

# Road Safety Issues of Hill Roads in India – Experiences of Road Safety Auditing

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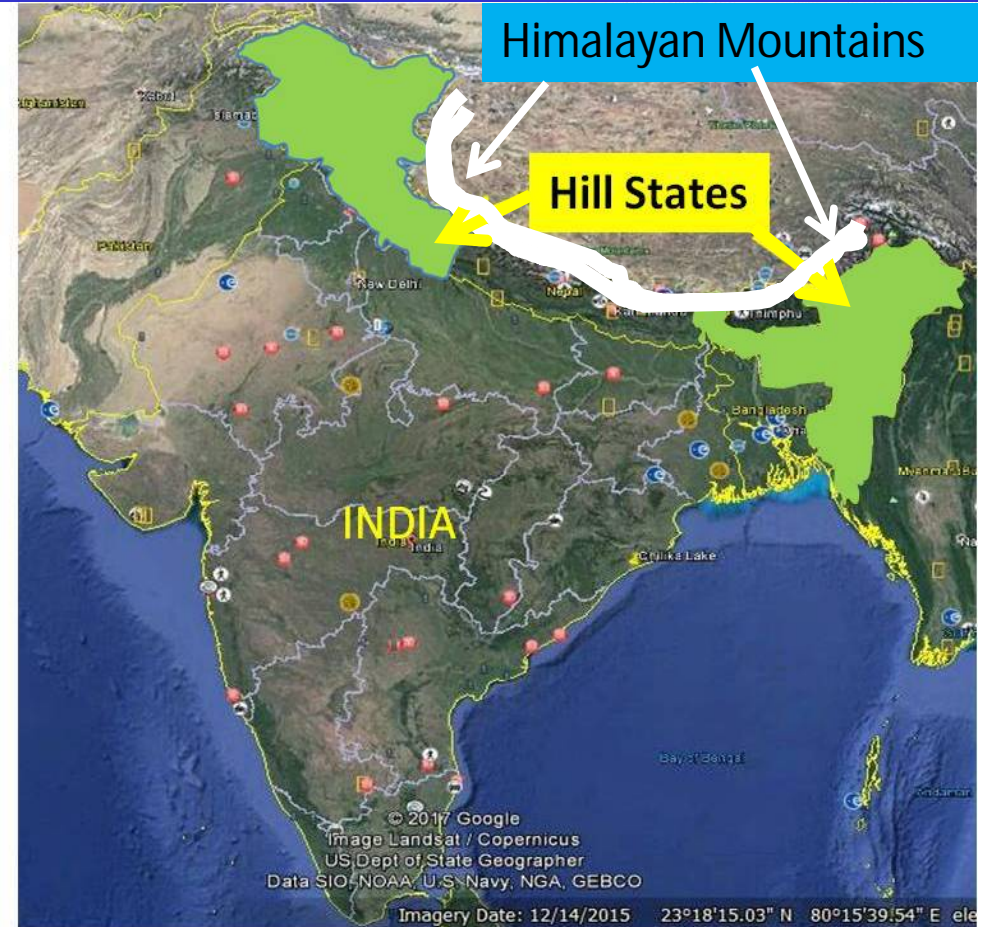
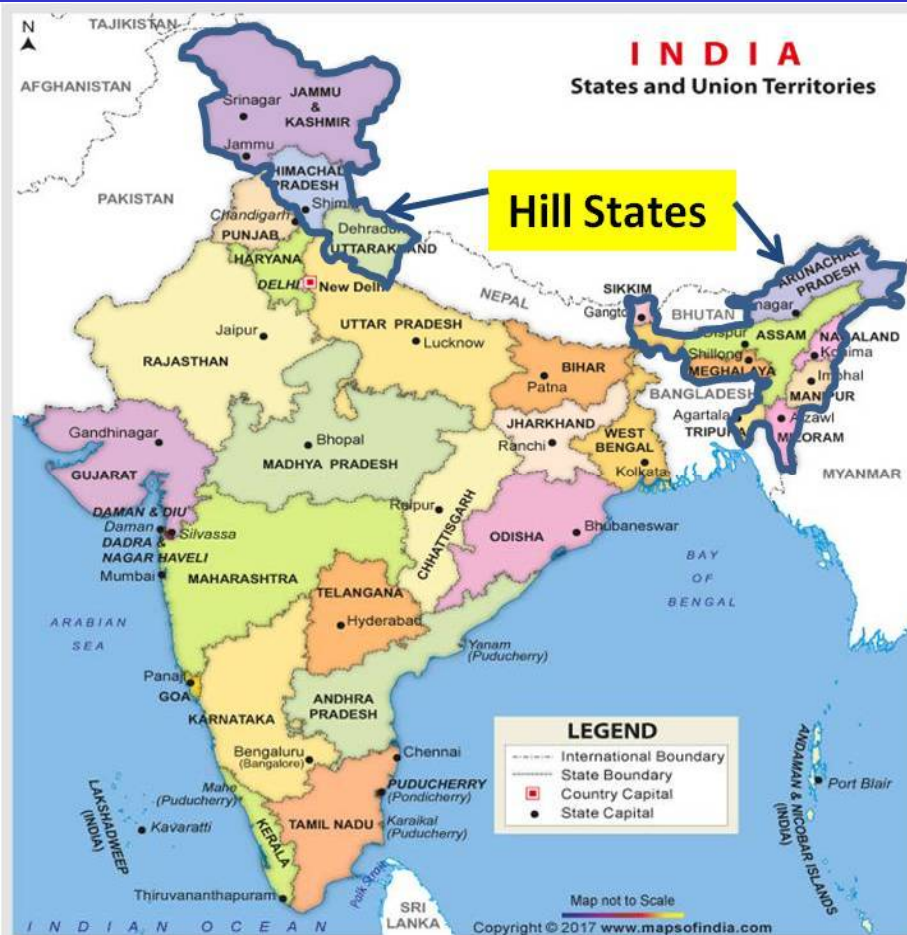
**IRF-World Road Meeting-2017**

