

RCP & SSP Scenario Matrix



RCP & SSP Matrix

Socio-economic reference pathway

SSP1

SSP2

SSP3

...

Forcing level (W/m^2)

8.5

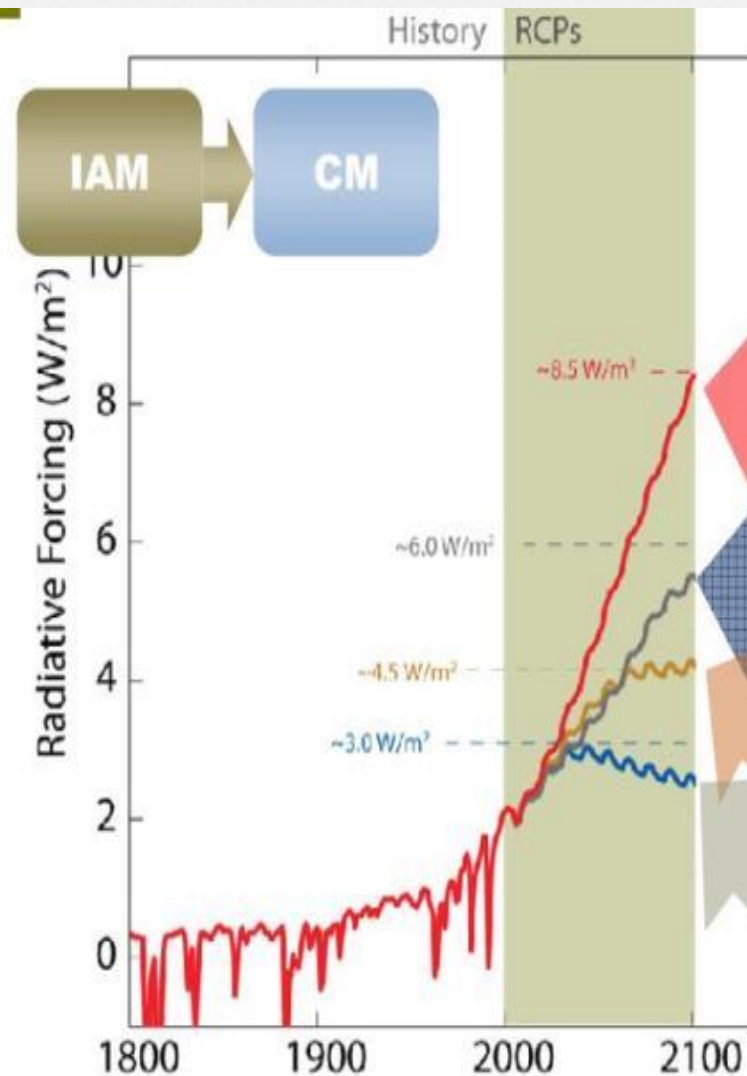
6.0

4.5

2.6

Basic concepts of RCPs

	Radiative forcing	CO ₂ equivalent concentration	Rate of change in radiative forcing
RCP 8.5	8.5 W/m ²	1350 ppm	Rising
RCP 6.0	6.0 W/m ²	850 ppm	Stabilizing
RCP 4.5	4.5 W/m ²	650 ppm	Stabilizing
RCP 2.6	2.6 W/m ²	450 ppm	Declining



- The CM community wanted 4 levels of RF that span the literature.

