

RIOS DATA AND PREPROCESSING

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DATA SOURCES

THANK YOU...

- Department of Environment, Science and Technology
- H.P. Forest Department
- State Council for Science, Technology & Environment
- Directorate of Energy
- AGiSAC
- Department of Irrigation and Public Health

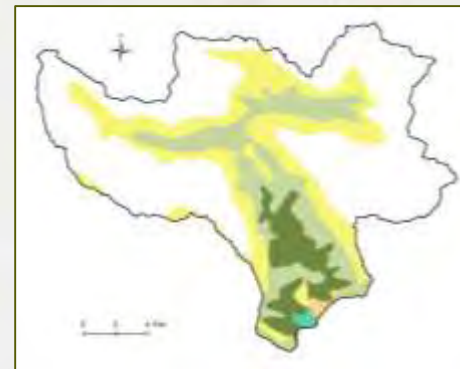
RIOS DATA

LAND USE / LAND COVER

- Soil and Land Use Survey of India
- 30m resolution

Things to consider:

- Is it possible to get an LULC map that is more detailed for your area?
- Coordinate with CAT Plan practitioners



Land use / land cover classes

- Barren Rocky/ Stony Waste/ Sheet Rock
- Degraded Forest/Scrub Land
- Double Crop (K+R)
- Evergreen/Semigreen Forest
- Grass Land/Grazing Land
- Kharif
- Land with or without Scrub
- Plantation
- Snow Covered/ Glacial Area

MODEL COEFFICIENTS

- Based on LULC classes
- Values from literature search

Description	Sed_exp	Sed_ret	P_sed_factor	Root_depth	Etk	Rough_rank	Cover_rank
Evergreen/ Semigreen Forest	0.012	0.74	1	1.12	0.93	1	0.714
Degraded Forest/ Scrub Land	0.018	0.6225	1	0.99	0.91	0.5345	0.5355
Land with or without Scrub	0.221	0.3825	1	1.65	0.89	0.041	0.2355
Plantation	0.16	0.74	0.9	1.13	1	0.5	0.714
Kharif	0.205	0.84	0.9	0.9	0.88	0.163	0.814
Double Crop (K+R)	0.227	0.84	0.9	1.1	1.1	0.163	0.814
Grass Land/ Grazing Land	0.138	0.5863	1	0.95	0.93	0.102	0.2963
Gullied or Ravinous Land	0.644	0.26	1	0	0.61	0.013	0.114
Barren Rocky/ Stony Waste/ Sheet Rock	0.502	0.26	1	0	0.72	0.013	0.114
Snow Covered/ Glacial	0	0.2	1	0	0.82	0.0001	0

RIOS DATA

ELEVATION

ASTER DEM, 30m resolution

Used to derive:

- Slope
- Streams
- Hydropower facility watersheds

Streams: match to accurate stream map



RIOS DATA

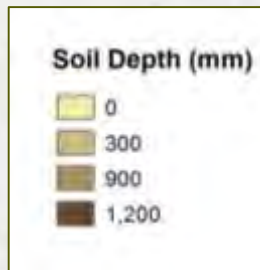
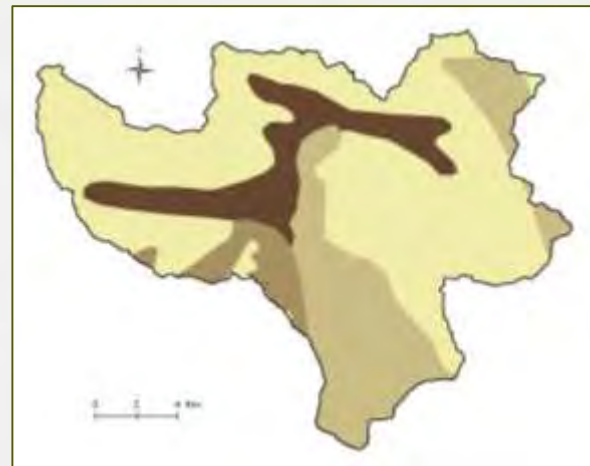
SOILS

Soil and Land Use Survey of India

Used to derive:

- Soil depth (from *DEPTH* field)
- Texture (from *TYPE* field)
- Erodibility
(InVEST User Guide table)
- Available water content
(Hydraulic Properties Calculator)