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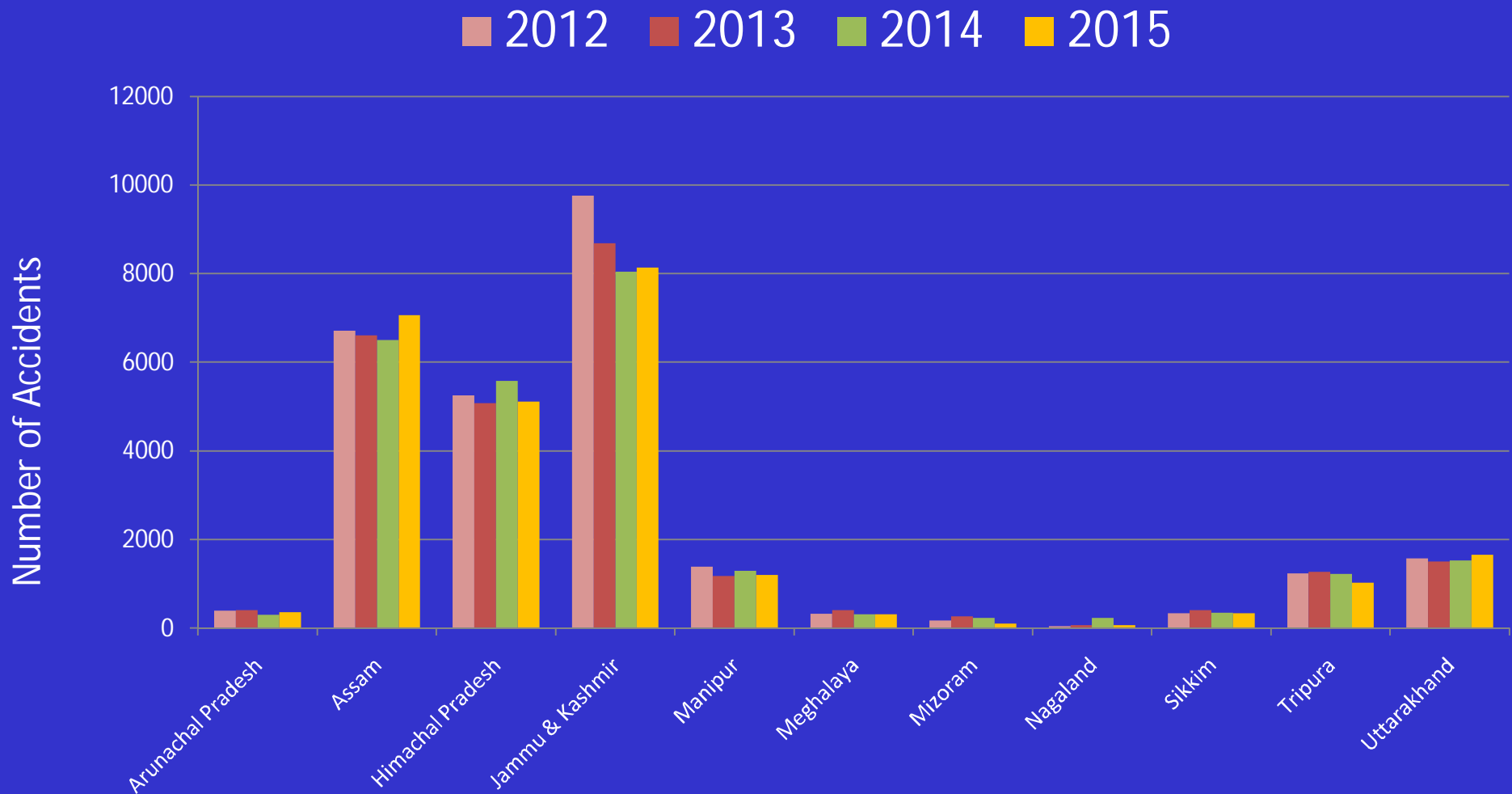


