

An Overview of Japan's High-Speed Railway : Shinkansen

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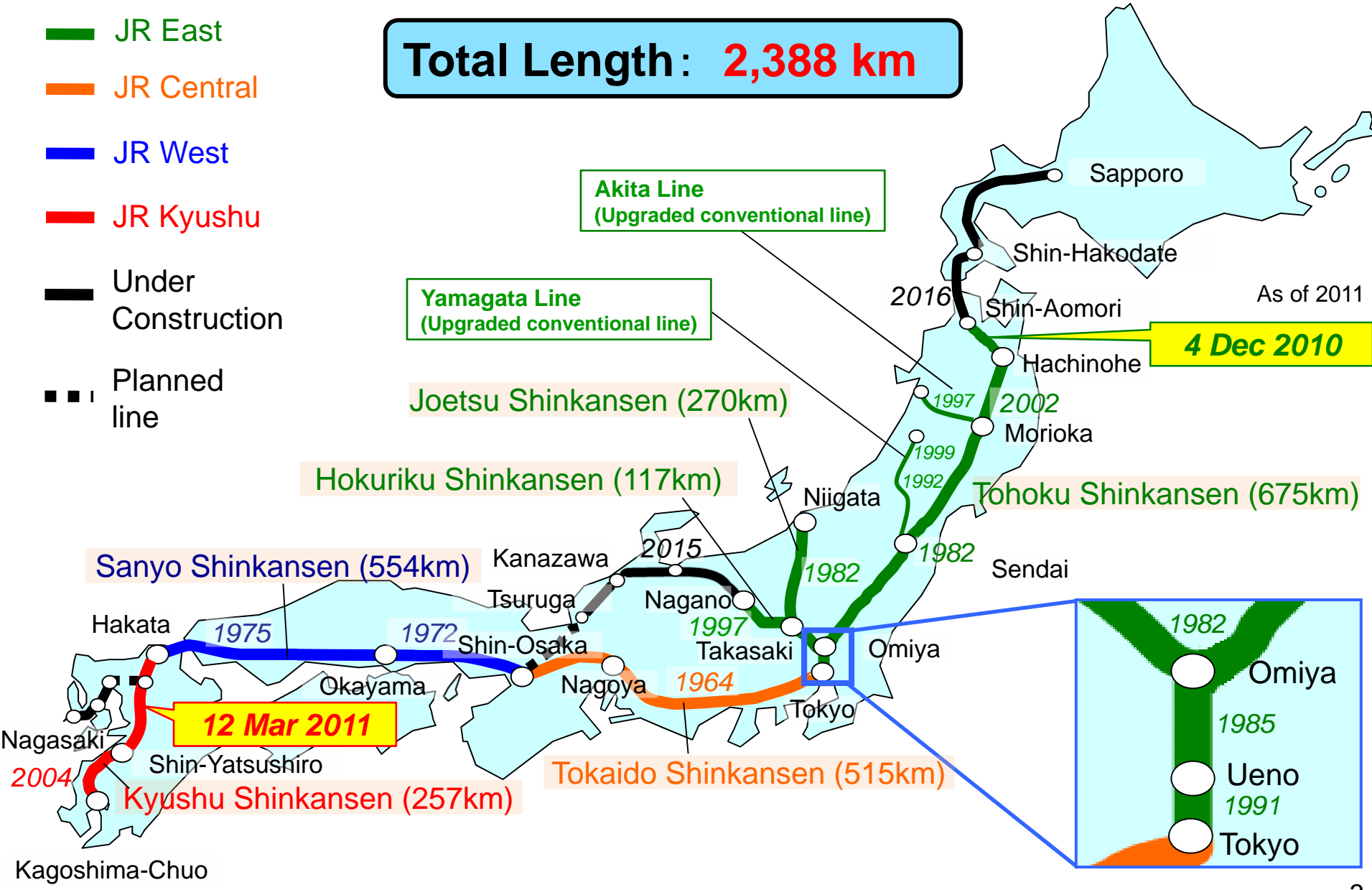
February 11, 2013

- 1. Main Features and Advantages of Shinkansen**
- 2. Government Supports for Shinkansen**
- 3. Benefits brought by Shinkansen**

Current High Speed Rail (Shinkansen) Network

Total Length: 2,388 km

- JR East
- JR Central
- JR West
- JR Kyushu
- Under Construction
- ■ Planned line



Fatalities to date: **ZERO** **for 48 years**

since the start of operation in 1964

Up to **14 services per hour** thanks to train control technology

Average delay time :

less than **1 min** **for 48 years**

Excellent environmental performance

CO₂

emission comparison

7.5



Automobile

:

5



Airplane





:

