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## **Vulnerability Profile of Bhutan**



## Contents

Bhutan: graduation road map at a glance

1. Introduction: historical and institutional context
2. Bhutan and the per capita income criterion
3. Bhutan and the human assets criterion
4. Bhutan and the economic vulnerability criterion
  - 4.1 Natural hazards
  - 4.2 Aggravating factors and practices
5. Using the LDC criteria indicators to measure Bhutan's structural progress: some lessons
6. Conclusion

Annex: The graduation criteria and the graduation rule

## **Bhutan: graduation road map at a glance**

- March 2015:** Bhutan, for the first time, met two of the three thresholds of graduation from LDC status (see pages 6 and 9). The Committee for Development Policy (CDP) accordingly found Bhutan pre-eligible for graduation. This finding brought no immediate change to the country's entitlement to LDC treatment. The CDP will re-examine the potential graduation case of Bhutan in its next triennial review of the list of LDCs in March 2018.
- March 2018:** If Bhutan again meets two of the three graduation thresholds, the CDP will normally find the country fully eligible for graduation, and accordingly recommend Bhutan's graduation from LDC status in its report to the UN Economic and Social Council (ECOSOC).
- July 2018:** ECOSOC will normally endorse the CDP's recommendation to graduate Bhutan from LDC status.
- December 2018:** The UN General Assembly, in turn, will normally endorse the recommendation to graduate Bhutan, through a resolution formally stating the UN decision to take the country out of the list of LDCs. On the day of adoption of this resolution, Bhutan will enter the standard (normally three-year) grace period during which the country retains its LDC status and is expected to negotiate, with its development partners, a "smooth transition" to post-LDC status.

*NB: The adverb "normally" qualifying the action of the CDP, ECOSOC and the General Assembly indicates that the relevant decisions by these three bodies are expected to take place in accordance with a "normal" calendar. However, flexibility from this normal timeframe can take place at the discretion of any relevant body if that is deemed to be in the interest of the country under review:*

- (i) the CDP may delay its decision to recommend the graduation of a country; or it may never resolve to make this recommendation;*
- (ii) the Economic and Social Council may delay its action on a CDP recommendation to graduate a country; or it may never resolve to endorse this recommendation;*
- (iii) the General Assembly may avail itself of the possibility of delaying its endorsement of a recommendation to graduate the country, or it may never resolve to endorse this recommendation; it may also, if it endorses the recommendation, decide to grant the country a grace period of a duration different from the standard three-year prescription.*

- December 2021:** At the end of the grace period, Bhutan will officially graduate from LDC status. Yet it may continue, for a period of time, to have the benefit of LDC treatment under "smooth transition" measures.

There are two types of smooth transition measures: (i) those that are negotiated with development partners on a case-by-case basis; and (ii) those that are systemic, i.e. established for all graduating LDCs and automatically extended to them.

### **1. Introduction: historical and institutional context**

Bhutan was on the first UN list of LDCs in 1971<sup>1</sup>. In its 2015 review of the UN list of Least Developed Countries (LDCs), the Committee for Development Policy (CDP) observed that Bhutan was meeting two of the three thresholds of graduation from LDC status, namely, the graduation lines relevant to the per capita income and human assets criteria. The CDP accordingly found that Bhutan was meeting "*eligibility criteria for graduation for the first time*", a preliminary finding that determines a situation of "pre-eligibility" for graduation from LDC status. This notion will normally lead to a situation of full eligibility if the country again meets the same graduation thresholds three years later, in accordance with the graduation rule. Bhutan will therefore, in theory, "*be considered for graduation at the next triennial review [of the list of LDCs] in 2018*"<sup>2</sup> if the country's performance by then has remained above two graduation borders.

Table 1 summarizes the performance which brought the CDP's finding, in the 2015 review of the list, of Bhutan's pre-eligibility for graduation.

This Profile was prepared in accordance with General Assembly resolution 59/209 of 20 December 2004, which decided that "after a country has met the criteria for graduation for the first time, UNCTAD is mandated to prepare a vulnerability profile on the identified country to be taken into account by the Committee for Development Policy at its subsequent triennial review"<sup>3</sup>. It is an input to the work of the CDP in answering the question of the graduation of Bhutan from LDC status.

Sections 2, 3 and 4 summarily examine the performance of Bhutan under the graduation thresholds relevant to the three criteria for identifying LDCs, namely the per capita income criterion, the human assets criterion, and the economic vulnerability criterion, respectively. Section 5 indicates the power and limitations of LDC criteria indicators in measuring the structural economic progress achieved by Bhutan. Section 6 offers a set of concluding remarks with a particular focus on the "Bhutan paradox": the LDC criterion weighing least statistically in the country's expected move to full eligibility for graduation, namely economic vulnerability, is paradoxically the most important issue to be given attention in answering the question of Bhutan's reclassification.

**Table 1**

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<sup>1</sup> In the original list of 25 LDCs (including Bhutan) when the category was established in 1971, there was a neighbour of Bhutan, namely, the territory of Sikkim. Sikkim had been, since 1950, a protectorate of India. Sikkim therefore was not strictly speaking a country when it learned that it was recognized as an LDC. The inter-governmental bodies that took the initiative of including a non-State in the first list of LDCs (ECOSOC; the Trade and Development Board; and the General Assembly) acted in good faith as they assumed that full statehood would be the natural next step for Sikkim. Things, however, turned out differently as Sikkim instead became, on 15 May 1975, the 22<sup>nd</sup> State of the Indian Union, thereby moving away from statehood. When the General Assembly reviewed the list of LDCs in December 1975, Sikkim had already been deleted from the list by the CDP, while four countries had been added, thereby bringing to 28 the number of LDCs.

<sup>2</sup> Committee for Development Policy, Report on the seventeenth session (23-27 March 2015), Economic and Social Council, Official Records, 2015, Supplement No. 13, E/2015/33, para. 59.

<sup>3</sup> General Assembly resolution A/RES/59/209, *Smooth transition strategy for countries graduating from the list of least developed countries*, para. 3(b), 20 December 2004.

Bhutan's pre-eligibility for graduation from LDC status in the 2015 review of the list of LDCs

	<b>PER CAPITA INCOME</b>	<b>HUMAN ASSETS</b>	<b>ECONOMIC VULNERABILITY</b>
To pre-qualify for graduation in the 2015 review of the list, an LDC had to meet at least two of the following three graduation thresholds...	...to have a gross national income per capita of at least US <b>\$1,242</b> (2011-2013 three-year average)	...to have a score >66 under the Human Assets Index (HAI), extreme values of which, among LDCs, were 7.8 (lowest human assets) and 87.6 (highest human assets)	...to have a score <32 under the Economic Vulnerability Index (EVI), extreme values of which, among LDCs, were 71.5 (highest vulnerability) and 24.9 (lowest vulnerability)
Bhutan's score under the relevant criterion	\$2,277  (GNI per capita, 3-year average)	66.8  (Human Assets Index score)	39.9  (Economic Vulnerability Index score)
Bhutan's score in % of the graduation threshold	at <b>183.3%</b> of the graduation threshold	at <b>101.2%</b> of the graduation threshold	at <b>80.3%</b> of the graduation threshold <i>(see footnote 4)</i>

Source: UNCTAD, based on CDP data

Graphs 1, 2 and 3 illustrate Bhutan's evolution, since 1991, under or above the graduation thresholds relevant to the per capita income criterion, the human assets criterion, and the economic vulnerability criterion, respectively. The data indicate the country's distance to the graduation threshold, as well as the distance to the admission threshold (the level for admitting new countries into the list). All data through the nine triennial reviews of the list of LDCs since 1991 (1991, 1994, 1997, 2000, 2003, 2006, 2009, 2012, 2015) have been standardized in index form, with the graduation threshold standing out as the 100 basis. For example, a score of 101 observed in 2015 under the second criterion indicates that Bhutan was standing at 101% of the relevant graduation threshold. Each graph indicates the evolving distance to or from the graduation threshold under the reviewed criterion. It does not, however, purport to measure the evolution in the relevant performance of the country.

## 2. Bhutan and the per capita income criterion

Considerations on (low or rising) per capita income levels have always been key to the identification of LDCs. Per capita income summarily measures how well off the citizens of a country have been on average. If measured internationally in a single currency, per capita income will make international comparisons and rankings possible. It may also lead to conclusions regarding a country's level of development insofar as overall income generation in that country can reflect the material well-being of its citizens. A rapidly rising per capita income often signals a form of quick prosperity based on a natural resource (e.g. hydrocarbons) or a vibrant economic sector (e.g. tourism), and may hide the structural impediments to economic diversification, notably the consequences of a disadvantageous geographical situation.

