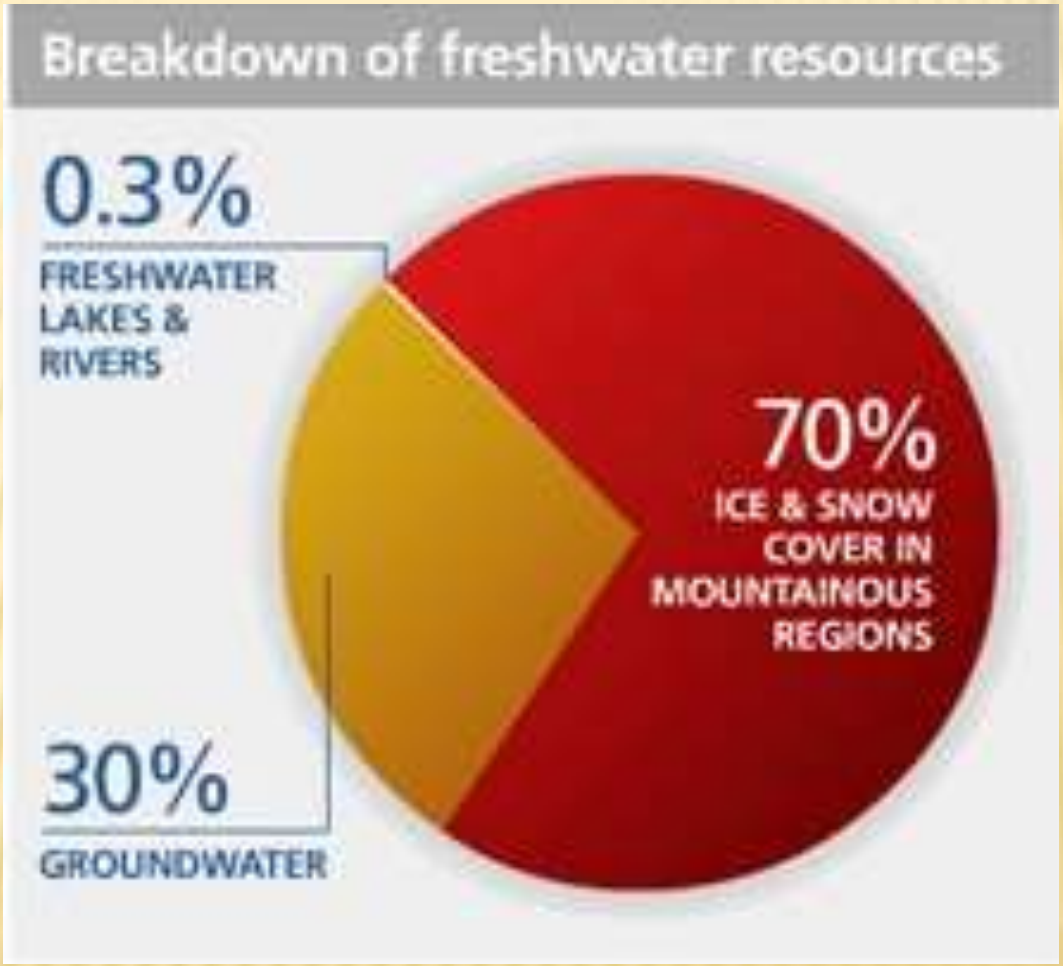
EARTH SCIENCE IN WATERSHED MANAGEMENT

Advanced Center for Water Resources Development and Management (ACWADAM)

WORLD'S WATER RESOURCES

Source: (UNEP)

WORLD'S FRESHWATER RESOURCES



Source: (UNEP)

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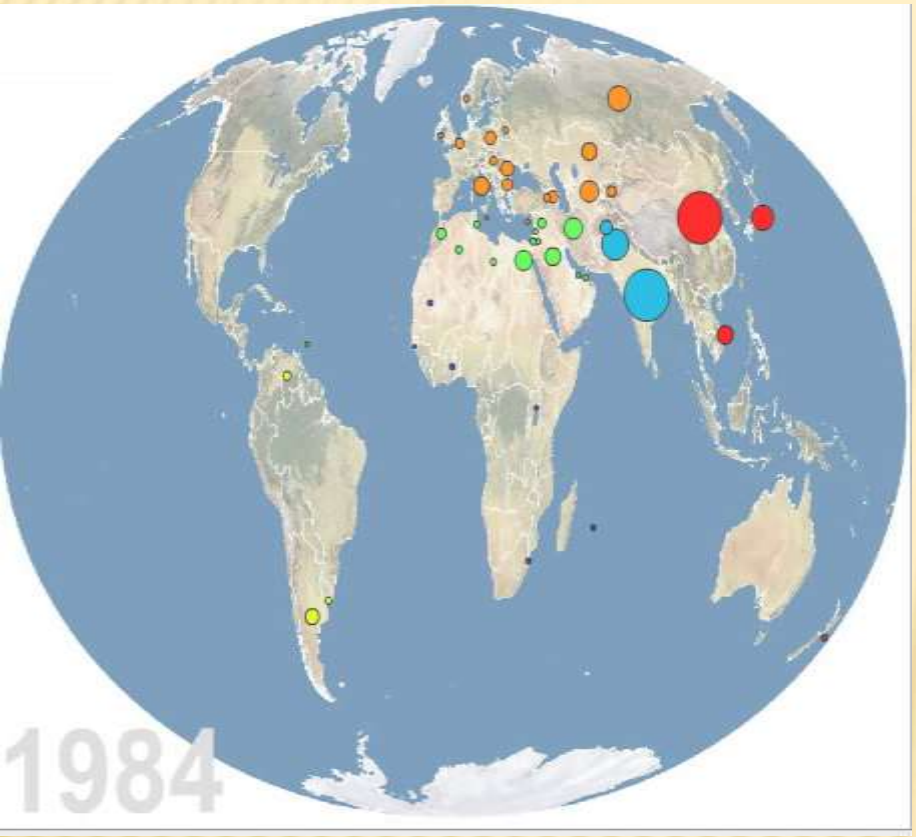
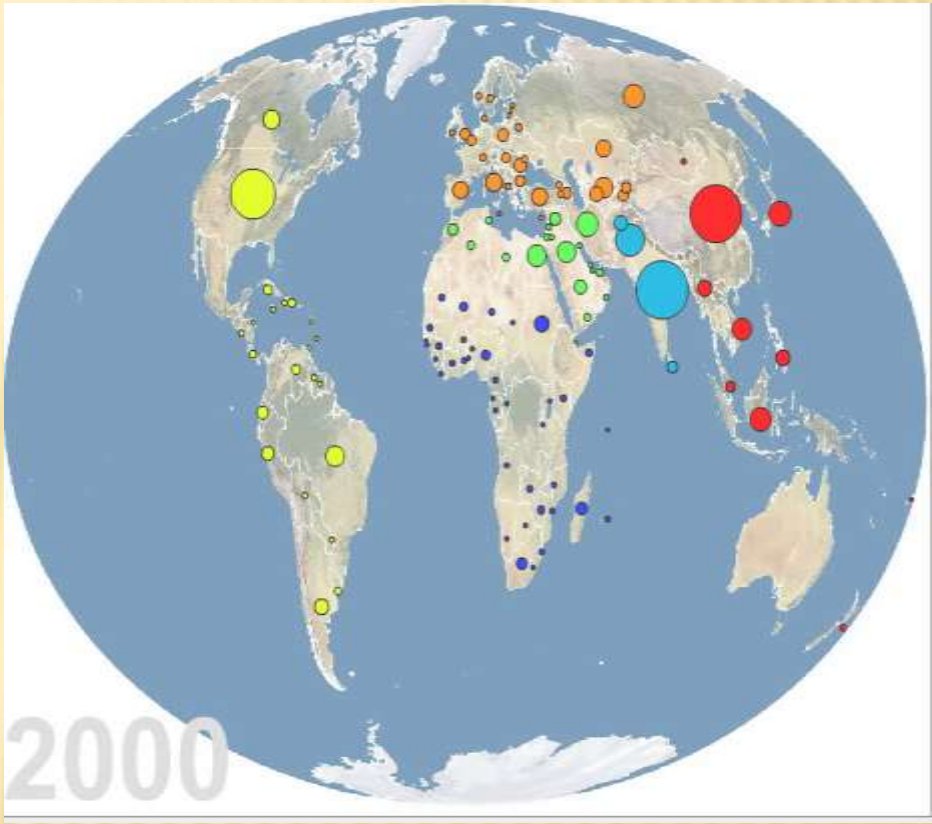
WATER WITHDRAWAL USED IN AGRICULTURE





Source: (FAO)

