Frequently Asked Questions (FAQs) about the Human Development Index (HDI)

What is the HDI?

The Human Development Index (HDI) is a summary composite index that measures a country's average achievements in three basic aspects of human development: health, knowledge, and income. It was first developed by the late Pakistani economist Mahbub ul Haq with the collaboration of the Nobel laureate Amartya Sen and other leading development thinkers for the first Human Development Report in 1990. It was introduced as an alternative to conventional measures of national development, such as level of income and the rate of economic growth.

What does the HDI tell us?

The HDI was created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. The HDI can also be used to question national policy choices, asking how two countries with the same level of GNI per capita can end up with such different human development outcomes. For example, the Bahamas and New Zealand have similar levels of income per person, but life expectancy and expected years of schooling differ greatly between the two countries, resulting in New Zealand having a much higher HDI value than the Bahamas. These striking contrasts can stimulate debate about government policy priorities.

Why are there more countries covered in the 2011 HDI than in 2010?

This year's HDI has been calculated for 187 countries and territories, 18 more than the 169 covered in the 2010 HDI. Seven countries were not included in 2011 because of missing data for one or more components: Marshall Islands, Monaco, Nauru, the People's Democratic Republic of Korea, San Marino, Somalia and Tuvalu. For many countries that were omitted from the HDI in 2010, the HDRO has worked with international data providers and national statistical agencies to estimated the missing indicator, using the methods and models recommended by the Report's Statistic Unit and   Statistical Advisory Panel.

Did the HDI rankings change for many countries in 2010?

This year we have 18 more countries in the HDI table than were included in 2010, which accounts for a significant portion of changes in rank. A better performance of other competitors can explain some of the changes too. However, the most significant factor is the revisions to the indicators that were done by data providers this year that affected the HDI of many countries.

Because of the change in the number of countries with the HDI this year and because of data revisions done in 2010 and 2011, the HDI ranks from two reports are not comparable. That is why we advise users of the HDR not to compare the results from different Reports, but to use Table 2 from the latest report, which is based on the latest data available. It is important to refer to Table 2 of the report when comparing rank and HDI value changes from one year to the next. The table is where HDRO presents trends in HDI using comparable time series data. The true rank change is expressed in this table as the number of places a country has moved within the index. A change in rank of 0 indicates that a country has neither improved nor declined in HDI relative to other countries between 2010 and 2011.

Were there any significant revisions of the component indicators for 2011?

Every year the international databases are updated and revised. Many of them include historical revisions too. **Life expectancy:** The UN population division did the revision of the life expectancy series in 2011. These revisions affect the past, current and future values of life expectancy. While most of these changes are small, there are changes in both directions for many countries. **Expected years of schooling and Mean years of schooling:** UNESCO Institute for Statistics (UIS) regularly updates its data stocks on enrollment and educational attainment – the key indicators for computation of expected years of schooling and mean years of schooling. This year, HDRO updated mean years of schooling for 34 countries for which new census data on education became available. **For additional eight countries, MYS was estimated from the UIS educational attainment tables. Gross national income:** Gross national income per capita is expressed in constant PPP$ terms. These estimates are based on: the reported GNI per capita in current national units, the GDP deflator, the GNI per capita in current PPP$, and the IMF estimates of the real GDP growth for 2010 and 2011. Each of these indicator series is updated or revised every year. For example, in 2010 there were no reported values of GNI for the year 2009; the IMF projections were used instead. The 2009 reported GNI values became available in 2011 and were used for estimation of the 2011 GNI per capita. Also in 2011 GNI is expressed in constant 2005 PPP$ while in 2010 it was expressed in constant 2008 PPP$. The different base years make these values incomparable directly.

The United States is number 4 in the 2011 HDI as it was in the 2010 HDI; in previous HDIs it was not in the top 10. Why the change?

