ANNEX: DATA SOURCES AND TECHNICAL NOTES FOR THE SUBNATIONAL HDI 2009

Longevity

Indicator	Source	Computing the indicator
Life Expectancy at Birth	Life Tables, 1990, 1995, 2000 (NSO)	1. Actual values and linear projections • 1997: interpolations from 1990 and 1995 • 2000: Actual values • 2003, 2006, 2009: linear projection from 1995 and 2000 2. Linear projections will be computed using a weighted average with weights derived from projected 0-1 yr old population shares of males and females

Example: Metro Manila

Gender	Year	Expected Life at Birth (years)	Gender	Year	Expected Life at Birth (years)
Male	1990	64.4	Female	1990	68.9
	1995	65.67		1995	70.70
	2000	67.557		2000	72.085

- To get the 2009 values, 1995 and 2000 figures for male and female will be regressed. $E(X) = \beta o + \beta 1 year$

Sex	Coefficient	Intercept	E(X) per sex	E(X) of MM (weighted average using wts from 0-1 yr projected population)
Male	0.38	-692.4	71.02	72.8
Female	0.277	-481.9159	74.5779	

Knowledge

Indicator	Source	Computing the indicator
Mean years of schooling: average years of prior schooling for adults aged 25 and older	2008 APIS and 2008 LFS July round	1. Merge APIS with the OCW observations from the LFS of the July round 2. Assign an equivalent number of years of schooling to each response under the "*highest grade completed*" variable: - APIS responses: 1 year for "*Grade 1*", and so forth, to 16 years for "*Graduate in Masters/PhD*" - LFS categories: Starting from 3 years for "*elementary undergraduate*"), and so forth, to 16 years for "*Graduate in Masters/PhD*"

Knowledge

Indicator	Source	Computing the indicator
Expected Years of Schooling (more precisely, **School Life Expectancy**): sum of the enrolment rate per age level, from ages 6 to 24. It is a synthetic summary indicator of the overall pattern of enrolment ratios at one particular point in time. It has no predictive value except in so far as it is assumes that enrolment patterns will remain unchanged into the future.	2008 APIS	Expected Years of Schooling = Σ_6^{24} $1p_i$ Where p_i is the probability of being enrolled , the current enrolment ratio at age i, and 1 is the complete number of years in school per age level. *Source: Klugman, J., et. al. "The HDI 2010: New Controversies, Old Critiques", HDRP 2011/01, UNDP , April 2011*

Example: Metro Manila

- Per age from 6 to 24 yrs, generate Enrolment Rate per province
- School Life Expectancy is the sum of the enrolment rate per age

Age	Enrollment Rate
6	0.91
7	0.98
8	0.98
9	0.99
10	0.98
11	0.99
12	0.99
13	0.98
14	0.95
15	0.91
16	0.81
17	0.68
18	0.55
19	0.46
20	0.33
21	0.19
22	0.13
23	0.09
24	0.05
Expected Years	**12.94**

Standard of living
(proxy for other dimensions not other captured)

Indicator	Source	Computing the indicator
Real per capita income in NCR 2009 pesos	2009 FIES 2009 NSCB poverty thresholds RCPI	1. FIES data, deflated by RCPI, and adjusted by the ratio of 2009 poverty thresholds with Metro Manila as base. 2. Trimming: symmetric trim, 0.5% of upper and lower values

Aggregation Methodology

Indicator	Equation
1. Dimension indices	$$(1) Dimension\ Index = \frac{Actual\ value - min\ value}{Max\ value - min\ value}$$
2. Education Index	> Compute for the Mean Years Index and the Expected Years Index using equation (1): $$Mean\ Years\ Index(MYI) = \frac{Actual\ value - min\ value}{Max\ value - min\ value}$$ $$Expected\ Years\ Index(EYI) = \frac{Actual\ value - min\ value}{Max\ value - min\ value}$$ > Compute for the geometric mean of the MYI and the EYI: $$(2) Educ\ Geom\ Mean = MYI^{1/2} * EYI^{1/2}$$ > Apply Equation (1) to the geometric mean of MYI and EYI: $$Education\ Index = \frac{Actual\ geometric\ mean - min\ value}{Max\ value - min\ value}$$
3. HDI-3	$$HDI = I_{Life}^{1/3} * I_{Education}^{1/3} * I_{Income}^{1/3}$$

Maximum and Minimum goalposts for 2009 HDI

Indicator	Maximum	Minimum
Life expectancy at birth, years	83.2 (global)	20.0 (global)
Mean Years of Schooling	11.5 (provincial max since 1997)	0.0
Expected Years of Schooling	14.6 (provincial max since 1997)	0.0
Real per capita income, 2009 MM Pesos	95,838 (provincial max since 1997)	17,949 (provincial min since 1997)
(For country comparisons) Real per capita income, PPP US $	108,211.00 [global]	163.00 [global]

Example: Metro Manila

$$HDI(3)_{MM} = 0.835^{1/3}_{Life} * 0.978^{1/3}_{Education} * 0.716^{1/3}_{Income(3)} = 0.837$$

where

$$I_{Income(3),\,MM} = \frac{73738 - 17949}{95838 - 17949} = 0.716$$

$$I_{Life,\,MM} = \frac{72.8 - 20}{83.2 - 20} = 0.835$$

$$I_{Education,\,MM} = \frac{0.905 - 0}{0.93 - 0} = 0.978$$

and

$$MYI = \text{Mean Years Index}_{,\,MM} = \frac{10.7 - 0}{11.5 - 0} = 0.925$$

$$EYI = \text{Expected Years Index}_{,\,MM} = \frac{12.9 - 0}{14.6 - 0} = 0.886$$

$$\text{Geometric Mean} = 0.925^{1/2} * 0.886^{1/2} = 0.978$$