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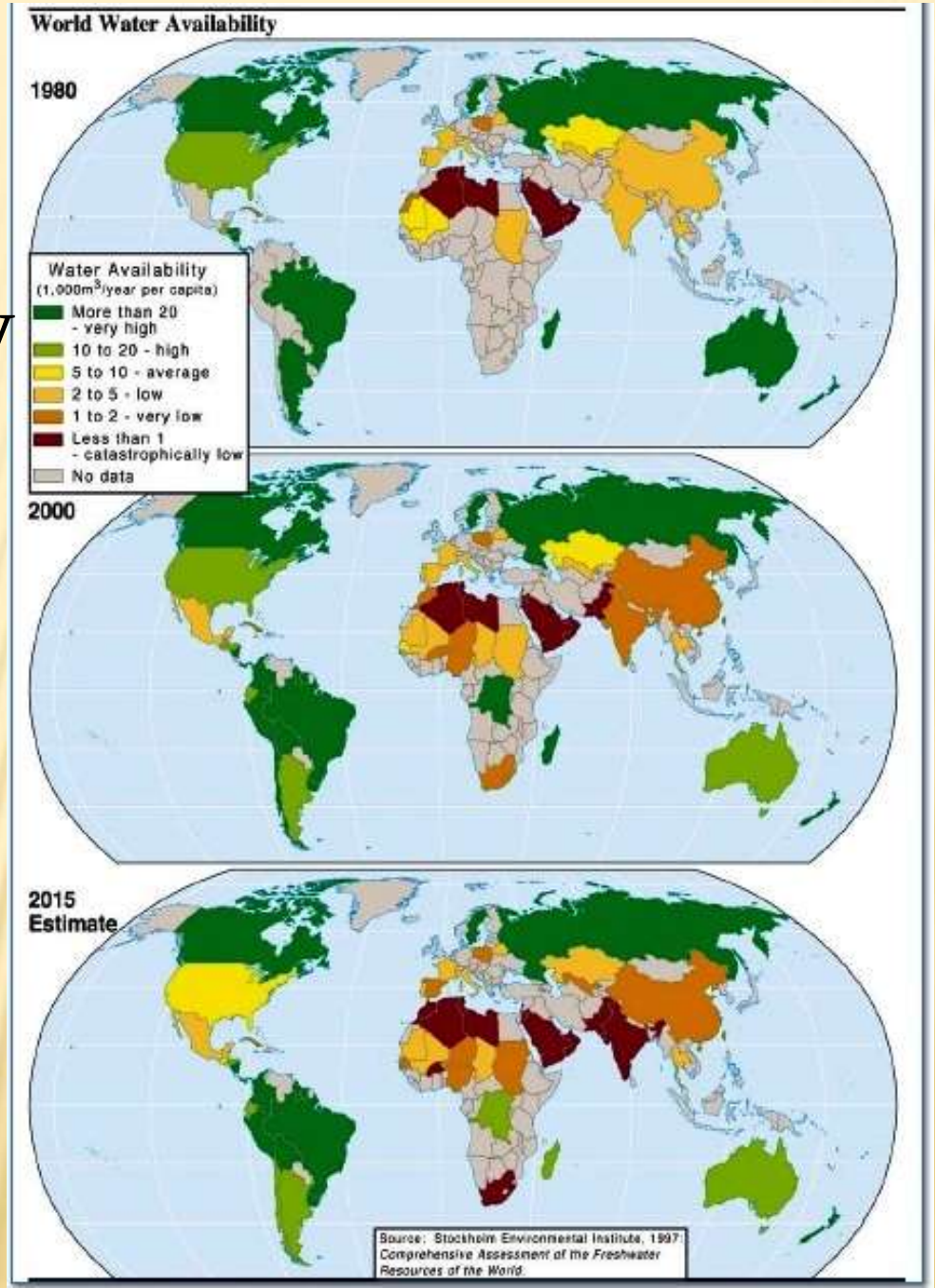
World Water Availability



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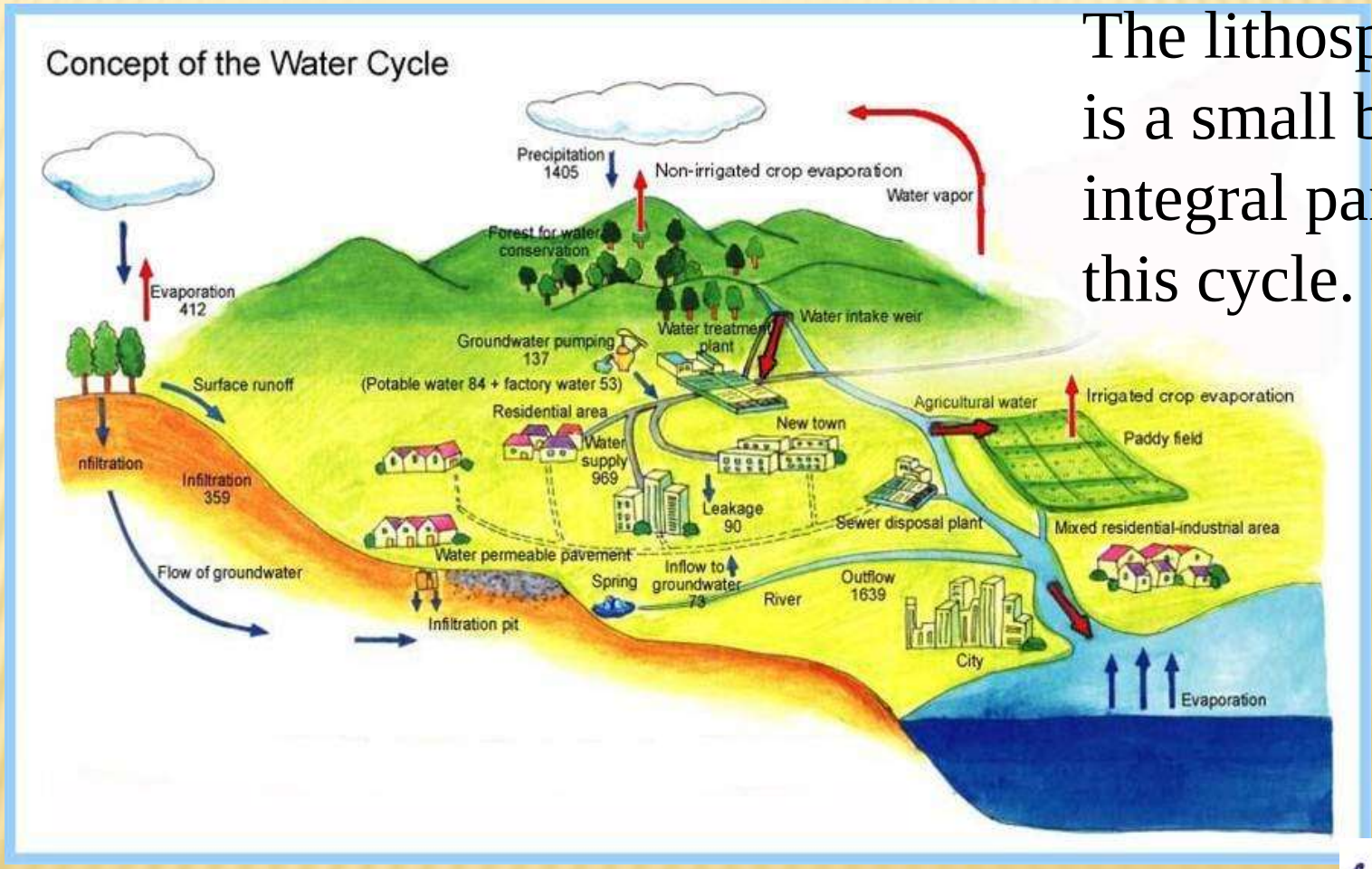
HYDROLOGICAL CYCLE



The lithosphere is a small but integral part of this cycle.