Gross National Income (GNI) per capita is used as the preferred income aggregate for the purposes of identifying LDCs. GNI includes the income which has been generated by national factors –persons or entities– within and outside the domestic economic territory, including the income accruing to nationals who were abroad for less than a year, whose income would not be counted as part of the gross domestic product (GDP).

Table 2 indicates World Bank data on Bhutan’s GNI per capita for the 2007-2016 period.

**Table 2**  
Bhutan: Gross National Income per capita (in US dollars), 2007-2016

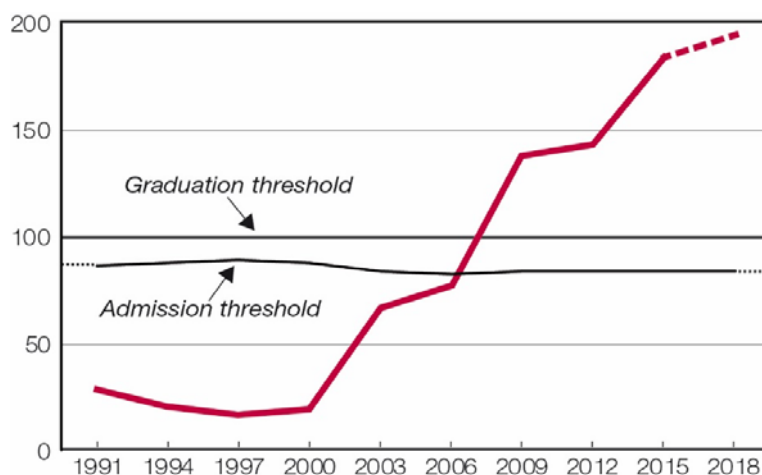
2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1,620	1,730	1,810	1,970	2,150	2,290	2,300	2,340	2,350	2,510

Source: World Bank, World Development Indicators (Atlas method, on-line database), Nov. 2017

**Graph 1**

BHUTAN: distance from the graduation threshold  
under the per capita income criterion (based on GNI per capita)

*NB: data up to 2015 are based on actual CDP findings; the 2018 projection is provisional*



Source: UNCTAD, based on CDP data up to 2015

With a spectacular rise from 19% of the graduation threshold in 2000 to 183% in 2015 and an expected 194% in 2018, Bhutan has demonstrated the fastest progress, under this criterion, among non-oil-exporting LDCs. Between 2007 and 2010, the annual income of the country (based on the gross domestic product/GDP) grew at the average rate of 10%, thereby reflecting a diversification pace which remains unique in the economic history of LDCs with a population under one million. The average growth rate since 2011 has been 5.6%. In 2015, electricity, the leading export sector, accounted for 35.2% of total merchandise exports, ahead of metal products (34.7%), mineral products (12.2%), fruits, vegetables and cereals (6.8%),

and chemical and pharmaceutical products (5.9%). In the same year, international tourism was the source of 75% of Bhutan's service export receipts, a contribution 3.5 times greater than that of the passenger transport sector, the second largest service export activity in the country. Electricity production and international tourism now stand out as the first two pillars of the economy in monetary terms (explaining 42% of total goods and services export earnings, and 20% of GDP). However, the contribution of these two sectors to the country's labour force still does not exceed 7.5%, a share considerably smaller than that of agriculture and forestry.

The depicted projection to 2018 in Graph 1 prefigures the expected scenario of full eligibility for graduation.

The gross national income has been consistently smaller than the gross domestic product in Bhutan, by 7% on average over the past decade. This is explained by a substantial net outflow of factor income equivalent to 26% of the country's total exports of goods and services. In 2015, the total factor income outflow from Bhutan was predominantly (for 70%) in the form of interest payments (largely to Indian creditors), while remittances abroad by foreign workers accounted for 17%, and repatriated profit (reinvested earnings) from direct investment in Bhutan represented 13% of the same total outflow (counterpart figures in 2010 were 64%, 31% and 5%, respectively).

Table 3 shows Bhutan's current account and key components of it over a period of eight years, and the relative weight of these recurrent flows on the economy in proportion to the gross national income. Bhutan's merchandise exports diversified significantly over the past two decades, notably with acceleration in the country's exports of metal products and chemical products, and in electricity, fruits and nuts, and copper, inter alia. However, exports did not increase at current prices, over the eight-year period covered by the table, while service exports more than doubled (+126%, principally air transport and international tourism).

Net remittance outflows, which have been dominated by the transfers made by some 50,000 to 70,000 Indian labourers working on hydropower projects, nearly tripled at current prices between 2008 and 2015, a period during which the ratio of net remittance outflows to GNI doubled. Interest payments to foreign creditors abroad, the dominant component of Bhutan's investment income outflows, increased considerably in recent years. At US \$143 million in 2015, it accounted for an amount exceeding the country's exports of services by 16%, and exceeding the total aid inflows to Bhutan by 69%. The ratio of net investment income outflows to GNI, which was 1.6% in 2009, had risen to 8.1% in 2015.

In this context, the current account deficit of Bhutan increased significantly between 2010 and 2015 (by 79% at current prices, and by 9 percentage points in proportion of GNI). This overview of Bhutan's external economy reveals the weight of interest payments to foreign creditors, in an amount that was equivalent to 7.8% in 2015. If other outflows such as profit repatriated and remittances are taken into account, factor income outflows were equivalent to 11% of GNI in the same year. Six years earlier, the counterpart ratio was 4%. These figures indicate a growing level of external economic dependence on foreign sources of funding and foreign workers.

Whether this economic landscape can be considered as depicting the structural progress which graduation from LDC status normally implies is questionable. The quest for further productive capacity-building and diversification into sectors with higher productivity is of critical importance if Bhutan is to demonstrate that its reclassification is justified and timely.

**Table 3**  
Bhutan's balance of payments: current account, primary income, secondary income

<b>Current account aggregates and relevant ratios</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Exports of goods	598.9	518.0	521.6	663.7	626.9	544.5	534.7	580.3
Imports of goods	644.9	583.4	795.0	1,128.0	1,012.4	923.5	928.8	997.0
Exports of services	54.8	56.3	68.8	81.9	102.2	123.3	124.5	123.8
Imports of services	120.7	98.7	140.2	176.6	196.9	177.6	189.5	183.8
Exports of goods and services	653.7	574.3	590.4	745.6	729.1	667.8	659.2	704.1
Exports of goods as a % of GNI	49.3%	40.0%	36.5%	41.7%	36.4%	31.0%	29.5%	31.4%
Exports of services as a % of GNI	4.5%	4.3%	4.8%	5.1%	5.9%	7.0%	6.9%	6.7%
Exports of goods and services as a % of GNI	53.8%	44.3%	41.3%	46.8%	42.3%	38.0%	36.3%	38.1%
Trade balance	-112.0	-107.9	-344.8	-559.0	-480.3	-433.2	-459.2	-476.8
Trade balance as a % of GNI	-9.2%	-8.3%	-24.1%	-35.1%	-27.9%	-24.6%	-25.3%	-25.8%
Remittance inflows	1.6	1.8	1.6	1.2	1.2	2.0	1.8	1.7
Remittance outflows	13.1	14.3	27.4	46.6	38.2	39.7	35.4	34.6
Remittance outflows as a % of GNI	1.1%	1.1%	1.9%	2.9%	2.2%	2.3%	2.0%	1.9%
Net remittance outflows	11.5	12.5	25.8	45.4	37.0	37.7	33.6	32.9
Net remittance outflows as a % of GNI	0.9%	1.0%	1.8%	2.9%	2.1%	2.1%	1.9%	1.8%
Investment income inflows: interest from foreign debtors	33.1	19.3	14.8	15.4	16.2	15.6	17.6	21.1
Investment income outflows: profit repatriation	1.7	-1.1	4.1	3.1	-0.5	0.6	0.1	27.5
Investment income outflows: interest to foreign creditors	53.1	39.3	57.0	69.7	91.0	123.5	103.7	143.2
Interest to foreign creditors as a % of GNI	4.4%	3.0%	4.0%	4.4%	5.3%	7.0%	5.7%	7.8%
Net investment income outflows	21.7	21.1	46.3	57.4	75.3	108.5	86.2	149.6
Net investment income outflows as a % of GNI	1.8%	1.6%	3.2%	3.6%	4.4%	6.2%	4.8%	8.1%
Official development assistance (ODA)	81.5	103.6	123.5	172.6	226.9	139.6	96.8	84.6
ODA as a % of GNI	6.7%	8.0%	8.6%	10.8%	13.2%	7.9%	5.3%	4.6%
Current personal transfers	1.9	3.1	6.7	9.2	16.9	9.8	12.5	17.9
Current personal transfers as a % of GNI	0.2%	0.2%	0.5%	0.6%	1.0%	0.6%	0.7%	1.0%
Current account	-112.5	-65.9	-323.1	-526.2	-378.5	-472.4	-483.6	-578.8
Current account deficit as a % of GNI	-9.3%	-5.1%	-22.6%	-33.0%	-22.0%	-26.9%	-26.7%	-31.3%
Gross National Income ( <i>World Bank Atlas method</i> )	1,214.3	1,296.3	1,430.3	1,592.5	1,721.8	1,758.9	1,813.8	1,847.2
Gross Domestic Product growth at constant prices (annual rate)	4.8%	6.7%	11.7%	7.9%	5.1%	2.1%	5.7%	6.5%

Source: All data except GNI were extracted from the IMF Balance of Payments Statistics Yearbook 2016.

