

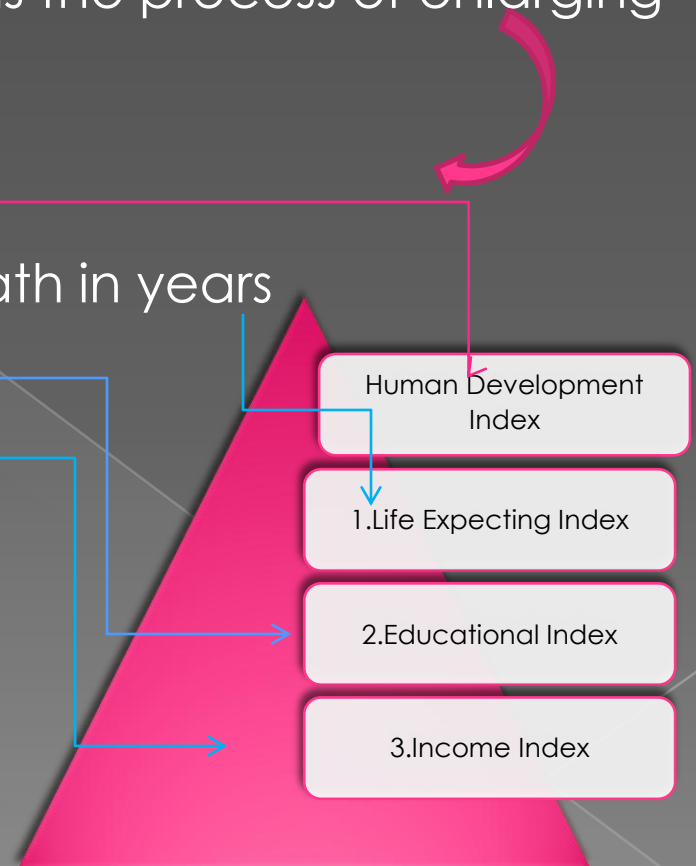
Human Development Index

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Human Development Concept (UNDP)

- Definition- “ Human development is the process of enlarging people’s choices”- **HDR 1990**
- Enlarging choices means -
 1. Healthy life -start at birth to till death in years
 2. Knowledge – education levels
 3. Living Standards- with income
- First Human Development Report pioneered by Mahbub –ul-haq and Amrtya Sen and others.



Human Development Index

L E Index

- Life Expectancy at Birth (Years)

Edu. Index

- Mean years of schooling (Years)
- Expected Years of Schooling (Years)

Income Index

- Gross National Income (GNP) Per Capita (\$PPP)

Steps to calculate the Human Development Index

- Goalposts for the Human Development Index in 2013 Report

Indicator	Observed maximum	Minimum
Life expectancy (years)	83.6 (Japan, 2012)	20.0
Mean years of schooling	13.3 (United States, 2010)	00
Expected years of schooling	18.0 (capped at)	00
Combined education index	0.971 (New Zealand, 2010)	00
GNI per capita (PPP \$)	\$87,478 (Qatar, 2012)	\$100

$$\text{Dimension Index} = \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}}$$

 The maximums are the highest observed values in the time series (1980–2012)

Aggregating the sub indices to produce the Human Development Index

- The HDI is the geometric mean of the three dimension indices:

$$\left(\ln \text{Life}^{\frac{1}{3}} * \ln \text{Education}^{\frac{1}{3}} * \ln \text{Income}^{\frac{1}{3}} \right)$$

Example: India (HDR 2013)

Indicator	Value
Life expectancy at birth (years)	65.8 (2012)
Mean years of schooling (years)	4.4 (2010)
Expected years of schooling (years)	10.7 (2011)
GNI per capita (2005 PPP \$)	3285 (2012)

$$1) \text{ Life expectancy index} = \frac{65.8 - 20.0}{83.6 - 20.0} = 0.778$$

$$2) \text{ (a) Mean years of schooling index} = \frac{4.4 - 0.0}{13.3 - 0.0} = 0.331$$

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$$(b) \text{ Expected years of schooling index} = \frac{10.7 - 00}{18.0 - 00} = 0.594$$

$$2) \text{ Educational Index (a+b)} = \frac{\sqrt{0.331 * 0.594} - 00}{0.971 - 00} = 0.457$$

$$3) \text{ Income Index} = \frac{\ln(\$3285) - \ln(\$100)}{\ln(\$87478) - \ln(\$100)} = \frac{3.491952}{6.77397} = 0.515$$

$$\odot \text{ Human Development Index} = \sqrt[3]{0.778 \times 0.457 \times 0.515} = 0.554$$

○ Human Development Level:- Between 0 to 1

➤ Low- 0.00 to 0.540 Medium- 0.550 to 0.698

➤ High- 0.700 to 0.790 Very High- 0.800 <

Human Development Index and its components (HDR 2014)

HDI rank	Countries	Human Development Index (HDI)	Life expectancy at birth	Mean years of schooling	Expected years of schooling	Gross national income (GNI) per capita	Gross national income (GNI) per capita	Change in rank
2013		Value	(years)	(years)	(years)	(2011 PPP \$)	Value	2012 – 13
1	Norway	0.944	81.5	12.6	17.6	63,909	0.943	0
2	Australia	0.933	82.5	12.8	19.9	41,524	0.931	0
50	Uruguay	0.790	77.2	8.5	15.5	18,108	0.787	2
103	Maldives	0.698	77.9	5.8	12.7	10,074	0.695	0
135	India	0.586	66.4	4.4	11.7	5,150	0.583	0
187	Niger	0.337	58.4	1.4	5.4	444	0.333	-1

Thanks.....