1



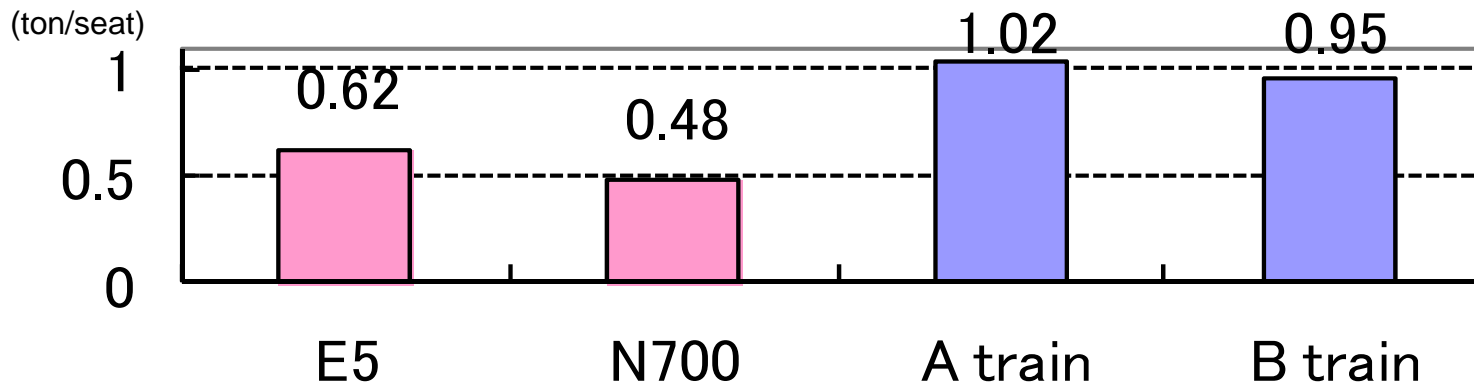
Shinkansen

○ Comparison

	Shinkansen  Series E5	Shinkansen  Series N700	A train 	B train 
Trainset (cars) - Seats (No.)	10 - 731	16 - 1323	20 - 750	16 - 858
Train Weight (ton) *	454	635	766	818
Train Weight/Seat (ton/seat)	0.62	0.48	1.02	0.95

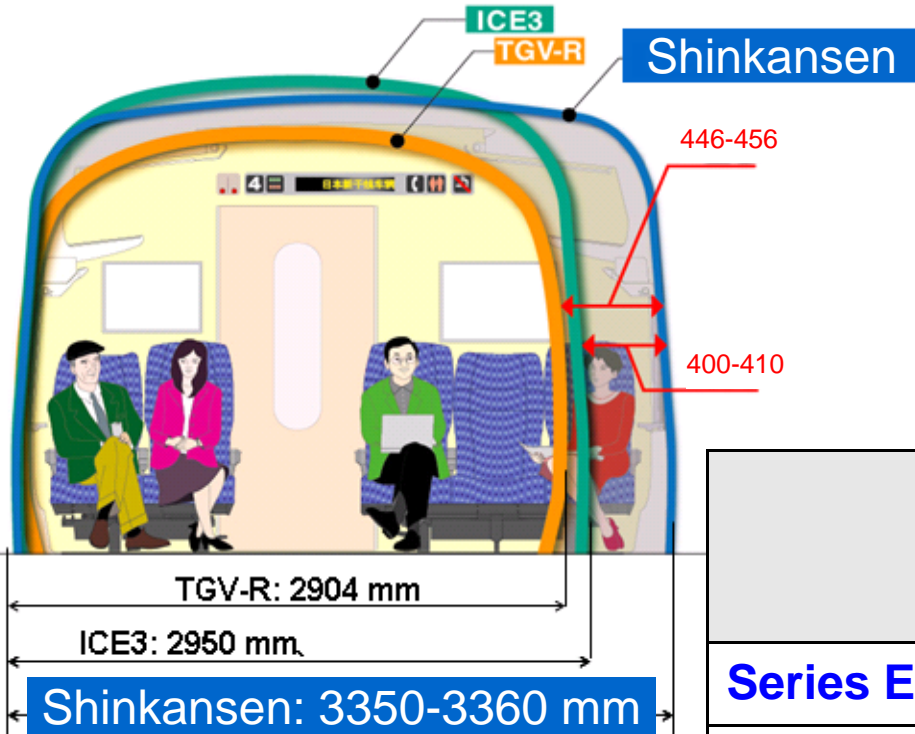
*Unloaded train data

Train weight per seat



Lower CO2 emissions & Energy consumption

The car body of Shinkansen is wider than that of any other high speed rail train.