### 3. Bhutan and the human assets criterion

At the time of the 2015 triennial review of the list of LDCs, Bhutan's score under the human assets criterion stood at 104% of the graduation threshold relevant to this criterion (see

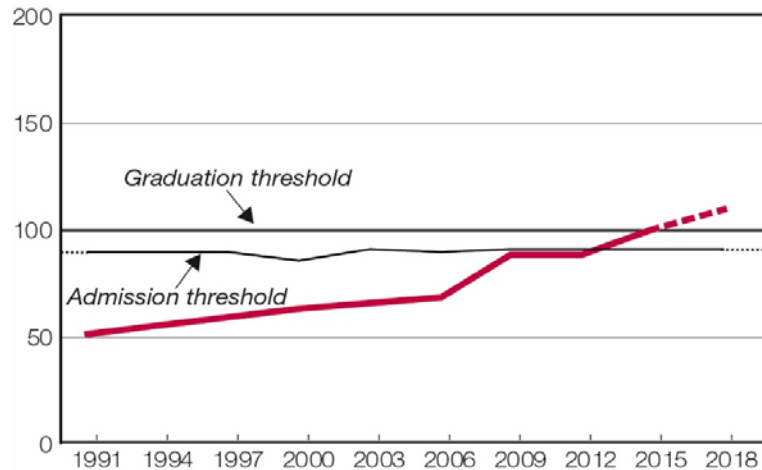


Graph 2). The country's performance is expected to rise to 110% of the graduation line in the 2018 review of the list, thereby confirming the steady progress demonstrated over time.

### Graph 2

BHUTAN: distance from the graduation threshold under the human assets criterion (based on the *Human Assets Index*)

*NB: data up to 2015 are based on actual CDP findings; the 2018 projection is provisional*



Source: UNCTAD, based on CDP data up to 2015

The rate of undernourishment (20% of the population over the past decade) has been 23% lower than the average rate of other Asian LDCs, and 22% lower than the average for all other LDCs. The child mortality rate decreased substantially between 2005 and 2015 (by an estimated 49%, to 32.4%). Bhutan, in this regard, fares better than the comparative regional group (by 26%). Secondary school enrolment is another area of notable progress, with a ratio significantly higher now than a decade earlier (84% vs. 49% in 2006), and higher than the rate of other Asian LDCs by 27%. Bhutan's adult literacy rate is currently estimated at 57%, thereby exceeding by 10 percentage points the counterpart figure in 2006.

#### 4. Bhutan and the economic vulnerability criterion

Examination of Bhutan's performance under the graduation threshold relevant to the vulnerability criterion reveals little improvement in the long run, though the expected 2018 score at a likely 88% of the graduation line will place the country at a historical peak<sup>4</sup>.

<sup>4</sup> Bhutan's upward graphic move under this graduation threshold in recent years illustrates a downward evolution of the country's EVI score (44.2 in 2012, 39.9 in 2015, and provisionally 36.2 in 2018, in all three cases under a graduation threshold of 32). The graphic inversion from downward to upward serves to harmonize the interpretation of progress under this criterion with the interpretation of progress under the other two criteria: be it above or below the graduation line, an upward trend means that the country has recorded progress with regard to the question of graduation, while a downward trend (e.g. in 2009 in Bhutan) is synonymous with regression in this respect.

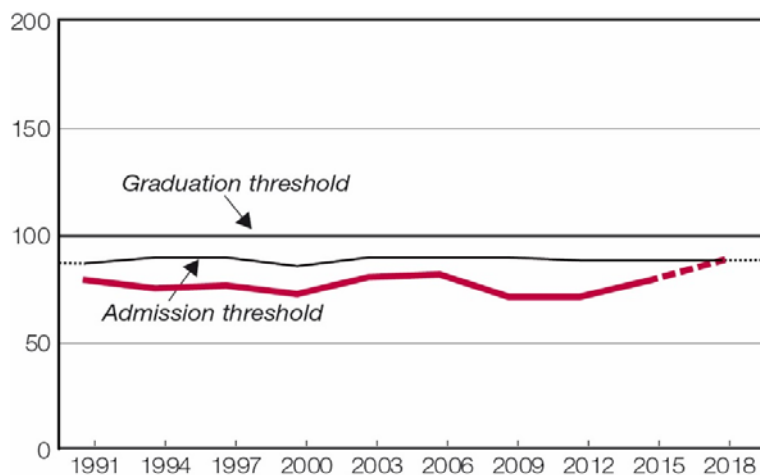
Under six of the eight components of the *Economic Vulnerability Index (EVI)*, Bhutan is statistically considered less disadvantaged than other LDCs taken on average. The economy is geographically less remote than that of other LDCs by 10%, and primary sectors (essentially agriculture and forestry) account for a smaller proportion of GDP in Bhutan than in other LDCs by an estimated 42%. At the same time, merchandise exports are less concentrated in Bhutan than in other LDCs by 29%. The proportion of the population living in low-lying coastal areas is zero by definition, and the proportion of victims of natural disasters in the total population was 67% lower in Bhutan than in other LDCs at the time of the 2015 review of the list (this contrast is expected to be higher in the 2018 review). Finally, while exports of goods and services were considered less unstable in Bhutan than in other LDCs in 2015 (by 26%), Bhutan stands out as demonstrating greater instability in its agricultural production than other LDCs by 57% (2015 estimates).

The latter component of the EVI (agricultural instability) and the small population component are the only two individual variables within the EVI that tend to portray Bhutan as a vulnerable economy, while the other six components militate in the opposite direction, i.e. explain the steady upward trend in Bhutan's EVI score under the graduation threshold, a trend synonymous with diminishing economic vulnerability. There is the foreseeable eventuality of a performance meeting the graduation line in 2021 (the second next review of the list), a hypothetical yet plausible scenario that would make Bhutan the first LDC, historically, to meet all graduation criteria.

### Graph 3

BHUTAN: distance to the graduation threshold under the economic vulnerability criterion (based on the *Economic Vulnerability Index*)

*NB: data up to 2015 are based on actual CDP findings; the 2018 projection is provisional*



Source: UNCTAD, based on CDP data up to 2015

#### 4.1 Natural hazards

The history of Bhutan's subjection to natural disasters involves earthquakes, landslides, flooding and windstorms. Table 4, 5, 6, 7 and 8 indicate the frequency and measured impact of the events that struck the Kingdom over time.

Some 18 earthquakes hit Bhutan over the past 120 years, with an average magnitude of 6.3 on the Richter scale. Ten of these seismic shocks had their epicentre in Bhutan, while six affected Bhutan while having their epicentre in India, and two in Nepal. Most earthquakes have caused few casualties and considerable material damage. For example, nearly 7,300 persons were left without adequate shelter after the earthquake of 21<sup>st</sup> September 2009, which hit Narang, in the Mongar District of Bhutan.

Landslides are a consequence of seasonal monsoons. Since the beginning of the present century, already seven serious landslides took place in Bhutan. Villages have been destroyed, and highways disrupted. One major landslide resulting from an earthquake in the neighbouring Indian State of Sikkim caused a loss of life in September 2011.

Glacial lake outburst flooding (GLOF), a consequence of global warming, has become a common phenomenon in the Punakha-Wangdi valley, where houses and bridges were on several occasions swept away, and pasture land was damaged. Flash flooding has also been a common consequence of heavy rainfalls. In 2004, 9 lives were lost and many houses collapsed or were washed away by a major flooding event; some 1,400 families were directly affected by it.

Windstorms are also common in Bhutan, and their impact on roofs and crops, as well as schools and health centres, has affected thousands of households in more than 20 districts of the country over the five past years alone.