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GEOGRAPHIC DIVERSITY

Source:NRSC BHUVAN Thematic layer

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NATURAL RESOURCES

MANAGEMENT:
ON THE BASIS OF SOIL SERIES OR CONVENIENT UNIT OF LAND

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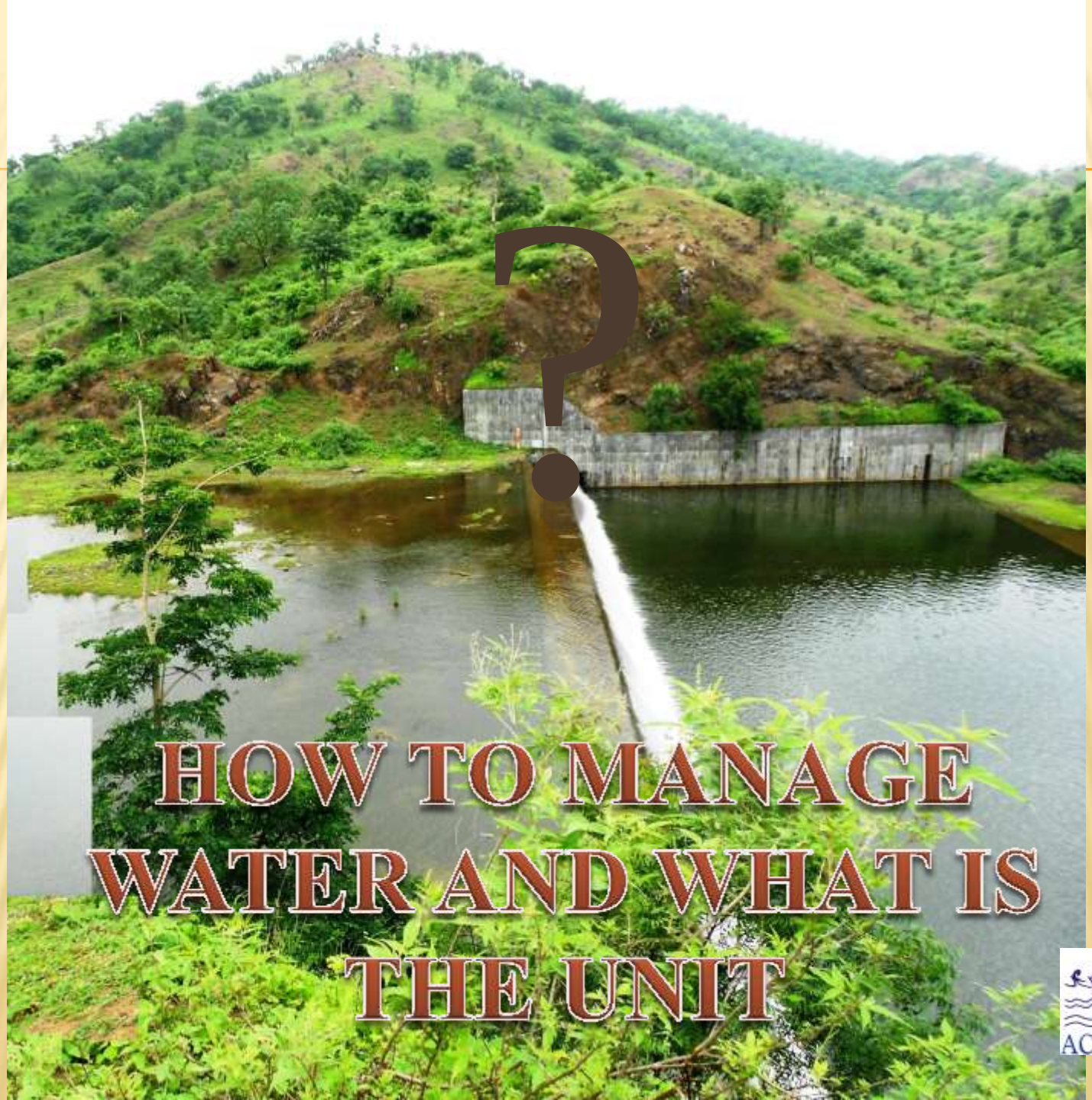
VEGETATION

MANAGEMENT OF FOREST:
ON THE BASIS OF FOREST TYPE OR SIMILAR CLASSIFICATION OF TREES/GRASSES


?
HOW TO MANAGE WATER AND WHAT IS THE UNIT
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WATERSHED

WATER COULD BE MANAGED IF WATERSHED IS TAKEN AS UNIT

WATERSHED IS CONSIDERED AS IDEAL UNIT FOR MANAGEMENT OF MOST VITAL NATURAL RESOURCES SOIL,WATER AND VEGETATION

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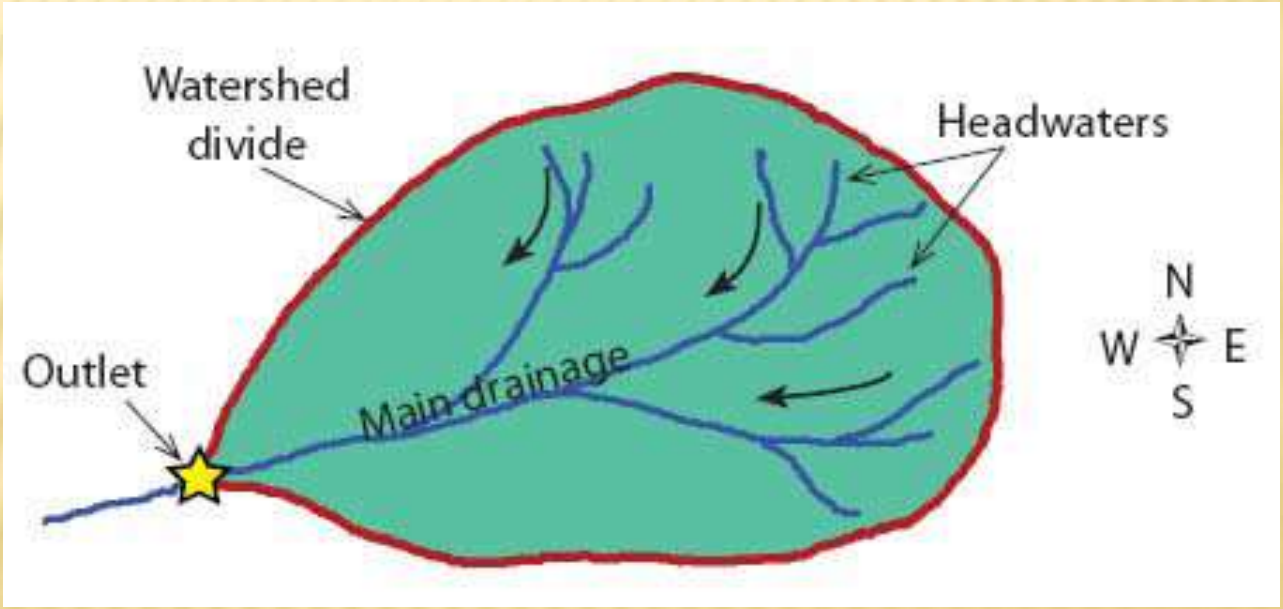
DEFINITION:A WATERSHED IS AN AREA OF LAND THAT ULTIMATELY DRAINS DOWNSLOPE TO A COMMON OUTLET.



AT WHAT SCALE WE BEGIN

Nomenclature	Area(Km^2)
1. Water Resources Region	550000-600000
2. Basin	95000-100000
3. Catchment	30000-40000
4. Sub-Catchment	7000-8000
5. Watershed	800-1000
6. Sub Watershed (GSDA/watershed)	150-300
7. Macro Watershed	30-50
8. Mini watershed	10-30
9. Micro Watershed	5-10