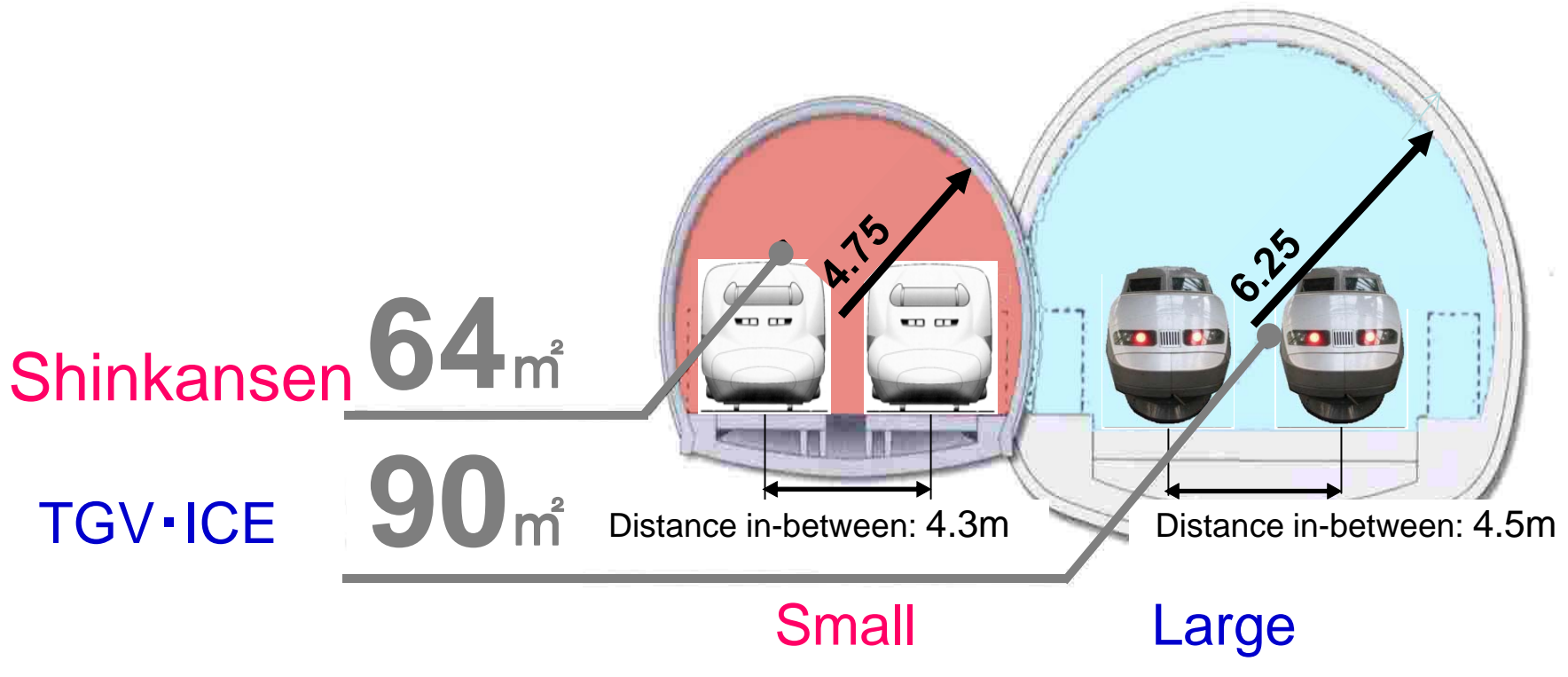
More passengers

Comfort

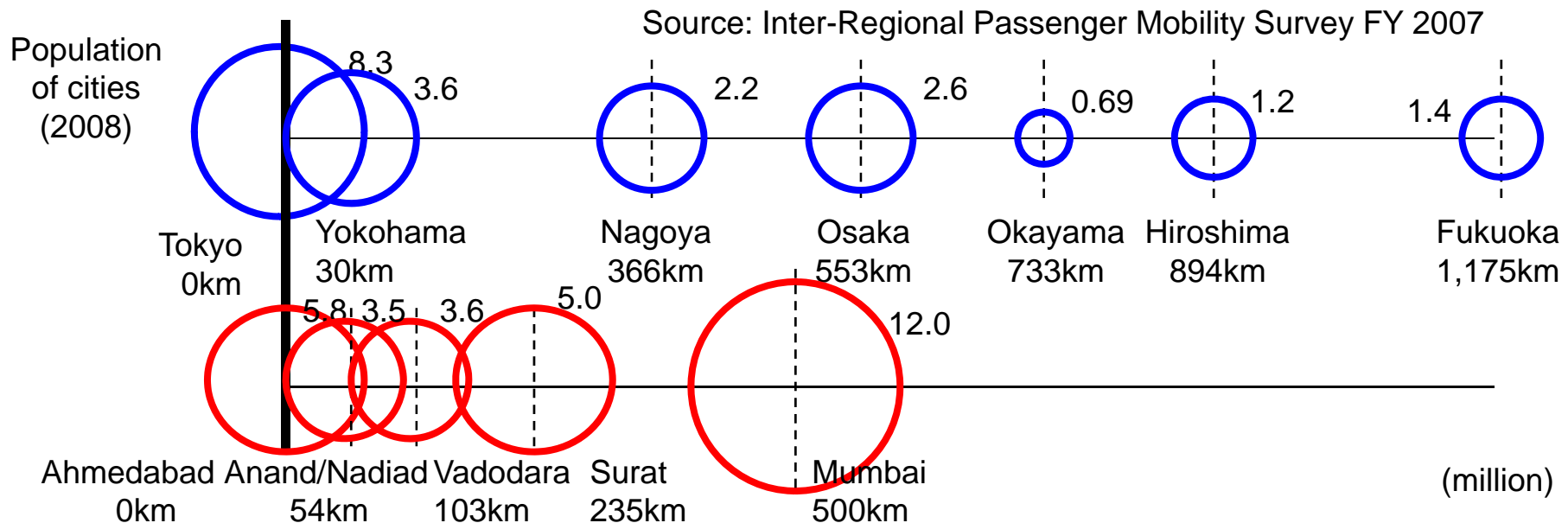
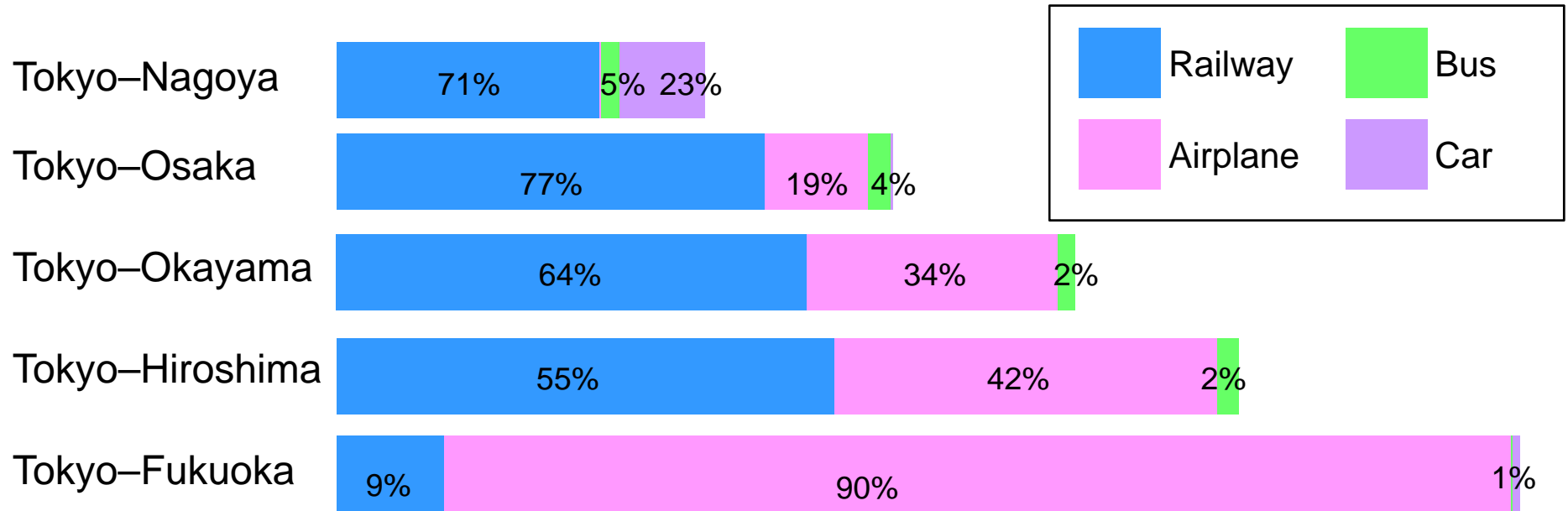
	Width (mm)	Seat Pitch (mm)	Seats/Car (No./car)
Series E5	3350	1040	73.1
Series N700	3360	1040	82.7
Train A (TGV-R)	2904	900	37.5
Train B (ICE3)	2950	920	53.6