#### 4.2 Aggravating factors and practices

Bhutan's physical exposure to natural hazards is not only a consequence of the geographical situation of the country. It also results from a range of aggravating factors and practices that unlike natural disasters could be prevented or mitigated. The vulnerability of Bhutan to external shocks is therefore not only a context of exposure to risks beyond control. It also results from inappropriate land use and construction practices, and from a lack of awareness of resilience-building issues and preparedness planning. These have been factors aggravating the impact of natural disasters. Though domestic policies are considered controllable factors of exposure to shocks (see Table 11), therefore not measurable elements of vulnerability, they are an integral part of Bhutan's vulnerability landscape. National authorities take the view that if the relevant issues are not addressed with proper prevention, mitigation and preparation measures, alleviating Bhutan's vulnerability to external shocks beyond domestic control will be difficult.

**Table 4**  
History of earthquakes in Bhutan

Year	Epicentre	Magnitude on the Richter scale and impact on Bhutan
1897	Shillong Plateau, India	<u>Magnitude</u> : 8.7 (re-evaluated 8.0) <u>Impact</u> : Destroyed Punakha and Lingzhi <i>Dzongs</i> , and damaged Wangdi, Trongsa, Jakar <i>Dzongs</i> and Tashichhodzongs in Thimphu
1906	Bhutan-China-India border	<u>Magnitude</u> : 6.5 <u>Impact</u> : n/a
1910	North of Punakha, Bhutan	<u>Magnitude</u> : 5.7 <u>Impact</u> : n/a
1934	Bihar, India-Nepal border	<u>Magnitude</u> : 8.3 <u>Impact</u> : n/a
1941	West of Trashigang, Bhutan	<u>Magnitude</u> : 6.75 <u>Impact</u> : n/a
1947	Bhutan	<u>Magnitude</u> : 7.9 <u>Impact</u> : n/a
1980	Gangtok area, Sikkim, India	<u>Magnitude</u> : 6.1 <u>Impact</u> : a few human casualties in some parts of Bhutan. Cracks were reported in Thimphu, Phuentsholing, Gelephu, Samdrup Jonkhar, and Trashigang. The national highway Phuentsholing-Thimphu was blocked by landslides induced by the earthquake.
1988	Udaypur Gahri, Nepal and Bihar, India	<u>Magnitude</u> : 6.4 <u>Impact</u> : several landslides on the highways
2003	Gunitsawa, Paro, Bhutan	<u>Magnitude</u> : 5.5 <u>Impact</u> : several landslides on the highways. Minor cracks in some buildings in Thimphu
2006	Arunachal Pradesh, India	<u>Magnitude</u> : 5.0 <u>Impact</u> : felt in Trashigang and the neighbouring region
2006	East Sikkim, India (130 kilometers west of Thimphu)	<u>Magnitude</u> : 5.7 <u>Impact</u> : no damage to houses or property was recorded in Bhutan, but damage to buildings was recorded in Gangtok, Sikkim.
2006	The epicenter near Dewathang in Samdrup Jongkhar struck twice between 2:04 am and 2:07 am, local time.	<u>Magnitude</u> : 2 earthquakes, 5.8 and 5.5 <u>Impact</u> : a total of 126 houses in nine <i>Gewogs</i> under Trashigang <i>Dzongkhag</i> suffered damage. Trashigang <i>Dzong</i> also suffered minor damage with numerous new cracks on the <i>Dzong's</i> wall.
21 Sep. 2009	Narang, Mongar District, Bhutan	<u>Magnitude</u> : 6.1 <u>Impact</u> : 12 people were killed, and the earthquake damaged or destroyed large numbers of houses, public buildings, and cultural and religious monuments. Approximately 7,290 people were left without adequate shelter.
31 Dec 2009	Border of Sakten <i>Gewog</i> , Trashigang <i>Dzongkhag</i> , Bhutan	<u>Magnitude</u> : 5.5 <u>Impact</u> : 2 persons from Dramtse, Mongar were reported to have suffered minor injuries. There was damage to homes and property: partially damaged buildings from the 21 <sup>st</sup> September earthquake either suffered more damage or collapsed.
18 Sep. 2011	Greater Sikkim Area, mostly affecting Haa, Paro, Samtse and Chhukha <i>Dzongkhags</i> in Bhutan	<u>Magnitude</u> : 6.9 <u>Impact</u> : loss of one life due to landslides. The earthquake also injured 14 and caused structural damage to 6,977 rural houses, 36 schools, 22 hospitals, 286 heritage sites, monasteries, 27 RNR centers and administrative offices worth of Nu 1,197.63 million.
28 June 2015	Assam, India	<u>Magnitude</u> : 5.5 <u>Impact</u> : 4 <i>Dzongkhags</i> (Chukha, Paro, Thimphu, Wangdue) were affected, with minor cracks on houses.

Year	Epicentre	Magnitude on the Richter scale and impact on Bhutan
4 Jan. 2016	Imphal, Manipur, India	<u>Magnitude:</u> 6.7 <u>Impact:</u> 13 Dzongkhags (Dagana, Gasa, Mongar, Pemagatshel, Punakha, Samdrup Jongkhar, Sarpang, Thimphu, Trashigang, Tashi Yangtse, Wangdue, Zhemgang) were affected, with minor cracks on houses.

Source: Department of Disaster Management, Ministry of Home and Cultural Affairs, Royal Government of Bhutan

**Table 5**  
History of landslides in Bhutan

Year	Affected areas	Causes and impact
2000	Thimphu, Chukha, Trashigang, Samdrupjongkhar, Mongar, Lhuentse, Pemagatshel, Samtse, Tsirang, Sarpang, Zhemgang, Wangduephodrang <i>Dzongkhags</i>	<u>Causes:</u> Seasonal Monsoon <u>Impact:</u> <ul style="list-style-type: none"> <li>• The main highway between Phuentsholing and Thimphu, the lifeline of the country, was severely disrupted by numerous major landslides (Sorchen, Jumja, Chhukha);</li> <li>• The highways between Wamrong and Trashigang, Wangdue, Sarpang and Gelephu, Zhemgang and Gelephu and the roads between Sunkosh and Daga, Tshelingore and Pemagatshel, Mongar and Lhuentse, Deothang and Bhangtar and Samtse and Sibsoo.,</li> <li>• Most of the feeder roads were reported to be damaged</li> <li>• At least seven villages destroyed.</li> </ul>
21 Aug. 2002	Thimphu-Tsirang highway	<u>Causes:</u> The sudden burst of sliding mud and debris <u>Impact:</u> 2 pre-primary school children were killed, when the vehicle they were traveling to school in was buried in a sudden landslide in Tsirang.
Sep. 2003	Lhuentse <i>Dzongkhag</i>	<u>Causes:</u> n/a <u>Impact:</u> Tsatichu landslide (Lhuentse <i>Dzongkhag</i> ) formed a lake behind the slide mass that threatens the Kurichu hydro power project downstream.
25 Apr. 2005	Palampphu, Mongar-Lhuentse highway (mudslide)	<u>Causes:</u> Believed to have been triggered by heavy rain <u>Impact:</u> 2 buried alive, 1 injured
2 July 2006	Bemsisi, Thimphu	<u>Causes:</u> n/a <u>Impact:</u> A total of 7,150.9 square meters of wetland was affected by the landslide.
17 Oct. 2006	Guenshari <i>chewog</i> , Punakha (hailstorm)	<u>Causes:</u> n/a <u>Impact:</u> More than 26 acres of paddy field belonging to 13 households were destroyed.
18 Sep. 2011	Haa	<u>Causes:</u> September 2011 Sikkim earthquake <u>Impact:</u> Loss of one life due to landslides triggered by the earthquake.