Source: http://www.maharashtra.gov.in/english/gis/gis-ch3-geo.php

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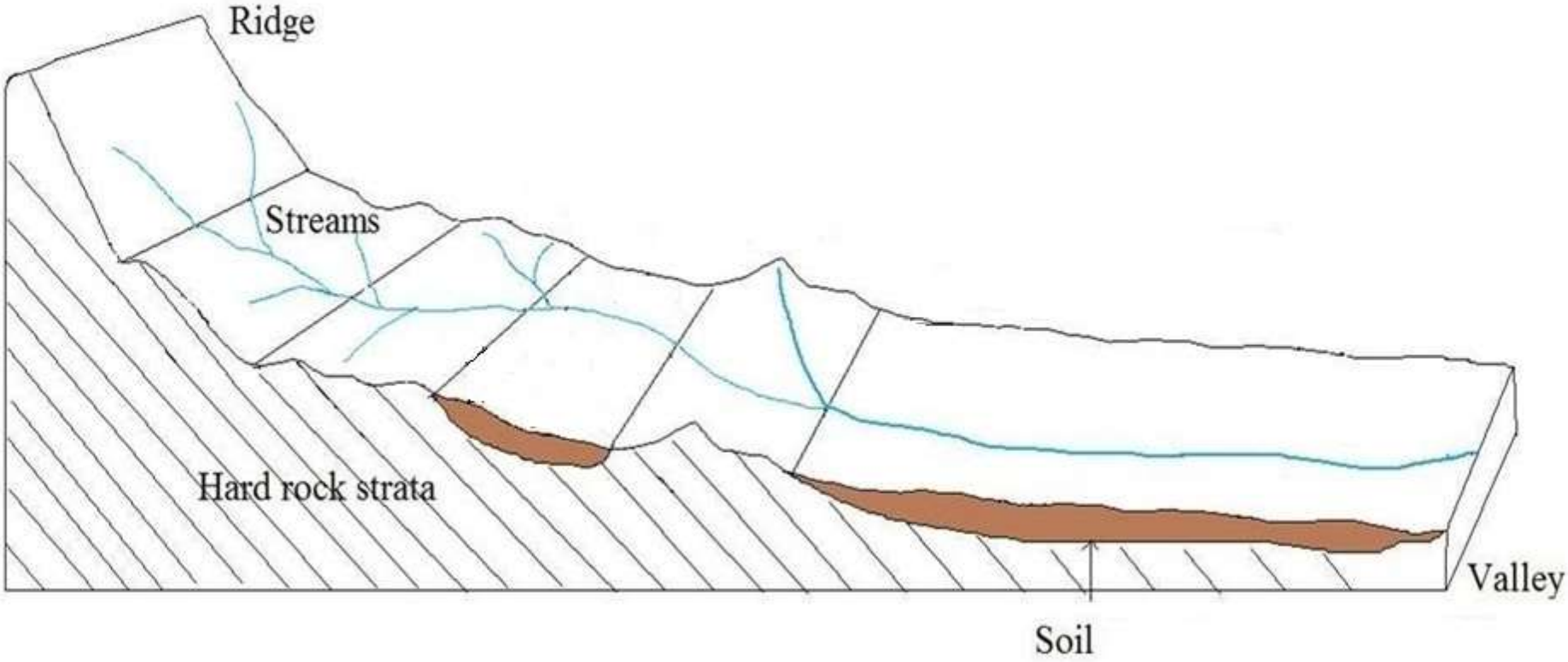
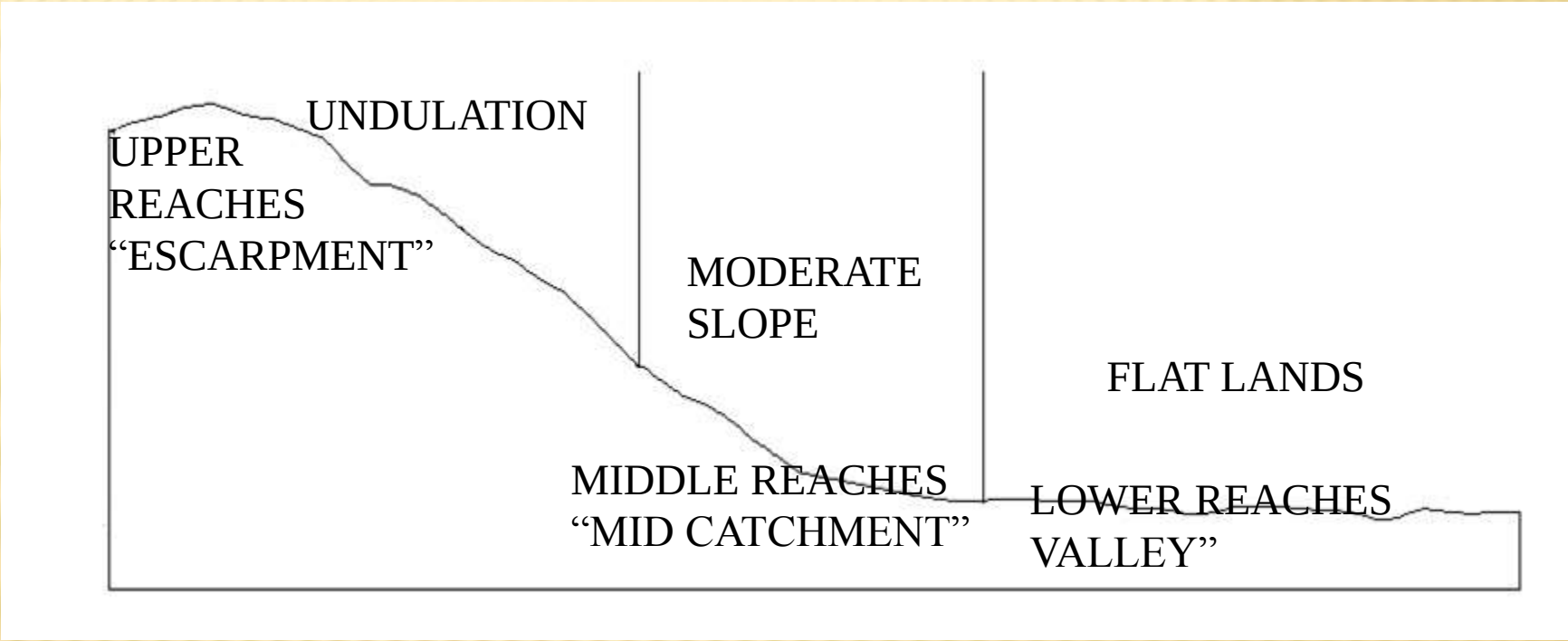
CONCEPTUAL DIAGRAM OF WATERSHED



TOPOGRAPHY



Typical watershed transect (macro perspective)

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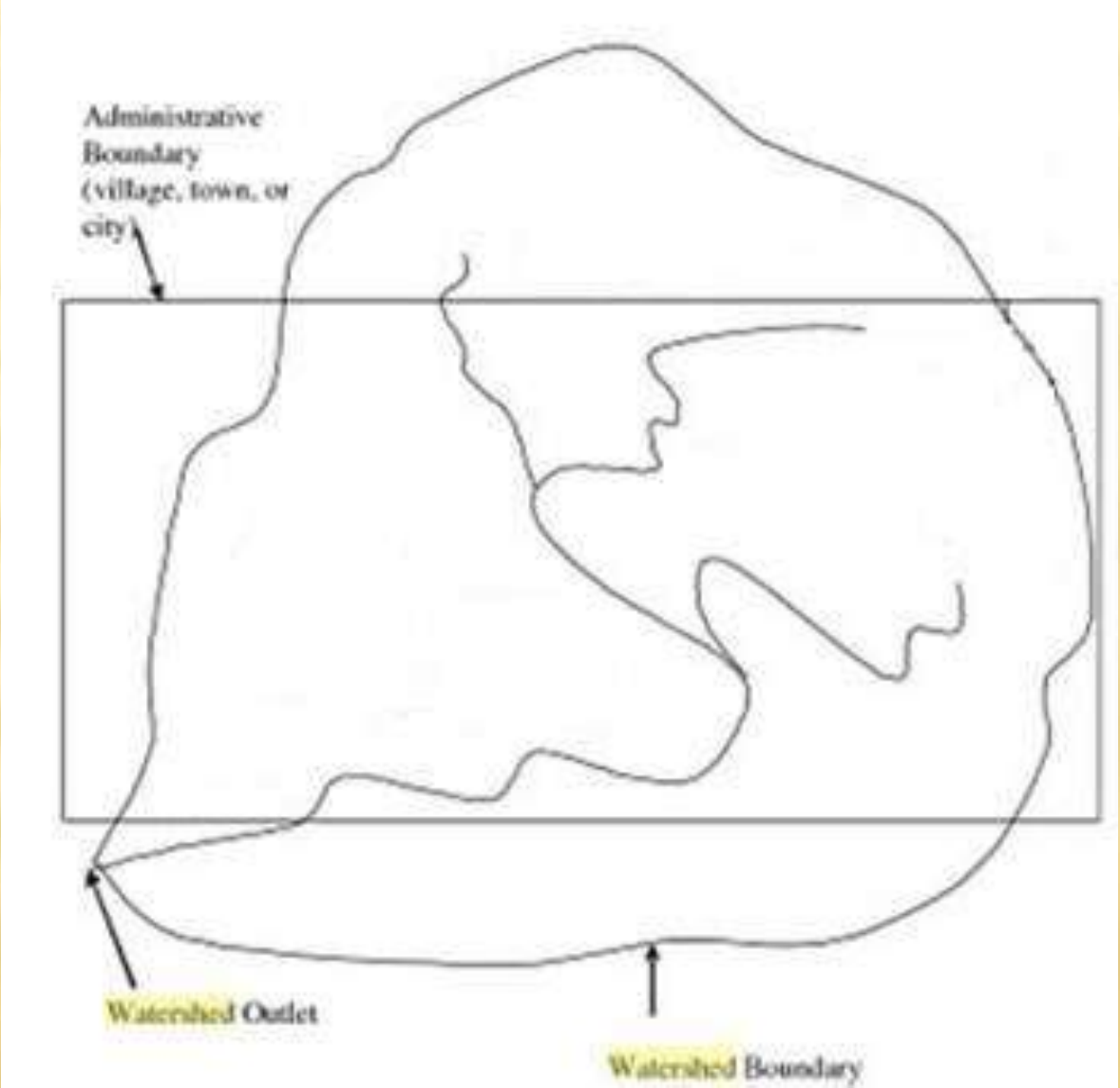
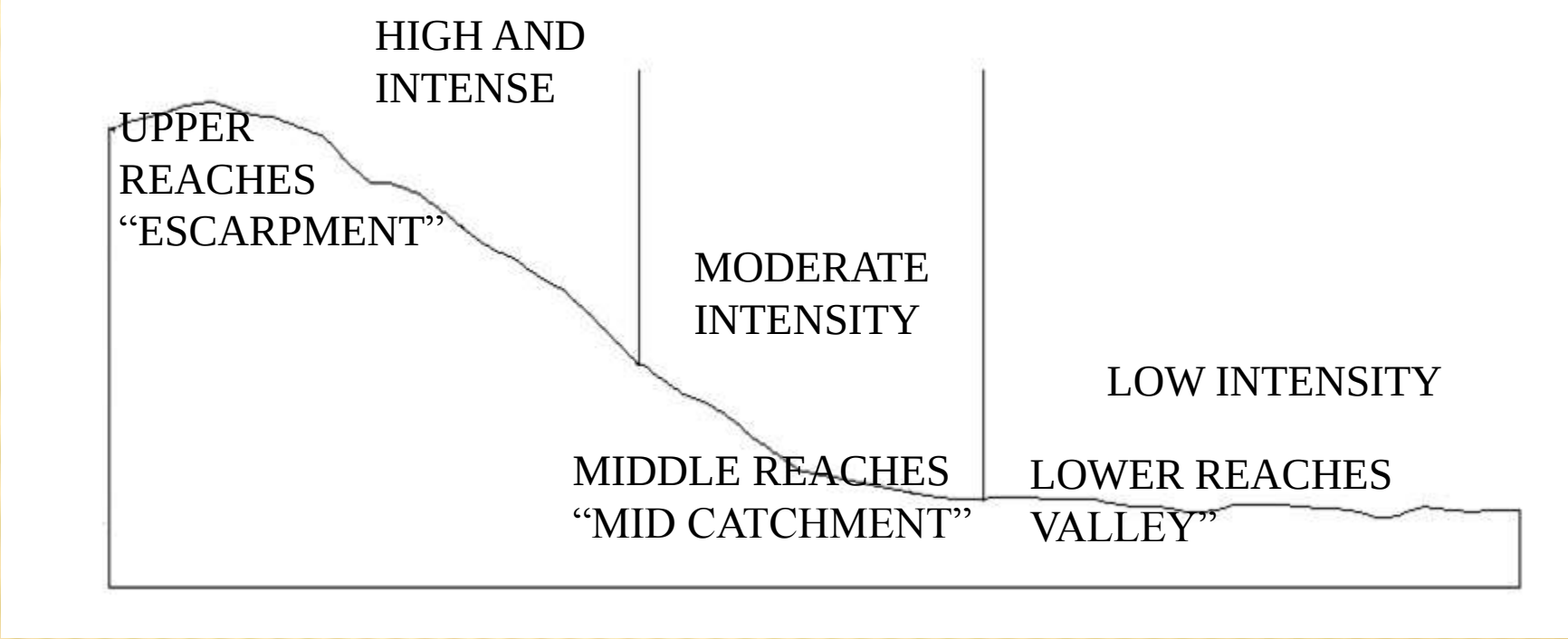
CONFLICT OF WATERSHED AND ADMINISTRATIVE BOUNDARY



