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Pavement and Construction Materials

SAFE SOURCING – suggested recommendations

Key Points

- 1 Phase out use of bricks for road pavement, following the Brick Manufacturing & Kiln Establishment Act, 2013 (Amended 2019)
- 2 Avoid use of sand and gravel, sourced from vulnerable river in drought prone areas (for instance Barind), following the Balumohal and Soil Management Act, 2010 (amended 2023)
- 3 Repurpose excavation material from silted up drainage canals in road development and maintenance. When the material is highly plastic, mix with cement, lime or brick dust. Asses it is not contaminated with organic or chemical material
- 4 Repurpose excavation material (rock rubble) from road building in CHT, for instance in water recharge and slope protection
- 5 Explore new road building techniques in which waste material (plastic, rubber tyres, used asphalt) can be recycled
- 6 Consider employment factor in road construction and maintenance – preserving importance of road construction and maintenance in rural job creation

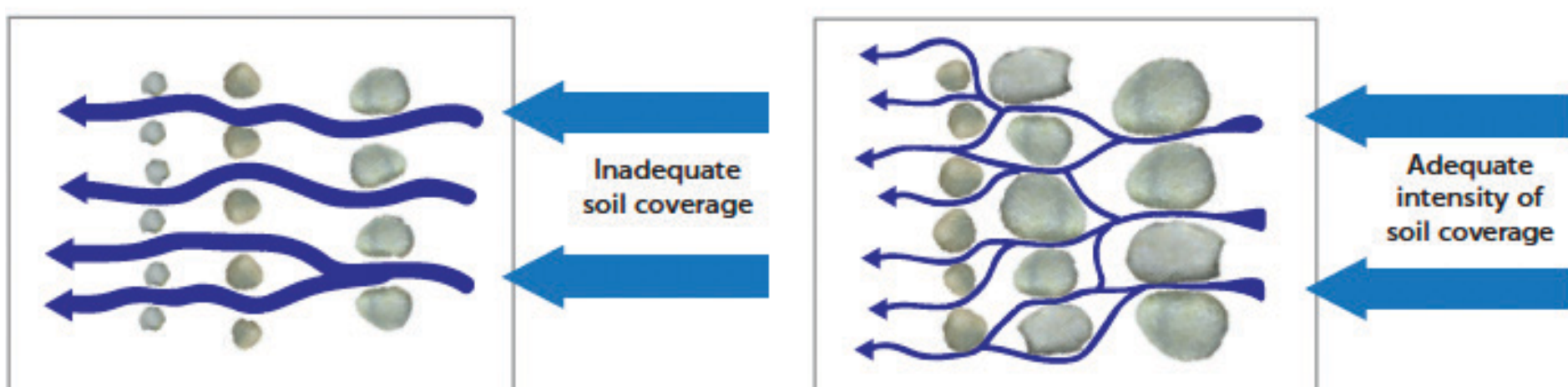
Some recommended pavements

Zone	Surface Layer Type	Binder/ Modifier	Base Layer Type	Rationale
Coastal Zone	Uni-block Pavement / Hot Sand Asphalt / RAP	Polymer Modified Bitumen (PmB)	ETB / Steel Slag (Unbound) / Demolition Waste + Geosynthetics	Resists salinity, waterlogging, and erosion; durable in high humidity; geosynthetics enhance structural stability and erosion control.
Barind and Drought-Prone	Steel Slag Asphalt Concrete / RAP	WEP Modified Asphalt	CTB / Brick Aggregate	Handles high temperature and dry conditions; WEP enhances flexibility and sustainability; CTB provides strength in hard soils.
Haors and Flash Flood Zones	Hot Sand Asphalt / RAP	Polymer Modified Bitumen (PmB)	Demolition Waste / ETB + Geosynthetics	Performs under frequent submersion and drying; RAP adds stiffness; geosynthetics improve drainage and flood resilience.
Chattogram Hill Tracts	Double Surface Dressing / Asphalt Wearing Course	Polymer Modified Bitumen (PmB)	CTB + Geosynthetics	Suitable for steep, erosion-prone terrain; reduces emissions and improves compaction; geosynthetics aid slope stabilization.
River Systems & Estuaries	Asphalt Wearing Course / Rigid Pavement with Recycled Aggregate	Polymer Modified Bitumen (PmB)	CTB / Demolition Waste + Geosynthetics	Ensures durability in areas prone to water fluctuation and erosion; reduces carbon footprint; geosynthetics manage drainage.

Unpaved roads – recommended practice



Use rolling dips or water bars (slightly elevated hump at angle with the road) to remove water from unpaved surface



Use rocks (where available) or grasses on the road sides to dissipate water running from the unpaved road surface and avoid erosion



Increasing Resilience of Rural Infrastructure and Local Communities through Green Roads Concept