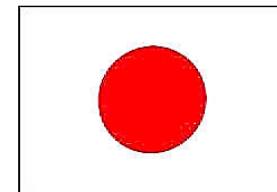


Perspectives of Indigenisation for High-Speed EMU Trains in India



11th February 2013

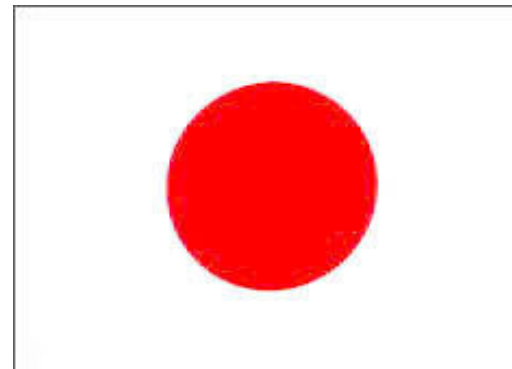
 **Kawasaki**



1

- 1. Expertise and Capabilities of Kawasaki in High-Speed EMU Trains**
- 2. Kawasaki's Experience of TOT and Indigenisation**
- 3. Proposed Indigenisation Schemes in India**
- 4. Kawasaki's Resolutions for Indigenisation of High-Speed EMU Trains of India**

1. Expertise and Capabilities of Kawasaki in High-Speed EMU Trains



1. Expertise and Capabilities of Kawasaki in High-Speed EMU Trains



1-1. Overview of Hyogo Works

- Established
In 1906
- Workforces
3,213 employees
(as of 1 Jan. 2013, consolidated)
- Area
Ground area: 223,000 m²
Shop area: 131,500 m²
- Annual Production Capacity
960 passenger cars and 96 locomotives (in parallel)



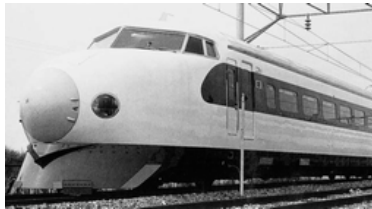
Panorama of Hyogo Works

More than **90,000** cars have been manufactured and supplied to date for both Japanese and international customers.

1. Expertise and Capabilities of Kawasaki in High-Speed EMU Trains



1-2. Kawasaki's Involvement in Development of Shinkansen



1964: Series 0
(210km/h)



1982: Series 200
(220km/h)



1985: Series 100
(230km/h)



1992: Series 300
(270km/h)



1992: Series 400
(130 / 240km/h)



1994: Series E1
(240km/h)



1997: Series E2
(275km/h)



1997: Series E3
(130 / 275km/h)



1997: Series E4
(240km/h)



1997: Series 500
(300km/h)



1999: Series 700
(285km/h)



2000: Series 700-7000
(285km/h)



2007: Series N700
(300km/h)



2011: Series E5
(320km/h)



2013: Series E6
(130 / 320km/h)

Kawasaki has supplied more than **3,500** cars of high-speed EMU trains as of 31 December 2012.

1. Expertise and Capabilities of Kawasaki in High-Speed EMU Trains



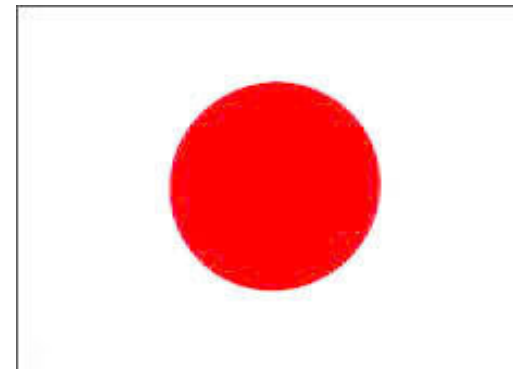
1-3. Kawasaki's High-Speed EMU Trains to Overseas

Taiwan High Speed
Rail Corporation
EMU Type 700T
(300km/h)



Ministry of Railway, China
EMU Type CRH2
(200km/h)