RAINFALL



Typical watershed transect (macro perspective)

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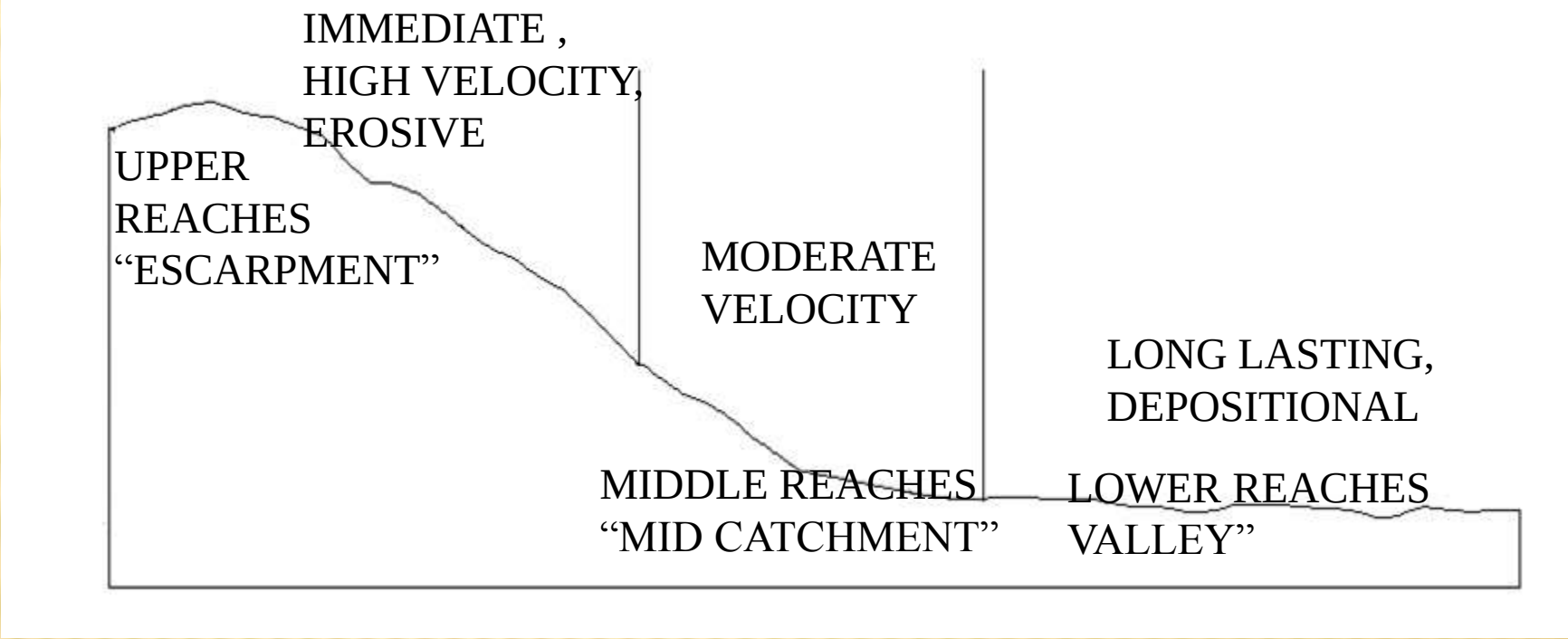
RUNOFF



Typical watershed transect (macro perspective)

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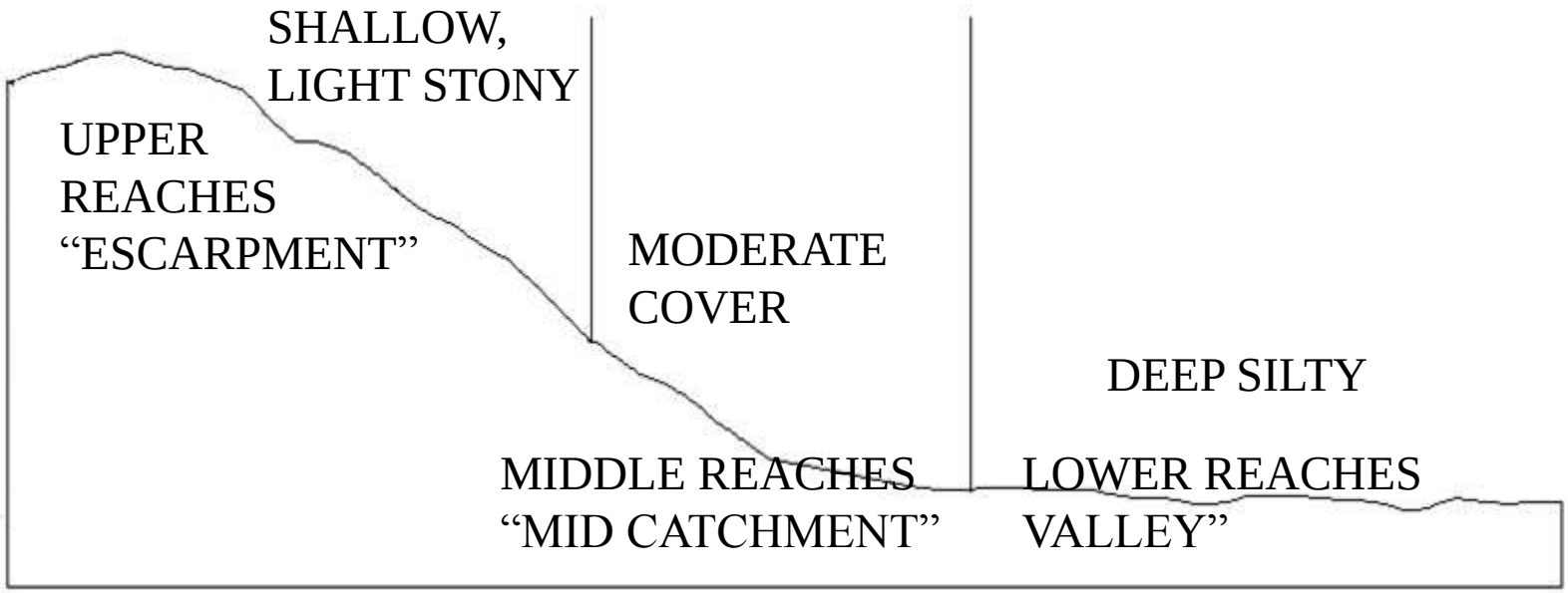
SOIL COVER



Typical watershed transect (macro perspective)