*Not detailed enough for
modeling purposes*

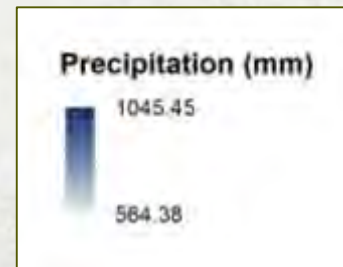
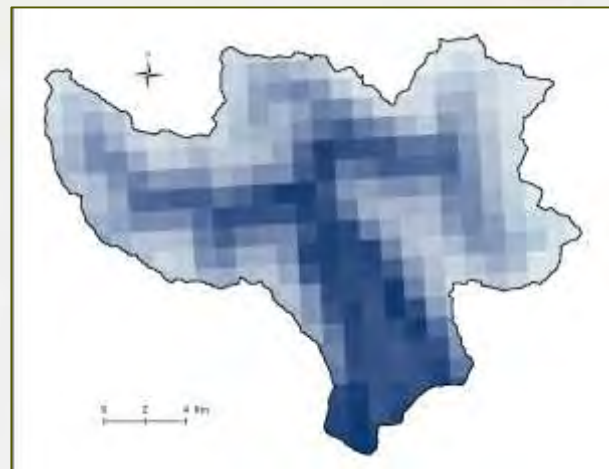


RIOS DATA

CLIMATE

Precipitation: WorldClim, 1km resolution

- Annual average
- Used to derive :
 - Rainfall erosivity
(equation from Singh et al)
 - Potential evapotranspiration
(Modified Hargreaves method)
 - Actual evapotranspiration
(from InVEST Water Yield model)



RIOS DATA

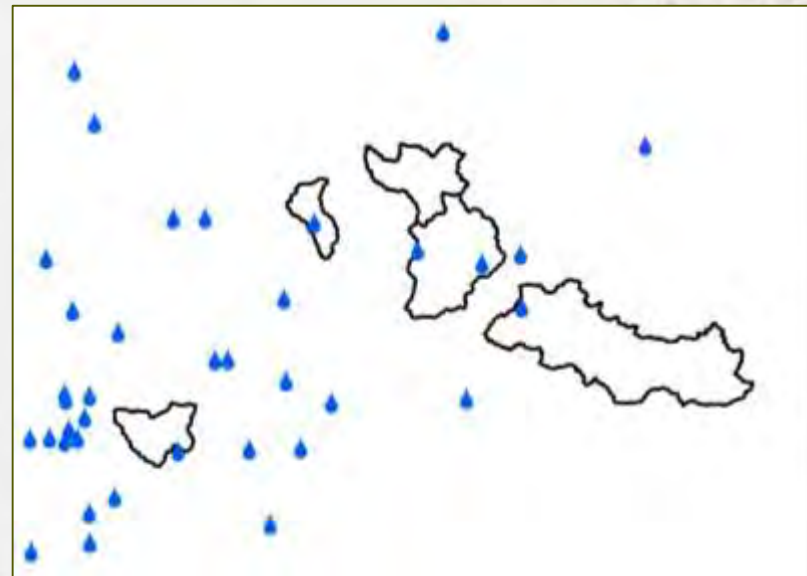
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IMD data: not enough coverage here

IMD Gauges



RIOS DATA

SOCIAL

Beneficiaries

- Where do local people benefit from an improvement in service?
- Village locations and Department of Census population 2001
- Downstream beneficiaries calculated with Flow Length, using population as a weight raster



RIOS DATA

ACTIVITIES/BUDGETS

Which activities to consider? - CAT Plan or PES manager

How much do they cost?

- Given in CAT Plan, or existing PES programs
- May include implementation, maintenance, PES payments...

How much money to spend?

- For multiple watersheds, can allocate based on area, number of beneficiaries...
- Within a watershed, can allocate based on area of each LULC where activities can be done

COMMON DATA ISSUES

Projections: All GIS layers must have the same projected coordinate system

Clipping:

- Rasters should completely cover watershed
- Use watershed boundary as a mask
- Can resample coarse layers or buffer

Tables: Required field names and data types

DEM: Fill in missing data, fill sinks, check hydrology

Check for correct units on all inputs



PRE-PROCESSING

ArcGIS tool

Creates several required inputs to RIOS:

- Upslope source
- Downslope retention
- Riparian continuity
- Slope index

Let's check it out...