

# Trend in Land Use Land Cover Changes in Bangalore

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# Land Use Land Cover

- Land cover is the observed (bio)physical cover on the earth's surface.
- Land use is the human use of the Land Cover

For examples

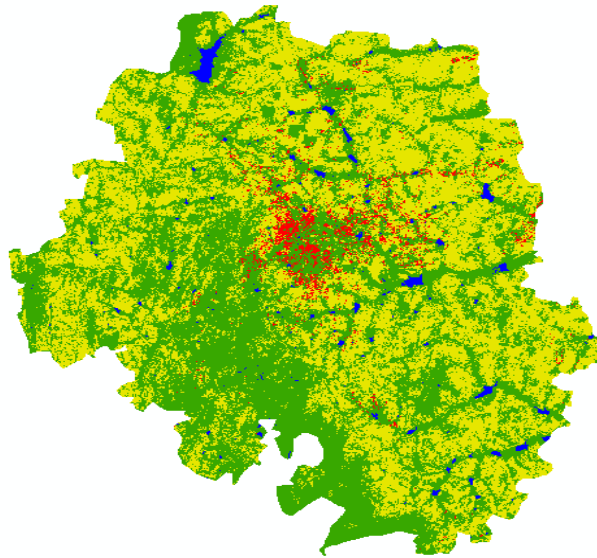
- "grassland" is a cover term, while "rangeland" or "tennis court" refer to the use of a grass cover

# Why LULC Mapping?

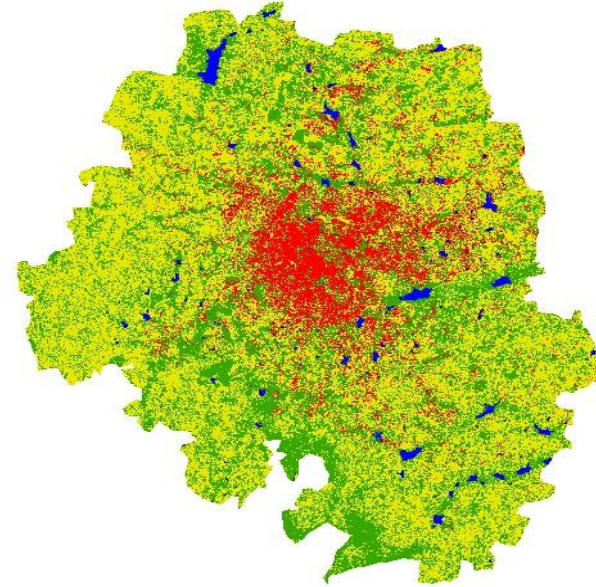
- Land cover maps provide information to help in best understand the current landscape.
- To see change over time
- With this information, can evaluate past management decisions as well as gain insight into the possible effects of their current decisions before they are implemented.
- Coastal management
- Understand the impacts of natural phenomena and human use of the landscape.
- Maps can help in assess urban growth, model water quality issues, predict and assess impacts from floods and storm surges, track wetland losses and potential impacts from sea level rise and so on

