

# ITEANZ

## Working in Asia Seminar

### Thursday 12 May 2016

# Scope of Presentation

- Summary of my involvement with road safety projects
- Some key road safety facts
- Reflections on project involvement
  - Technical
  - Practical
  - Personal
- Examples of road safety concerns / problems
  - Need for improved resources, training/mentoring and design practice

# Road Safety Project Involvement: Vietnam

- **2015: Road safety audit - Nippon Koei**
  - Hanoi City Ring Road No.3 construction project, Mai Dich – South Thang Long: Preliminary design
- **2013: Road safety audit - Nippon Koei**
  - 131km Danang to Quang Ngai Expressway
- **2010 and 2011 - Consia Consultants**
  - Multi-sectoral road safety monitoring and evaluation
  - Road safety audit training - Ministry of Transport National Traffic Safety Committee
- **2006 and 2007 - Consia Consultants**
  - Road Safety Improvement and Heavy Traffic Management Study: Team Leader & Blackspot Expert (13 months)
  - Standards and procedures for RSA and blackspot investigation / treatment
  - Piloting of the new procedures
  - Training programs

# Road Safety Project Involvement: Philippines

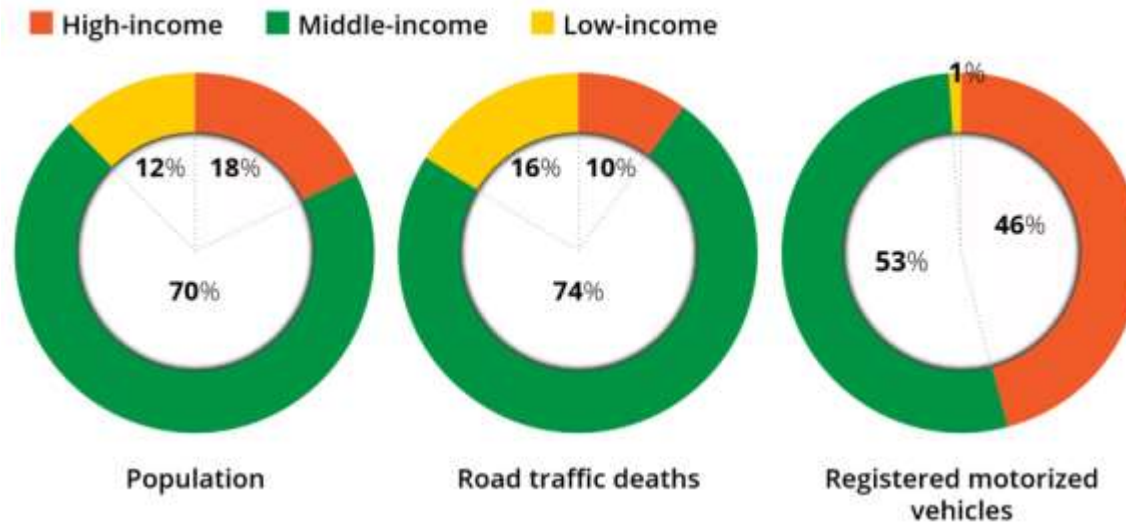
- 2003 and 2004: VicRoads International Projects (16 months)
  - Road safety capacity building project with DPWH
  - Development of road safety and design resources incl. training
    - Accident Black Spot investigation / evaluation
    - Road Works Safety
    - Road Safety Audit
    - Signs and Pavement Markings
    - Road Safety Design Standards
  - Traffic Accident Recording and Analysis System
  - Investigation of 35 hazardous locations (black spots)
    - incl. mentoring local staff
  - Road Safety Section
    - Operations Manual
    - Key Performance Indicator System
    - Training Needs Assessment and Training Action Plan

# Road Safety Project Involvement:

- Indonesia: 2010 - Road Safety International
  - Road Safety Manuals Project: Manual for Roadside Hazard Management
- Western Samoa: 2009 (World Bank)
  - Road safety and traffic engineering advice prior to changing from driving on the right to driving on the left side of the road
- Dubai: 2007 - VicRoads International Projects - home office
  - Review of Dubai standards and international practices relating to safe roadside design
- India: 2005 - VicRoads International Projects (3 months)
  - Road safety audit of 750 km of national highway

