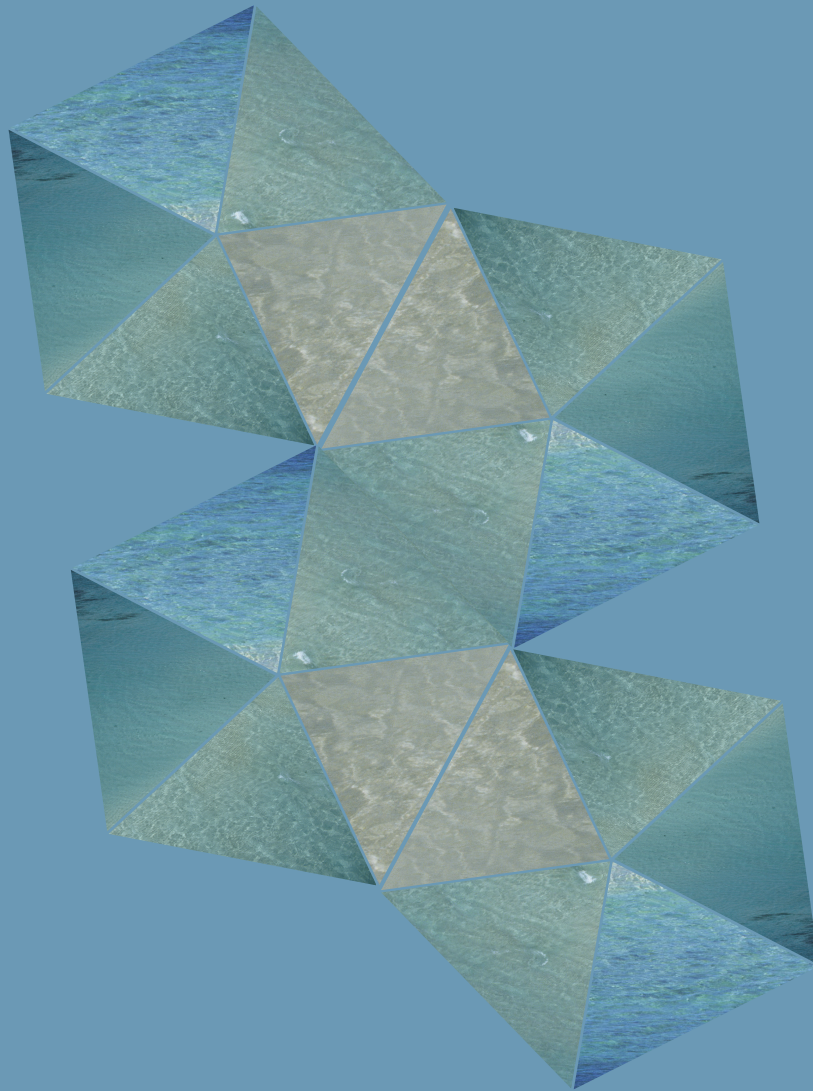




# Multidimensional Vulnerability Index for Bhutan



Gross National Happiness Commission  
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# A Locally-disaggregated Multidimensional Vulnerability Index (MVI) for Bhutan

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## Introduction

The COVID-19 pandemic is changing people's lives in multiple ways. In Bhutan, the first confirmed case of an infection occurred early in March 2020 from a tourist who had recently travelled from India. Since then, the national government has implemented important measures to prevent the spread of the virus. For instance, authorities restricted the entry of foreign tourists and many schools were eventually closed - the provision of education soon had to be delivered through online courses. As the virus circulation grew in South Asia, particularly in India, the government also announced stricter measures such as the closure of international borders. On top of this, the population had to adapt to the new circumstances. For instance, some of the Bhutanese studying (for instance in India) or living abroad soon returned to the country.

Clearly, the nature of the pandemic has had a differentiated effect in different population groups. It is clear now that the potential adverse effects of the pandemic are unevenly distributed. Some groups are being hit stronger depending either on individual characteristics (such as age, the sector of activity and type of occupation), family characteristics (like the number of earners in the family), or simply location. For instance, families with employed members in the tourism sector immediately experienced the consequences of lower economic activity due to the closure of international borders.<sup>2</sup> Similarly, households with school aged children are now dealing with the education of their children. Differently, from previous periods of economic uncertainty, the associated effects of the current pandemic are spreading over the population (i.e. not necessarily affecting only the most deprived population groups). This differentiated effect of the pandemic requires clear diagnostics to increase the impact of public interventions through targeted interventions addressed to the poorest and the most vulnerable members of the society.

This study aims to provide an analytical tool to inform a broad set of public policies under a multidimensional framework. The analysis proposes the construction of a Multidimensional Vulnerability Index (MVI) to identify the most vulnerable population and hence to inform planning policies and envisage, or complement, current or prospective public interventions.<sup>3</sup> The

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<sup>2</sup> See "An Analysis of the Vulnerability of Individuals, Households And Businesses Engaged in the Tourism Sector" in UNDP & NSB (2020).

<sup>3</sup> Other studies have made use of a similar tool recently. See for instance the Assessment of COVID-19 Impact on Poverty and Vulnerability in Iraq conducted by UNICEF, the Government of Iraq, and the World Bank (2020).

proposed index builds on the Alkire and Foster methodology currently used in Bhutan's Multidimensional Poverty Index (MPI). This measure aims at identifying the populations on whose lives COVID-19 could have a heavy toll.

The study was designed with colleagues in the Gross National Happiness Commission (GNHC). This process involved the selection of data sources and the choice of individual indicators among over fifty candidate indicators from two data sources. The study considered whether to use two nationally representative datasets, namely: the Bhutan Living Standard Survey (BLSS) 2017 and the Population and Housing Census of Bhutan (PHCB) 2017. Both datasets are well suited for this study given the scope of their information and their national representativeness; however, the subnational disaggregation was a decisive factor in favour of Census data. The GNHC selected the final indicators, and also indicators for disaggregation and results are based on PHCB (2017).

This study is organized as follows. Section one describes the methodology and the data selection, including caveats and limitations of the study. The second describes in detail the empirical results of the MVI at national and subnational level. The last section concludes. The first two annexes provides supplementary information on the construction of MPI indicators and annex 3 and 4 provides statistical tables. Two statistical appendix at the end of the document shows MVI with subnational dissagregations (Dzongkhag, Thromde, Town and, Gewog) and the indicators contribution for each of these subnational dissagregations - if not included explicitly in the main text.

## Data Selection: BLSS and PHCB

The study considered the advantages and disadvantages of the two nationally representative data currently available to implement this index, namely: the Bhutan Living Standard Survey (BLSS) 2017 and the Population and Housing Census of Bhutan (PHCB) 2017.

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Also, the Government of Honduras used a Multidimensional Vulnerability Index (MVI) to provide electronic vouchers for food, medicines and biosafety equipment targeted to independent workers and self-employed persons hit hardest by the COVID-19 pandemic (UNDP, 2020).

The BLSS (2017) is the latest of a series of four household surveys conducted by the NSB using the World Bank's Living Standard Measurement Study methodology. The 2017 survey collects information of 11,660 households that can be disaggregated in 20 subnational regions (Dzongkhag) and four major cities (Thromdes): Phuentsholing Thromde, Samdrup Jongkhar Thromde, Gelephu Thromde, and Thimphu Thromde. Furthermore, the BLSS was used to compute the official Multidimensional Poverty Index (MPI) for Bhutan, published in 2017 by the National Statistics Bureau (NSB) of the Royal Government of Bhutan. Although the data can also be broken down by urban and rural areas, and other demographic attributes, its sample design does not allow further subnational disaggregation. This attribute imposes restrictions to illuminate the vulnerabilities in smaller areas of Bhutan's territory.