2. Kawasaki's Experience of TOT and Indigenisation

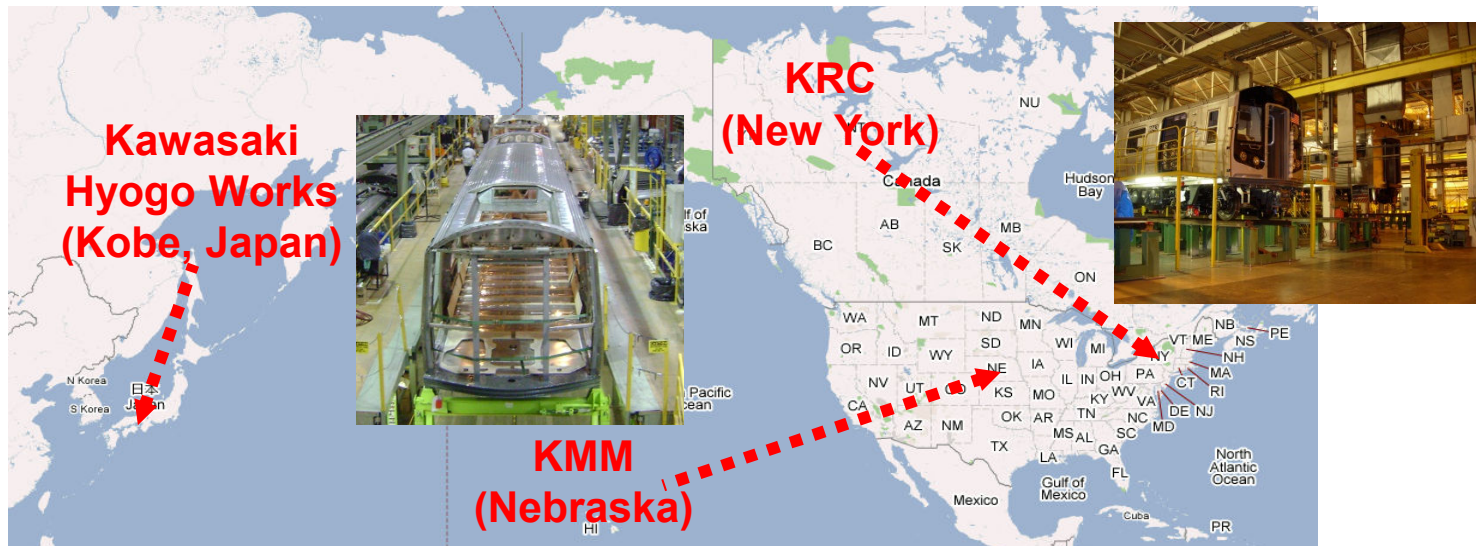


2. Kawasaki's Experience of TOT and Indigenisation



2-1. Indigenisation in the US

Kawasaki set up 2 manufacturing plants (100% subsidiary) for indigenisation of rolling stock in the US.



	Inauguration	Ground Area	Shop Area	Employees
Kawasaki Rail Car, Inc. (KRC)	1986	32,440 m ²	13,800 m ²	Approx. 370
Rolling Stock Plant at Kawasaki Motors Manufacturing Corp., U.S.A. (KMM)	2002	230,000 m ²	170,000 m ²	Approx. 550

2. Kawasaki's Experience of TOT and Indigenisation



2-1. Indigenisation in the US (continued)

Allocation of Works

Hyogo Works (as “Mother Factory”)

Engineering works including design development and type tests, manufacture and supply of prototype.

KMM

Entire carbody manufacturing including parts processing and fabrication / assembly of carbody shell, furnishing and factory testing.

KRC

Final assembly, testing and commissioning.

In combination of KRC and KMM, Kawasaki has supplied more than 3,300 cars in the US.

2. Kawasaki's Experience of TOT and Indigenisation



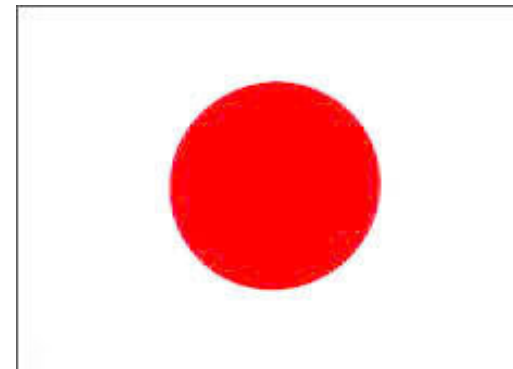
2-2. TOT for China High Speed Rail

Outline of Project

- Kawasaki and CSR Qingdao Sifang Co., Ltd. (“CSR Sifang”) in China got awarded 480 cars of 200km/h EMU from MOR China in 2004.
- Under the agreement of the related parties, Kawasaki transferred manufacturing technologies of high-speed EMU trains to CSR Sifang.
- Kawasaki conducted extensive trainings to CSR Sifang and MOR China to facilitate local manufacturing in China.



3. Proposed Indigenisation Schemes in India



3. Proposed Indigenisation Schemes in India



3-1. Consequences of Indigenisation

1) Expanding Employment for Indian Workforces

- Direct employment in extensive domains;
- Indirect employment for supporting industries and services; and
- Added opportunities for manufacturing industries.

2) Transfer of Knowledge to Industries in India

- Management and administration of manufacturing;
- Manufacturing techniques in mechanical / electrical spheres;
- Inspections and quality assurance techniques; and
- Testing and commissioning.