# Temporal Land Cover Change in Bangalore

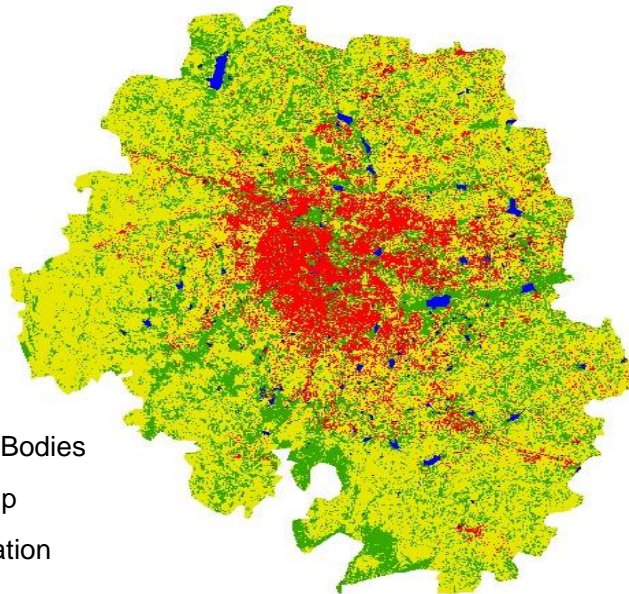
1973



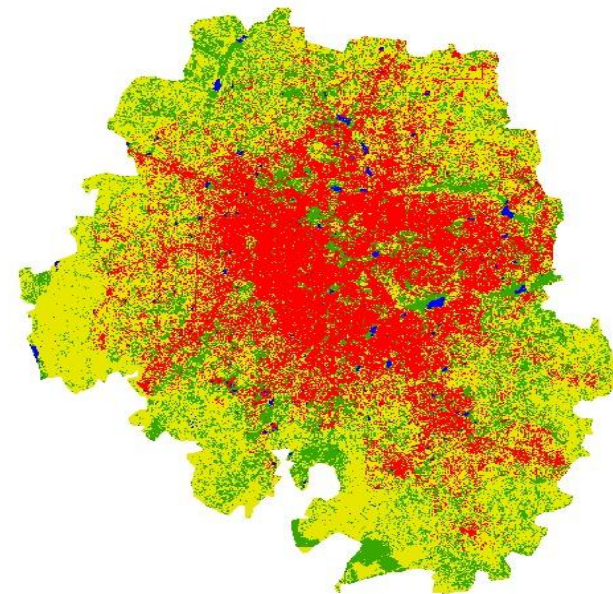
1992



2002



2014

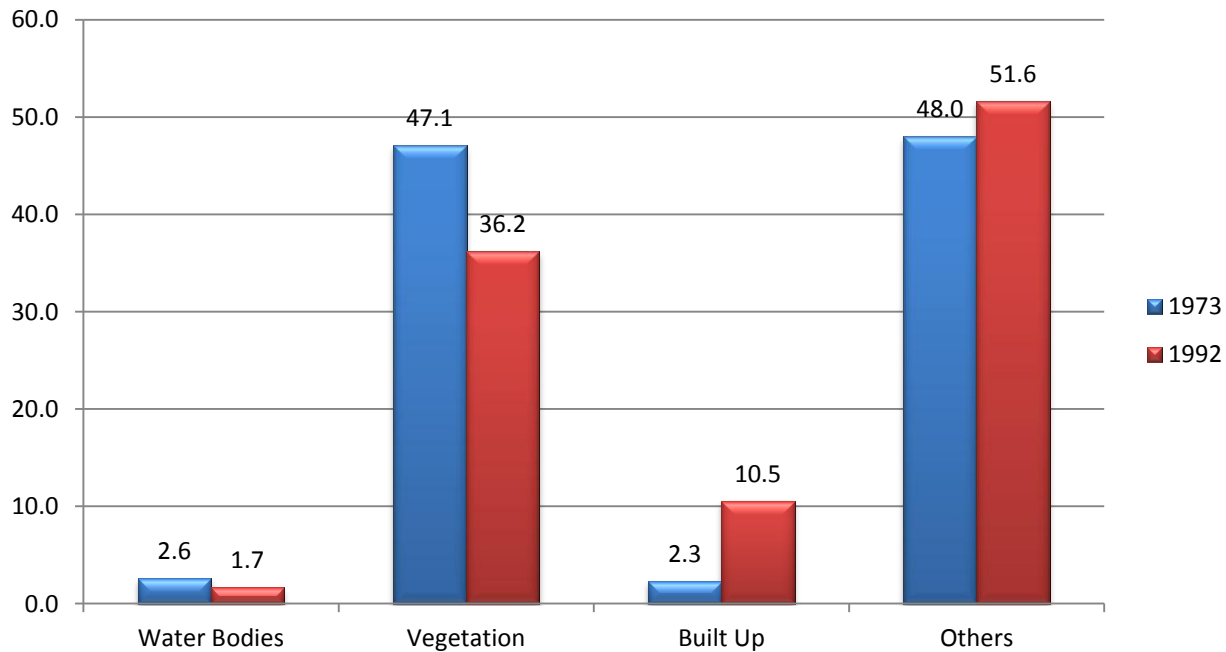


## Legend

-  Water Bodies
-  Built Up
-  Vegetation
-  Others

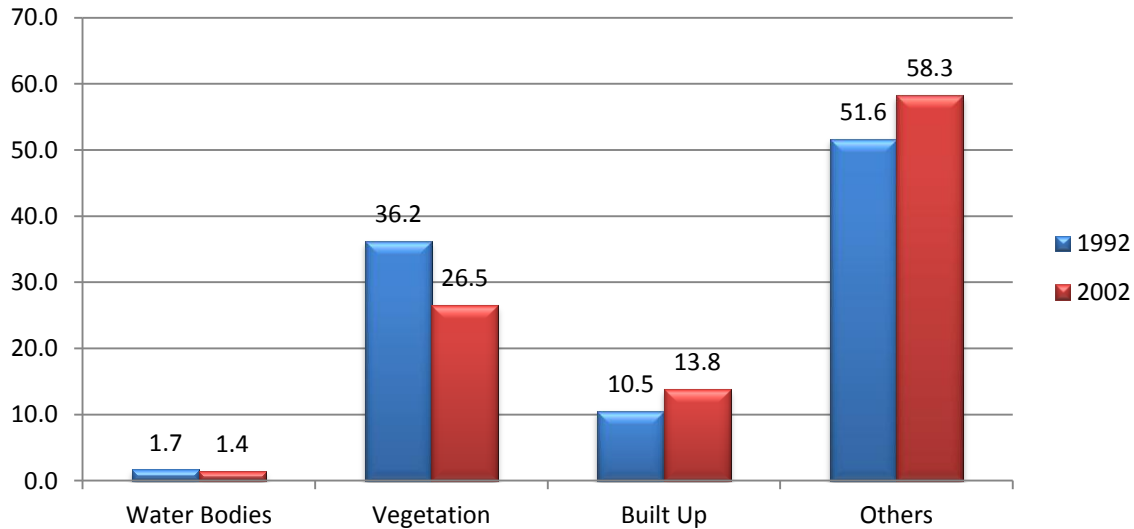
# Land Cover Analysis 1973-1992

1992 \ 1973	Water Bodies	Vegetation	Built Up	Others	Grand Total in %
Water Bodies	0.9	0.8	0.0	0.9	<b>2.6</b>
Vegetation	0.7	22.0	4.4	<b>20.0</b>	<b>47.1</b>
Built Up	0.0	0.4	1.4	0.5	<b>2.3</b>