The excellent air tightness of the car body of Shinkansen allows for tunnel cross sections to be constructed small.

Tunnel Cross Section



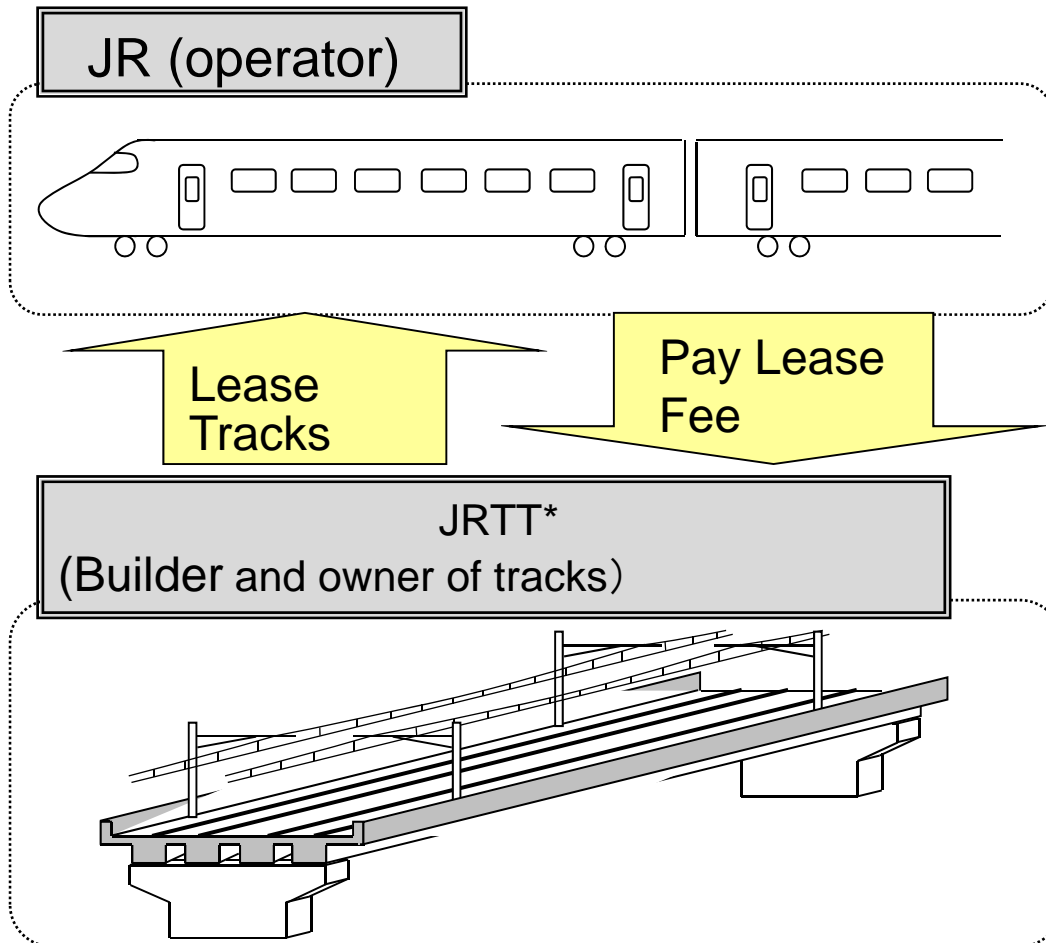
○ Passenger shares for the modes of passenger transport between Tokyo and Fukuoka