– 8.5 Wm^{-2} (RCP 8.5, 1350ppm $\text{CO}_2\text{-e}$)

– 6.0 Wm^{-2} (RCP 6.0, 850ppm $\text{CO}_2\text{-e}$)

– 4.5 Wm^{-2} (RCP 4.5, 650ppm $\text{CO}_2\text{-e}$)

– 2.6 Wm^{-2} (RCP 2.6, 450ppm $\text{CO}_2\text{-e}$)



GLOBAL (plausibility of combination)

RCP (W/m ²)	T (change)	SSP			
		SSP1	SSP3	SSP4	SSP5
4.5	2-4	Possible	Possible	Possible	Possible
8.5	3-6	Very unlikely	Possible	Unlikely	Most likely

REGIONAL (plausibility of combination)

RCP (W/m ²)	T (change)	SSP			
		SSP1	SSP3	SSP4	SSP5
4.5	2-4	possible	Challenging	Useful	Less credible
8.5	3-6	Very interesting	Interesting	Less credible	Interesting

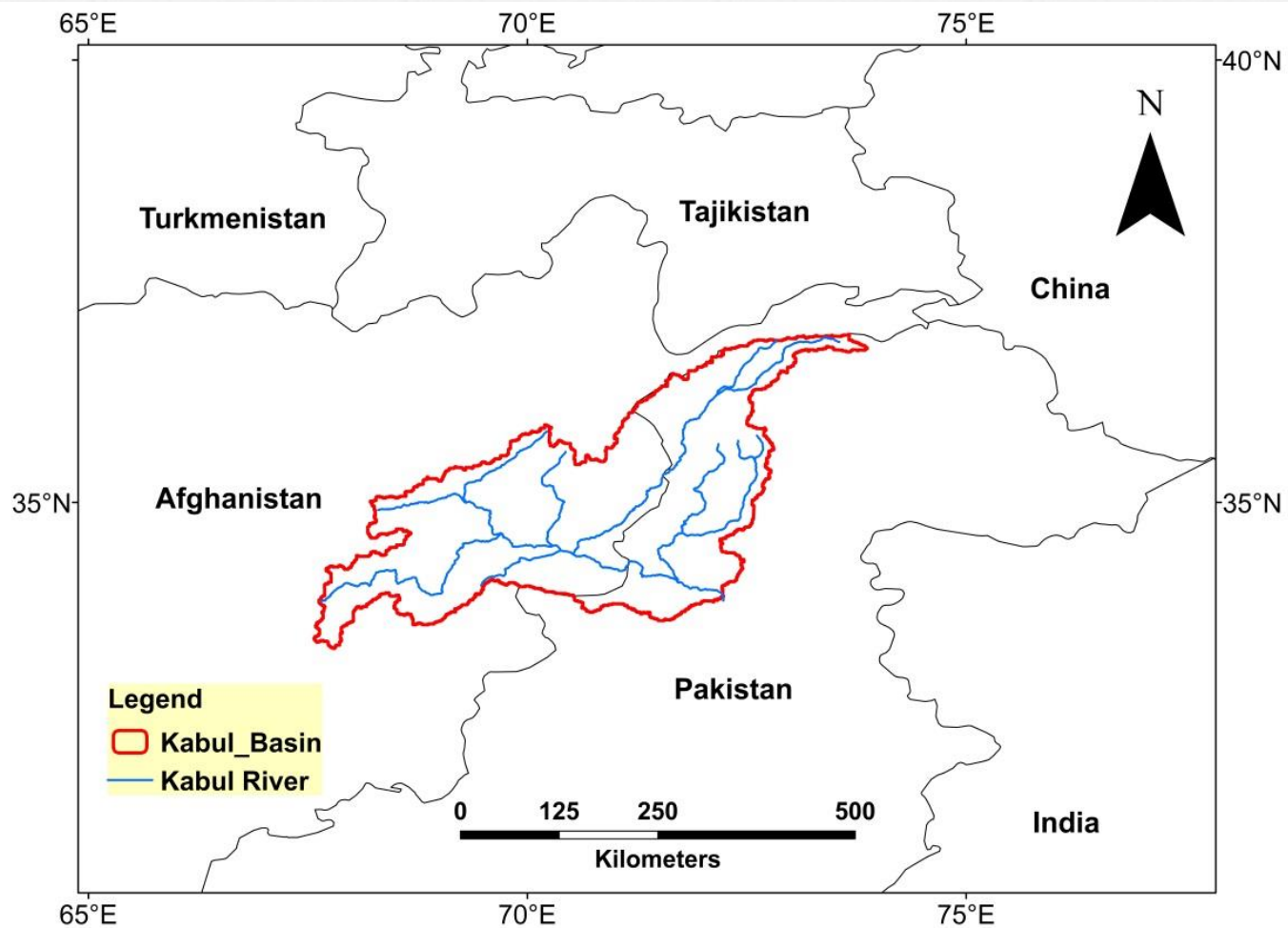