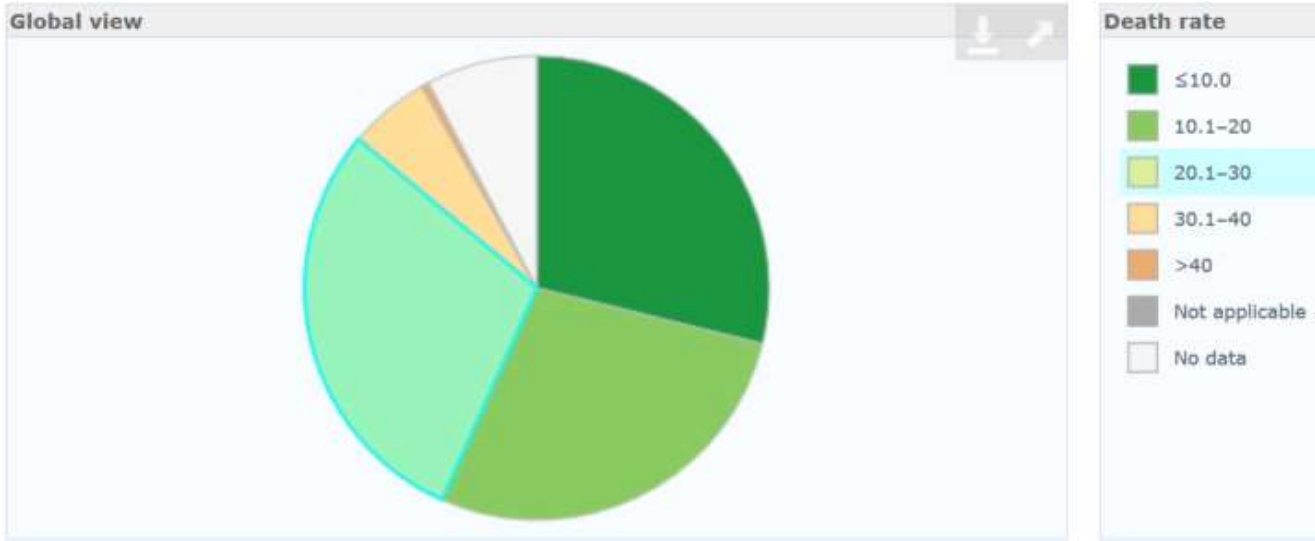
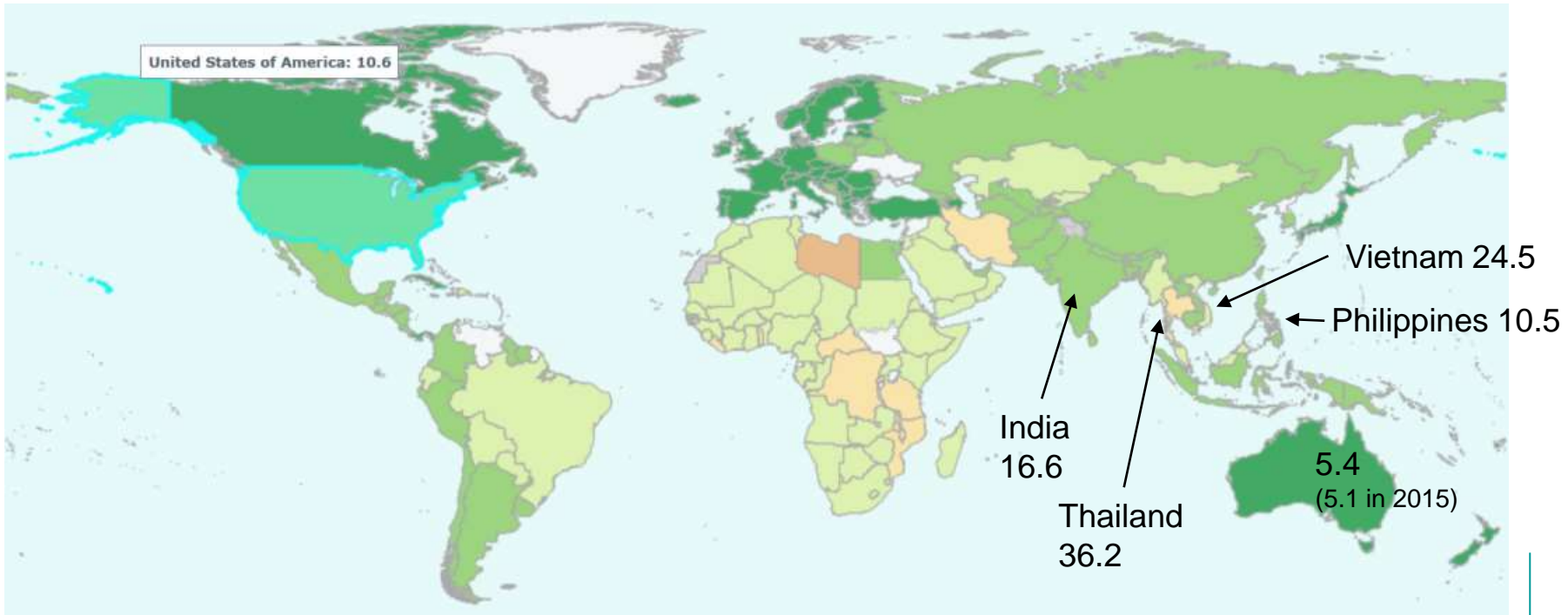
# Global Road Safety: Key Facts (WHO 2015)