3. Proposed Indigenisation Schemes in India



3-2. Long Term Partnership between India and Japan

- 1) To develop a solid and mutually beneficial partnership with India on a long-term basis through phased indigenisation.**

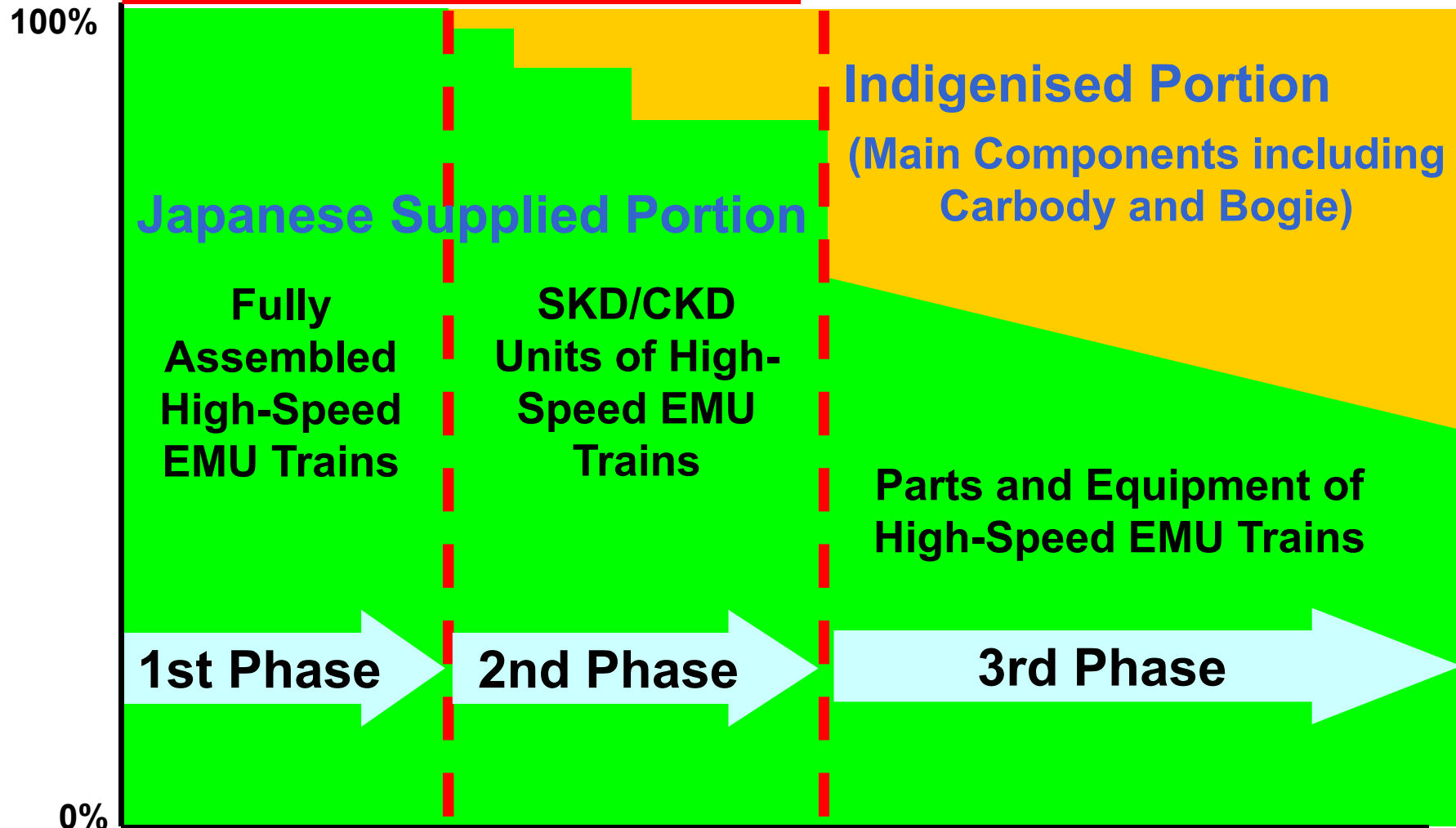
- 2) TOT / indigenisation to focus not only on Ahmedabad - Mumbai - Pune, but also on entire high-speed rail sections to be developed in India.**