Matrix-Layout

	Time-Step	Wastewater treatment	GCM-1	GCM-2	GCM-3	GCM-4
SSP1	2031-2050	Secondary	RCP 4.5	RCP 4.5	RCP 4.5	RCP 4.5
	2081-2100	Tertiary				
SSP3	2031-2050	Primary	RCP 8.5	RCP 8.5	RCP 8.5	RCP 8.5
	2081-2100	Primary				

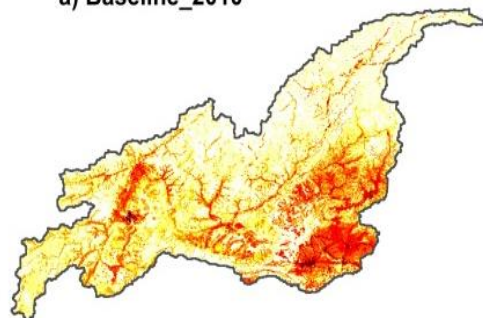
PS: Population, livestock number as per SSP database.
Future land-use changes, should keep in mind.

Log reduction

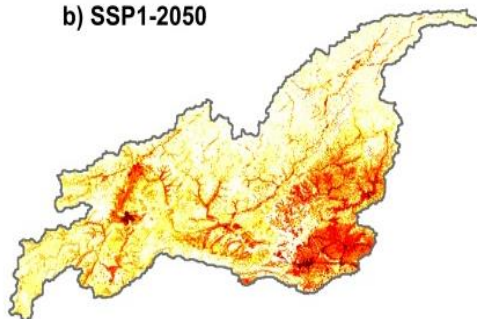
- 1-log reduction= 9 out of 10 = 90% reduction
- 2-log reduction= 99 out of 100 = 99% reduction
- 3-log reduction= 999 out of 1,000 = 99.9% reduction
- 4-log reduction= 9999 out of 10,000 = 99.99% reduction