- 90% of the world's road fatalities occur in low and middle-income countries, yet these countries only have about half of the world's vehicles
- Half of those dying on the world's roads are vulnerable road users: pedestrians, cyclists and motorcyclists
  - A significant factor in Asian countries



Country income based on World Bank data March 2013 (see <http://data.worldbank.org/>)  
 Low-income: ≤ US\$ 1045 per capita  
 Middle-income: US\$ 1046 to US\$ 12 745  
 High income: ≥ US\$ 12 746

# Road Traffic Death Rate (per 100,000 population 2013 - WHO)



# Practical challenges in project involvement

- Flexible and adaptable
  - Minimal technical support and interaction – self reliant
  - Working arrangements, office, travel etc.
- Working relationships
  - Client
  - Local staff
  - Expat staff
- Realistic expectations
  - Get the fundamentals right - change may not come quickly
- Personal security and safety





# Practical challenges in project involvement

- Cultural Issues
  - Formality of meetings
  - Management styles and approaches
    - Top down management
    - Adherence to familiar standards irrespective of other considerations
- Language Barriers
  - Translation of documents – to English - from English
    - Needs technical translator - not a general language translator
    - Strategies to get it right
  - Meetings using an interpreter
    - Good working relationship and trust is essential
    - What is really meant (what is said and not said)

# Technical challenges in project involvement

- Understanding administrative and legal frameworks
- Understanding of local standards
  - Alternatives to local standards
- Driving on the right side of the road
- Relevant and appropriate designs / recommendations

# Technical challenges in project involvement

- **Road Users**

Countries may have similar road rules & regulations to what we know. But .....

- Driving behaviour is often based on ...
  - ‘Might is right’
    - Trucks–cars–motorbikes–cyclists–peds
    - No priority for pedestrians
      - » even at formal crossings
  - Driving habits
    - Wrong way driving
    - Ignoring painted islands
- ‘Rule of law’ and enforcement
  - Alcohol
  - Seat belts
  - Helmets
  - Fatigue
- Economic realities for road users



# Technical challenges in project involvement

- Road Users and Behaviour



# Technical challenges in project involvement

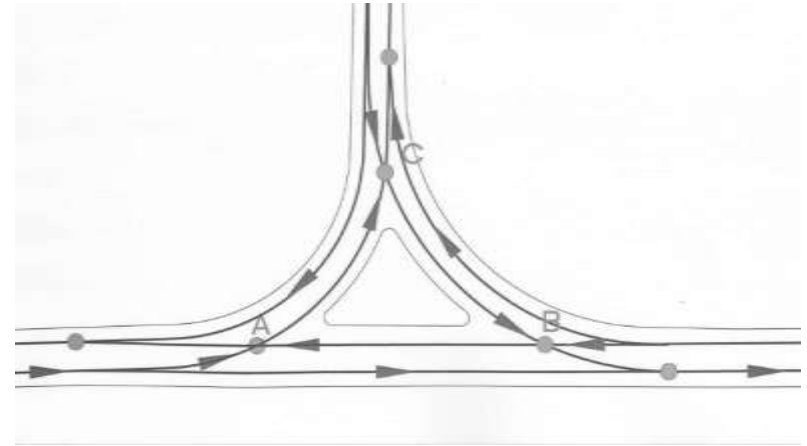
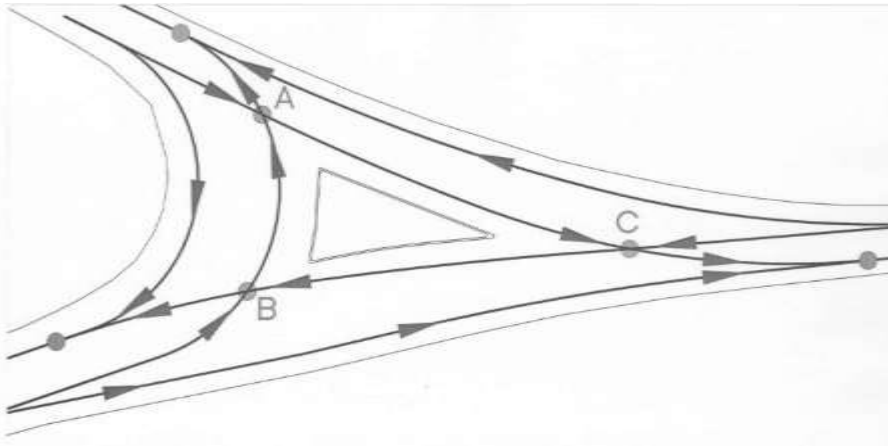
Widening roads is easy!