Lifting the cap on income for the United States plays only a minor role in the change. There are eight countries with a higher income that are ranked lower than the US (Brunei Darussalam, Hong Kong (a special administrative region of China), Kuwait, Liechtenstein, Luxembourg, Qatar, Singapore, and United Arab Emirates). Use of the mean years of schooling instead of literacy made a huge difference, however. The mean years of schooling in the United States is 0.2 years behind the top ranking Norway, whereas literacy was set to 99%, but 25 high developed countries had the literacy of 99% too, so the literacy couldn't discriminate between them. In general, the geometric mean favours a well-rounded performance on all three dimensions, which worked against some of the US competitors (Sweden, Germany, and Ireland).

Can HDI indicators be adapted at the country level?

Yes, the HDI indicators can be adapted for country specific relevant ones provided they meet other aspects of statistical quality. It can also be disaggregated at sub-national level to compare levels and disparities among different subpopulations within a country, provided that appropriate data at the level of disaggregation are available; or can be estimated using sound statistical methodology. The highlighting of internal disparities using HDI methodology has prompted constructive policy debates in many countries.

Where do data for the HDI come from?

Life expectancy at birth is provided by the UN Department of Economic and Social Affairs; mean years of schooling by Barro and Lee (2010); expected years of schooling by the UNESCO Institute for Statistics; and GNI per capita by the World Bank and the International Monetary Fund. For few countries, mean years of schooling are estimated from nationally representative household surveys, and for few countries GNI was obtained from the UN SNA Main Aggregates database. Many data gaps still exist in even some very basic areas of human development

indicators. While actively advocating for the improvement of human development data, as a principle and for practical reasons, the Human Development Report Office does not collect data directly from countries.

Why is it important to express per capita GNI in Purchasing Power Parity (PPP) US Dollars?

The HDI attempts to make an assessment of 187 diverse countries and areas, with very different price levels. To compare economic statistics across countries, the data must first be converted into a common currency. Unlike market exchange rates, PPP rates of exchange allow this conversion to take account of price differences between countries. In that way GNI per capita (PPP US$) better reflects people's living standards. In theory, 1 PPP dollar (or international dollar) has the same purchasing power in the domestic economy of a country as US$1 has in the US economy. The new PPP values have been used since 2008. The latest International Comparison Survey ICP, from which the PPPs are calculated, was done in 2005; 146 countries took part in the survey, which were 26 more than in the previous one. For further discussion on the PPP, see Human Development Indices – A statistical update 2008 (Section 2). For computation of the 2011 HDI, GNI is expressed in constant 2005 PPP$. This is a change from 2010 when GNI was expressed in constant 2008 PPP$. A reason was to fully comply with the World Bank's and IMF's standards for expressing the monetary variables in 2005 constant international (PPP) dollars. This change had a differential impact on countries but on average the change was minimal.

What is an "imputed" indicator – and for what countries were these imputed statistics used?

When one indicator is missing, the HDRO estimates the missing value using an alternative source or a cross-country regression model. The estimated values along with the method and/or model used are first communicated with the affected country before using it for the computation of the HDI. Mean years of schooling (MYS) for Andorra and Liechtenstein was based on the MYS of neighbouring countries Spain and Switzerland, respectively. For 27 countries, the MYS was estimated from nationally representative household surveys—UNICEF's Multiple Indicator Cluster Surveys (MICS) Demographic and Health Surveys (DHS), and the World Bank's Income International Distribution Database. For eight countries—Antigua and Barbuda, Eritrea, Grenada, Kiribati, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines and Vanuatu—mean years of schooling was estimated by a cross-country regression model. Expected years of schooling were estimated by cross-country regression for four countries—Barbados, Montenegro, Singapore and Turkmenistan.

Can the GNI per capita be used to measure human development instead of the HDI?

No. GNI per capita only reflects average national income. It tells nothing of how that income is spent, whether on universal health, education or military expenditure. Comparing rankings on GNI per capita and the HDI can reveal much about the results of national policy choices. For example, a country with a very high GNI per capita, such as Kuwait which has a relatively low mean years of schooling for its adult population, can have a lower HDI rank than, say, Barbados, which has less than 40% of the GNI per capita of Kuwait.