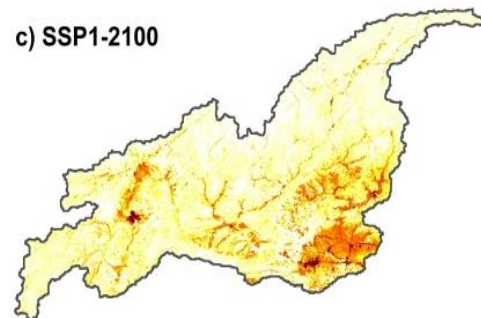
a) Baseline_2010



b) SSP1-2050



c) SSP1-2100



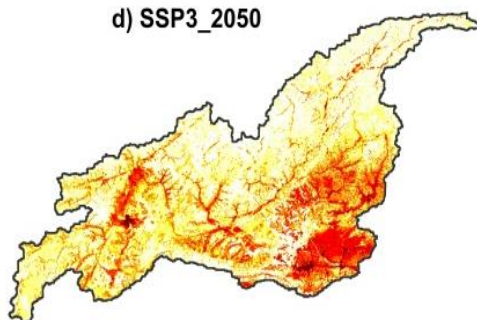
Population



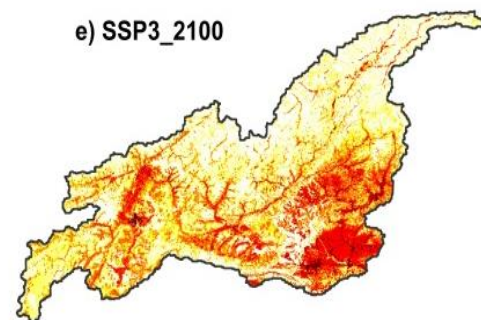
N



d) SSP3_2050

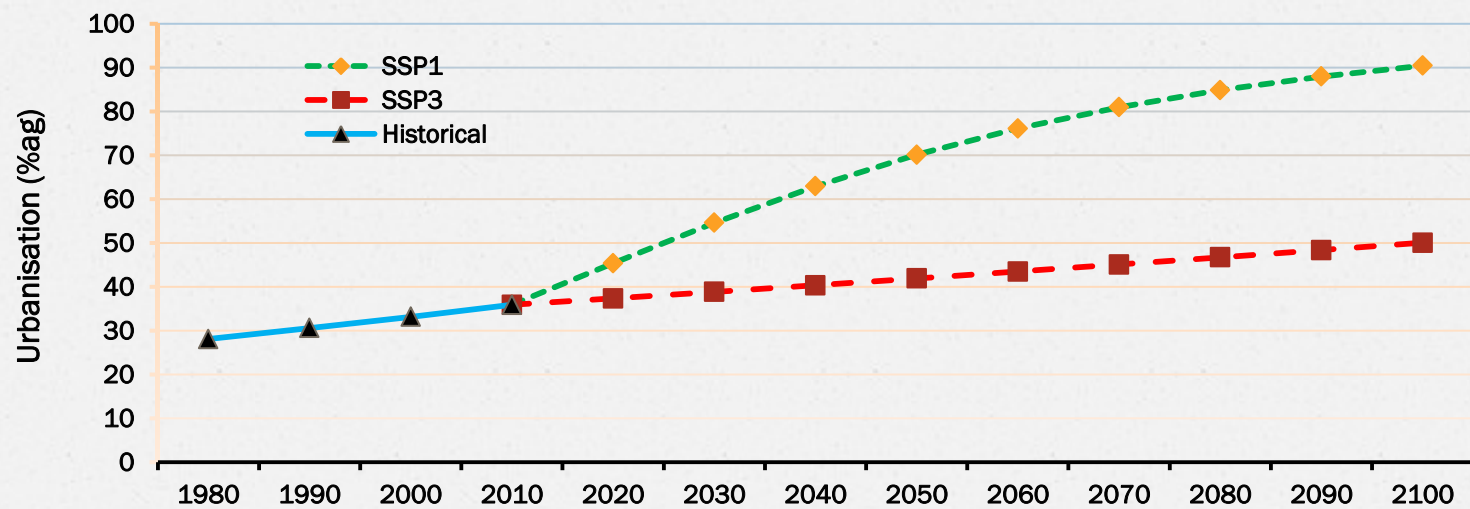
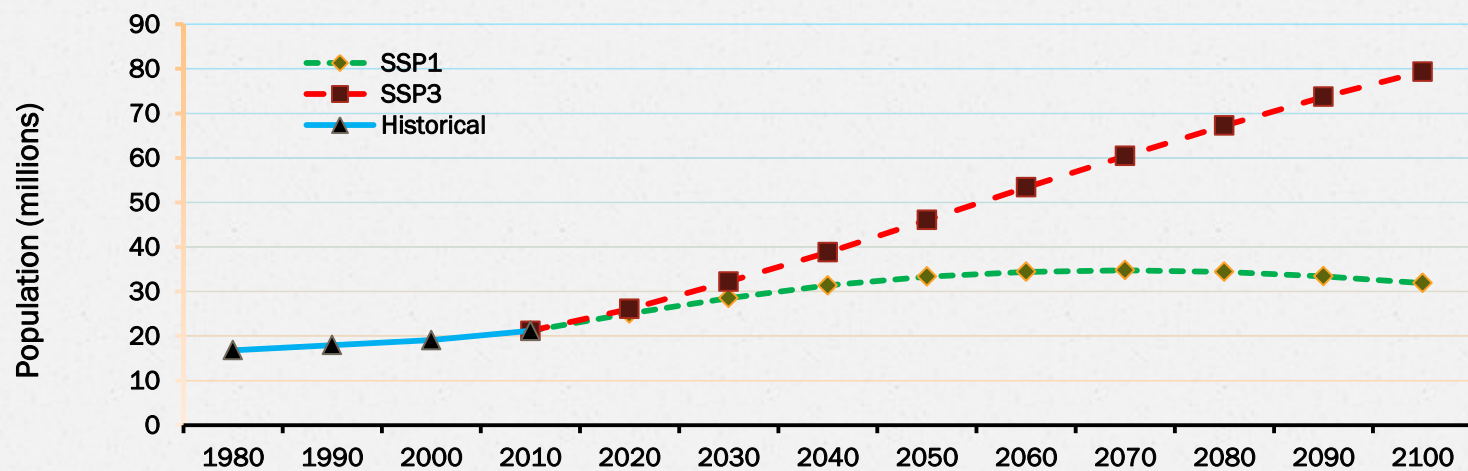


