

NOISE

KL-SG HSR FACT SHEET SERIES / ENVIRONMENT



THE KUALA LUMPUR - SINGAPORE HIGH SPEED RAIL PROJECT

The Kuala Lumpur-Singapore High Speed Rail (KL-SG HSR) is a transformative transportation project that aims to facilitate seamless travel between Kuala Lumpur, Sepang-Putrajaya, Seremban, Melaka, Muar, Batu Pahat, Iskandar Puteri in Malaysia and Jurong East in Singapore.

This fact sheet is one of a series of fact sheets which aims to provide accurate information relating to environmental impact to the public.

WHAT ARE THE POTENTIAL SOURCES OF NOISE?

The KL-SG HSR project will go through 3 distinct phases - design, construction and operations. During the design phase, no noise is expected as works will be confined to desktop related activities. However, noise will be generated during the construction and operations phases.

The key project activities that will generate noise during construction phase are:

- Demolition of buildings
- Piling works (stations, depots, elevated structure)
- Vehicle movement (land clearing, earthworks, transportation of materials)

The key activities that will generate noise during operations phase are:

- Airborne Noise from moving trains
- Stations, depots and maintenance bases daily activities
- Repair and maintenance works on tracks

WHAT ARE THE EXISTING NOISE LEVELS?

MyHSR has performed an Environmental Impact Assessment (EIA)* study and the existing sound levels have been recorded along the alignment:

| Land Use | Noise Level [L_{eq} , dB(A)] # |
|---------------------------------------|-----------------------------------|
| Day Time (7.00am to 10.00pm) | |
| Schools and Institution | 49.3 - 71.9 |
| Plantations | 47.8 - 61.4 |
| Residential Areas | 46.0 - 68.6 |
| Commercial Areas | 47.5 - 67.1 |
| Public Facilities | 54.4 - 72.1 |
| Night Time (10.00pm to 7.00am) | |
| Schools and Institution | 46.8 - 70.6 |
| Plantations | 45.7 - 59.1 |
| Residential Areas | 44.6 - 63.6 |
| Commercial Areas | 47.9 - 56.2 |
| Public Facilities | 53.4 - 67.8 |

Note: # Noise levels vary based on land uses along the alignment.

WHAT ARE THE DEPARTMENT OF ENVIRONMENT GUIDELINES FOR NOISE?

The Department of Environment (DOE) has published "The Planning Guidelines for Environmental Noise Limits and Control" in 2007 which stipulates the maximum noise limits to comply with during the construction and operations of KL-SG HSR (refer table below).

* Environmental Impact Assessment study for the KL-SG HSR project available for reference at www.myhsr.com.my.

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| Receiving Land Use Category | Noise Parameter | Day Time 7.00 am - 7.00 pm | Evening 7.00 pm - 10.00 pm | Night Time 10.00 pm - 7.00 am |
|-----------------------------|------------------|-------------------------------|-------------------------------|----------------------------------|
| Residential (Note 2 **) | L ₉₀ | 60 dBA | 55 dBA | * (Note 1) |
| | L ₁₀ | 75 dBA | 70 dBA | * |
| | L _{max} | 90 dBA | 85 dBA | * |
| Commercial (Note 2 **) | L ₉₀ | 65 dBA | 60 dBA | NA |
| | L ₁₀ | 75 dBA | 70 dBA | NA |
| Industrial | L ₉₀ | 70 dBA | NA | NA |
| | L ₁₀ | 80 dBA | NA | NA |

Maximum Permissible Sound Levels (Percentile L_N and L_{max}) of Construction, Maintenance and Demolition Work by Receiving Land Use | DOE, 2007

| Receiving Land Use Category | Day Time 7.00 am - 10.00 pm | Night Time 10.00 pm - 7.00 am | L _{max} (Day & Night) |
|--|--------------------------------|----------------------------------|-----------------------------------|
| Noise Sensitive Areas Low Density Residential Areas | 60 dBA | 50 dBA | 75 dBA |
| Suburban and Urban Residential Areas | 65 dBA | 60 dBA | 80 dBA |
| Commercial, Business | 70 dBA | 65 dBA | 80 dBA |
| Industrial | 75 dBA | 65 dBA | NA |

Limiting Sound Level (L_{Aeq}) for Railways including Transits (for New Development and Re-alignments) | DOE, 2007

PROPOSED MITIGATION MEASURES

Noise mitigation measures have been incorporated into the project's design.

In addition, further mitigation measures have been proposed in the EIA* study to reduce the noise levels from the construction and operations of the KL-SG HSR as follows:

- Temporary and permanent noise barriers shall be erected if deemed necessary.
- Bored piling, hydraulic press-in or jack-in spun piling shall be used to employ more silent and low-vibration piling methods.
- Installation of noise control devices such as mufflers and soundproof enclosures at the noise-emitting machinery and equipment.
- Construction works shall be limited to 8am – 6pm and working days only. No work is allowed during weekends unless approval obtained from DOE and respective local authorities.
- Continuous noise measurement throughout the construction period to confirm compliance to DOE acceptance limits.

WHAT ARE THE PREDICTED NOISE LEVELS FROM THE KL-SG HSR?

MyHSR is committed to adhere to the guidelines from the Department of Environment (DOE) as shown above. However, in the event the existing noise levels are already higher than the limits set by DOE, the following shall apply:

- During construction, if the existing noise level is higher than the DOE limit, the higher existing noise level shall prevail.
- During operations phase, if the existing noise level is higher than the DOE limit, the maximum permissible sound level (Leq) = existing level +3dBA.

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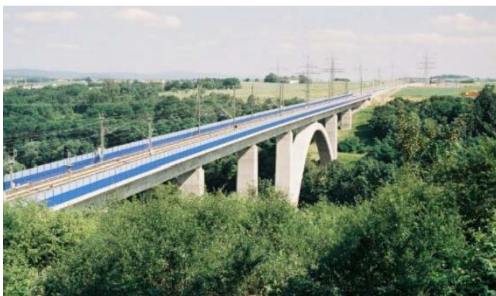
Example of mitigation measures implemented for the Klang Valley Mass Rapid Transit (MRT) and High Speed Rail projects in China, France, Germany and Korea.



Temporary Noise Barrier, MRT Construction Site, KL



Enclosure for Movable Equipment



Noise Barrier, Rhine River Viaduct, Germany (HSR Train)



Noise Barrier, KTX High Speed Train System, Korea



Noise Barrier, SNCF High Speed Train System, France



Noise Barrier, China High Speed Train System



Noise Barrier, Japanese High Speed Train System



Noise Barrier, German High Speed Train System

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