The 2011 Human Development Index is divided into four quartiles, from "Very High" to "Low" human development achievement,   as introduced in the 2010 HDI. Why?

Earlier HDI cut-off points before 2010 were set as absolute values, and were inevitably somewhat arbitrary. With the new classifications, the approach is explicitly relative -- based on quartiles. The new classification also reduces the amount of variation within each group:

previously the medium human development group ranged from 0.500 to 0.799, whereas now the effective range is 0.522 to 0.698. It does however mean that the size of each group depends on the total number of ranked countries and that some countries have entered in a lower classification this year—even if they continue to make progress—this is the case for Solomon Islands, Sao Tome et Principe, and Pakistan for example. In these cases we would stress focussing on the change in the HDI value over time (see Table 2), and underline that the classifications are relative, not absolute. The low group is the bottom 46 countries while in the previous year as the bottom 42 countries; medium next 47, and so on, while the high and very high are in the top half—medium and low in the bottom half.

How is it possible that the 2011 HDI refers to the year 2011?

The 2011 HDI was computed in 2011 from the most recent available data sources. Two indicators refer to 2011 (life expectancy and GNI), and two education indicators refer to the most recent year for which the indicator was available as of May 15, 2011. GNI was available for 2009 in the World Bank's World development indicators. Estimated annual growth rates for GDP per capita were taken from the IMF's World Economic Outlook for 2010 and 2011 to estimate GNI in 2011.

Can the HDI alone measure a country's level of development?

No. The concept of human development is much broader than what can be captured in the HDI, or any other of the composite indices in the Human Development Report (Inequality-adjusted HDI, Gender Inequality Index and Multidimensional Poverty Index). The HDI, for example, does not reflect political participation or gender inequalities. The HDI and the other composite indices can only offer a broad proxy on some of the key issues of human development, gender disparity and human poverty. A fuller picture of a country's level of human development requires analysis of other indicators and information presented in the statistical annex of the report (see the Readers guide to the Report).

The original HDI methodology was revised in 2010 for the 20th anniversary edition of the Human Development Report. How is it different?

The HDI remains a composite index that measures progress in the three basic dimensions— health, knowledge and income. Under the previous HDI formula, health was measured by life expectancy at birth; education or "knowledge" by a combination of the adult literacy rate and school enrolment rates (for primary through university years); and income or standard of living by GDP per capita adjusted for purchasing-power parity (PPP US$).

Health is still measured by life expectancy at birth. But the 2010 HDI measured achievement in **knowledge** by combining the expected years of schooling for a school-age child in a country entering school today with the mean years of prior schooling for adults aged 25 and older. The **income** measurement, meanwhile, has changed from purchasing-power-adjusted per-capita Gross Domestic Product (GDP) to purchasing-power-adjusted per-capita Gross National Income (GNI); GNI includes some remittances, providing a more accurate economic picture of many developing countries.

Why did the Report change the indicators for measuring education and income?

The indicators were changed for several reasons. For example, adult literacy used in the old HDI (which is simply a binary variable, literate or illiterate, with no gradations) is an insufficient

measure for knowledge achievement. By including average years of schooling and expected years of schooling, one can better capture the level of education and recent changes.

Gross Domestic Product (GDP) is the monetary value of goods and services produced in a country irrespective of how much is retained in the country. Gross National Income (GNI) expresses the income accrued to residents of a country, including some international flows, and excluding income generated in the country but repatriated abroad. Thus, GNI is a more accurate measure of a country's economic welfare. As shown in the 2010 Report, significant differences could exist between the income of a country's residents, measured by GNI or GDP.

The calculation of the HDI now is "geometric" rather than "arithmetic" and the goalposts have changed – what does that mean?

