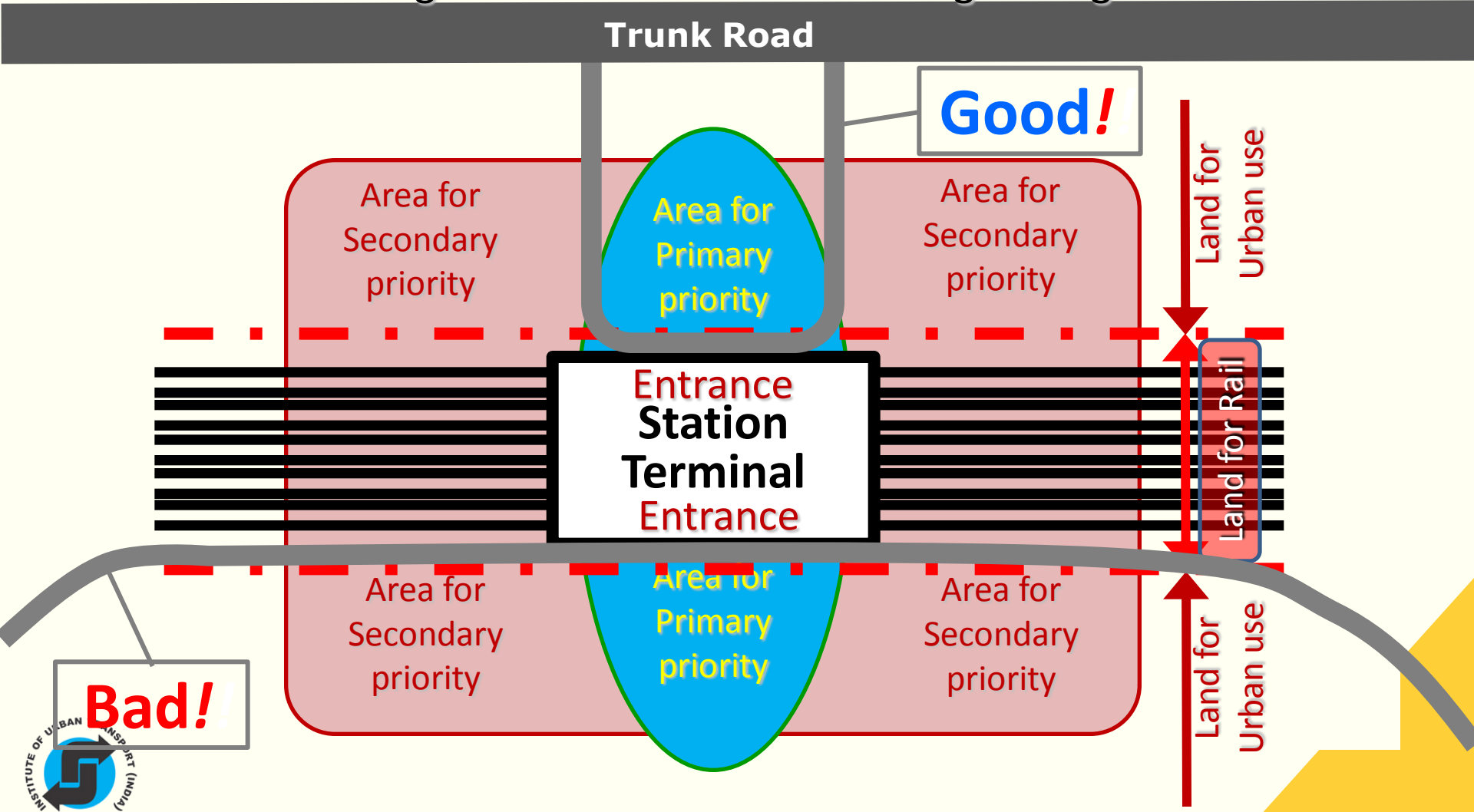
-Car Parking/Pool  
-Berth for car, bus, taxi & paratransit to arrive & depart