But what about intersections?



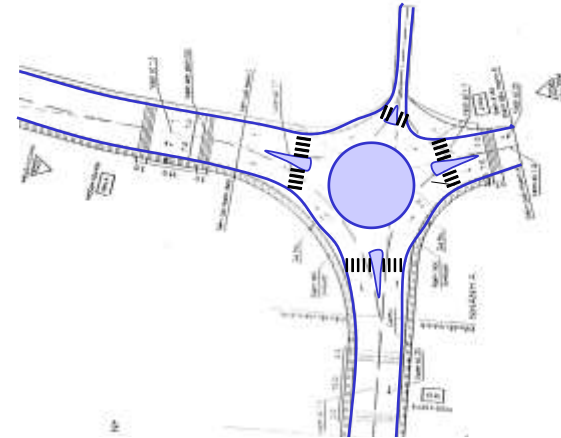
- Traffic management
- Insufficient median openings – wrong way movements
- When there is an intersection – left turns from through traffic lane

## Other Intersection Examples



- Two way traffic each side of triangle island
  - Potential for high speed, high severity and head on accidents
  - Sight distance restrictions
  - Difficult achieving effective priority and traffic control with signs

# Other Intersection Examples



# Connections at the end of Major Projects

## Between HRR3 (Mai Dich – North Linh Dam) and Mai Dich Flyover

- Connection between two long sections of expressway
  - Hazardous manoeuvres in long wide area of pavement
  - Buses stopping
  - Median barrier
    - Would not stop an errant vehicle
    - Pedestrians cross expressway through gaps





# Connections at the end of Major Projects

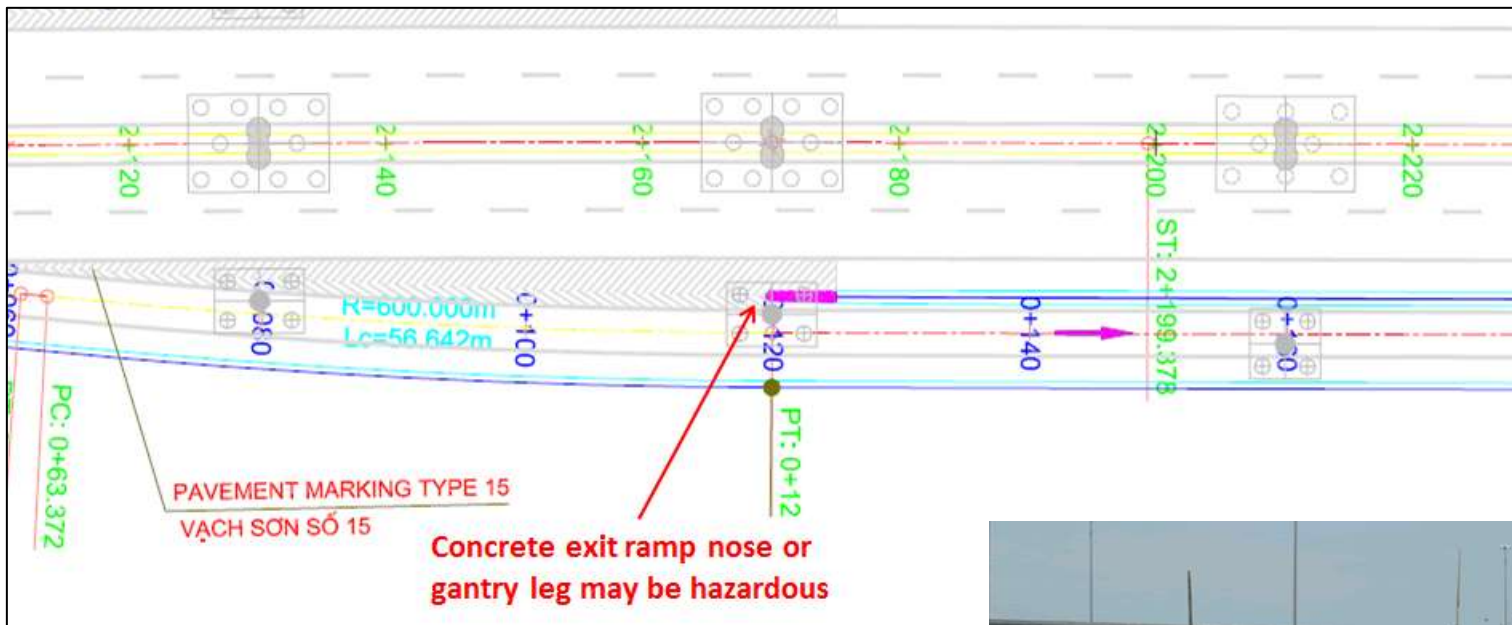
## Between HRR3 (Mai Dich – North Linh Dam) and Mai Dich Flyover