3. Proposed Indigenisation Schemes in India



3-3. Proposed Steps of TOT and Indigenised Production

Not to Scale, Image Purpose Only

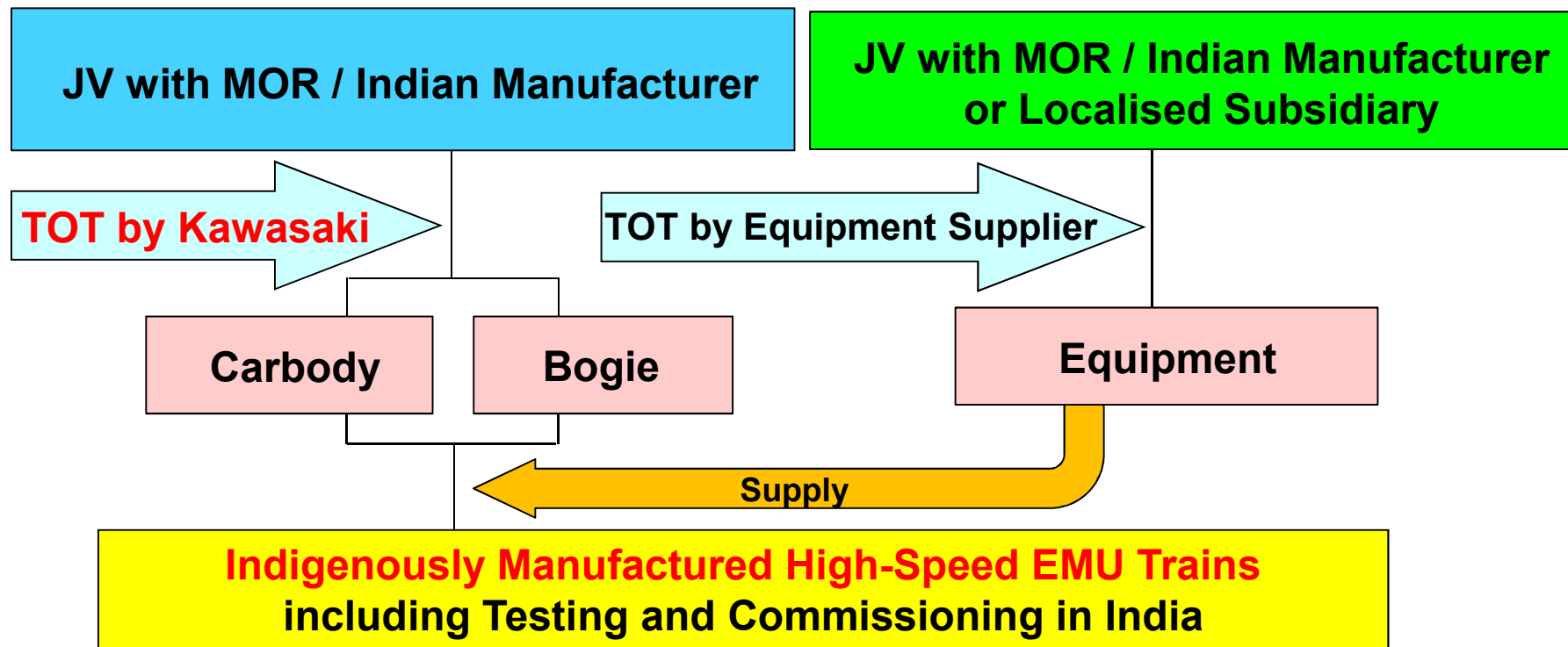


3. Proposed Indigenisation Schemes in India



3-4. Methods for Indigenisation

Example of Indigenisation Scheme
(for Discussion Purpose)



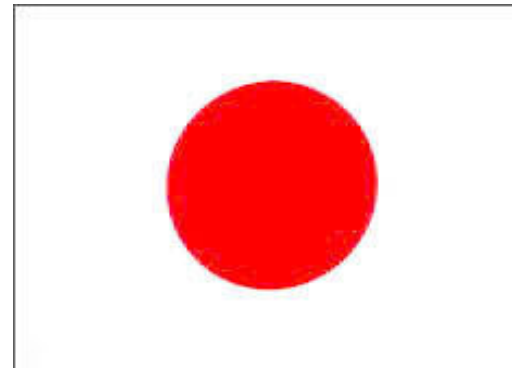
3. Proposed Indigenisation Schemes in India



3-5. Recommended Approach for Indigenisation

- 1) To provide suitable trainings to Indian manufacturers at Hyogo Works in Japan during manufacture of fully assembled trains and SKD/CKD units.**
- 2) To provide Indian manufacturers with adequate on-the-job training in their manufacturing factories in India.**

4. Kawasaki's Resolutions for Indigenisation of High-Speed EMU Trains of India



4. Kawasaki's Resolutions for Indigenisation of High-Speed EMU Trains of India



We will contribute to the growth of economy and industries in India on a long-term basis through successful implementation of TOT and indigenisation of advanced high-speed EMU trains in India.



आपका ध्यान हेतु आपका धन्यवाद।

Thank You for Attention.

ALL ABOARD !!