Source: Department of Disaster Management, Ministry of Home and Cultural Affairs, Royal Government of Bhutan

**Table 6**  
History of glacial lake outburst floods (GLOF) in Bhutan

Year	Affected areas	Origin and impact
1957	Punakha-Wangdue valley	<u>Origin</u> : Western Lunana region <u>Impact</u> : Part of Punakha <i>Dzong</i> was destroyed.
1960	Punakha	<u>Origin</u> : Eastern Lunana area (burst of Tarina Tsho) <u>Impact</u> : Parts of Punakha <i>Dzong</i> was destroyed.
1968	Punakha, Thimphu and Paro valleys	<u>Origin</u> : no Information available <u>Impact</u> : In Punakha valley, several houses were washed away, and the old traditional bridge of Wangdue Phodrang and a house with 12 people were washed away.  In Thimphu, a few houses, slopes and bridges were swept away. In Paro, there was great damage to both human and aquatic life (e.g. major areas of paddy fields in Dophu areas were completely laden with silt, sand and debris).
1994	Punakha-Wangdi valley	<u>Origin</u> : Eastern Lunana (burst of Luge Tsho) <u>Impact</u> : 17 lives were lost, 91 households were affected, 12 houses were damaged, 5 water mills to grind barley were washed away, 816 acres of dry land and 965 acres of pasture land were damaged (washed away or partially covered with sand and silt), 16 yaks were carried away, 36 cowsheds and a full year's manure were washed away. About 6 tonnes of food grain were lost, 2,838 pieces of roof shingles and 68 "champs"/beam were washed away, 4 bridges were washed away, 2 <i>chortens</i> were destroyed, 1 temple in Tsojug was badly damaged.
28 Jun 2015	Punakha-Wangdi valley	<u>Origin</u> : Lemethang Tsho (Head water of Mochhu) <u>Impact</u> : No damage

Source: Department of Disaster Management, Ministry of Home and Cultural Affairs, Royal Government of Bhutan

**Table 7**  
History of flash floods in Bhutan

Year	Affected areas	Natural causes and impact
2000	Phuentsholing, Pasakha and other southern cities	<u>Natural causes</u> : heavy rains (floods) <u>Impact</u> : 49 lives were lost, and damage was endured in Phuentsholing: 17 huts were washed away, and damage was incurred by the BOD fuel station, the market, and a saw mill. Water supply facilities and the city's sewage system were destroyed, and several vehicles were submerged.
2004	Six eastern <i>dzongkhags</i> , Trashigang, Trashiyangtse and Samdrupjonkhar being the most affected ones.	<u>Natural causes</u> : heavy rainfall (floods) <u>Impact</u> : 9 lives were lost, 29 houses were completely washed away, 26 houses collapsed, and about 107 houses were partially damaged; 161 acres of wetland and 503 acres of dry land were washed away; 350 metric tons of maize, 126 metric tons of paddy, 2,000 orange trees and 21 metric tons of potatoes were lost, thereby affecting about 1,437 households. Damage to infrastructure and services facilities: 39 irrigation channels were damaged, 22 bridges of different types were damaged or washed away, farm and feeder roads were damaged, and there was damage to power facilities. The exposed foundation of the vocational Training Institute in Rangung also collapsed. No outbreak of diseases or serious food shortages was observed.
May 2009	17 districts were affected.	<u>Natural causes</u> : Cyclone <i>Aila</i> brought unprecedented rains and flooding to the country. <u>Impact</u> : The overall damage, estimated at Nu719 million, affected mainly the public and community infrastructure, agriculture, habitations, government buildings and hydro-power projects. Rivers and streams reached record levels of the past forty years. The floods resulted in the loss of 12 lives, and the accompanying strong winds left a trail of widespread damage affecting 17 of the country's 20 districts.

Year	Affected areas	Natural causes and impact
4 Jun 2013	Kabisa Gewog, Punakha	<u>Natural causes:</u> Flood by Jichuronchu (tributary of Mochu) was due to heavy rainfalls. <u>Impact:</u> 8 houses were damaged and around 14 acres of agricultural land were covered by debris.
July 2016	20 Dzongkhags	<u>Natural causes:</u> Heavy rainfall <u>Impact:</u> Losses were estimated at Nu. 555 million, relief and response expenditure at Nu. 19.8 million. The damage was on highway roads, bridges, houses and agricultural lands, with major impacts in Sarpang, Chukha and Samtse Dzongkhags. The whole Sarpang Town was washed away.

Source: Department of Disaster Management, Ministry of Home and Cultural Affairs, Royal Government of Bhutan

**Table 8**  
History of windstorms in Bhutan

Year	Affected areas	Impact
Apr. 2011	17 districts were affected: Gasa, Thimphu, Paro, Haa, Wangdue, Chhukha, Tsirang, Pemagatshel, Dagana, Trongsa, Zhemgang, Sarpang, Samtse, Samdrupjongkhar, Mongar, Trashigang, Chhukha.	1 person died, and there was damage to 2,424 houses, 57 schools, 77 lhakhangs, 4 block offices, 21 health centres, and 6 RNR centres
Feb.-Apr. 2012	4 districts were affected: Zhemgang, Wangdue, Punakha, Haa, Pemagatshel, Samdrupjongkhar, Paro, Dagana.	The roofs of 221 rural houses, 10 lhakhangs, 4 schools and 1 RNR office were damaged.
Dec. 2013	13 districts were affected: Bumthang, Chhukha, Dagana, Gasa, Haa, Lhuentse, Paro, Punakha, Samtse, Trashigang, Trashiyangtse, Thimphu, Wangduephodrang.	The roofs of 1,012 rural houses, 12 education centres, 55 lhakhangs, 8 health centers, and 3 block offices were damaged.
March 2014	5 District were affected: Dagana, Mongar, Samdrup Jongkhar, Sarpang, Trashigang, Zhemgang.	The roofs of 102 rural house, 2 schools and 4 lhakhangs were damaged.
May 2014	9 Districts were affected: Samtse, Dagana, Mongar, Sandrup Jongkhar, Sarpang, Trashigang, Monghar, Zhemgang, Thimphu Dzongkhags.	106 houses, 20 government structures were affected in Samtse Dzongkhags. In other Dzongkhags, there were reports of damage on roofs and crops.
Dec. 2015	Lunana, Gasa	The roofs of 59 houses were damaged.
Dec. 2015	Lingzhi, Thimphu	The roofs of Drungkhag Administrative Office, Lingzhi Geog Office, 19 houses and 13 solar panels were damaged.

Source: Department of Disaster Management, Ministry of Home and Cultural Affairs, Royal Government of Bhutan

**Table 9**  
History of fires in Bhutan

Year	Affected areas	Natural causes and impact
19 Apr. 1998	Taktsang Monastery, Paro	<u>Natural causes:</u> Electrical short-circuiting/flickering butter lamps <u>Impact:</u> The main building of the monastery complex, which contained valuable paintings, artifacts and statues, was affected. Restoration work was undertaken, at the cost of Nu 135 million.
2002	Yangtang village, Haa	<u>Natural causes:</u> n/a <u>Impact:</u> 25 houses were razed to the ground.
Dec. 2005	Zhapong village, Trashiyangtse	<u>Natural causes:</u> n/a <u>Impact:</u> 5 houses were razed to the ground.
8 Oct. 2010	Wamrong village, Trashigang	<u>Natural causes:</u> n/a <u>Impact:</u> 14 houses were razed to the ground.
26 Oct. 2010	Chamkhar town, Bumthang	<u>Natural causes:</u> electrical short-circuiting <u>Impact:</u> 55 structures were destroyed, 64 families (267 people) were left homeless, and 2 persons lost their lives.
18 Feb. 2011	Chamkhar town, Bumthang	<u>Natural causes:</u> n/a <u>Impact:</u> 18 houses were razed to the ground, affecting 36 families (107 individuals)
27 May 2011	Chamkhar town, Bumthang	<u>Natural causes:</u> n/a <u>Impact:</u> 30 houses were completely burnt down, and 3 houses partially. This affected 56 families (173 individuals).
24 June 2012	Wangduephodrang Dzong, Wangdue	<u>Natural causes:</u> electrical short-circuiting <u>Impact:</u> There was a complete loss of the most historical fortress in the country, along with some of its artifacts. All Dzong administration offices, records and documents were destroyed, together with properties of the monastic body.
15 Feb. 2015	Saprang Town	<u>Natural causes:</u> candles (as per the News) <u>Impact:</u> 50 shops were completely burnt.
16 Aug. 2016	Mongar Town	<u>Natural causes:</u> gas cylinder explosion <u>Impact:</u> 4 traditional houses were completely burnt, and two RCC buildings were partially burnt. Some 28 families were affected.
28 Dec. 2016	Chamkhar town, Bumthang	<u>Natural causes:</u> gas stove <u>Impact:</u> 7 houses were burnt and 3 houses demolished to control the fire. Some 22 shopkeepers and 18 vegetable vendors were affected.

Source: Department of Disaster Management, Ministry of Home and Cultural Affairs, Royal Government of Bhutan

### ***The need to alleviate the pressure on land***

A large majority of Bhutanese depend on farming and forestry for their livelihood, and accordingly are inclined to bring more and more land under cultivation, thereby denuding hill slopes and making them vulnerable to landslides, mudslides and flash floods during the rainy season. Poverty tends to compel people to pursue practices of this type, which have a significant adverse impact. Settlements in hazard-prone areas such as steep slopes or flood-prone river beds, for subsistence purposes, expose themselves to high degrees of risk. The lack of adequate settlement planning policy and of hazard zonation mapping, and the lasting migrations to urban settlements, are aggravating factors calling for resilience-building action.