The PHCB, conducted from 30 May to 1 June 2017, is the second and most recent Population Census in the country. This Census aims to provide data for the purposes of policy formulation, planning and service delivery (National Statistics Bureau, 2017) and contains information of around 727,000 individuals. Similarly, the PHCB provides a good description of Bhutan's population in a wide array of domains including sociodemographic characteristics and other pertinent attributes for a vulnerability analysis such as: disability, migration, current and previous residence (Gewog), and area of residence (urban and rural) among others. In addition, differently from the BLSS, its extensive coverage across Bhutan means that it has details down to the Gewog level at least.

Both datasets have relevant attributes to empirically implement an MVI. On the one hand, the BLSS has a greater variety of questions and was implemented by skilled enumerators. On the other hand, the PHCB contains fewer questions and, in common with other censuses, its non-sampling errors may be higher. Given that the policy purpose of this study is to inform preparedness and planning in the case of local transmission in any area, the study employs the Census data given the possibility to go to the local level. This means that despite having a relatively smaller questionnaire, in comparison with the BLSS, the vast coverage of the Census allows for more detailed subnational analyses useful for targeting and other regional policies. The PHCB is then considered a more appealing tool for this task because this opens up possibility to cross-check information with other type of information potentially available at more disaggregated levels.

## Caveats and limitations of this study

The study faces some challenges which absolutely must be borne in mind. This first limitation is the date of the dataset: it 2017. This means that the Bhutanese returnees from abroad are not covered, and nor are the internal migration patterns since 2017 as workers relocate after the pandemic struck. A secondary drawback is that the data are pre-pandemic sources, and thus reflect the circumstances of the population in a very different historical chapter than the present one. The MVI will interpret the data in light of probably changes due to the pandemic, but its accuracy will be limited by these factors. The date of these sources could inaccurately reflect current unemployment indicators or the return patterns of Bhutanese returning to the country.

The study also faced limitations due to data accuracy. In the census, complex variables may be less precisely constructed relative to the BLSS such as child mortality. Also, the questions and/or response structures of some questions differ. For instance, the BLSS and the PHCB provide different number of items options to record the respondents' answers as in cooking fuel, access to water or toilet facility. There are several reasons that BLSS and PHCB differ. The BLSS figures are based on the *de jure* population whereas the census uses *de facto* population and this means very importantly that the numbers are not expected to coincide perfectly with the official MPI figures for the same year.<sup>4</sup> In general, the data quality of censuses is often slightly lower than that of household surveys because at this scale, the enumerators are not as well trained. Hence this analysis focuses on the MVI among *de jure* households in 2017 and does not present the MPI estimates with the Census data.

A last caveat concerns data limitation to capture empirically the complex concept of the vulnerability with the information available. For instance, the census records do not collect anthropometric data nor collect information about the presence of chronic diseases. This limits the scope of the analysis in the domain of health. The analysis of internal migration was also

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<sup>4</sup> The computation of MVI in this study employs data of regular households only. The PHCB reports 13% of individuals living in institutions (this is, 87% living in regular households). Population censuses typically use one of two approaches: *De facto* – meaning enumeration of individuals as of where they are found in the census, regardless of where they normally reside. *De jure* - meaning enumeration of individuals as of where they usually reside, regardless of where they are on census day.

limited since data on previous residence (Dzongkhag, Gewog or area) was asked but not available at the moment of writing. The study of coping mechanisms (debts, loans, or income and income sources) was also limited for similar reasons. Other important dimensions were not included such as mental health or social capital since the variables of psychological wellbeing and social isolation was not available. Despite these limitations the study managed to capture important domains as described below.

Finally, for consistency with poverty estimates, the examined population refers to the people that was present at the moment of the data collection that was living in regular households (nearly 593,342 individuals). This figure refers to the population living in regular households 632,801 (after excluding 88,024 observations living in institutions and 6,320 observations for transient population) restricted to "present members" only (hence excluding 39,459 observations) yielding a total of 593,342.

## Methodology

### ***The Alkire-Foster Method***

Both the MPI and particularly the proposed MVI build on the Alkire-Foster (AF) method as described Alkire and Foster (2011). These measures capture several indicators of poverty or, in this case, of vulnerability across several dimensions and provides information both on the incidence as well as the intensity of multidimensional poverty.

Based on Bhutan's MPI, the MVI is calculated by two steps of identification and aggregation. The identification step follows a dual-cutoff approach. First, once the most suitable indicators have been identified, deprivation cut-offs ( $\alpha$ ) – i.e. minimum criteria – are set for each indicator. A deprivation cut-offs refer to the minimum level of achievement that a household or individual must have to be considered non-deprived in each indicator. For instance, the deprivation cut-

off for years of schooling is five years, so that a person is considered deprived if she has not completed at least five years of schooling.

Applying indicator weights that sum up to one, the ‘deprivation score’ captures the weighted sum of deprivations for each individual. The second cut-off, the vulnerability cut-off  $k$ , determines whether a person is multidimensionally vulnerable or not. The *vulnerability* cutoff is essentially “the proportion of weighted deprivations a person needs to experience in order to be considered multidimensionally *vulnerable*”.<sup>5</sup>

Once the multidimensionally vulnerable have been identified via both the indicator cut-offs ( $z$ ) and poverty cut-off ( $k$ ), aggregation of the vulnerable over the entire population yield the *headcount ratio* of multidimensional poverty (H). Thus, H is the incidence of multidimensional *vulnerability* or the proportion of multidimensionally vulnerable people. Aggregating the number of deprivations among the multidimensionally vulnerable over the number of deprivations the poor could face in total, yields the *intensity* of multidimensional vulnerable (A). Thus, A is the average deprivation share among the *vulnerable population*. Finally, the MVI is the adjusted headcount ratio as it is measured as the product of H and A.

$$MVI = H \times A.$$

The Alkire-Foster method as described above allows for very useful disaggregations by sub-groups as well as for indicator breakdowns. Applying the Alkire-Foster method – and data

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<sup>5</sup> Note that this is the exact same principle used in the standard MPI methodology for poverty measurement. In that case, the poverty cutoff ( $k$ ) determines whether a person is multidimensionally poor or not.

permitting – one is thus able to provide policy guidance for regions (e.g. Gewogs) and various socioeconomic subgroups determined for example by gender and for specific sectors.

#### *Unit of Identification and Unit of Analysis*

The unit of identification refers to the entity that is identified as vulnerable or non-vulnerable – usually the individual or the household. In the case of the MVI proposed for Bhutan, the unit of identification is the household. This allows for a more intense use of information, beyond individual data, and consider information about individual's nearest influence. Therefore, all household members receive the same deprivation score. The unit of analysis is related to how the results are reported and analyzed. In the case of the national MVI for Bhutan, the unit of analysis is the individual. This means that, for instance, the headcount ratio is the percentage of people who live in a multidimensionally vulnerable household.

#### *Dimensions, Indicators, and cut-offs*

Bhutan's MVI was tailored to measure potential deprivations in the multiple domains affected by the pandemic. The index includes four dimensions: the first three relate to dimensions already included in Bhutan's official MPI namely health, education and living conditions. The index then preserves the 13 indicators of Bhutan's MPI. In the case of poverty, a person who is deprived in 4/13 of the weighted indicators (30.7% of dimensions) is considered multidimensionally poor. A fourth dimension was added to the current MPI structure to construct Bhutan's MVI. The household is considered vulnerable if they are deprived in nearly a quarter ( $\approx 23\%$ ) of all the weighted indicators to ensure comparability with poverty identification. **Table 1** describes the structure of proposed MVI. In this setting the weights structure assigned one-fourth of the total weight to each of the four dimensions of education, health, living standards and vulnerability. Each component indicator within this dimension is also equally weighted except in the dimension of Living Standard which follows the same structure defined by the MPI.<sup>6</sup>

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<sup>6</sup> For further description of MPI structure see Bhutan's MPI report in National Statistics Bureau (2017).

