ARID LANDFORMS

Arid Regions

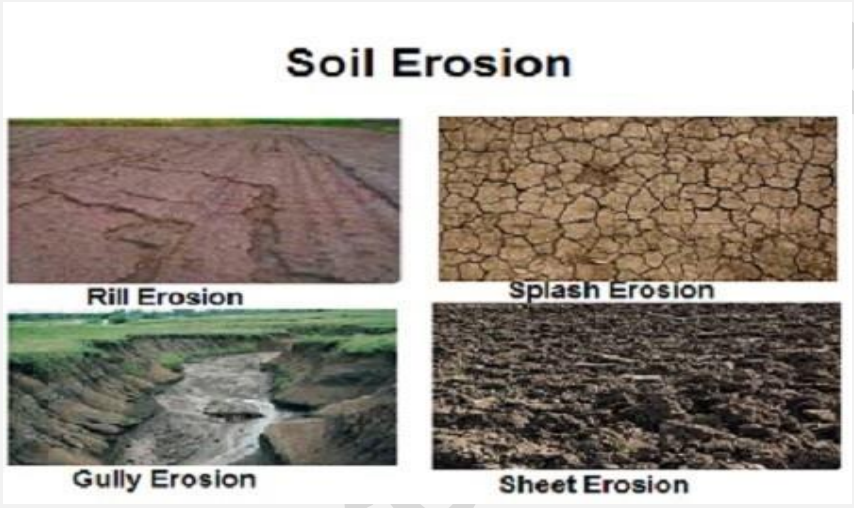
- Rainfall < 25 cm annually
- High evaporation
- Sparse vegetation
- Dominant processes → **Wind (Aeolian) + Flash floods**

I. WATER ERODED ARID LANDFORMS

Rill

- Small, shallow channels
- First stage of fluvial erosion
- Formed by **runoff after sudden rain**

Gully

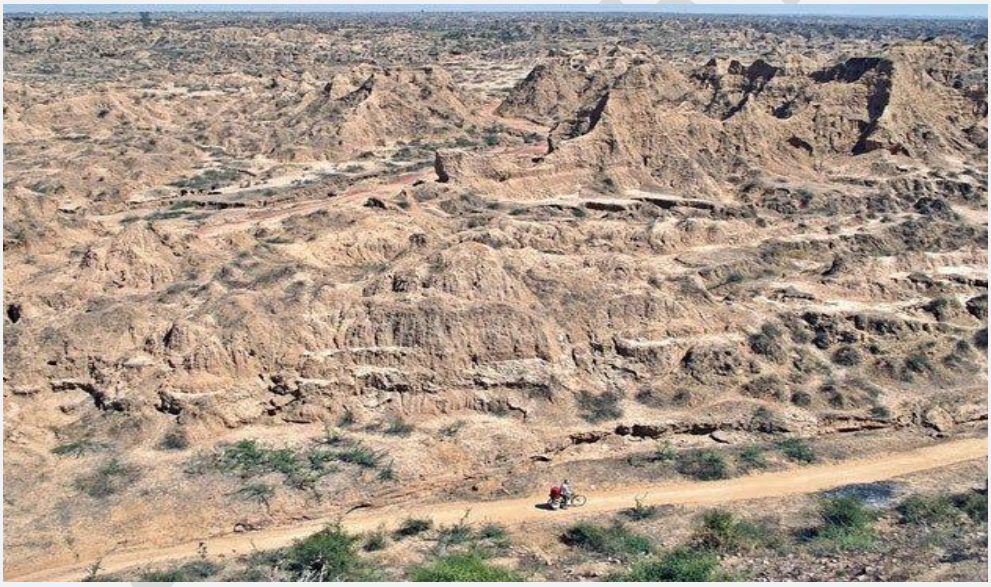


- Larger & deeper than rill
- Cannot be removed by normal ploughing
- Advanced erosion stage

Ravine

- Larger than gully
- Narrower than canyon
- **Example:** Chambal region

Badland Topography



- Network of rills, gullies, ravines
- Formed in weak sedimentary rocks
- Highly dissected terrain

Bolsons

- Intermontane basins in arid areas
- Closed drainage system

Playas

- Temporary lakes in bolsons
- After evaporation → **Salina (salt crust)**

Pediment

- Gently sloping **rock-cut surface**
- Located at mountain foot
- **Erosional landform**
- NOT depositional (common Prelims trap)

Bajada

- Formed by merging of alluvial fans
- Depositional

- Located between pediment & playa

II. WIND ERODED ARID LANDFORMS

Aeolian Processes:

- **Deflation** → Removal of loose particles
- **Abrasion** → Sand blasting
- **Attrition** → Particle collision

Deflation Basin (Blowout)

- Hollow formed due to removal of particles
- May reach several km diameter

Mushroom Rock (Rock Pedestal)

- Narrow base, broad top
- Due to greater abrasion near ground
- Different from yardang

Inselberg (Monadnock)

- Isolated hill rising abruptly from plain
- Residual landform

Demoiselles

- Rock pillars
- Hard rock protects softer rock below
- Differential erosion

Zeugen

- Table-shaped rock mass
- Resistant cap rock
- Undercutting of softer rock

Yardang

- Streamlined ridge
- Parallel to prevailing wind

Wind Windows & Bridges

- Holes created by abrasion
- If widened → arch (bridge)

III. WIND DEPOSITIONAL LANDFORMS

Ripple Marks

- Small-scale ridges
- Formed by saltation

SAND DUNES

Longitudinal Dunes

- Parallel to wind
- Also called Seif dunes

Transverse Dunes

- Perpendicular to wind
- Form when sand supply abundant

Barchans

- Crescent-shaped
- Horns point downwind
- Form in limited sand areas

Parabolic Dunes

- U-shaped
- Horns point upwind
- Often vegetation anchored

Star Dunes

- Central peak
- Multi-directional winds

Loess

- Wind-blown fine silt
- Very fertile soil
- Major deposits → China (Yellow River), USA (Missouri Basin)