### ***The need to control environmental degradation***



The pressure of demographic growth on the environment, and the migrations to urban areas have been leading factors of the observed environmental degradation, ranging from the denuding of hills (and the ensuing threats on human settlements downstream) to the damage caused to vital infrastructural assets such as dams, hydropower plants, and road and communication networks. Environmental degradation has caused severe siltation in dams and reservoirs, thereby making timely interventions necessary. Inadequate practices of site selection for infrastructural development, and more generally inappropriate urban planning and waste management have aggravated the physical degradation. Forest fires, over-grazing and wood-cutting have also been aggravating practices in this context.

### ***The need to regulate construction practices***

There has been a strong tradition of vernacular architecture in Bhutan, with houses made of stone, rammed earth and timber. These building traditions have suffered from the lack of adequate masonry skills, particularly in rural areas. Whereas old traditional houses used to withstand major disasters in the past, the lack of adequate disaster risk reduction practices in the field of construction has more recently rendered the public and private infrastructure susceptible to hazards. Indiscriminate imitation by home owners of construction techniques used in modern buildings has also contributed to the vulnerability of structures, notably because of the commonly inadequate attention to necessary materials and designs.

The lack of technical expertise among engineers, architects, masons and other building artisans in disaster-resistant construction practices underscores the need for a specific human resource development strategy under the resilience-building agenda of the Kingdom.

### ***The need for urban planning***

There has been growing urbanization in Bhutan in recent decades, and this growth has often been unplanned and haphazard. After the population of Thimphu increased five times over the past 20 years, a hypothetical urban earthquake could have a particularly devastating impact, notably because hazard assessment has not been a common practice among home owners. For example, township developers have not systematically considered whether the area was prone to landslides or flash floods, and taken the financial and technical action required for reducing the risks faced by future inhabitants.

Accordingly, the new hazard and risk profile of Bhutan has to a large extent been driven by the population growth and other demographic changes in the two largest urban centres (Thimphu and Phuentsholing) and the emerging townships of Paro, Wangdue, Punakha, Gelephu, Gedu, Chimalakha, Samdrup Jongkhar, Tala, Mongar, Gyalpoizhing and Trashigang.

The lack of regular updates and reviews of town plans in major municipalities under pressing priorities, and the lack of skilled human resources at those levels is another example of the paramount importance of manpower planning in the resilience-building agenda of the country. The insufficient enforcement of building by-laws and codes in urban areas due to the lack of skilled human resources is a related issue needing to be addressed.

### ***The need to enhance awareness of risks and disaster preparedness***

More generally, insufficient account has been taken, in the private sector and at various community levels, of risk reduction concerns at both planning and development stages. An overall lack of awareness of the feasibility of risk reduction largely explains this state of affairs, although recent disasters and the establishment of a dedicated government department of disaster management have significantly improved the overall awareness of relevant issues in the population. Training activities in schools and communities have been specially instrumental in raising the needed level of knowledge in this regard. Government efforts to mainstream risk reduction into development plans, policies and programmes can generate tangible results if they are pursued as a priority.

The lack of risk awareness largely explains the lack of disaster preparedness and response planning (at dzongkhag and gewog levels). In short, the capacity to mitigate the impact of possible disasters *ex ante* and to respond to disasters speedily and effectively when they occur is more or less non-existent. A bottom-up strategy for disaster preparedness and planning is therefore considered a priority by policy makers. They also know the cost of this strategy, and the challenge Bhutan will be facing if it undertakes an ambitious and costly resilience-building agenda of this nature while losing Least Developed Country status and the benefits associated with it.

## **5. Using the LDC criteria indicators to measure Bhutan's structural progress: some lessons**

Analyzing the performance of a country under the LDC criteria may cast light on the relative strength of these criteria, and on their limitations in respect of the goal of measuring the structural progress demonstrated by the country. Some lessons can be drawn from a reading of the performance of Bhutan under each one of the 14 indicators which the three LDC criteria incorporate. These lessons point to the importance of interpreting Bhutan's performance with some care.

Table 10 summarizes the rationale for using each one of the 14 indicators as a tool for measuring structural progress and assessing the pertinence of the idea of graduation accordingly. The table also highlights the extent to which each indicator captures the structural economic or social progress of Bhutan.

This overview of the interpretative value of indicators reveals the following:

- (i) 8 of the 14 indicators allow a suitable measurement of Bhutan's structural progress; 5 of these 8 indicators make up the entire composition of the Human Assets Index (HAI), thereby making the HAI stand out as the most satisfactory of the current tools at the disposal of the United Nations for measuring structural change in Bhutan;
- (ii) the gross national income (GNI) per capita, an unlikely enlightener by definition when structural economic transformation is the question at stake, is only partially suited for measuring structural progress or non-progress in Bhutan;

**Table 10**  
LDC criteria indicators and the goal of measuring Bhutan's structural economic progress

14 indicators of performance under 3 LDC criteria	Why is the indicator considered suitable, in theory, for capturing progress toward graduation?	Does the indicator effectively measure Bhutan's structural economic progress?
<b>GNI per capita</b>	A rising per capita income will indicate higher living standards. It will also feed the impression of a growing capacity of the country to pursue development efforts with less external support.	Bhutan's GNI per capita casts no light on income distribution or structural economic transformation. Arguably, lessons could be drawn from the gross national happiness index, a holistic measurement of structural progress and a potential substitute for GNI per capita and the HAI altogether. <i>(Indicator partially suited for measuring progress or non-progress)</i>
<b>Percentage of under-nourished people</b> (component of the HAI)	An improving nutrition status will be seen as the pathway to better health, the avenue for durable progress in the human assets of the country.	Though revealing an unchanged performance in recent years (20% of the population is deemed undernourished), this indicator is meaningful. The relatively high incidence of undernourishment by Asian standards remains a suitable measurement of what remains an obstacle to structural progress in Bhutan's human assets. <i>(Indicator suited for measuring progress or non-progress)</i>
<b>Child mortality rate</b> (component of the HAI)	Success in the fight against child mortality will be interpreted as the result of meaningful public health achievements, and will indicate structural progress in the human assets of the country.	The steady decrease in Bhutan's child mortality over the past decade (-10% to 32 deaths per 1,000 live births today) indicates genuine progress in public health over time. This progress prefigures durable improvement in human assets. <i>(Indicator suited for measuring progress or non-progress)</i>
<b>Maternal mortality ratio</b> (component of the HAI from 2018)	A decreasing maternal mortality ratio will indicate meaningful progress in public health and human capital, thereby echoing the progress in infant mortality and child mortality.	Though correlated with the lowering of child mortality and therefore somewhat redundant, the diminishing maternal mortality ratio (latest estimate: 148 maternal deaths per 100,000 live births) reinforces the perception of structural improvement in Bhutan's human assets. <i>(Indicator suited for measuring progress or non-progress)</i>
<b>Secondary school enrolment ratio</b> (component of the HAI)	A rising secondary school enrolment performance will be interpreted as paving the way for a durably improved human capital.	The 14% increase in secondary school enrolment in Bhutan over the past decade (to 84%) indicates a national capacity to improve the human capital of the country, and a pathway to structural economic progress. <i>(Indicator suited for measuring progress or non-progress)</i>
<b>Adult literacy rate</b> (component of the HAI from 2018)	A rising adult literacy performance --a dividend of greater school enrolment over time, and a necessary condition for structural economic transformation-- will be interpreted as significant progress in human assets.	Though unevenly distributed, the 8% increase in adult literacy over the past decade is the sign of a soundly improving human capital. It is however difficult to know how soon this will translate into a capacity to achieve deeper structural economic transformation. <i>(Indicator suited for measuring progress or non-progress)</i>
<b>Population size</b> (component of the EVI)	CDP takes the view that, the smaller the population, the more difficult it is for the country to develop productive capacities and increase resilience to shocks: the smaller the nation, the more economically vulnerable the country	By postulating that smallness means vulnerability, one portrays Bhutan, the 7 <sup>th</sup> smallest LDC with a population under 1 million, as a vulnerable economy. Given the scarcity of EVI components offering a fair measurement of Bhutan's fragility, the postulate of smallness indicating vulnerability serves a sound purpose. <i>(Static indicator otherwise of little relevance to the measurement of progress or non-progress)</i>