**Table 1. Bhutan MVI – Indicators, Deprivations Cut-offs, and Weights**

<b>Dimension</b>	<b>Indicator (weight)</b>	<b>Deprivation cut-off</b>
Health (1/4)	Child mortality (1/8)	A child has passed away in the household
	Food security (1/8)	The household suffers a shortage of food
Education (1/4)	School attendance (1/8)	Any school-aged child in the household is not attending school up to the age at which they would complete class eight
	Schooling (1/8)	No household member has completed five years of schooling
Living Standards (1/4)	Cooking fuel (1/28)	The household cooks with dung, wood or charcoal
	Sanitation (1/28)	The household's sanitation facility is not improved or it is shared with other households
	Electricity (1/28)	The household has no electricity
	Water (1/28)	The household does not have access to safe drinking water or safe water is more than a 30-minute walk (round trip)
	Road access (1/28)	The household is more than 30-minute walk from the road head
	Housing (1/28)	The household lacks adequate materials for two of these three: flooring, wall, and roof
	Assets (1/44)	The household does not own more than one of: radio, telephone, TV, bike, motorbike or refrigerator; and does not own a car or truck
	Land (1/44)	A rural household does not own more than one acre of land
	Livestock (1/44)	The household does not own more than three of: cattle, horses, sheep, goats, chicken, pigs, buffalos or yaks
	Vulnerability (1/4)	Dependency ratio (1/20)
Unemployment or job at risk (1/20)		The household has: 1) at least one unemployed member or 2) at least one member whose job is at risk. <sup>2</sup>
Bordering Gewog (1/20)		Population in a Gewog over the Indian border (see Map below)
Connectivity for education (1/20)		Households with children of school age up to grade 10 (age 16) with limited equipment to follow education at the distance: without at least one computer device (desktop, laptop, tablet or smartphone) or internet connection (fixed or mobile) or without any of them (f).
Intergenerational households (1/20)		The household is composed by children (0-17) and older adults (60+)

Notes: (1) The dependency ratio is the number of dependent members (i.e., not working) per working age people. (2) Job at risk refers to employees (either regular & casual) or self-employed in a potentially hit occupation according to ISCO occupation codes.

**Box 1:**



## The computation of the MVI

In order to illustrate the MVI and the household's identification of vulnerability, suppose that there is a Bhutanese family composed by 4 members where two of them are adults and the rest are children of school age. Suppose further that one of these school-aged children in the household is not attending school and that no household member has completed five years of schooling. This means that the whole household falls below the deprivation cut-off ( $z$ ) in these two indicators (recall from Table 1 above that these deprivation cut-offs are,  $z_1$ = having no children of school age out of school, and  $z_2$ =having at least one member with 5 or more years of education). For the sake of clarity assume that these are the only deprivations experienced by this household.

Because each of these two deprivations accrues a weight of  $w=1/8$  in the above referred methodology, then this household has a deprivation score ( $c$ ) of 25% of the total deprivations (this is:  $c = 1/8 + 1/8 = 0.25$  given that these are their only two deprivations). Therefore, all household members receive the same deprivation score. Note that this deprivation score is larger than the poverty cut-off set at  $k \approx 23\%$  and because of this the whole household will be identified as multidimensionally vulnerable. Note that other households may have a different deprivation score depending on specific achievements.

This procedure is applied for every household contained in the dataset to make a headcount ( $H$ ) of all households identified as multidimensionally vulnerable. Once the identification is completed for all households, and their deprivation scores are obtained, the intensity indicator ( $A$ ) can be computed. This is simply the average of deprivation score of all vulnerable households (censoring or excluding non-vulnerable households). The MVI for the whole population is then  $A * H$  as described below. For further descriptions of this methodology please review OPHI handbook on "How to Build a National Multidimensional Poverty Index (MPI)" in OPHI (2019).

### *Description of indicators*

The MVI considers the five extra indicators which are described below:

- 1) an indicator of economic dependency,
- 2) an indicator of unemployment or jobs at risk,
- 3) an indicator of population living in bordering gewog,
- 4) an indicator on education equipment or connectivity for education, and
- 5) an indicator on intergenerational households.

**Dependency ratio.** This indicator builds on the Economic Dependency Ratio (EDR) that conveys information about the number of non-occupied household members per occupied members. This indicator is often used to describe the degree of economic dependency and potential changes in population structure due to demographic change (i.e. childhood and aging populations) or due to the change in economic activity for the working age population which makes it relevant in the current pandemic. The indicator is a ratio where the numerator is the number of non-occupied household members (i.e. the number of economically dependent members) and the denominator is the number of occupied members (i.e. independent members) per household. The EDR is the result of the number of dependent members to number of household members with a job. The household is considered potentially vulnerable if has a dependency ratio equal or larger than three ( $\geq 3$ ). That means that even pre-COVID each working member was supporting three or more household members and if job losses occur, then the household may be stricken with economic difficulties.<sup>7</sup>

**Unemployment and job at risk.** This indicator aims to capture the loss of economic opportunities attached to the macroeconomic slowdown associated with the ongoing pandemic. The household is potentially vulnerable if there is: 1) at least one unemployed household member or 2) there is at least one member whose job is at risk. Jobs at risk refers to employees (either regular or casual) or self-employed workers in a potentially hit occupation. The household is deprived if at least one household member is unemployed or at risk of losing the job. The occupations identified as potentially were implemented using the ILO-International Classification of Occupations (ISCO) codes. The ISCO Codes are actually not ideal for this

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<sup>7</sup> There are nearly 36,400 deprived households in this indicator.

exercise, and discussions with all collaborators recognised that they are of limited accuracy. But we identified these codes for activities that might be more likely prone to be COVID-affected.<sup>8</sup>

Administrative and Commercial Managers

121 Business Services and Administration Managers

122 Sales, Marketing and Development Managers

Hospitality, Retail and Other Services Managers

141 Hotel and Restaurant Managers

142 Retail and Wholesale Trade Managers

143 Other Services Managers

Legal, Social, Cultural and Related Associate Professionals

342 Sports and Fitness Workers

343 Artistic, Cultural and Culinary Associate Professionals

Personal Services Workers

511 Travel Attendants, Conductors and Guides

512 Cooks

513 Waiters and Bartenders

514 Hairdressers, Beauticians and Related Workers

515 Building and Housekeeping Supervisors

516 Other Personal Services Workers

Sales Workers

521 Street and Market Salespersons

522 Shop Salespersons

523 Cashiers and Ticket Clerks

524 Other Sales Workers

Cleaners and Helpers

911 Domestic, Hotel and Office Cleaners and Helpers

912 Vehicle, Window, Laundry and Other Hand Cleaning Workers

Labourers in Mining, Construction, Manufacturing and Transport

932 Manufacturing Labourers

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<sup>8</sup> There are nearly 28,270 deprived households in this indicator.

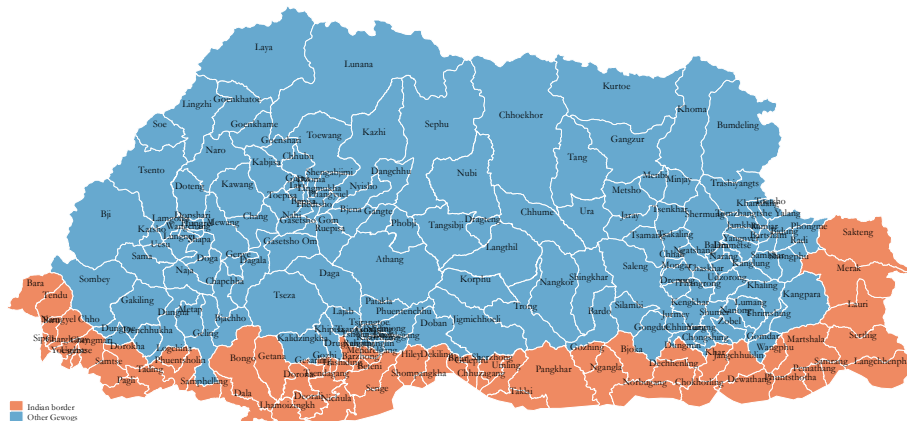
## Street and Related Sales and Services Workers