Others	0.1	13.0	4.7	30.2	<b>48.0</b>
Grand Total in %	<b>1.7</b>	<b>36.2</b>	<b>10.5</b>	<b>51.6</b>	<b>100</b>



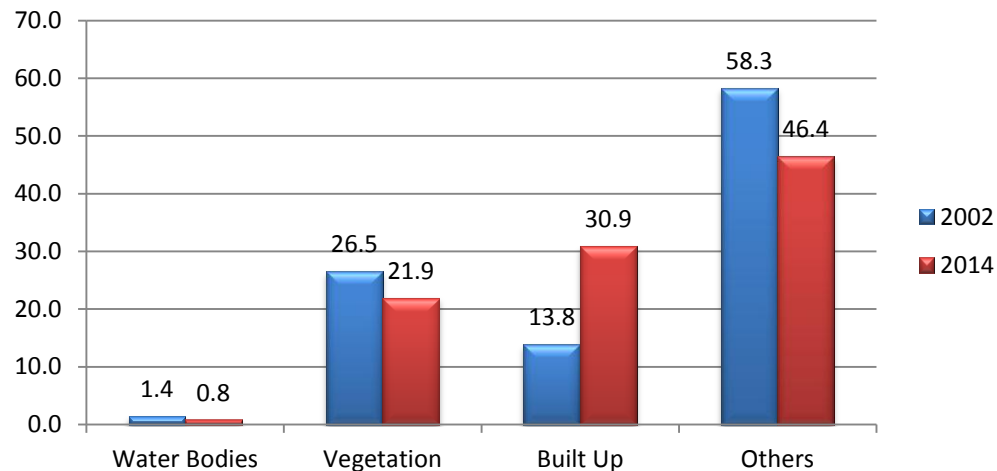
# Land Cover Analysis 1992-2002

2002 \ 1992	Water Bodies	Vegetation	Built Up	Others	Grand Total in %
1992					
Water Bodies	0.8	0.4	0.1	0.4	<b>1.7</b>
Vegetation	0.4	15.1	2.9	<b>17.8</b>	<b>36.2</b>
Built Up	0.15	1.7	5.7	3.0	<b>10.5</b>
Others	0.1	9.3	5.1	37.0	<b>51.6</b>
Grand Total in %	<b>1.4</b>	<b>26.5</b>	<b>13.8</b>	<b>58.3</b>	<b>100</b>