-Relax, Commercial & business activities

## Secondary priority

# Good and Bad Access road

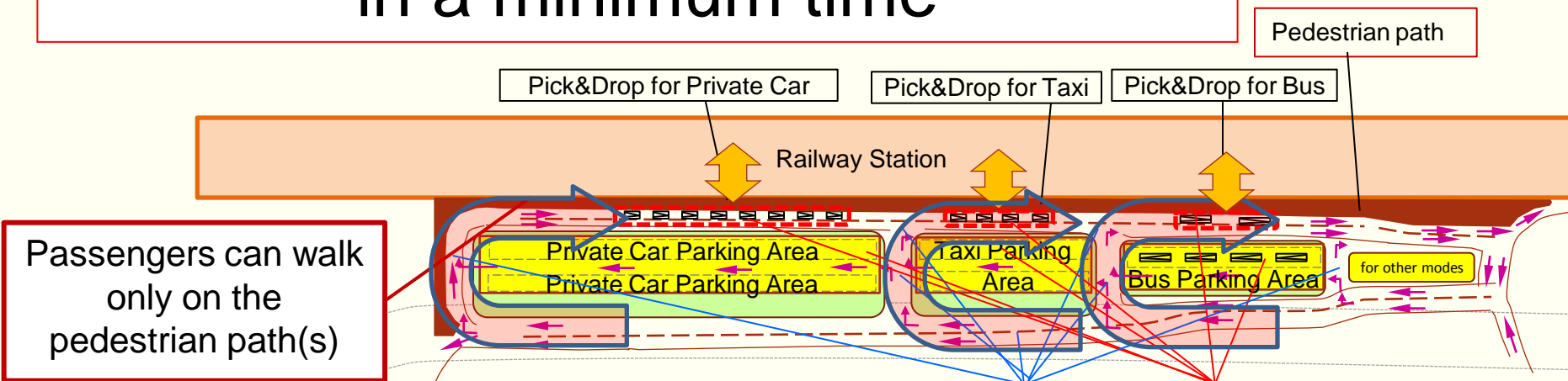
= Comb-typed Roads are recommended =  
for avoiding contamination of the Passing-through Traffic