951 Street and Related Services Workers

952 Street Vendors (excluding Food)

**Bordering Gewog.** This indicator aims to capture the exposition of the population living in the Indian border given the increasing circulation of the virus in this neighborhood. The Census data proved useful to geographically identify the population living in villages over the Indian border. These set of villages may be more exposed to migration and hence to circulation of the virus. This indicator then aims to capture the population living over the Indian border. Map 1 presents the 61 Bhutanese Gewogs (out of 205 Gewogs in total). All households living over the border band are considered vulnerable in this indicator due to the possibility of cross-border transmission.<sup>9</sup>

**Map 1. Gewogs over the Indian border**



**Connectivity for education.** This indicator concerns households with school age children up to grade 10 (age 6 to 16) with limited equipment to successfully undertake online courses. The equipment considered are a computer device (either desktop, laptop, tablet or smartphone) and internet connection (either fixed or mobile). A household with school-age children is deprived if it lacks at least a computer device (desktop, laptop, tablet or smartphone) or internet connection (fixed or mobile) or both of them. This indicator aims to capture households who

<sup>9</sup> There are nearly 32,900 households in this border band.

are vulnerable given the limitations of school age children to participate in school activities during the lockdowns.<sup>10</sup>

**Intergenerational households.** This indicator refers to potentially vulnerable households defined in terms of demographic (age) characteristics. This indicator then concerns household composed by children (0-17) and older adults (60+) only. The household is deprived if there is no member aged 18-59. This indicator captures households with high vulnerability to being infected by Covid-19 and with members in high risk of suffering the worse symptoms of the disease and in higher risk of death.<sup>11</sup>

## National MVI

This section provides a detailed exposition of the national MVI results for Bhutan. First, deprivations experienced by all people – the Uncensored Headcount Ratios – are presented. Next, the National MVI, H (incidence) and A (intensity among the multidimensionally vulnerable population). Finally, disaggregated results by household and individual characteristics are presented.

### *Uncensored Headcount Ratios*

The uncensored headcount ratio of an indicator represents the proportion of people who are deprived in a particular indicator, irrespective of their *vulnerability* status. **Figure 1** presents these percentages. The rank of deprivations mirrors those obtained with BLSS in the sense that deprivations in Livestock, Cooking fuel, and Land and Years of Schooling appear among those with the highest frequency. The analysis here focusses on the MVI indicators.

Focusing on the vulnerability dimension, the results show that highest incidence of vulnerability indicators is to be found in the population without Connectivity for education (with 32% of the population), in households with high Dependency rates (nearly 28%), and households living over

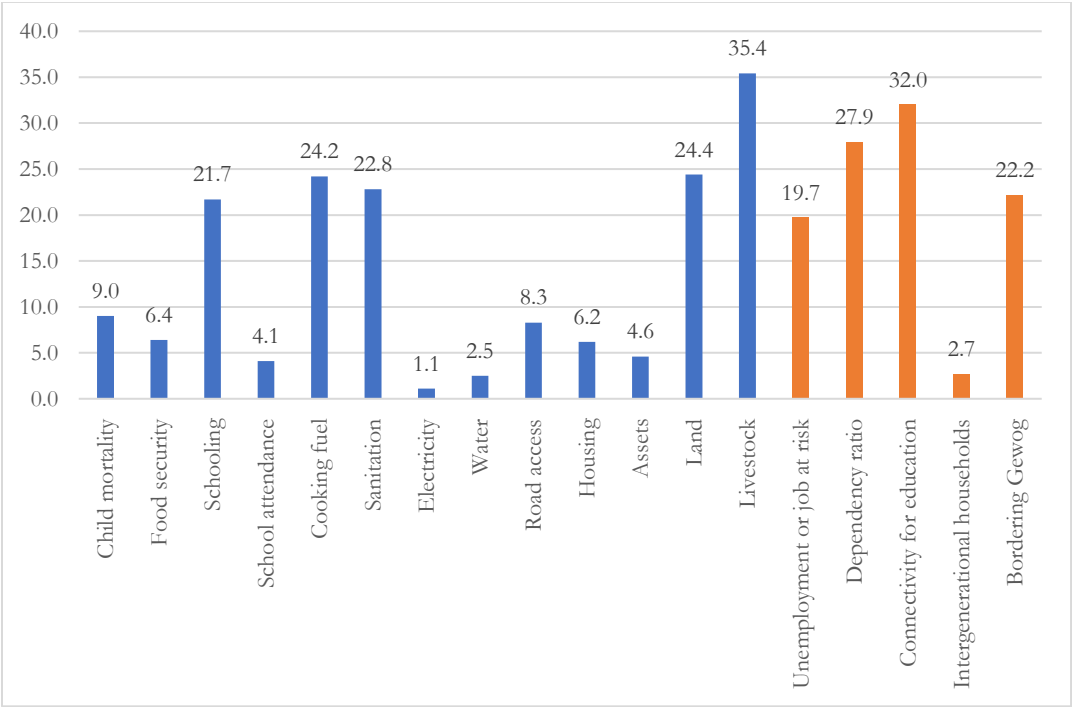
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<sup>10</sup> There are nearly 37,700 deprived households in this indicator.

<sup>11</sup> There are nearly 3,400 intergenerational households under this definition.

the Indian border (22%). Interestingly, two of these indicators (connectivity for education and the economic dependency) rank now among the top three indicators within the full list of 18 indicators. The lowest uncensored headcount ratio in this dimension belongs to the percentage of population composed by children and elder population – this is, intergenerational households (2.7%).

**Figure 1. Uncensored Headcount Ratios (% of population)**



Source: Calculation based on PHCB 2017 data.

***MVI National results***

**Table 2** shows the National MVI as well as its partial indices: the vulnerability rate (which is the percentage of people identified as multidimensionally vulnerable, H) and the intensity of vulnerability (or the average proportion of weighted indicators in which the vulnerable are deprived, A). The incidence of multidimensional vulnerability is 18.3%, so nearly one-fifth of people in Bhutan is multidimensionally vulnerable to the adverse effects of the pandemic. The average intensity of vulnerability is 31.2%, implying that each vulnerable person is, on average,

deprived in nearly a third of the weighted indicators. The MVI, this is the product of H and A, then is 0.057.<sup>12</sup>

**Table 2: Incidence, Intensity, and Multidimensional Vulnerability Index (MVI)**

National results		
Cutoff (k)	Index	Value
k-value= 3/13 (≈ 23%)	MVI	0.057
	Headcount ratio (H%)	18.3
	Intensity (A%)	31.2

Source: Calculation based on PHCB 2017 data.

***What is the profile of Vulnerability by indicators?***

This section presents the proportion of the population that is multidimensionally vulnerable and deprived in that indicator (“censored headcount ratios”). The statistical properties of the AF method allow computing the MVI as the weighted sum of the censored headcount ratios. This property can be used to break the MVI down by indicator which is useful for policy because reducing any of the censored headcount ratios changes vulnerability.

**Table 3** shows that 10.5% of the population is multidimensionally vulnerable and deprived in terms of connectivity for education. The second largest indicator within the vulnerability dimension is now the population living in a bordering Gewog. Censored headcount ratios for other indicators are lower than 10% for the indicators of Schooling and Cooking fuel -which are already constitutive elements of the MPI.

**Table 3. Censored Headcount Ratios  
(% of population)**

Child mortality	5.3
Food security	4.5

<sup>12</sup> These are the results using the population as unit of analysis. The MVI is 0.060 when the unit of analysis are the households. Similarly, the Headcount ratio (H%) is 19.4% and the Intensity of vulnerability (A%) for households is 31.0%. These results are very consistent with those in the table.