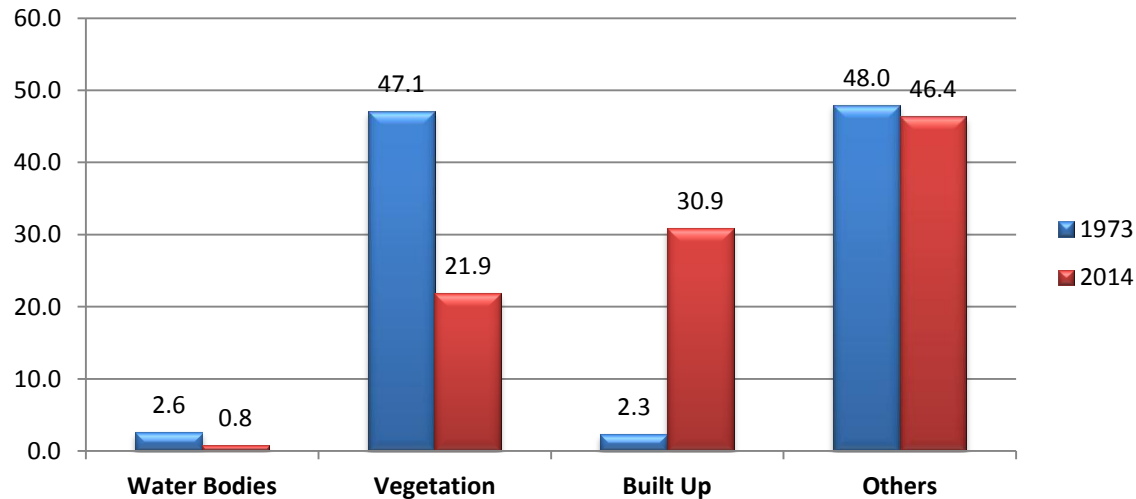
# Land Cover Analysis 2002-2014

2014 \ 2002	Water Bodies	Vegetation	Built Up	Others	Grand Total in %
<b>2002</b>					
<b>Water Bodies</b>	0.4	0.3	0.4	0.3	<b>1.4</b>
<b>Vegetation</b>	0.2	12.9	4.4	9.1	<b>26.5</b>
<b>Built Up</b>	0.1	0.5	11.1	2.2	<b>13.8</b>
<b>Others</b>	0.1	8.1	15.0	34.9	<b>58.3</b>
<b>Grand Total in %</b>	<b>0.8</b>	<b>21.9</b>	<b>30.9</b>	<b>46.4</b>	<b>100</b>