e) SSP3_2100



0 125 250 500

Kilometers

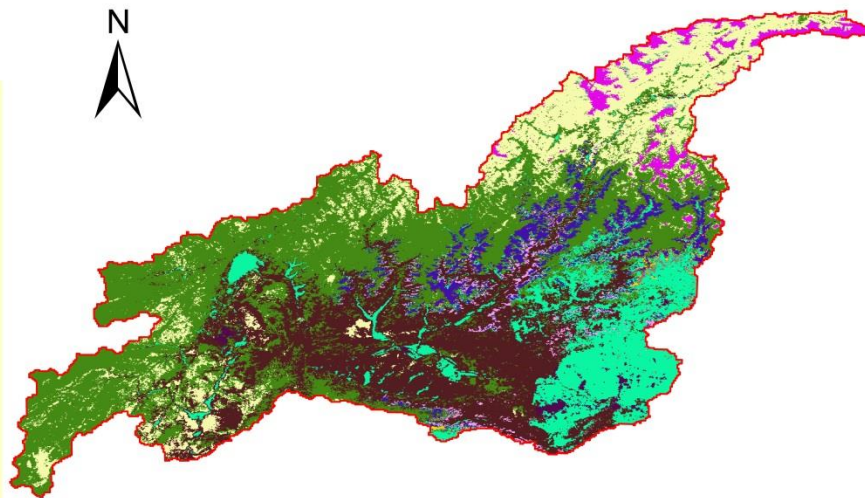


Levels	Sanitation Assumptions (Description)	Pathogen Load
I	Ideal Situation, No pathogen transmission to cause waterborne diseases, improved sanitation and hygiene	Low
II	Water supply is provided through pipes and full sanitation coverage, wastewater treatment (partial), typical for developing countries	Low to Medium
III	improved water supply, improved sanitation (not fully covered) improved water quality	Medium to high
IV	improved water supply, improved sanitation (not fully covered) water quality not monitored properly	High
V	Improved sanitation but not water quality, water supply is not monitored in routine	High
VI	Improved water supply but no improved sanitation, water supply is not monitored	Very High
VII	No improved water supply, no sanitation, water supply is not monitored at all	Very High

Legend

kab_bsn_lc1

- Barren or Sparsely Vegetation
- Closed Shrublands
- Cropland/Natural Vegetation Mosaic
- Croplands
- Deciduous Broadleaf Forest
- Deciduous Needle leaf Forest
- Evergreen Needle leaf Forest
- Grasslands
- Mixed Forest
- Open Shrublands
- Permanent Wetlands
- Savannas
- Snow and Ice
- Urban and Built-Up
- Water
- Woody Savannas



0 125 250 500
Kilometers

Future Land-use

- o Still waiting.....
- o http://luh.umd.edu/data.shtml#LUH1_Data
- o RCP land-use is alternate option.



THANK YOU