Schooling	12.0
School attendance	2.7
Cooking fuel	11.0
Sanitation	7.7
Electricity	0.8
Water	1.1
Road access	4.4
Housing	3.4
Assets	2.8
Land	6.7
Livestock	9.0
Unemployment or job at risk	2.1
Dependency ratio	5.2
Connectivity for education	10.5
Intergenerational households	1.6
Bordering Gewog	8.6

Source: Calculation based on PHCB 2017 data.

## MVI in Rural and Urban Areas

It is expected that the pandemic will produce different vulnerability profiles among the Bhutanese population. This vulnerability profiles can largely vary between rural and urban areas. **Table 4** shows the MVI and its components for both urban and rural areas. The rural vulnerability headcount ratio is much higher compared to the one for urban areas – 27% versus 3.6%, respectively. It is worth noticing that almost 62% of Bhutan’s population live in rural areas (nearly 372 thousand population).

**Table 4: National MVI by rural and urban areas**

Area	Population (%)	Population (absolute)	MVI	Headcount ratio (H%)	Intensity (A%)
Rural	62.7	371,823	0.085	27.0	31.3
Urban	37.3	221,519	0.011	3.6	29.9

Source: Calculation based on PHCB 2017 data.



## MVI by age and gender

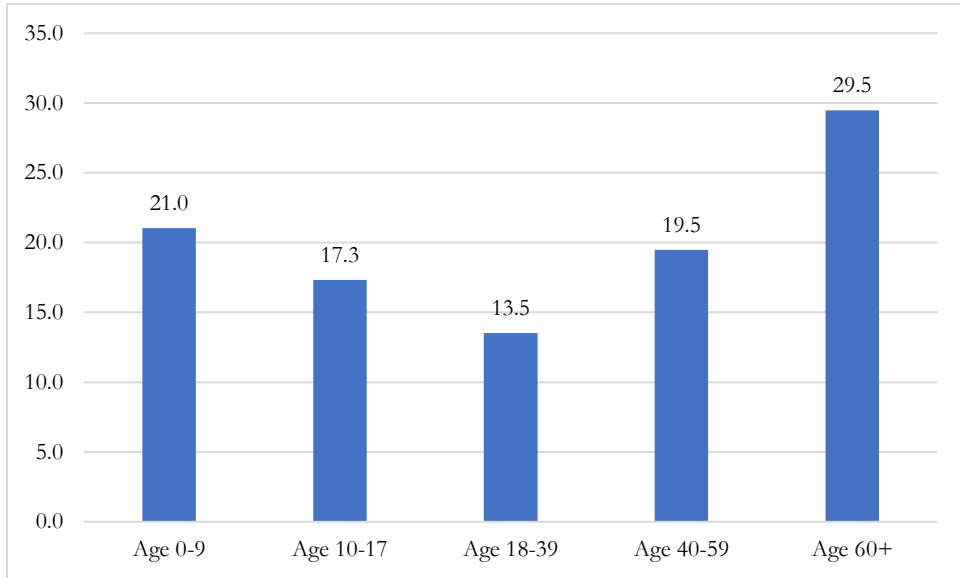
Nearly 10% of the population in Bhutan is 60 years or older but almost a third is multidimensionally vulnerable. This means that older population not only carries the largest risk in terms of the catastrophic consequences of getting infected, but also in terms of this multidimensional approach. This information reveals that elder population requires priority actions as this is the age group more likely to be hit by the adverse effects of the pandemic. Similarly, nearly one-third of the population of Bhutan - 32.5% - are children under 18 years of age. They are the second group most vulnerable social group in relative terms (as percentage of that population group). In particular the children of primary school age (0-9) are the most vulnerable among children. Conversely, the less vulnerable group, again in relative terms, is the working-age population in particular those between 18-39. Things are slightly different, in absolute terms (number of people) since this population group is the largest in terms of number of vulnerable people -in particular young adults (18-39 years).

**Table 5: National MPI by age group and gender**

Area	Population (%)	Population (absolute)	MVI	Headcount ratio (H%)	Intensity (A%)
Age 0-17	32.5	192,625	0.062	19.5	31.8
Age 18-59	57.4	340,723	0.048	15.6	31.0
Age 60+	10.1	59,994	0.091	29.5	30.9
Female	51.3	304,188	0.058	18.6	31.3
Male	48.7	289,154	0.056	17.9	31.2

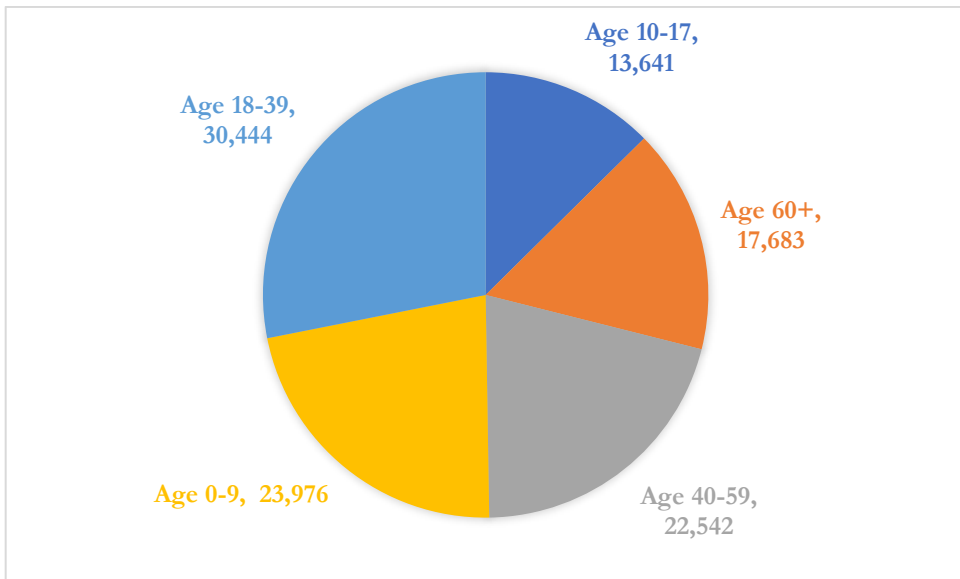
Source: Calculation based on PHCB 2017 data.

**Figure 2: MVI incidence by age group**



Source: Calculation based on PHCB 2017 data.

**Figure 3: Incidence of vulnerability by age group (population)**



In Bhutan the majority of population is women (51.3%) and 18.6% of them is multidimensionally vulnerable. This is nearly 56.6 thousand vulnerable women. In the case of men, the percentage of vulnerable population is slightly smaller 17.9%. This implies 51.6

thousand vulnerable men. The intensity of deprivation in both groups is slightly the same (A around 31%) and because of this the MVI for women population is slightly larger (0.058) than that for men (0.056).

## MVI in other potentially vulnerable population groups

The analysis of MVI is further disaggregated here by characteristics that can reasonably be considered vulnerable to the adverse consequences of the pandemic. This analysis covers the following groups: 1) households with potential returnees living abroad; 2) households with children of school age with only one working person (this situation reveals the economic vulnerability of families); 3) households with children of school age with one working person who is a woman (this situation may impose extra work for women, who are now also in charge in monitoring children's online); 4) the household head is a woman. 5) the household head has no education; 6) households with at least one member with a disability, and, 7) households out of the Indian Border.

This typology of households displays heterogenous degrees of vulnerability as shown in **Table 6**. The most multidimensionally vulnerable groups are households with an uneducated head (without no formal education) which covers 55% of the total population. Nearly 28% of these households are vulnerable with an overall MVI of 0.091, which is almost twice as large as the national MVI (0.057). The group with the lowest levels of vulnerability is households with potential returnees living abroad (this is, households with family members living abroad). Nearly 8% of the Bhutanese population lives in a household with a potential returnee where roughly one out of 10 is MVI vulnerable.

