Perspectives of Indigenisation for High-Speed EMU Trains in India
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1. Expertise and Capabilities of Kawasaki in High-Speed EMU Trains
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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)

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

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

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Inauguration</th>
<th>Ground Area</th>
<th>Shop Area</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kawasaki Rail Car, Inc. (KRC)</td>
<td>1986</td>
<td>32,440 m²</td>
<td>13,800 m²</td>
<td>Approx. 370</td>
</tr>
<tr>
<td>Rolling Stock Plant at Kawasaki Motors Manufacturing Corp., U.S.A. (KMM)</td>
<td>2002</td>
<td>230,000 m²</td>
<td>170,000 m²</td>
<td>Approx. 550</td>
</tr>
</tbody>
</table>
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.
2-2. 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.
3-2. 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

- **Japanese Supplied Portion**
  - Fully Assembled High-Speed EMU Trains
  - SKD/CKD Units of High-Speed EMU Trains

- **Indigenised Portion**
  - (Main Components including Carbody and Bogie)
  - Parts and Equipment of High-Speed EMU Trains

- **1st Phase**
- **2nd Phase**
- **3rd Phase**
3. Proposed Indigenisation Schemes in India

3-4. Methods for Indigenisation

Example of Indigenisation Scheme (for Discussion Purpose)

- JV with MOR / Indian Manufacturer
- TOT by Kawasaki
- Carbody
- Bogie
- Equipment
- Supply
- Indigenously Manufactured High-Speed EMU Trains including Testing and Commissioning 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
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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 !!