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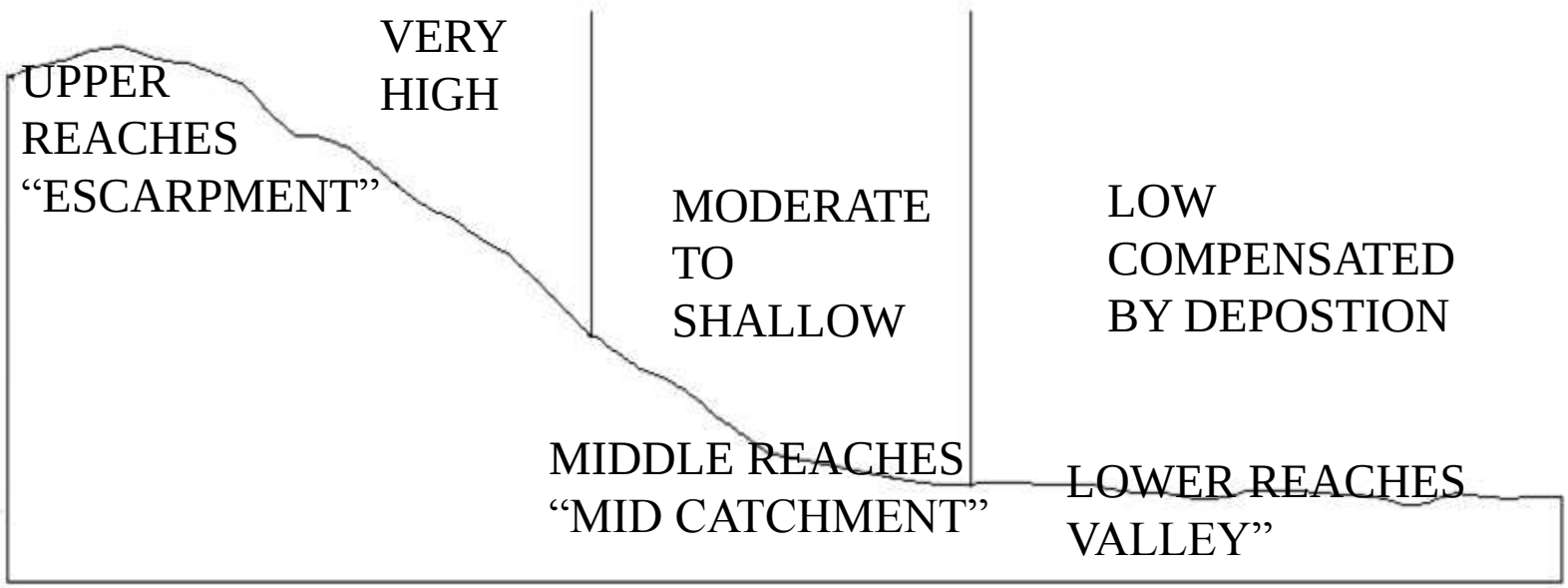
SOIL EROSION



Typical watershed transect (macro perspective)

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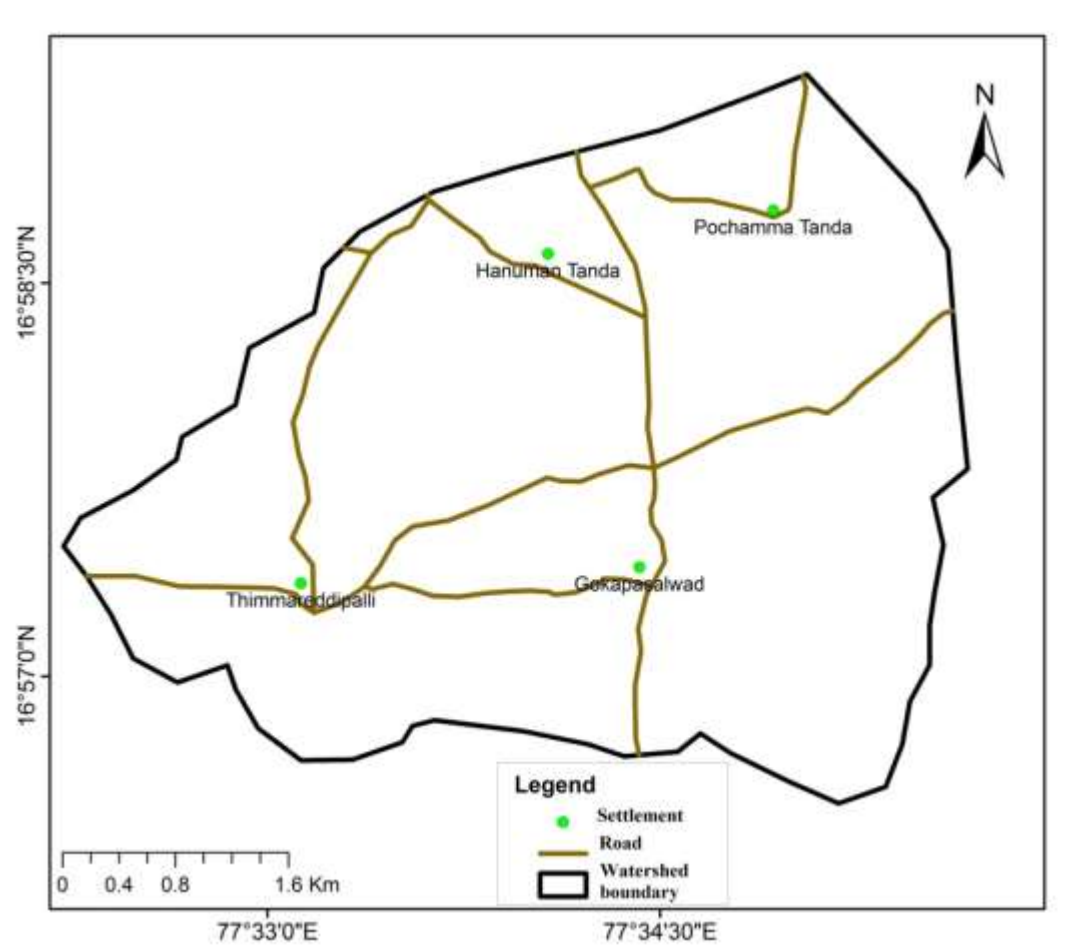
LETS LOOK AT A STUDY FROM ANDHRA PRADESH