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# Location of Hill States in India

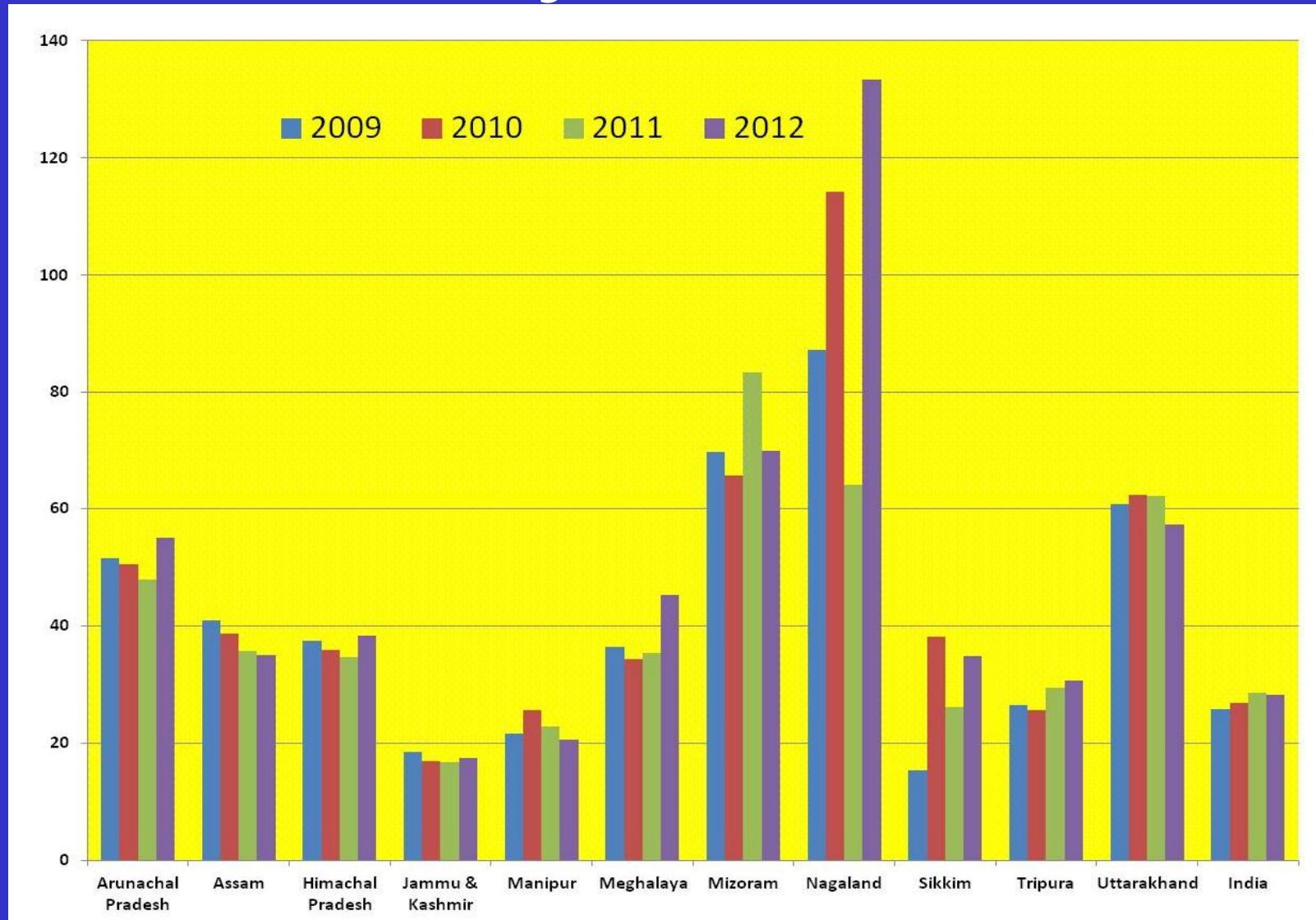


# Road Accident Trends in Hill States of India



# Accident Severity in India and Hill States

Severity of Accidents (Fatalities/hundred Accidents)



# Steep Valley Slopes Needing Delineation and Protection



**a) Steep Valley Slope having no space to post Barrier**



**b) Vertical Retaining Wall to Support the Road**

# Blind Curves Followed by Steep Unprotected Slopes



**Blind Curve Followed by Steep Slope/Gorge**



**Blind Curve Followed by Steep Slope/Gorge**



# Sharp Curves and Inadequate Signs



**Hair-Pin Bend Sign posted at the Apex of the Curve**



**Un-Conventional Sign posted to warn about Hair-Pin Bend**

# Signs are posted at high level



**Warning signs are posted very close to the sharp blind curve at higher level**



**Warning signs are posted very close to the sharp blind curve at higher level**

# Trees are Serious Hazards Needing Delineation



**Unprotected/Undelineated Trees can be Severe hazards**



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# Physical Objects and Rock Outcrops are Potential hazards



**Delineation of the Culvert head walls and trees is essential**



**Out Crops of Rocks can cause crashes on hill roads.**

# Cross Drainage Systems are Inadequate



**Absence of Drain can Erode the Road**



**Blocked Drain can Erode the Road**



# Irrigation Channel Run Along the Alignment



**Road Side Irrigation Channels need to be controlled from spilling the water and eroding the road**



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# Road Safety Audit of Hill Roads - Basic Safety Issues are

- Sharp Curves
- Unprotected Steep Slopes
- Road Side Objects and Trees
- Inadequate and Improper Drains
- Parallel Irrigation Canals



# Thank You



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