Previously, the HDI had a form of the arithmetic mean of dimension indices obtained from the corresponding indicators by normalization using the fixed minima and maxima. The normalization refers to the transformation of indicators expressed in different units to the unit-less quantities taking values between 0 and 1. The 2010 introduced HDI has a form of geometric mean of dimension indices obtained from the indicators by normalization based on minima and maxima observed over the period for which the HDI has been computed and reported. Thus, the previous "cap" on the income component was replaced in the 2010 HDI by an "observed maximum" per-capita income level. Adopting the geometric mean produces lower index values, with the largest changes occurring in countries with uneven development across dimensions. The geometric mean has only a moderate impact on HDI rankings.

Why is the geometric mean better suited for the HDI than the arithmetic mean?

Unlike the old HDI, the new HDI based on the geometric mean takes into account differences in achievement across dimensions. Poor performance in any dimension is now directly reflected in the new HDI, which captures how well a country's performance is across the three dimensions. That is to say, a low achievement in one dimension is not anymore linearly compensated for by high achievement in another dimension. The geometric mean reduces the level of substitutability between dimensions and at the same time ensures that a 1% decline in index of say life expectancy at birth has the same impact on the HDI as a 1% decline in education or income index. Thus, as a basis for comparisons of achievements, this method is also more respectful of the intrinsic differences across the dimensions than a simple average.

Why was the "cap" on income in the HDI lifted, and what was the effect?

Income is instrumental to human development, but the contribution diminishes as incomes rise. GDP in the previous HDI was capped at $40,000 and was logarithmically transformed. The original HDI placed this cap on income to reflect the view that beyond some upper set amount, additional income does not expand human development opportunities. A further consideration was that while literacy rates and school enrolment and life expectancy have "natural" caps (100%, mortality limits, and so on forth), the highest incomes would continue rising, skewing the upper ranks of the HDI to increasingly income-driven values and rankings over time.

There are other reasons why the cap on income is lifted. First, countries were increasingly bunched at the cap. This meant that we could not distinguish among an increasing number of countries at the top of the distribution. In 2007, the GDP of 13 countries exceeded the cap. Thus, the discriminatory power of capped income has been weakened, especially for discrimination between the very high developed countries. Second, it was not originally intended to be binding in the sense of totally disregarding additional income beyond a particular level. For example, the

income cap of PPP $40,000 was not binding on countries when it was introduced in the mid-1990s but rather was an upper bound used to normalize the income dimension index. Third, the use of geometric mean intensifies the diminishing returns of the logarithmic transformation of GNI compared to the arithmetic mean. Fourth, and very importantly, the use of real maximum values instead of caps allows the resulting dimensional indices to vary in similar ranges so that their implicit weights are more similar than had been the case under the previous method.

The new HDI uses the natural logarithm instead of the previously used logarithm with the base of 10. This minor change has no effect on the value of the income index and is motivated by the fact that most of the economic literature uses the natural logarithm of income. The caps in each dimension are lifted so one can say that they are equal to the observed maxima over the period (1980-2011) for which HDI trends are presented.

Has the methodology for calculating the dimension sub-indices also changed?

Yes. This year, the dimension indicators are transformed using the maximum levels for all sub-components observed over the period for which HDI trends are presented (from 1980). The minimum levels for the dimension indicators are set as follows: life expectancy at 20 years; both education variables at 0; and GNI per capita at PPP $100, which is lower than the observed minimum and is considered to be an absolute natural minimum. The choice of minimum values is motivated by the principle of natural zeros below which there is no possibility for human development. As noted already, this way of normalizing has the effect of making the component sub-indices of these dimensions vary along the similar range.

What is the rationale behind changing the minimum value for life expectancy at birth from 25 years to 20?

This is based on historical evidence (Maddison, 2010, and Riley, 2005), which indicates 20 years as the minimum. If a society or a subgroup of society has a life expectancy below the typical age of reproduction, that society would die out. Lower values have occurred during some crises, such as the Rwandan genocide, but these were exceptional cases that were not sustainable. See:

Maddison, A. 2010. Historical Statistics of World Economy: 1-2008 AD. Paris: Organization for Economic Cooperation and Development.