Base map

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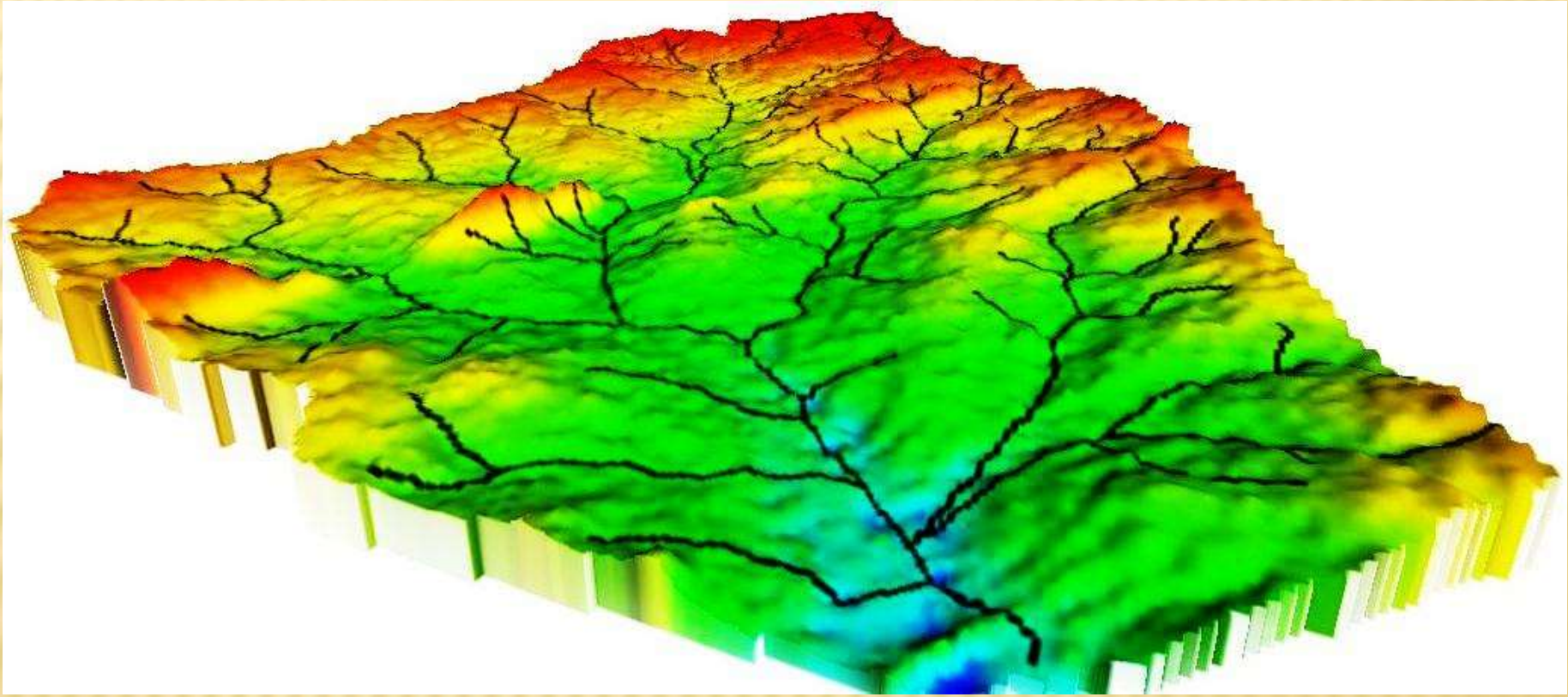
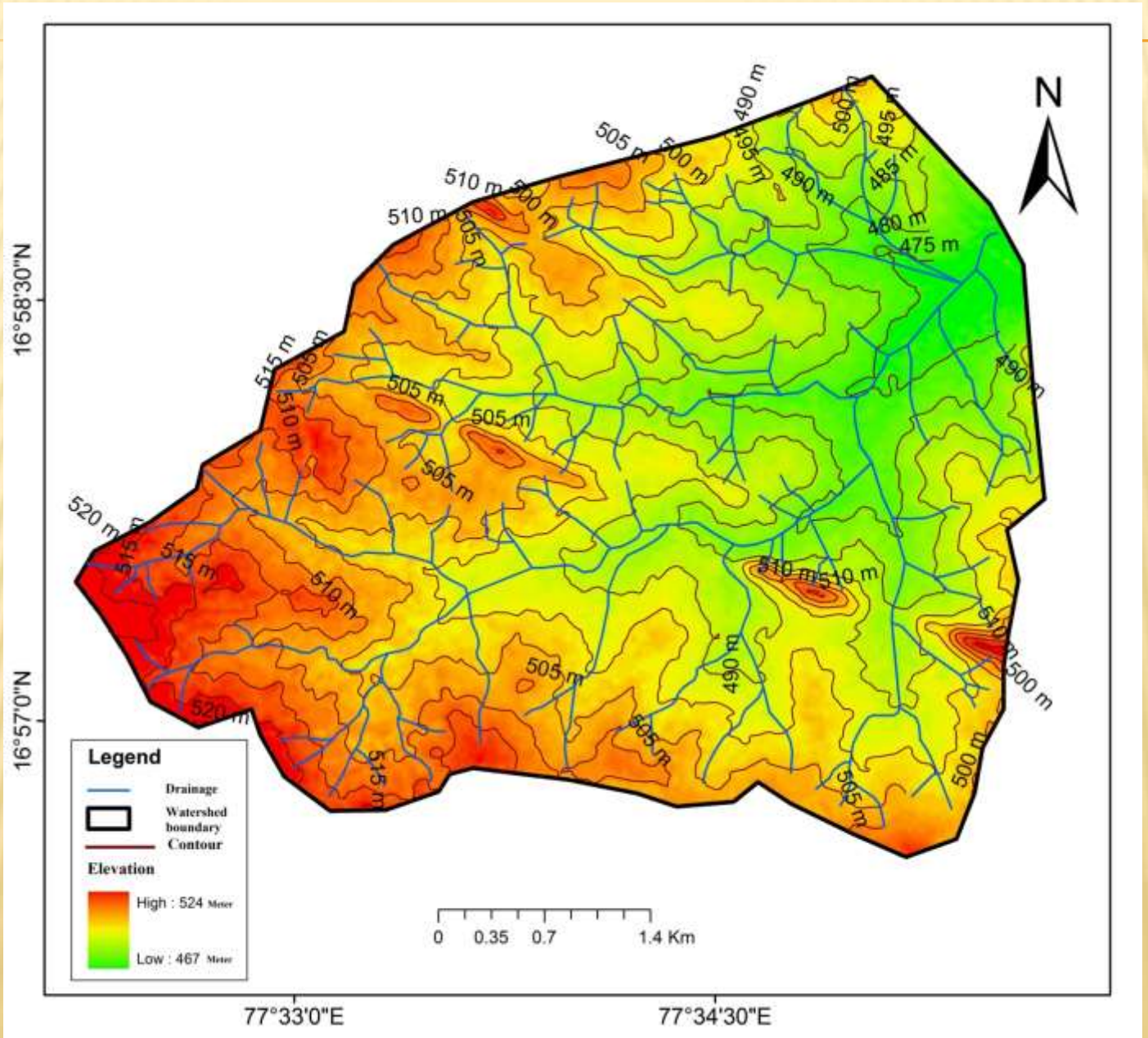
3D –REPRSENTATION OF WATERSHED



ELEVATION AND CONTOUR MAP



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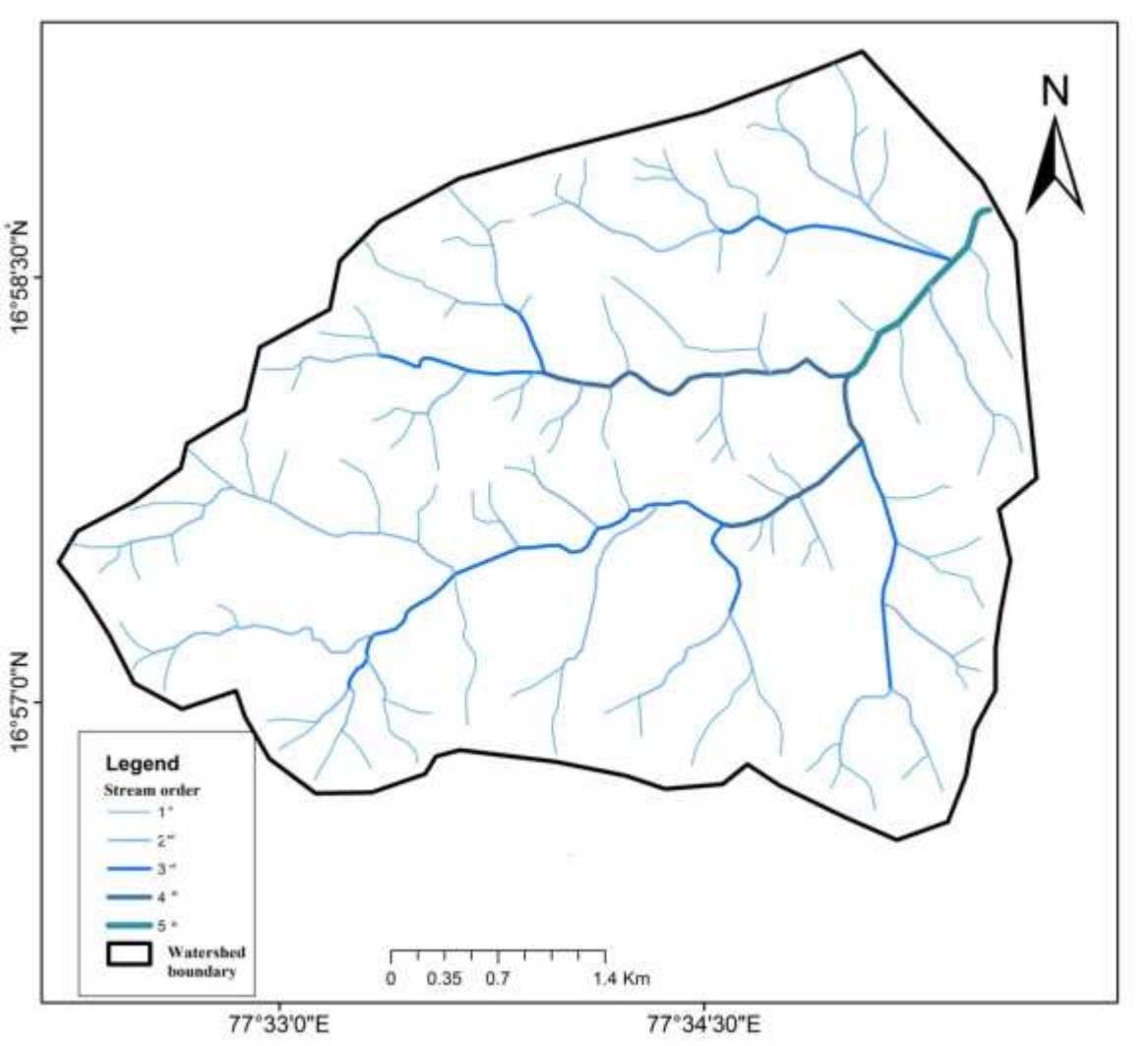
DRAINAGE WITH STREAM ORDER