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After 1997,

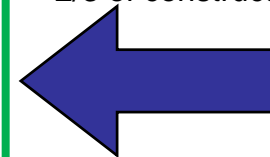
- Central and local governments pay for the construction cost.
- Operators (JRs) no longer shoulder the burden of the construction cost.
- This scheme ensures the sustainable operation of the JRs.



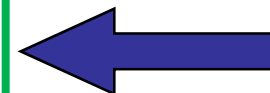
<Financial Supports>

Subsidize

2/3 of construction cost



Japanese (central)
government

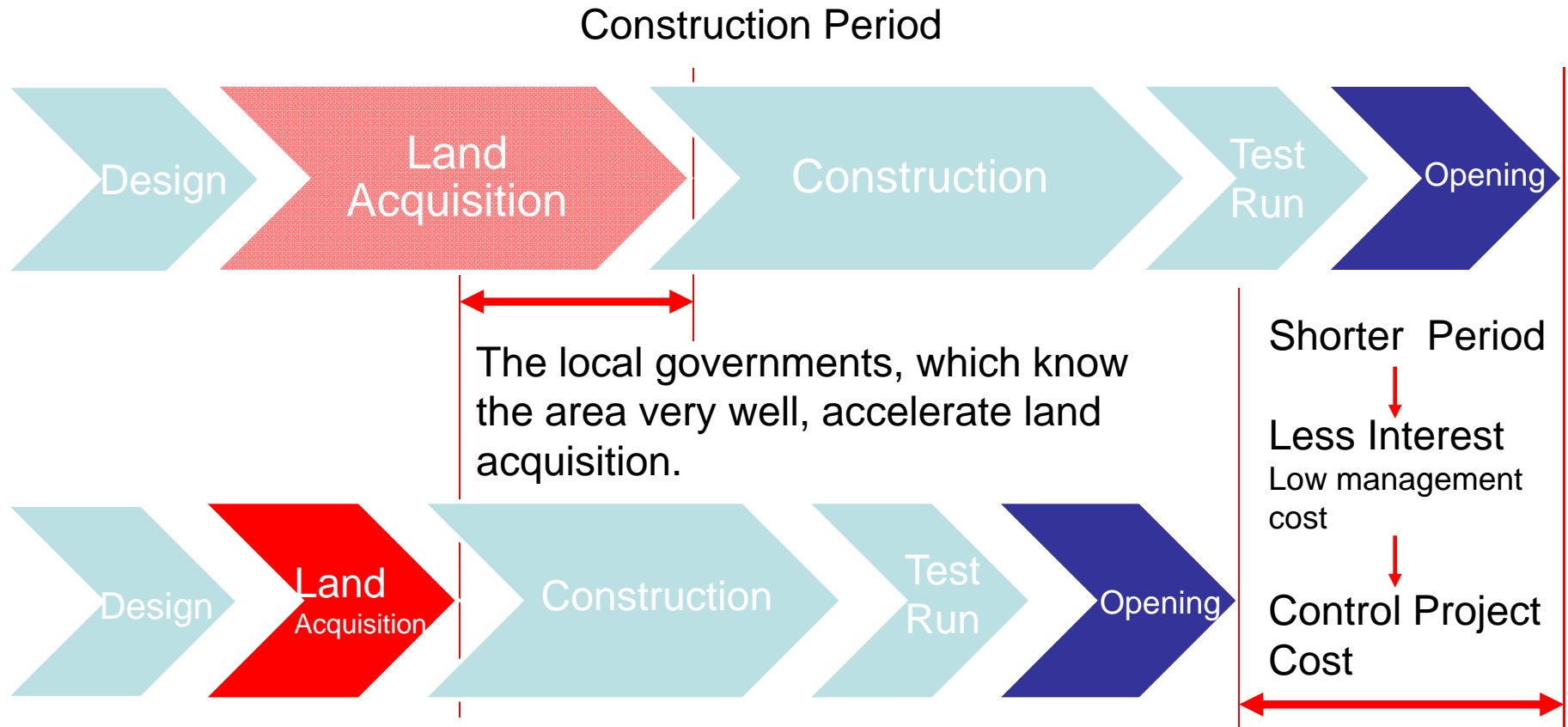


Local governments

1/3 of construction cost

*JRJT: The Japan Railway Construction, Transport and Technology Agency

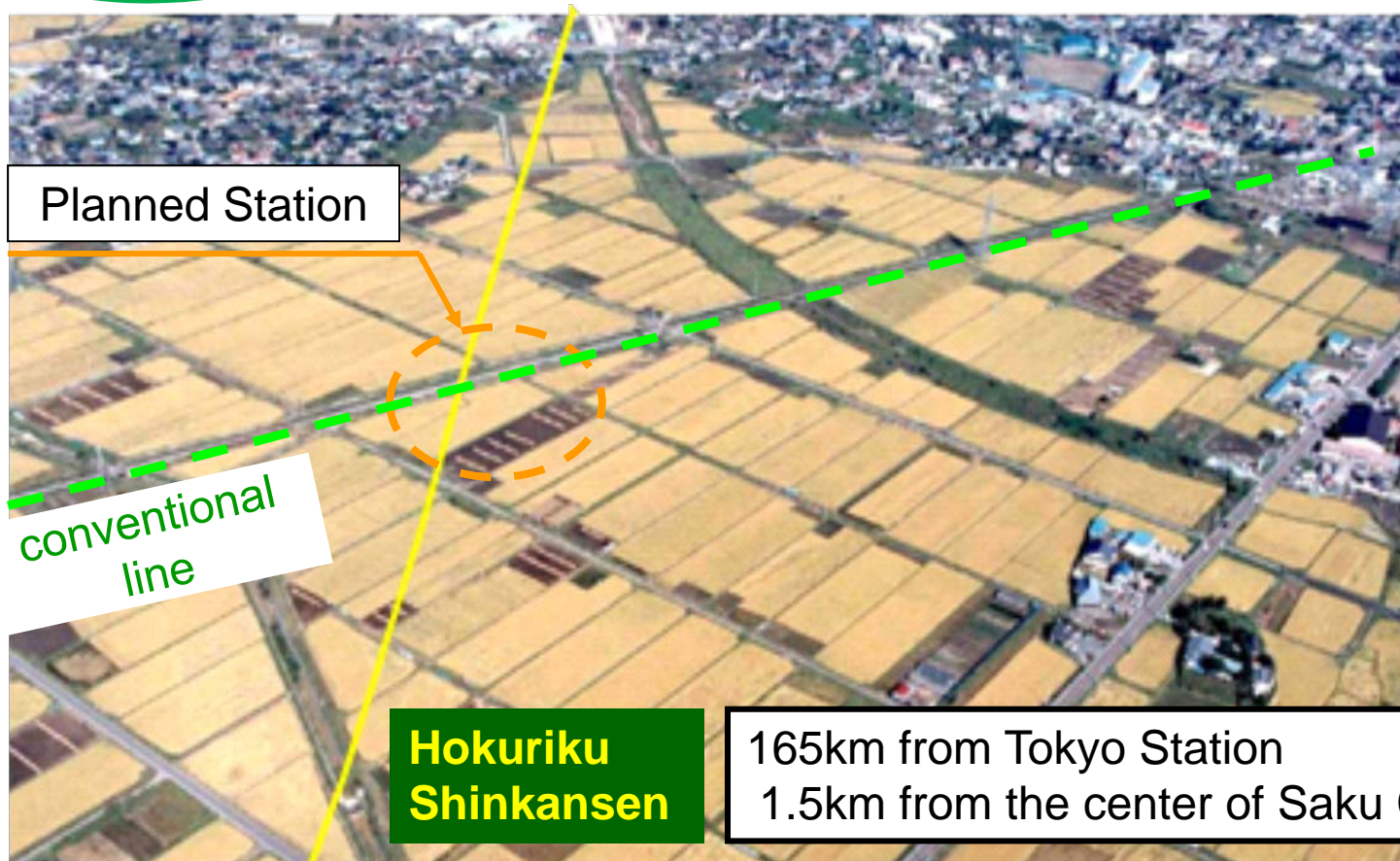
In case of Shinkansen construction extending across local authorities, under entrustment from JR TT, local governments themselves purchase land for quick and smooth acquisition.



* The cost of land acquisition belongs to JR TT.