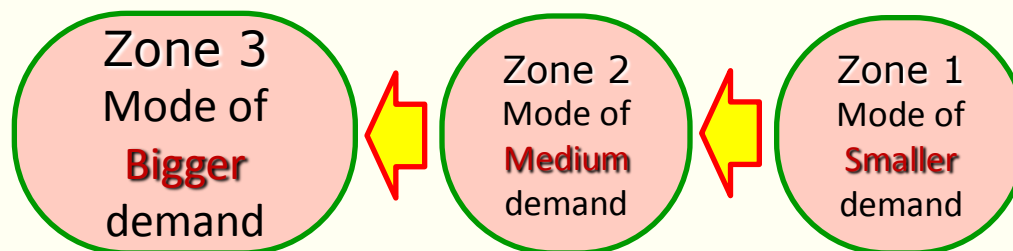


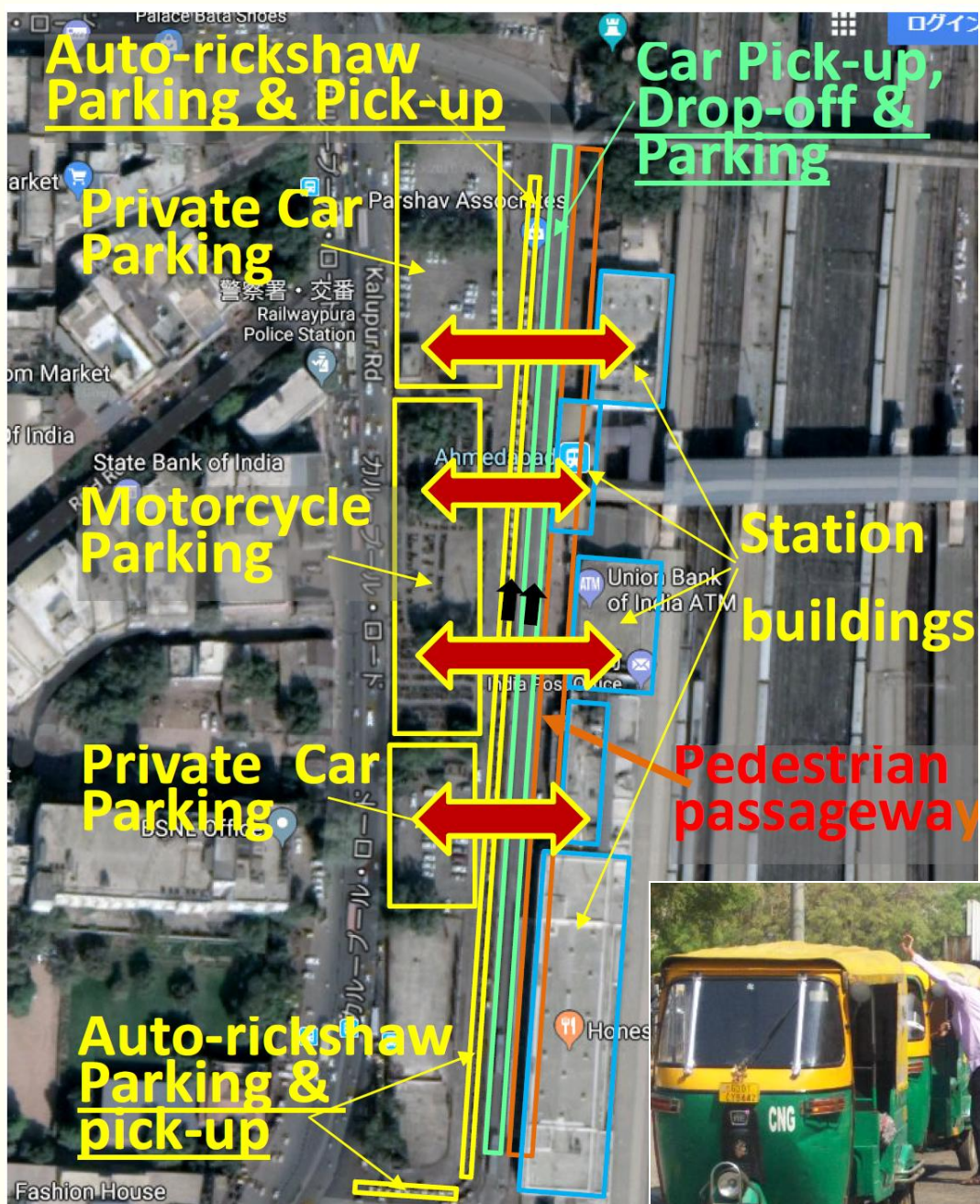
# A Good Example of the Plan for Station plaza from Japan's Experience

Railway Passengers can transfer  
in a minimum time



Dividing of two functions: “Flow” & “Stop”





# Example of Ahmedabad Junction

- Parallel typed facilities arrangement with combined two functions causes Traffic Jam.
- Long distance to walk b/w parking lot and station is inconvenient for passengers



# HSR and Daily Commuting in JR East



## Discounted monthly pass for Commuter/Student

(JPN Yen)

Home	↔	Work	One time fare *	1 month commuter pass **	1 month student pass
Takasaki	↔	<b>Tokyo</b>	199,200	101,720	76,430
			100%	<b>51%</b>	<b>38%</b>
Annaka-Haruna	↔	<b>Tokyo</b>	210,400	108,530	81,230
			100%	<b>52%</b>	<b>39%</b>
Utsunomiya	↔	<b>Tokyo</b>	199,200	102,050	77,790
			100%	<b>51%</b>	<b>39%</b>
Fukushima	↔	<b>Sendai</b>	147,200	72,140	53,870
			100%	<b>49%</b>	<b>37%</b>
Nagaoka	↔	<b>Niigata</b>	140,000	65,360	50,400
			100%	<b>47%</b>	<b>36%</b>

\* calculated with the daily roundtrip cost for 20 days/month  
 \*\* The company usually provides subsidy to the employee by a limited amount (Ex.: JPY 30,000/50,000) or unlimitedly





# Potential Tourism Development in India

Contents	No. of visits in Japan (in-bound)			Japan's National population	No. of Visits in India (in-bound)		India's National population
	Japanese		Foreign tourists*		Indian tourist	Foreign tourists	
	Tourism*	Business*					
Statistic value (million in 2015)	1,755.3	230.4	41.1	127	1,432.0	23.3	1,259
No. per capita	13.81	1.81	0.32		1.14	0.02	
magnification in India's value = 1	12.1		17.5		1	1	