Riley, J.C. 2005. Poverty and Life Expectancy. Cambridge, UK: Cambridge University Press.

Noorkbakhsh (1998). The Human Development Index: Some Technical Issues and Alternative Indices. Journal of International Development 10, 589-605

What is the justification for the minimum values for other indicators?

Generally, the minimum values are set to the values that a society needs to survive over time. For both education indicators, the minimum is set to 0 since societies can subsist without formal education. For income, it is set at $100 per capita GNI, which is lower than the lowest value attained by any country in recent history (Zimbabwe in 2008). The minimum values are essentially fixed. Should any country's per capita GNI fall close to or below $100, the minimum will be changed accordingly.

Does using "observed maximums" mean changing them on a yearly basis?

The maximum values are observed over the period for which HDI trends are presented (from 1980), so while there might be year to year variation of the maximum values, the changes are not going to have any impact on ranks. This is because of the multiplicative form of the new HDI,

which preserves the relative position of countries when maximum values change, although, the HDI values are affected by the choice of the normalizing parameters.

Does year-to-year variation of maximum values make it harder to monitor progress?

No, each year HDI trends are recalculated from 1980 based on consistent time series data and the new maximum values. In any case, the HDI is not meant to monitor progress in the short term— it takes time before policy interventions reflect on indicators such as mean years of schooling and life expectancy at birth. This is why HDI trends are provided in five-year intervals.

Why has the principle of "diminishing returns" not been applied to other indicators?

There are arguments for and against transforming the health and education variables to account for diminishing returns. It is true that health and education are not only of intrinsic value; they, like income, are instrumental to other dimensions of human development not included in the HDI (Sen, 1999). Thus, their ability to be converted into other ends may likewise incur diminishing returns. The approach is to value each year of age or education equally, and therefore the principle has been applied only to the income indicator.

Are the HDI dimensions weighted equally?

The new HDI assigns equal weight to all three dimension indices; the two education sub-indices are also weighted equally. This is different from the previous HDI, which weighted them differentially. The choice of weights is based on the normative judgement that all three dimensions are equally important. Research papers that provide a statistical justification for this approach include Noorkbakhsh (1998) and Decanq and Lugo (2009). The new HDI has more equal ranges of variation of dimension indices than the previous one, implying that the effective weighting is more equal than it was before. See:

Decanq, K. and Lugo, M.A. 2009. Weights in Multidimensional Indices of Well-Being. OPHI working paper No. 18. (To appear in Economic Reviews)

Why does the HDI not include dimensions of participation, gender and equality?

As a simple summary index, the HDI is designed to reflect average achievements in three basic aspects of human development – leading a long and healthy life, being knowledgeable and enjoying a decent standard of living. The policy of the Human Development Report Office has always been to construct additional complementary composite indices for covering some of the "missing" dimensions in the HDI. Gender disparity, inequality and human deprivation are measured by other indices (see Gender Inequality Index, Multidimensional Poverty Index and Inequality-adjusted HDI). Participation and other aspects of well-being are measured using a range of objective and subjective indicators and are discussed in the Report. Measurement issues related to these aspects of human development demonstrate the conceptual and methodological challenges that need to be further addressed.

What is the effect of the changes in HDI indicators and geometric aggregation?

The changes in the indicators and method of aggregation have resulted in substantial changes for a number of countries. Adopting the geometric mean of aggregation produces lower index values for all countries because the extent to which a higher achievement in one dimension can be compensate lower achievement in other dimensions is reduced. The average decline is about 7% with the largest changes occurring in countries with uneven achievement across dimensions.

What are the criteria for a country to be included in the HDI?

The Human Development Report Office strives to include as many UN member countries as possible in the HDI. To include a country in the HDI we need recent, reliable and comparable data for all three dimensions of the Index. For a country to be included, statistics should ideally be available from the relevant international data agencies.