- Other safety concerns:
  - Buses stopping
  - Median barrier
    - Would not stop an errant vehicle crossing median
    - Pedestrians cross expressway through gaps



# Safety Barriers

- Unshielded concrete barrier / parapet at off-ramp nose



# Guardrail Warrants

## Safety Concern

- Current standard: embankment  $\geq 4$  m high (TCVN-4054-05)

## Improved standard

- As a minimum, adopt Vietnam standard 22TCN-273-01
- AASHTO standards
- Austroads standard

Figure 12-2-1: Comparative Risk Warrants for Embankments

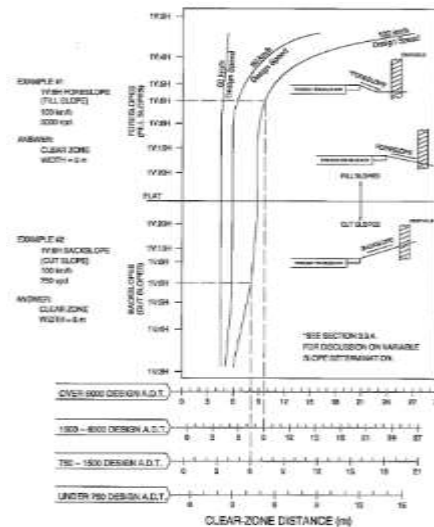
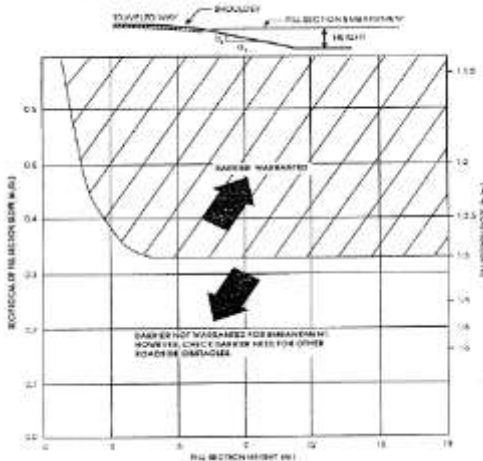
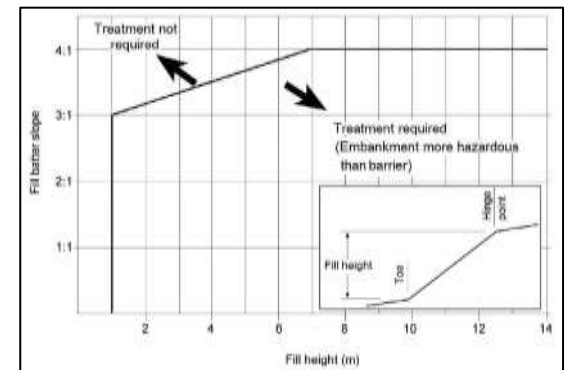


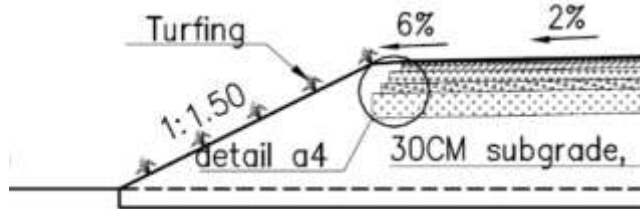
FIGURE 3. Clear-zone distance zones (meters)