**Table 6: National MVI with additional characteristics**

Indicator	Population (%)	Population (absolute)	MVI	Headcount ratio (H%)	Intensity (A%)
The household has potential returnees: absent members living abroad (in any country)	7.6	44,896	0.031	10.1	30.7
The household has children under the age of 12 and exactly one working person	23.5	139,163	0.053	16.8	31.3

The household has children under the age of 12 and exactly one working woman	29.4	174,376	0.065	20.2	31.9
The household head is woman	8.9	52,989	0.065	20.9	31.0
The household has a household head with no education	55.0	314,147	0.091	28.8	31.6
Any of the household members has a disability (a)	8.7	51,602	0.092	28.6	32.2
Households out of the Indian Border	77.8	461,484	0.038	12.4	30.6

Notes: (a) Considered as having lot of difficulty in any of the following: seeing (even if wearing glasses), hearing (even if using a hearing aid), walking or climbing steps, remembering or concentrating, difficulty with self-care, and difficulty in communicating.

This information draws attention to the most vulnerable population groups. For instance, nearly 9.0% of the households have a member with some disability and roughly 28% of those households are vulnerable. According to these results and the BHPC records, 982 individuals are vulnerable and have difficulty seeing; 1,892 are vulnerable and have difficulty hearing; 1,619 are vulnerable and have difficulty walking or climbing steps; 686 are vulnerable and have difficulty remembering or concentrating; 1,417 are vulnerable and have difficulty with self-care; 945 are vulnerable and have difficulty communicating even using their own language.

## The Geography of Multidimensional Vulnerability

### *The MVI by Dzongkhag*

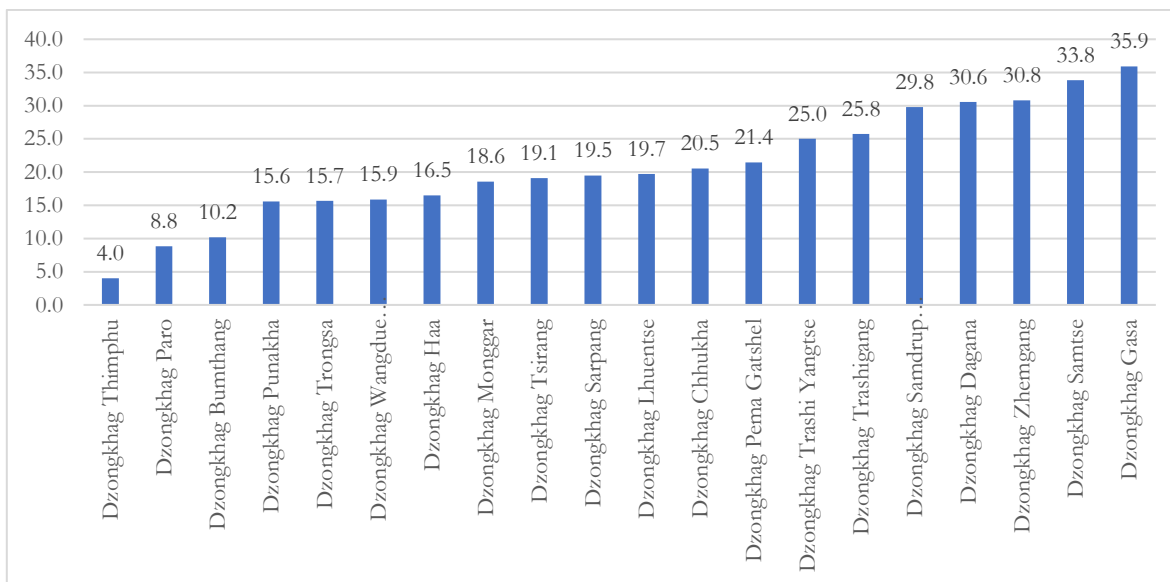
The MVI varies substantially across the territory of Bhutan. This heterogeneity was first examined using the twenty Dzongkhag. Interestingly, two of Dzongkhag with the highest vulnerability profile are in the west borders of Bhutan. In Gasa, 36% of the population is MVI vulnerable whereas in Samtse, over the Indian border, this percentage is nearly 31%. These two Dzongkhag are respectively the least and the most populated Dzongkhag in Bhutan. Three Dzongkhag ranked third: Zhemgang, Dagana and Samdrup Jongkhar. In all of them the percentage of MVI population is nearly 30%. In the remaining 15 Dzongkhag the vulnerability incidence is below 25% as shown in **Figure 4**. However, the rank of Dzongkhag changes when considering the population being multidimensional vulnerable.

**Table 7: MVI by Dzongkhag**

<b>Thromde</b>	<b>Population (%)</b>	<b>Population (absolute)</b>	<b>MVI</b>	<b>Headcount ratio (H%)</b>	<b>Intensity (A%)</b>
Dzongkhag Bumthang	2.4	14,029	0.031	10.2	30.3
Dzongkhag Chhukha	9.9	58,892	0.066	20.5	32.0
Dzongkhag Dagana	3.5	20,595	0.097	30.6	31.8
Dzongkhag Gasa	0.5	3,141	0.117	35.9	32.7
Dzongkhag Haa	1.7	10,163	0.050	16.5	30.4
Dzongkhag Lhuentse	1.9	11,005	0.062	19.7	31.7
Dzongkhag Monggar	5.1	30,038	0.058	18.6	31.0
Dzongkhag Paro	6.3	37,228	0.026	8.8	28.9
Dzongkhag Pema Gatshel	3.4	20,074	0.065	21.4	30.3
Dzongkhag Punakha	3.7	21,881	0.047	15.6	30.1
Dzongkhag Samdrup Jongkhar	4.7	28,088	0.094	29.8	31.7
Dzongkhag Samtse	9.5	56,344	0.107	33.8	31.8
Dzongkhag Sarpang	6.6	38,883	0.060	19.5	30.7
Dzongkhag Thimphu	19.9	118,284	0.012	4.0	29.4
Dzongkhag Trashi Yangtse	2.3	13,902	0.077	25.0	30.8
Dzongkhag Trashigang	5.9	35,172	0.082	25.8	31.8
Dzongkhag Trongsa	2.1	12,450	0.048	15.7	30.5
Dzongkhag Tsirang	3.2	18,969	0.059	19.1	30.7
Dzongkhag Wangdue Phodrang	5.2	30,569	0.050	15.9	31.3
Dzongkhag Zhemgang	2.3	13,635	0.098	30.8	31.7

Source: Calculation based on PHCB 2017 data. See section 2 for data and data selection.

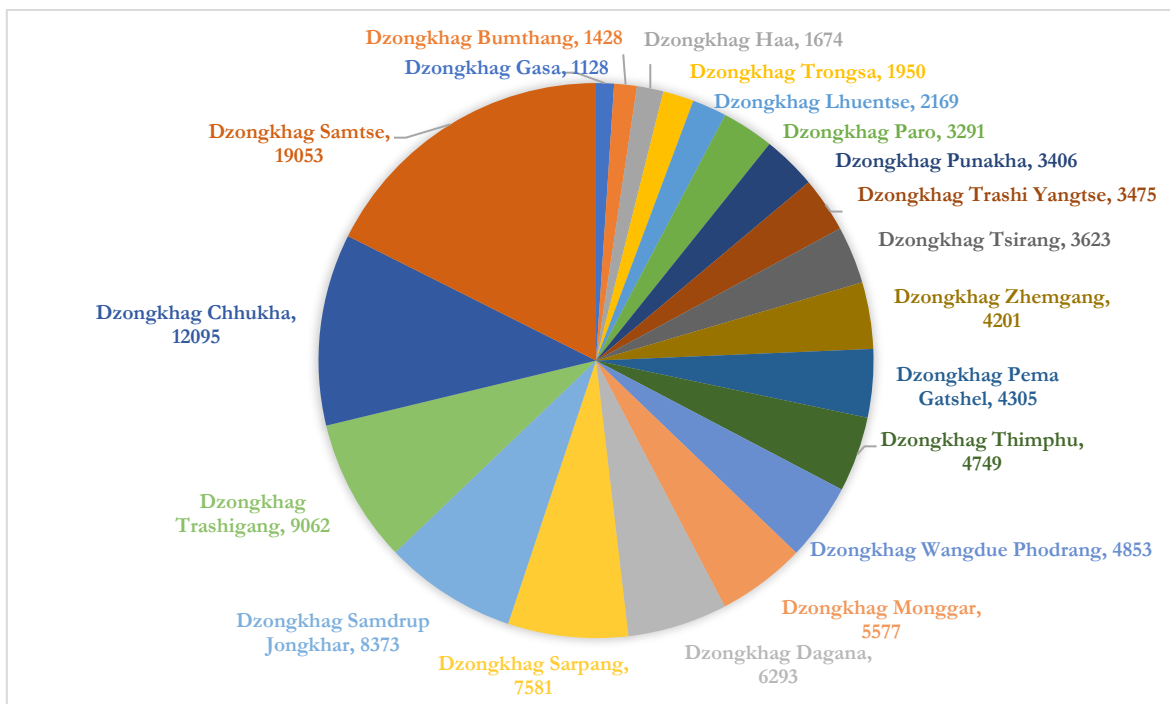
**Figure 4: Incidence of vulnerability (H in %) by Dzongkhag**



