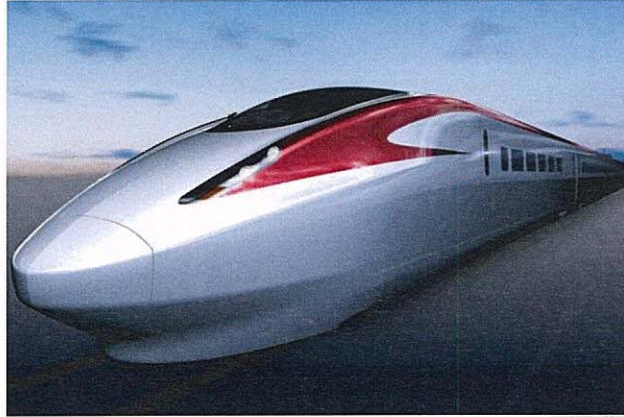


Perspectives of Indigenisation for High-Speed EMU Trains in India



14 October 2015

Kawasaki Heavy Industries, Ltd.

 **Kawasaki**
Powering your potential

Perspectives of Indigenisation for High-Speed EMU Trains in India

- 1. Expertise and Capabilities of Kawasaki in High-Speed EMU Trains**
- 2. Kawasaki's Experience in Transfer of Technology (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

1-1. Overview of Hyogo Works

- **Established**
In 1906
- **Workforces**
Approx. 3,200 employees
- **Area**
Ground area: 223,000 m²



More than **91,000** 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



Kawasaki has supplied close to **4,000** cars of high-speed EMU trains as of March 2015.

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 in TOT and Indigenisation

2-1. Indigenisation in the US

Kawasaki established 2 manufacturing facilities (100% subsidiary) for indigenisation of rolling stock in the US.



	Since	Ground Area	Employees
Kawasaki Rail Car, Inc. (KRC)	1986	32,440 m ²	Approx. 550
Rail Car Plant at Kawasaki Motors Manufacturing Corp., U.S.A. (KMM)	2002	230,000 m ²	Approx. 600

2. Kawasaki's Experience in TOT and Indigenisation

2-2. TOT for China High Speed Rail

Outline of Project

- Kawasaki and CRRC Qingdao Sifang Co., Ltd. (“Sifang”) received order for 480 cars of 200km/h EMU from China’s Ministry of Railways (“MOR China”) in 2004.
- Under the agreement of the related parties, Kawasaki transferred manufacturing technologies of high-speed EMU trains to Sifang.
- Kawasaki conducted extensive trainings to Sifang and MOR China to facilitate local manufacturing in China.



3. Proposed Indigenisation Schemes in India

3-1. Effects of Indigenisation

1) Employment Opportunities for Indian Workforces

- Direct employment in extensive domains as well as indirect employment in supporting industries and services.

2) Transfer of Knowledge to Industries in India

- Management and administration of manufacturing;
- Manufacturing techniques in mechanical / electrical spheres;
- Quality control techniques;
- Testing and commissioning techniques; and
- Maintenance techniques.