# Embankment Slopes

## Safety Concern

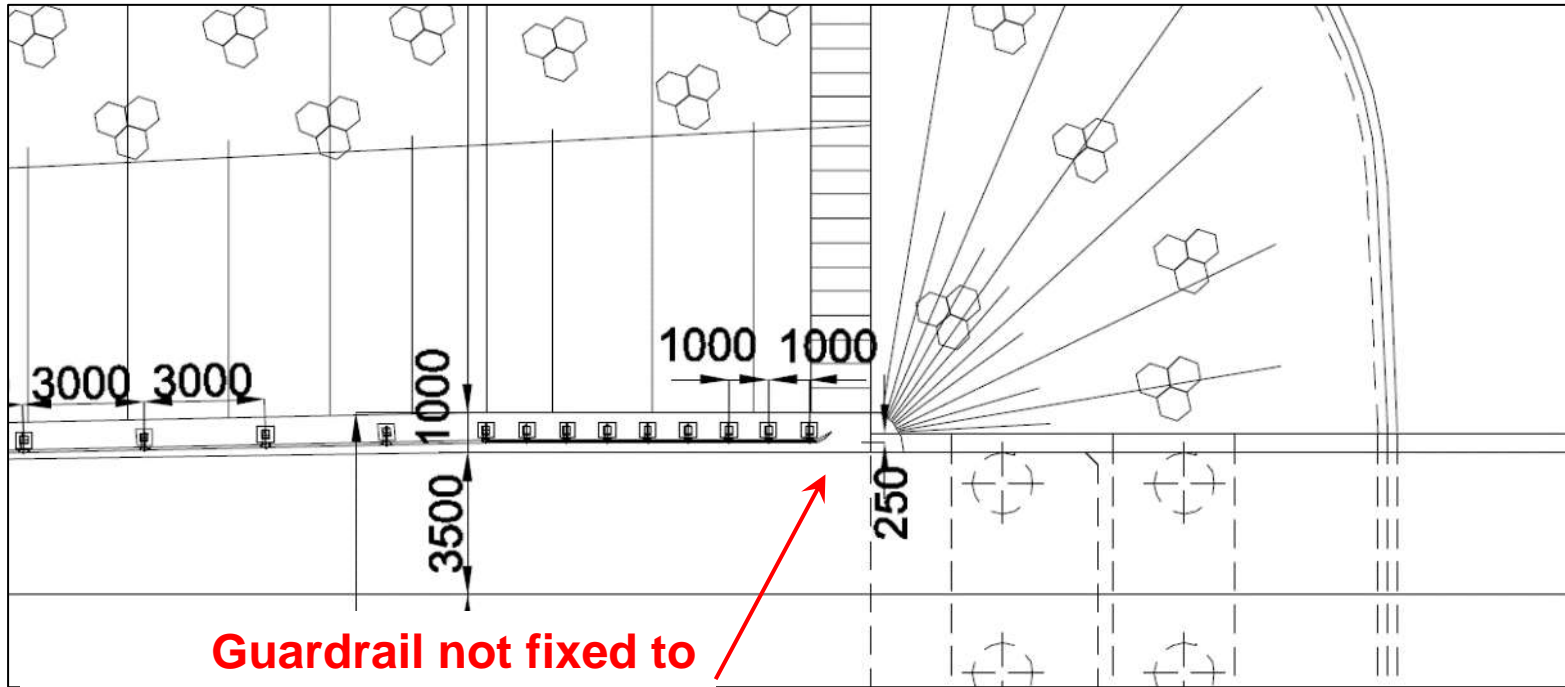
- Fill slopes 1:1.5 (without safety barrier)



## Improved standard

- Provide a forgiving roadside rather than guardrail
  - Where feasible, flatten fill slopes to 1:4 or flatter
  - Adopt a safety barrier
    - If embankment >1 meter (guardrail warrant needs review)

# Guardrail Terminals / Bridge Barrier Continuity and Connections



**Guardrail not fixed to abutment**

# Personal reflections on project involvement

- Interesting, challenging and satisfying
- Gratitude of local staff
- Project team also becomes your social network
  - Meals
  - Activities
  - Health issues
- Social interaction with other expat staff
  - Other projects
  - Connections via Embassy or DFAT

# Three phases of project involvement:

- **Wow !**
- **Why ?**
- **When ?**