\* provisional values

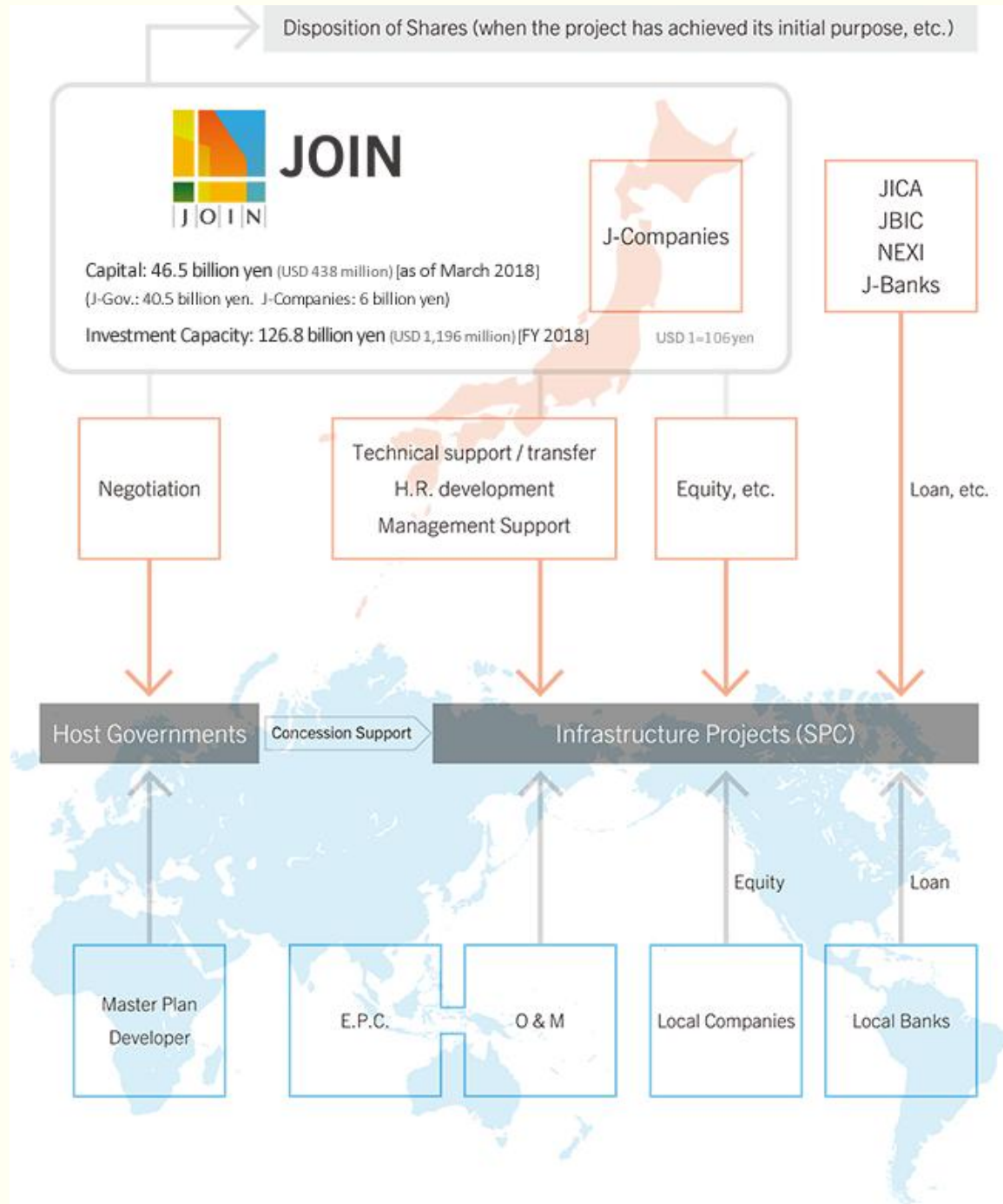
Source for Japan: Tourism Statistics and the National Census

Source for India: India Tourism Statistics at a Glance 2017 and the National Census



# REFERENCE

## Main Fund Providers in Japan



# Thank you for your Attention!!

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