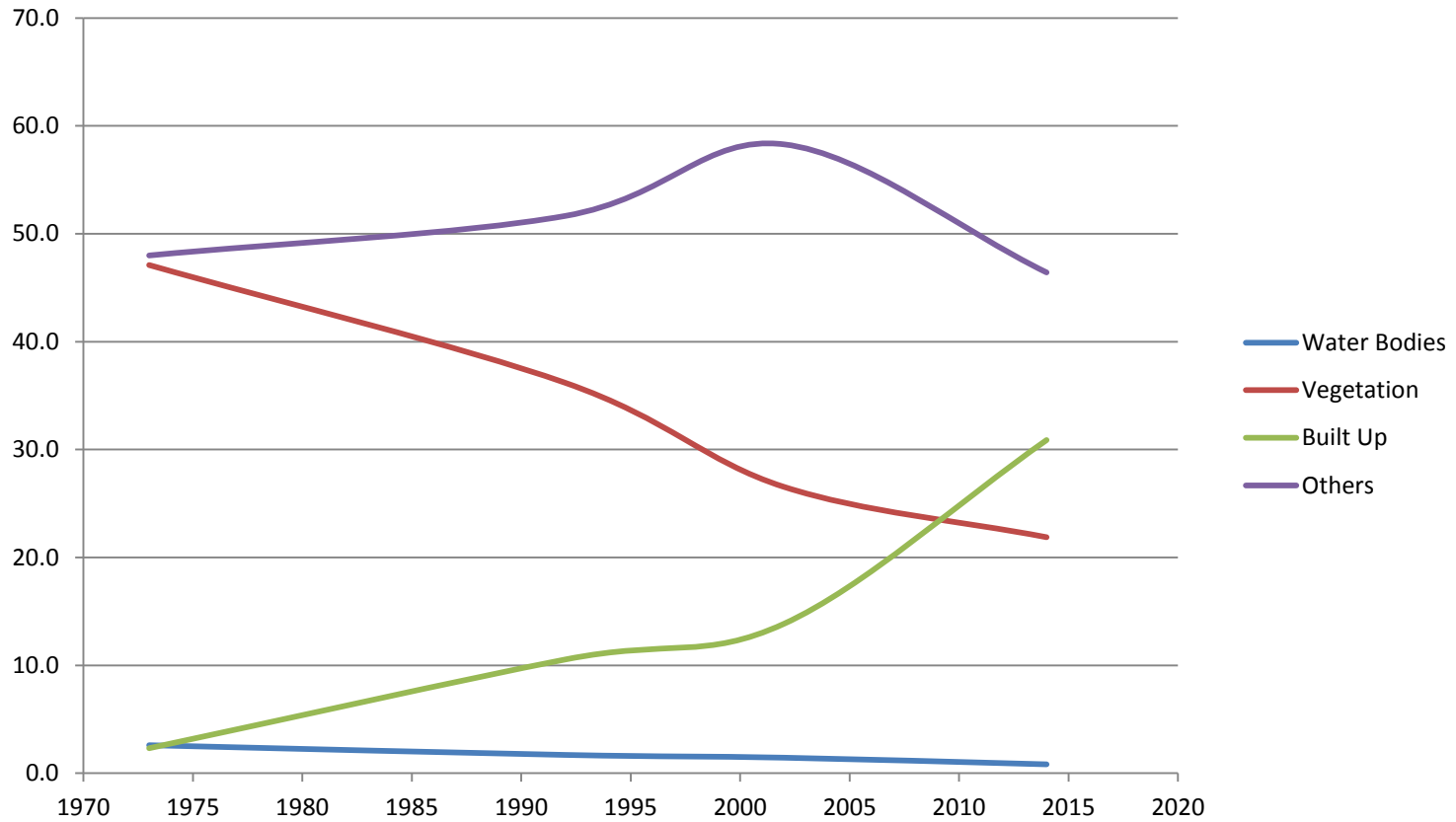
# Land Cover Analysis 1973-2014

2014 \ 1973	Water Bodies	Vegetation	Built Up	Others	Grand Total in %
<b>1973</b>					
<b>Water Bodies</b>	0.3	0.4	0.5	1.3	<b>2.6</b>
<b>Vegetation</b>	0.4	12.8	<b>13.2</b>	<b>20.7</b>	<b>47.1</b>
<b>Built Up</b>	0.0	0.3	1.7	0.3	<b>2.3</b>
<b>Others</b>	0.1	8.4	<b>15.4</b>	24.1	<b>48.0</b>
<b>Grand Total in %</b>	<b>0.8</b>	<b>21.9</b>	<b>30.9</b>	<b>46.4</b>	<b>100</b>





# Trend of Land Cover Change in Bangalore



# Impact of Land Cover on Flooding

$$\text{Runoff} = \text{Precipitation} - \text{Losses}$$

Losses (Evaporation and Transpiration, Interception, Depression storage, Infiltration)

## Discharge

$$Q = C.I.A$$

C is coefficient of runoff = runoff/rainfall

I = intensity of rainfall in mm/hour

A = catchment area in Km<sup>2</sup>

Q = peak discharge in m<sup>3</sup>/s

**Thank You**