Before

Area around Sakudaira station



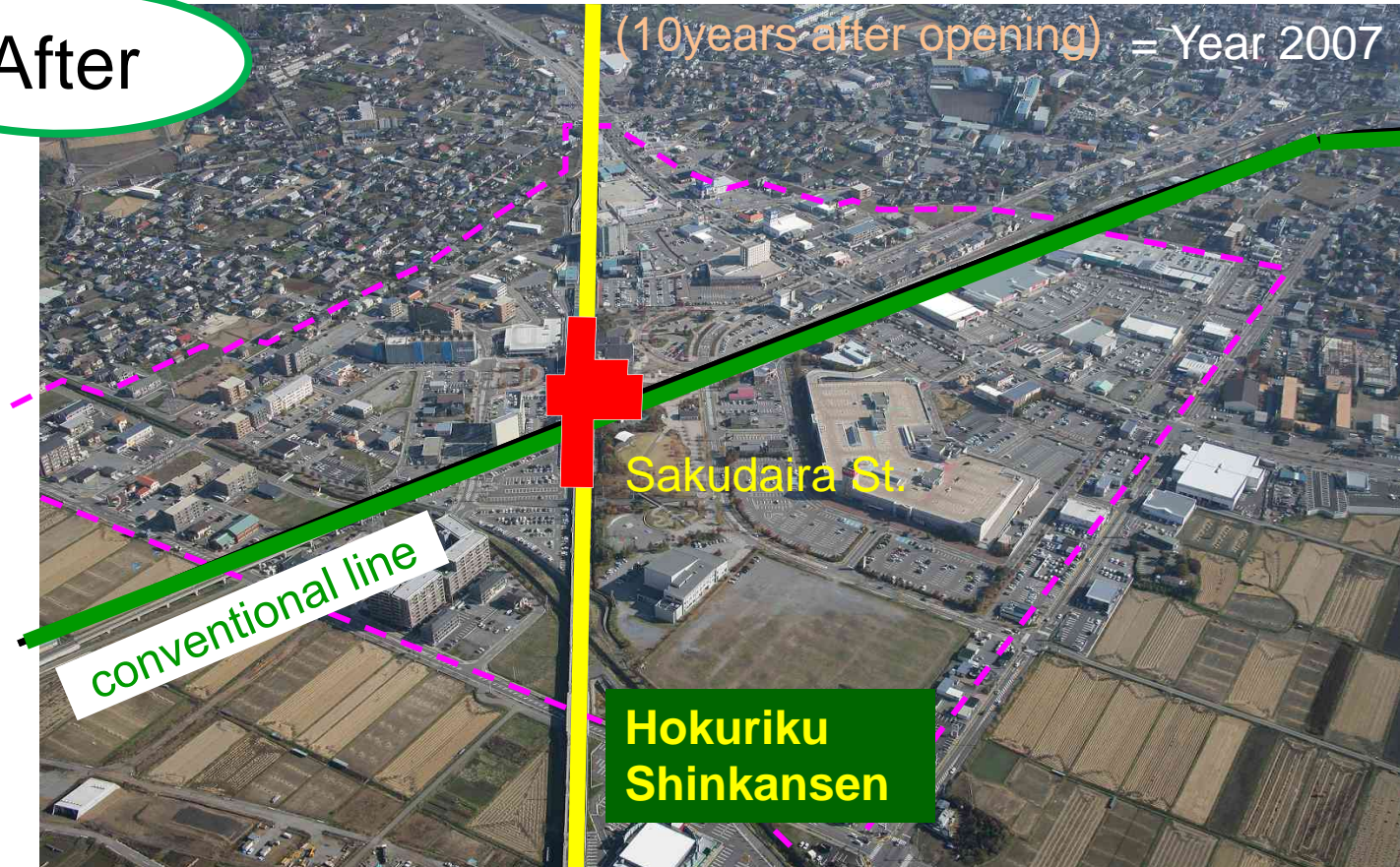
- Land rezoning project around the station
 - Shopping, Business and Housing area
- Integrated city planning utilizing existing city area and the area surrounding the station
- Development of the station building

<Local Government's Vision>



Active participation

After



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(1) Population increasing(Saku City) (2) Passenger increasing(Sakudaira Sta.)

1997 (Opening year)	65,350
2012 (15 years after)	70,040
Increased	4,690 (7.2%UP)

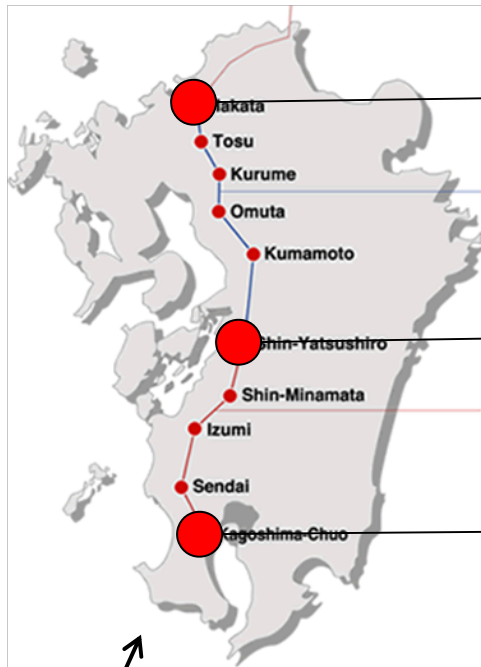
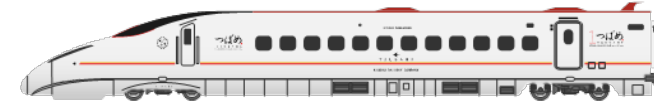
1997 (Opening year)	1,586/day
2011 (14 years after)	2,682/day
increased	1,096/day (70%UP)

* The average increasing rate in Japan = ▲0.2%(2011)

(3) Increasing of the asset tax revenue(around Sakudaira Sta.)

1996 (before opening)	¥4.35M
2012 (16 years after)	¥535.59M
increasing	¥531.24M (×123)

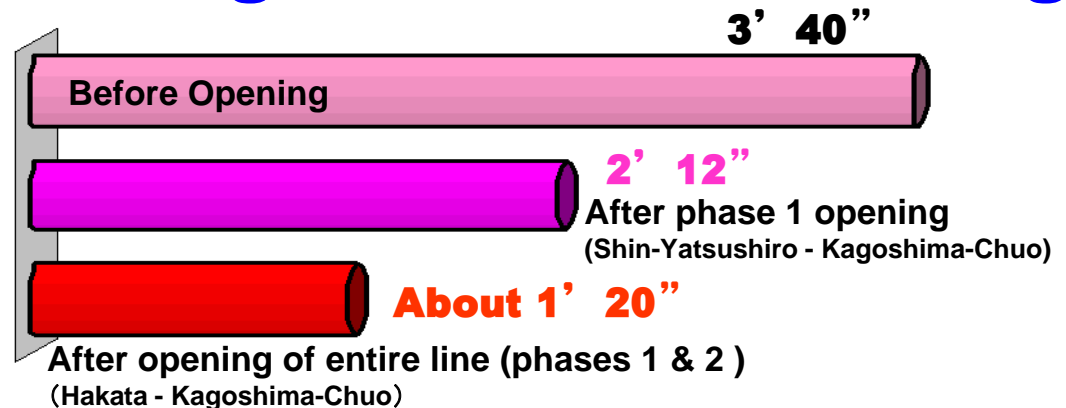
Kyushu Shinkansen: Hakata - Kagoshima-Chuo (250 km)