<p><b>Geographical distance to main markets</b></p> <p>(component of the EVI)</p>	<p>CDP takes the view that, the more economically remote the country, the more difficult it is for the economy to become or remain competitive and achieve structural transformation: the more remote the country, the more structurally disadvantaged its economy.</p>	<p>With 10% less remoteness than other LDCs taken on average, and despite its land-lockedness, Bhutan is erroneously portrayed as a geographically less handicapped economy.</p> <p><i>(Static indicator of little relevance to the measurement of progress or non-progress)</i></p>
<p><b>Proportion of people in low-lying coastal areas</b></p> <p>(component of the EVI)</p>	<p>The larger the proportion of people living in low-lying areas, the more exposed the nation will be to sea-related shocks.</p>	<p>As a land-locked country, Bhutan is by definition accounted for as a non-vulnerability case. A built-in denial of the handicap of land-lockedness.</p> <p><i>(Indicator irrelevant to the measurement of progress or non-progress in a land-locked country)</i></p>
<p><b>Share of primary sectors in GDP</b></p> <p>(component of the EVI)</p>	<p>CDP takes the view that, the larger the share of primary sectors (agriculture, forestry, fisheries) in GDP, the greater the exposure of the economy to physical shocks, notably natural disasters.</p>	<p>With agriculture and forestry accounting for a smaller share of GDP than the average for other LDCs (by 42%), Bhutan is portrayed by this indicator as a country less exposed to natural shocks. Yet one knows that Bhutan's agricultural production has been unstable (more than that of other LDCs by 57% on average). The relative economic smallness of the primary sector, beside underestimating Bhutan's rural economy, dampens the significance of the sizeable instability of agricultural production.</p> <p><i>(Indicator little suited for measuring progress or non-progress)</i></p>
<p><b>Merchandise export concentration index</b></p> <p>(component of the EVI)</p>	<p>The more concentrated the export structure of a country, the more exposed to external shocks (i.e. the more vulnerable) its economy.</p>	<p>With a relatively low merchandise export concentration score among LDCs (lower than that of other LDCs by 29% on average), Bhutan is portrayed as a relatively diversified economy. Given the absence of service exports in the index, the perception of diversification and structural economic progress is valid. Whether this is synonymous with greater resilience or lesser vulnerability in Bhutan remains debatable.</p> <p><i>(Indicator partially suited for measuring progress or non-progress)</i></p>
<p><b>Proportion of victims of natural disasters in the population</b></p> <p>(component of the EVI)</p>	<p>The larger the proportion of disaster victims in the population of a country, the more evident the vulnerability of the nation to natural shocks.</p>	<p>Though acutely exposed to a range of natural threats, Bhutan has had a ratio of disaster victims considerably lower than that of other LDCs taken on average (by 67% over the past decade). This indicates a relative underestimation of the economic damage caused by natural events in Bhutan, where limited human suffering may hide substantial economic losses after disasters.</p> <p><i>(Indicator suited for measuring progress or non-progress)</i></p>
<p><b>Index of agricultural production instability</b></p> <p>(component of the EVI)</p>	<p>CDP takes the view that, the more unstable the agricultural performance of a country, the greater the impact of natural disasters must have been, thereby revealing vulnerability to shocks.</p>	<p>With the highest agricultural production instability among Asian LDCs and an index score higher than that of other LDCs by 57% in recent years, Bhutan stands out as the only potential graduation case with only two EVI components (smallness, agricultural instability) giving indications of lasting vulnerability.</p> <p><i>(Indicator suited for measuring progress or non-progress)</i></p>
<p><b>Index of goods and services export instability</b></p> <p>(component of the EVI)</p>	<p>CDP takes the view that, the more unstable the export earnings of a country, the greater the trade-related shocks must have been (prices and/or volumes). In sum, the more unstable the country's exports, the more vulnerable its economy.</p>	<p>With a level of export instability lower than that of other LDCs by 26% over the past two decades, Bhutan is correctly depicted as not having suffered substantially from goods and services exports instability --a dividend of economic diversification.</p> <p><i>(Indicator suited for measuring progress or non-progress)</i></p>

Source: UNCTAD, Division for Africa, Least Developed Countries and Special Programmes

(iii) the Economic Vulnerability Index (EVI) appears to be the most disputable of the three aggregates in explaining Bhutan's structural handicaps and structural strengths: 3 of the 8 components of Bhutan's EVI score underplay the structural disadvantages of land-lockedness and the country's exposure to serious physical risks: (underestimated) geographical remoteness, (zero-) proportion of coastal inhabitants, (misleading, low) share of primary sectors in GDP.

In short, progress in the social status of Bhutan is appropriately reflected by the indicators under the human assets criterion, but the intrinsic economic vulnerability of the country is underplayed because of the relative inadequacy to the case of Bhutan of several components of the Economic Vulnerability Index. Bhutan is economically more vulnerable than it appears to be on the methodological and statistical grounds the United Nations presently leans on.

## **6. Conclusion**

With an economic performance well above the first graduation line, and continued progress in human capital development above the second graduation threshold, Bhutan's forthcoming qualification for graduation from LDC status is an undoubted scenario. At the same time, the diversification of the economy, a relatively unique feature among small LDCs, and the steady improvements observed in the development of human capital, are recognizable indicators of structural economic and social progress in the Kingdom.

However, though Bhutan remains under the graduation threshold relevant to economic vulnerability, the country's vulnerability is not simply a peripheral concern once the country has been praised for its per capita income and human assets performance. The vulnerability issue, and the paramount goal of resilience-building for the nation, will be the central focus of attention, in the dialogue between the Royal Government of Bhutan and the Kingdom's development partners, particularly in the quest for a smooth transition to post-LDC status.

Table 11 summarizes the challenge Bhutan faces in the context of a likely reclassification of the country, considering the anticipated complexity and cost of resilience-building, and the likelihood of reduced access to maximum concessionary treatment by partners once graduation has taken place.

As recalled in the first column of the table, it is commonly accepted that the vulnerability of a country is its proneness to destabilization factors, most of which are commonly referred to as "shocks". Of no lesser importance than these in determining the fragility of a country is its permanent exposure to the risk of occurrence of the shocks, irrespective of their actual realization. In its measurement of vulnerability through the Economic Vulnerability Index (EVI), the Committee for Development Policy (CDP) distinguishes between shocks beyond domestic control and shocks caused by controllable factors. The latter are considered avoidable through prevention or preparedness, albeit at a cost. The CDP also takes into consideration, through five different variables, the factors of exposure to shocks, irrespective of whether and when shocks will recur.

The approach to vulnerability as a criterion for identifying countries with a capacity to face graduation is based on measuring the shocks and exposure components (b) and (c) as depicted in the second column of the table --the uncontrollable dimension, within the green rectangle-- and not the controllable factors, which involve domestic policies. This two-pronged

approach to vulnerability has brought the CDP to develop the EVI as a composite index based on an evenly weighted average of 8 components, 3 of which are shock indicators, while 5 are exposure variables.

The four main types of historically known physical shocks endured by Bhutan (earthquakes, landslides, flooding, windstorms, all appearing in the fourth column of the table, are measured by the percentage of victims of natural disasters; an index of agricultural production instability, and; an index of export instability: EVI components (1), and to a lesser extent (2) and (3), respectively. The resilience-building measures envisaged by the Royal Government of Bhutan (RGB) to mitigate the physical fragility of the country (bottom of fourth column) are designed to weigh mainly on EVI component (1), that is to say, to minimize the number of victims of natural disasters. The impact on EVI components (2) and (3) of the resilience-building action will be more indirect, and it will be more tangible in terms of lessening agricultural production instability (2) than in respect of export instability (3). There has been moderate instability in merchandise and services exports in Bhutan (an estimated 26% below other LDCs considered on average) over the past two decades, essentially because the physical risks associated with Bhutan's geography have been weighing little on the country's dominant exports (hydropower, and metal, mineral, chemical and pharmaceutical products).

In short, while the serious physical shocks endured by Bhutan are captured by shock indicators (1), (2) and (3) within the EVI, Bhutan's exposure to relevant critical risks beyond control is not captured by exposure indicators (4), (5), (6), (7) and (8) within the EVI.

This explains the difficulties, for the United Nations, to adequately measure Bhutan's exposure to the threats and disadvantages associated with its geography, which are disadvantages of no small magnitude. Yet these methodological limitations are inherent in the application by the United Nations of the graduation rule, a rule now underpinning the eventuality of graduation. The dilemma, as concisely worded in the last column of the table, can be summarized in two sentences as follows. Bhutan's vulnerability is underestimated, for reasons intrinsic to the criteria and graduation rule. Pursuing the costly resilience-building objectives of RGB will be a major challenge for the Kingdom, given its relatively fragile financial base, if graduation entails lesser concessionary support from development partners.