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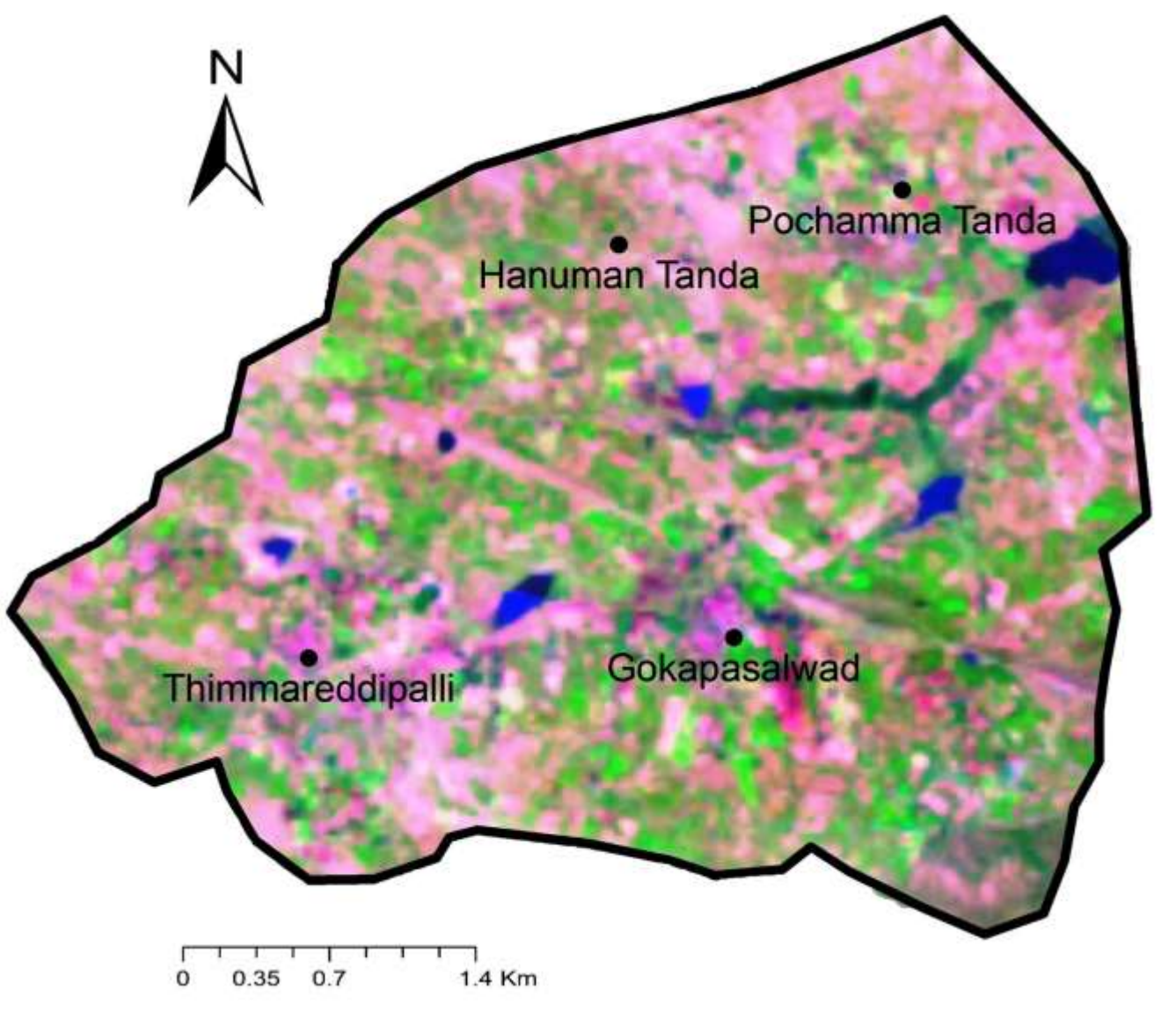
SATELLITE IMAGE



Source: glfc.gov.org/landsat7/2006

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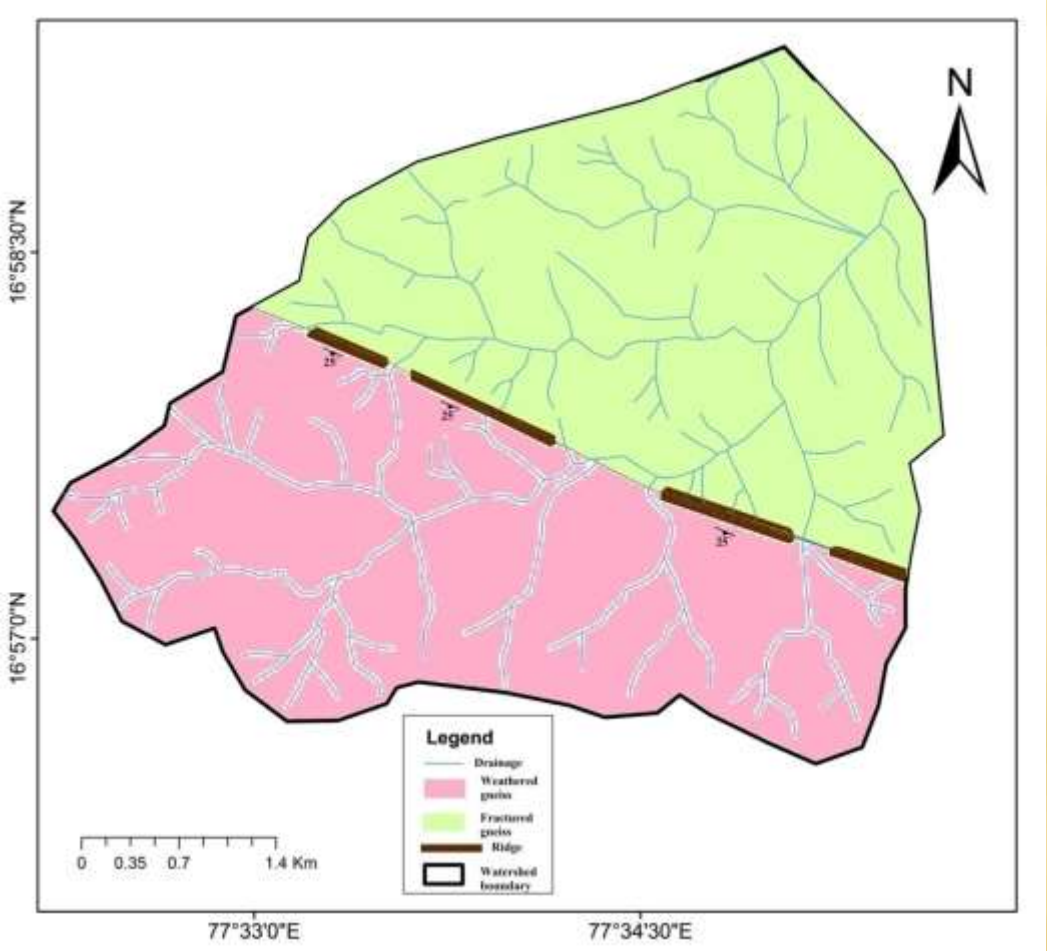
REGIONAL GEOLOGY



WHAT CAN WE ACHIEVE BY WATERSHED MANAGEMENT

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WATER CONSERVATION

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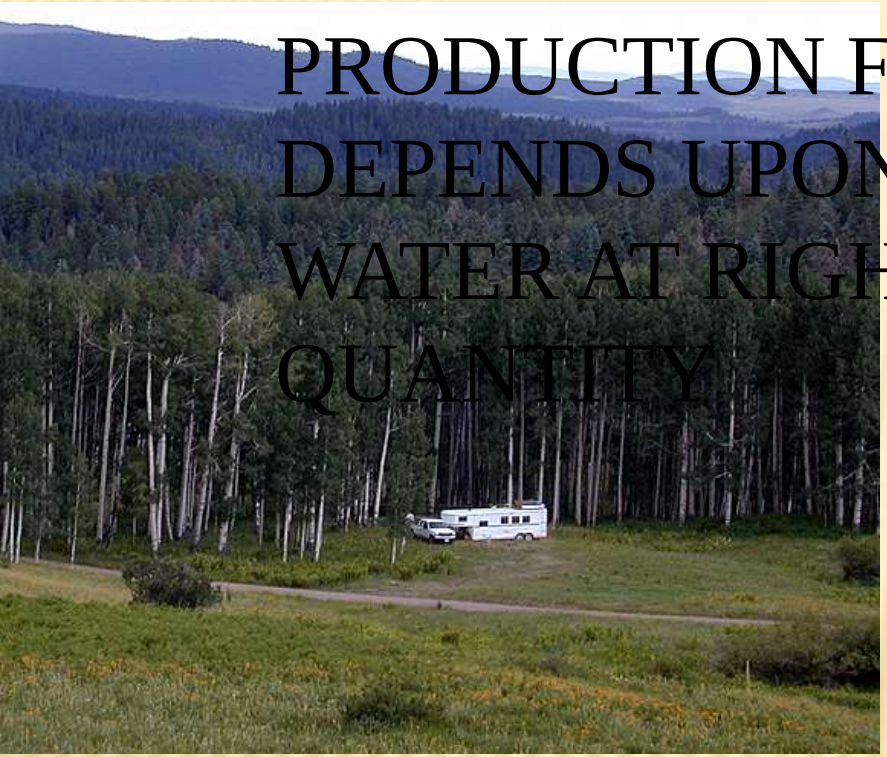
EROSION AND SEDIMENTATION CONTROL

PREVENTS FROM ACCLERATED EROSION

REDUCES SEDIMENTS PRODUCTION WHICH INCREASES LIFE AND BENEFIT OF RESERVIOURS

DERCRESES SILTATION OF CHANNELS WHICH CAUSES FLOOD AND DAMAGES LAND

VEGETATION



PRODUCTION FROM LAND DEPENDS UPON AVALAIBITY OF WATER AT RIGHT TIME IN RIGHT QUANTITY

AGRICULTURE ENHANCEMENT WILL ENSURE FOOD SECURITY

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DROUGHTS

AIMING AT MOISTURE MANAGEMENT AND EVOLVING SOUND LANDUSE PROGRAMME DROUGHT COULD BE MITIGATED

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THANK FOR YOUR PATIENT LISTENING

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