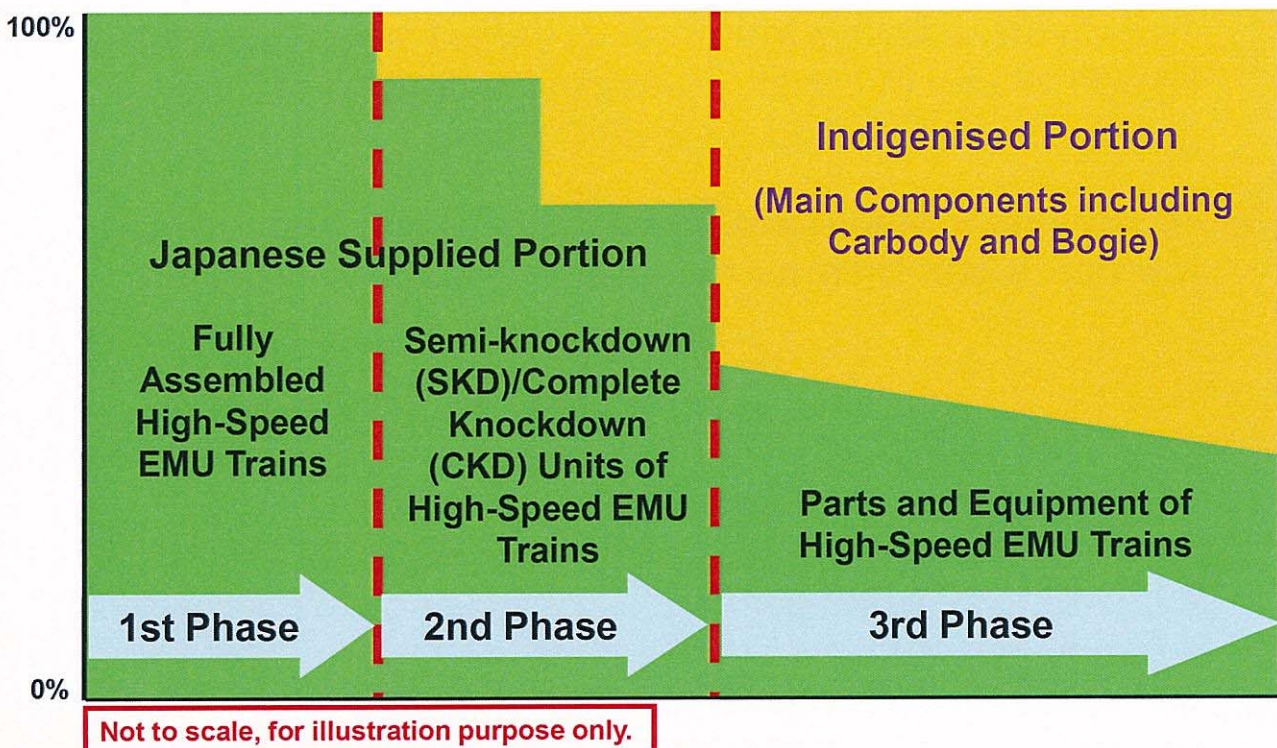
3. Proposed Indigenisation Schemes in India

3-2. Long Term Partnership between India and Japan

- 1) To develop a solid and mutually beneficial “win-win” partnership with India on a long-term basis through phased indigenisation.
- 2) TOT and indigenisation to focus not only on Mumbai – Ahmedabad High-Speed Rail Corridor, but also on other high-speed and semi-high-speed rail sections to be developed in India.

3. Proposed Indigenisation Schemes in India

3-3. Proposed Steps of TOT and Indigenised Production

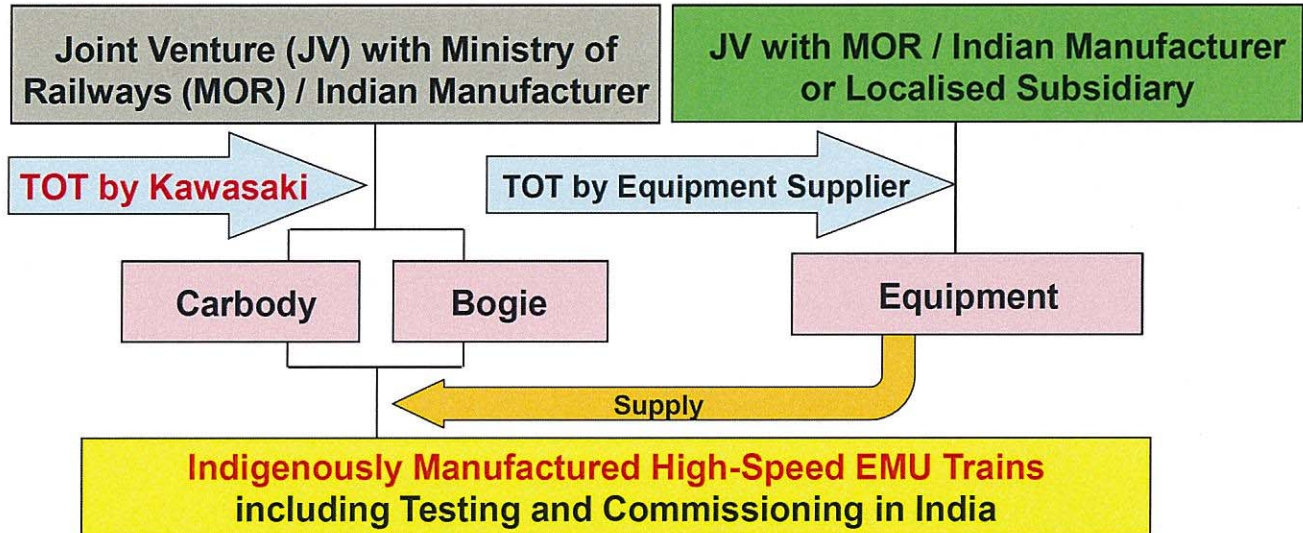


3. Proposed Indigenisation Schemes in India

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

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.



Kawasaki, working as one for the good of the planet
“Global Kawasaki”