There is a "Bhutan paradox": transformational progress is visible in Bhutan, thereby making the idea of graduation a natural milestone; yet the risk of losing LDC treatment arises at a time when the resilience-building agenda of the country to alleviate its unique vulnerabilities is complex and costly. In this context, one may infer that two complementary (non-exclusive) directions will be seen by relevant stakeholders, the United Nations and Bhutan, as possible avenues for resolving the challenge:

\* the question of Bhutan's graduation could be deferred to 2021 in order to give the United Nations a chance to revisit the criteria for identifying graduation cases, notably to enhance the measurement of vulnerabilities relating to major physical risks humanly and economically; this might not change the UN decision to include Bhutan among graduation cases, but a more adequate measurement of vulnerabilities would enrich the substantive grounds for either recommending graduation or deferring it, thereby making the quest for a smooth transition to post-LDC life easier for RGB to articulate and for development partners to appreciate;

\* arriving at a "smooth transition strategy" through which forms of special treatment would be either retained (i.e. not lost: continued LDC concessions), or gained (new special

support measures, irrespective of country status) may be seen by the Royal Government of Bhutan as a national priority if graduation is the chosen agenda; this would imply careful consideration of the question of the most desirable grace period before graduation, and a well organized national plan for government action during that pre-exit period.

**Table 11**  
The cost of resilience-building action:  
a challenge for Bhutan in the context of graduation from LDC status

A commonly accepted, two-pronged definition of vulnerability	The UN conceptualization of vulnerability	Components of the Economic Vulnerability Index (EVI)	Bhutan's disaggregated vulnerabilities and resilience-building action	Implications for Bhutan
<p><b>SHOCKS</b></p> 	<p>(a) Shocks caused by controllable factors</p> <p>(b) Shocks caused by factors beyond domestic control</p>	<p>(1) Percentage of victims of natural disasters</p> <p>(2) Agricultural production instability</p> <p>(3) Export instability</p>	<p>Fires</p> <p><b>Shocks endured by Bhutan:</b></p> <ul style="list-style-type: none"> <li>. Earthquakes</li> <li>. Landslides</li> <li>. Flooding</li> <li>. Windstorms</li> </ul> 	<p>The physical shocks beyond domestic control endured by Bhutan are captured by shock indicators (1), (2) and (3) within the EVI</p>
<p><b>EXPOSURE TO RISKS OF SHOCKS</b></p> 	<p>(c) Uncontrollable factors of exposure to shocks</p> <p>(d) Controllable factors of exposure to shocks</p>	<p>(4) Smallness</p> <p>(5) Geographical remoteness</p> <p>(6) Population in low-lying areas</p> <p>(7) Economic weight of primary sectors</p> <p>(8) Merchandise export concentration</p>	<p><b>Three critical risks explaining the shocks:</b></p> <ul style="list-style-type: none"> <li>. Geographical situation on a seismic fault</li> <li>. Seasonal monsoon</li> <li>. Global warming (melting of glaciers)</li> </ul> <p align="center"></p> <p><b>Costly adaptation and resilience-building action by RGB:</b></p> <ul style="list-style-type: none"> <li>. Control of pressure on land</li> <li>. Settlement planning</li> <li>. Control of environmental degradation</li> <li>. Regulation of construction practices</li> <li>. Control of urbanization</li> <li>. Enforcement of building laws</li> <li>. Awareness and preparedness</li> </ul>	<p>The exposure of Bhutan to critical risks beyond control is not captured by exposure indicators (4), (5), (6), (7) and (8) within the EVI</p> <p><b>The challenge:</b></p> <p>Bhutan's vulnerability is relatively underestimated. At the same time, fulfilling the costly resilience-building policy objectives of RGB despite the fragile financial base of the country is a major challenge for Bhutan if the loss of LDC status entails lesser concessionary support from development partners.</p>

Source: UNCTAD, Division for Africa, Least Developed Countries and Special Programmes

**ANNEX**  
**The graduation criteria and the graduation rule**

The question of graduation from LDC status was conceptualized by the United Nations in 1991, when the first major revision of the criteria for identifying LDCs took place. The methodological elements of the graduation rule were also adopted in that year, a move that has paved the way for five cases of graduation from LDC status: Botswana in 1994, Cabo Verde in 2007, Maldives in 2011, Samoa in 2014, and Equatorial Guinea in 2017.

In 1990, the Second United Nations Conference on the Least Developed Countries in Paris had envisaged graduation from LDC status as a natural prospect for countries that would eventually demonstrate enough economic progress to be able to remain on the same development path with a lesser need for concessionary treatment. In 2001, the Third United Nations Conference on the Least Developed Countries in Brussels contemplated graduation as a criterion on the basis of which the success of the Programme of Action for the Least Developed Countries for the Decade 2001-2010 would be "judged"<sup>5</sup>. An unprecedented leap forward was made by UN member States ten years later, at the Fourth United Nations Conference on the Least Developed Countries in Istanbul (May 2011), with a bold pronouncement on the matter, namely, "the aim of enabling half the number of Least Developed Countries to meet the criteria for graduation by 2020"<sup>6</sup>.

### *The rationale for graduation*

Graduation from LDC status is naturally synonymous with the recognition of structural economic progress. A graduating country will necessarily be expected to have demonstrated, through a convincingly improved economic and social performance, enough structural progress to be able to pursue its development efforts with less external support. If the decision to take a country out of the list of LDCs is well founded, the graduating country, with enhanced institutional capacities, will be expected to remain undisturbed while development partners may deny it privileged access to a special treatment.

### *The graduation rule*

The graduation rule applies specific thresholds to the indicators relevant to the three criteria (gross national income per capita; human assets index; economic vulnerability index). For each of these indicators, there is a margin between the threshold for adding a country to the list and the threshold for graduating a country. The margin is considered a reasonable estimate of the additional socio-economic progress that ought to be observed if one assumes that the graduating country is effectively engaged on a path of improvement: not only is the graduating country expected to have risen to the threshold under which non-LDCs would be admitted into the category, but it is additionally expected to exceed this threshold by a significant margin. This dispels the risk that graduation be dictated by temporary or insignificant economic circumstances.

Two other elements of the graduation rule also imply durable structural progress in the graduating country:

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<sup>5</sup> UN General Assembly, Third United Nations Conference on the Least Developed Countries, Brussels, Belgium, 14-20 May 2001, Programme of Action for the Least Developed Countries for the Decade 2001-2010, para. 21(e)

<sup>6</sup> United Nations, Programme of Action for the Least Developed Countries for the Decade 2011-2020, May 2011, para. 28.



- at least two of the three graduation thresholds must normally be met for the relevant LDC to qualify for graduation, whereas a symmetrical application of the admission rule and graduation rule would imply that, ceasing to meet one of the three criteria under which the country was once identified as an LDC would be a sufficient reason for that country to qualify for graduation (see the "income only" exception to the graduation rule in the table below);
- a recommendation to graduate a country will not be made until the relevant graduation thresholds have been met by the country in at least two consecutive reviews of the list of LDCs.

The graduation criteria which were used by the United Nations in the 2015 review of the list of LDCs are summarized in the following table.

**Graduation criteria and indicators**

Graduation criteria used	Relevant indicators
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<p align="center"><b>in the 2015 review of the UN list of LDCs</b></p>	
<p><b>Per capita income criterion</b></p>	<p><b>Gross national income (GNI) per capita:</b>  * based on a 3-year average (2011-2013 in the 2015 review)  * graduation threshold in 2015: US \$1,242  * "income-only" graduation threshold: US \$2,484</p>
<p><b>Human assets criterion</b></p>	<p><b>Human Assets Index (HAI):</b>  A composite index based on the following 4 indicators:  * percentage of undernourished people in the population  * under-five mortality rate  * gross secondary school enrolment rate  * adult literacy rate</p>
<p><b>Economic vulnerability criterion</b></p>	<p><b>Economic Vulnerability Index (EVI):</b>  A composite index based on the following 8 indicators:  * population  * remoteness (average distance from major markets)  * share of population living in low-lying areas  * share of agriculture, forestry and fisheries in GDP  * merchandise export concentration index  * share of victims of natural disasters in the population  * index of instability of agricultural production  * index of instability of exports of goods and services</p>
<p><b>Summary of the graduation rule</b></p>	<p>For all three criteria, different thresholds are used for identifying cases of addition to, and cases of graduation from, the list of LDCs. A country will qualify to be added to the list if it meets the addition thresholds on all three criteria and does not have a population greater than 75 million. Qualification for addition to the list will effectively lead to LDC status only if the government of the relevant country accepts this status. A country will normally qualify for graduation from LDC status if it has met graduation thresholds under at least two of the three criteria in at least two consecutive triennial reviews of the list. However, if the per capita GNI of an LDC has risen to a level at least double the graduation threshold and is deemed sustainable, the country will normally be found pre-eligible or eligible for graduation regardless of its performance under the other two criteria.</p>