Source: Calculation based on PHCB 2017 data. Dzongkhags sorted in terms of H (%).

The pie chart in **Figure 5** shows the incidence of MVI in terms of population. The Dzongkhag are ranked in terms of H in absolute values (incidence in terms of population) to show the complementarity between absolute and relative values. Gasa is the Dzongkhag with the highest incidence in relative terms (35.9%) but the population being vulnerable here, around 1,100 individuals, is almost one quarter of that in Thimphu (nearly 4,700) -the Dzongkhag with the smallest incidence in relative terms. Samtse consistently appears as the Dzongkhag with the largest incidence in absolute terms (around 19,050 individuals). This is now followed by Dzongkhag Chhukha (12,100 persons). The figure exemplifies the importance of considering both the absolute and relative figures in the design of regional policies.

**Figure 5: Incidence of multidimensional vulnerability (people) by Dzongkhag**



Source: Calculation based on PHCB 2017 data. Dzongkhags sorted in terms of the number of vulnerable population by Dzongkhag reported in the figure.

### *The MVI by Towns and Thromdes*

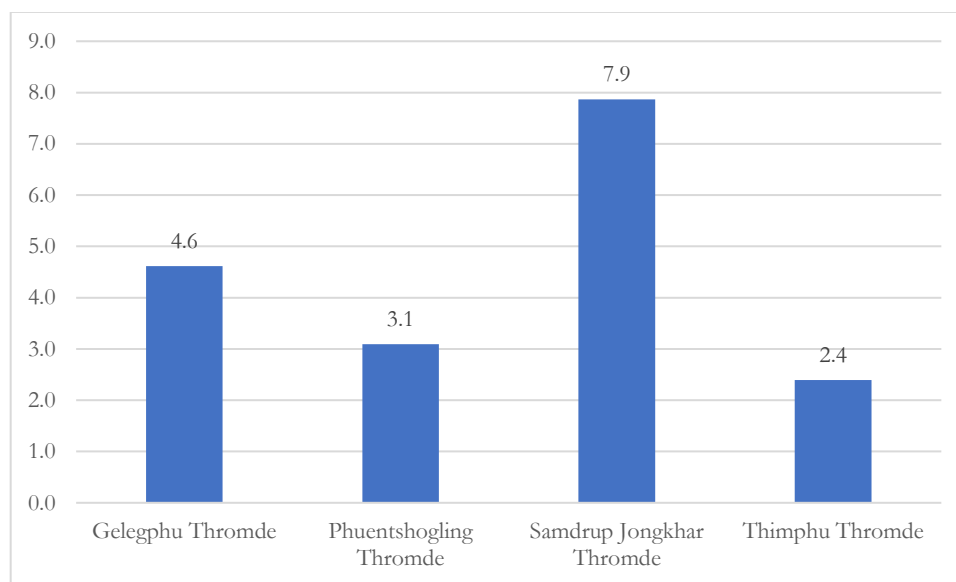
The incidence of multidimensional vulnerability in large cities is below 10%. The largest incidence in relative terms is in Samdrup Jongkhar Thromde which is also the smallest city in terms of population (with respect of the three other Thromde. In this city the MVI (0.007) is considerably smaller than the national MVI. The bulk of vulnerable population is out of these large cities.

**Table 8. MVI by Thromde**

Thromde	Population (%)	Population (absolute)	MVI	Headcount ratio (H%)	Intensity (A%)
Gelegphu Thromde	1.4	8,191	0.014	4.6	30.7
Phuentshogling Thromde	3.9	22,851	0.009	3.1	29.3
Samdrup Jongkhar Thromde	1.2	7,299	0.023	7.9	29.5
Thimphu Thromde	16.7	99,221	0.007	2.4	29.9
Out of Thromdes (Towns & Gewogs)	76.8	455,780	0.072	22.9	31.3

Source: Calculation based on PHCB 2017 data.

**Figure 6: Incidence of vulnerability (H in %) by Thromde**



Source: Calculation based on PHCB 2017 data.

When it comes to examine the MVI in the 60 smaller Bhutanese cities, the analysis focus on the 10 towns with the highest incidence (H). **Table 9** shows the MVI and components where Mongling is the Town with the largest share of vulnerable population: 33% of its population. The next towns are Sankosh (21%) and Mendrelang (16%). The rest have an incidence below 15%. All the MVI indicators for all towns are available in the statistical appendix.

**Table 9. MVI by Towns**  
(top 10 Towns with the highest incidence)

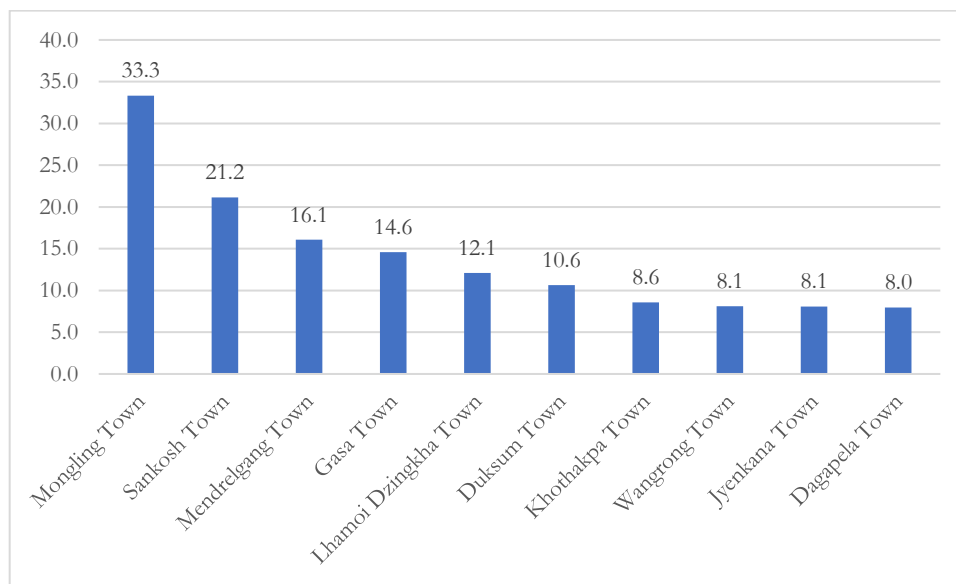
	Population (%)	Population (absolute)	MVI	Headcount ratio (H%)	Intensity (A%)
Mongling Town	0.01	36	0.091	33.3	27.2
Sankosh Town	0.01	52	0.066	21.2	31.1
Mendrelgang Town	0.01	56	0.054	16.1	33.8
Gasa Town	0.12	685	0.041	14.6	27.9
Lhamoi Dzingkha Town	0.25	1,480	0.038	12.1	31.5
Duksum Town	0.04	263	0.029	10.6	26.8
Khothakpa Town	0.02	140	0.027	8.6	31.3
Wangrong Town	0.06	333	0.025	8.1	30.7



Jyenkana Town	0.05	297	0.025	8.1	30.9
Dagapela Town	0.08	464	0.022	8.0	27.6

Source: Calculation based on PHCB 2017 data. Population in absolute value rounded.