Phase 2: Hakata - Shin-Yatsushiro
opened in March 2011

Phase 1: Shin-Yatsushiro - Kagoshima-Chuo
opened in March 2004

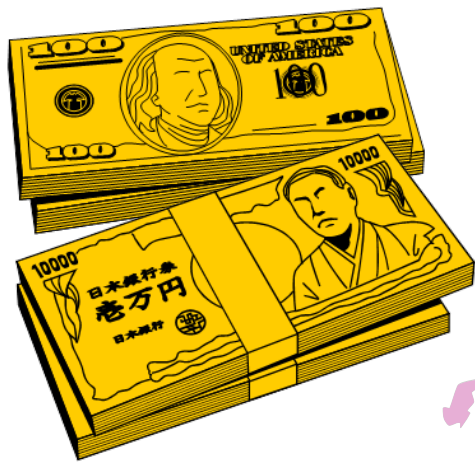
Significant time saving



■ Huge impact on local economies

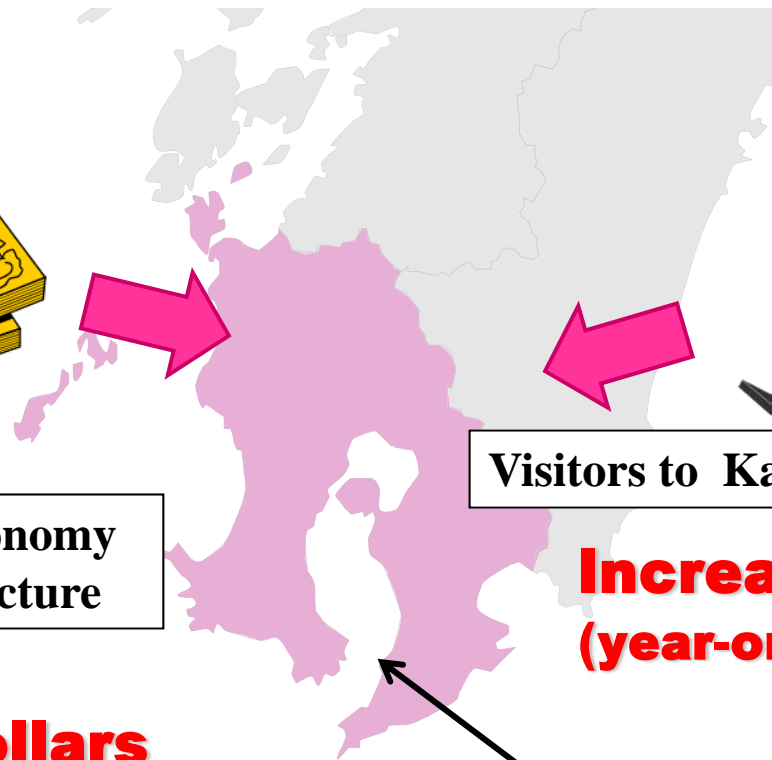
as a result of the increase in visitor numbers

the entire line opened in **March 2011**



Ripple Effect on Economy
of Kagoshima Prefecture

460 million dollars
(since the opening of the entire line)



Visitors to Kagoshima Prefecture

Increased by 24.5%
(year-on-year basis)



Hakata Station (Kyushu Shinkansen)

Before



After

Hakata Station (Kyushu Shinkansen)



Shinkansen brings job creation and regional economic development.



infrastructure construction



rolling-stock manufacturing



rail track maintenance

Japan will contribute to realization of HSR in India with united efforts by public and private sectors, through experience of Shinkansen operation for 48 years.

■ The advanced Shinkansen Technology

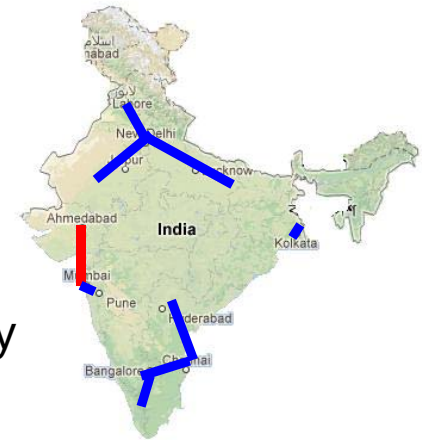
- Safety, Reliability, Ecology etc.

■ Regional Development which unify with Shinkansen Construction

- Population and Visitors increasing, Ripple effect on Economy

■ Financial Supports Scheme

- ODA Yen Loan, JBIC Loan



Public Sector



Private Sector



Thank you