**Figure 7: Incidence of vulnerability (H in %) by Towns  
(top 10 Towns with the highest incidence)**



Source: Calculation based on PHCB 2017 data.

### ***The MVI by Gewog***

The analysis now turns to the 205 Bhutanese Gewogs. This study performed a detailed match between Gewogs with the 60 Towns and 4 Thromdes to account for all the national population. See appendix 2 for specific details on this matching. This subnational disaggregation shows a larger variation of multidimensional vulnerability across the Bhutanese territory. The MVI values for the top 20 Gewogs range from 0.152 in Tashiding to 0.289 in Getana. This means that the most vulnerable Gewog is Getana is nearly five times larger than the national MVI. In Getana, 78.6% if the population is vulnerable. The second largest MVI corresponds to Lunana with an MVI of 0.283; however, percentage of multidimensionally vulnerable population is slightly larger (80%) than in Getana. This is explained by the difference in the intensity of vulnerability (A) which is larger in Getana. All the MVI indicators for all Gewogs are available in the statistical appendix.

**Table 10: MVI, H and A**  
(top 20 Gewogs with the highest incidence)

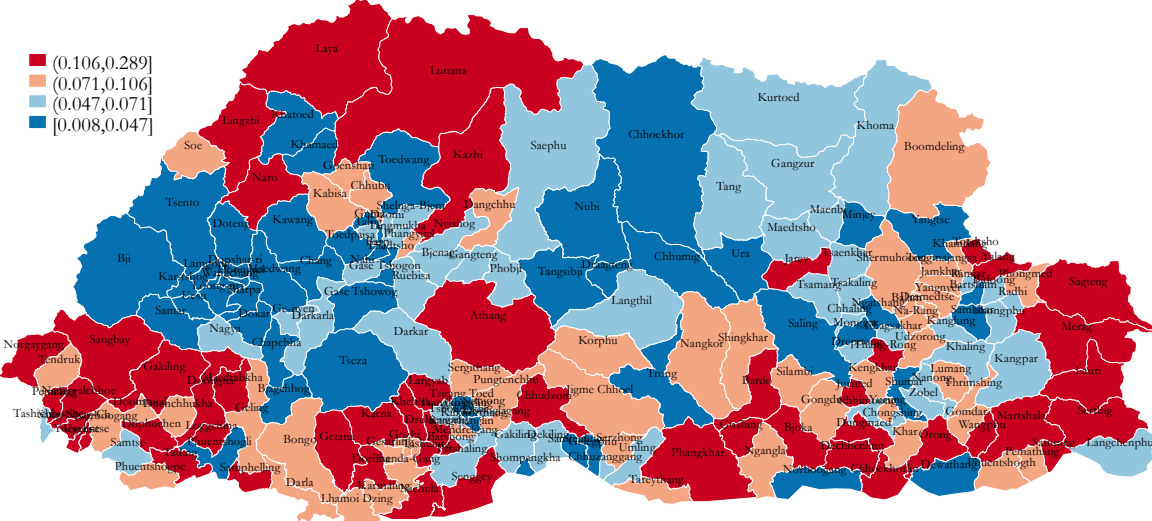
Rank (MVI)	Gewog	Population (absolute)	MVI	Headcount ratio (H%)	Intensity (A%)
1	Getana	791	0.289	78.6	36.7
2	Lunana	668	0.283	79.9	35.4
3	Sagteng	1905	0.252	70.1	36.0
4	Wangphu	1617	0.241	71.9	33.6
5	Merag	1412	0.228	67.1	34.1
6	Lauri	1409	0.220	67.8	32.5
7	Dorona	667	0.206	61.9	33.2
8	Bjoka	736	0.183	57.1	32.1
9	Nichula	400	0.183	51.5	35.5
10	Tading	4537	0.180	52.9	34.0
11	Gakiling	1010	0.179	54.8	32.7
12	Chhudzom	2445	0.176	50.4	35.0
13	Phangkhar	1004	0.175	54.1	32.4
14	Norgaygang	3335	0.171	51.8	33.1
15	Goshing	1223	0.170	53.1	32.0
16	Namgyalchhoeling	2902	0.168	51.6	32.5
17	Bardo	1527	0.155	49.1	31.6
18	Loggchina	2411	0.153	45.9	33.4
19	Martshala	1832	0.153	46.8	32.6
20	Tashiding	1587	0.152	47.9	31.7

Source: Calculation based on PHCB 2017 data. Ordinarily ranked by MVI. See appendix for a detailed description of the match Gweog-Town and Gewog-Thromdes.

**Map 2** supplement these results and shows in greater detail the spread of the MVI across the Bhutanese territory. The map reveals some interesting patterns. First, with some exceptions, many of the Gewogs with the highest MVI levels are close to some borderline. This is the case even for the northwest border which means that the indicator concerning the Indian border is not necessarily driving the results at least geographically. As a matter of fact, some central Gewogs in the southern border of Bhutan show the lowest MVI levels. Second, the north-east border of Bhutan has the lowest levels of MVI. In fact, if we were to trace imaginary quadrants in Bhutan (the center being placed in the central area of the country), the first quadrant would display the lowest multidimensional vulnerability levels. Third, it is interesting to note that some

Gewogs in the central area of Bhutan also have some of the highest levels of multidimensional vulnerability. This is the case of Athang, Jarey or Thang-Rong.

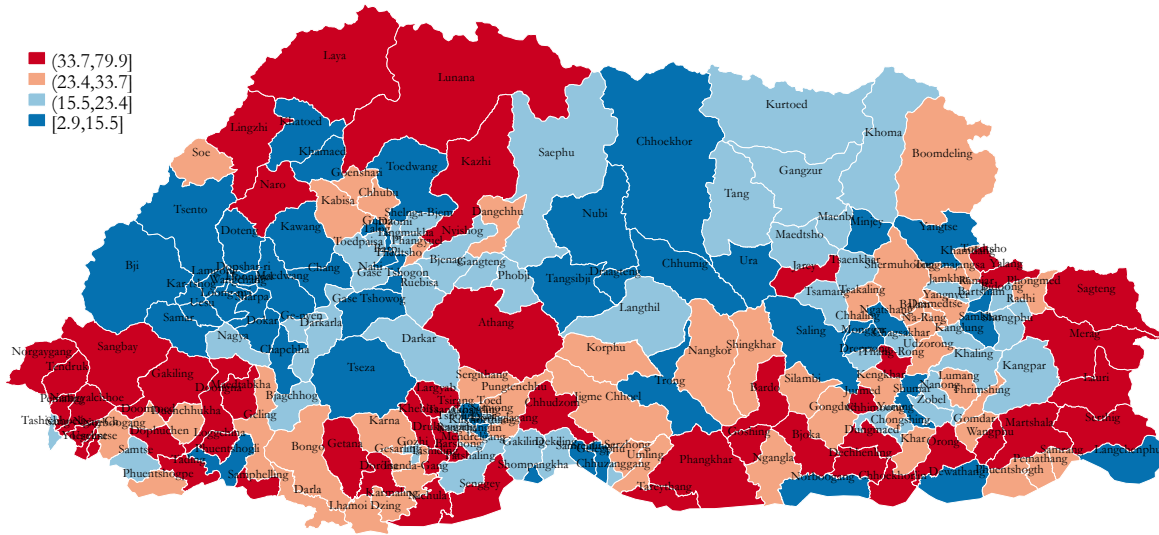
**Map 2. MVI by Gewog**



Source: Calculation based on PHCB 2017 data.

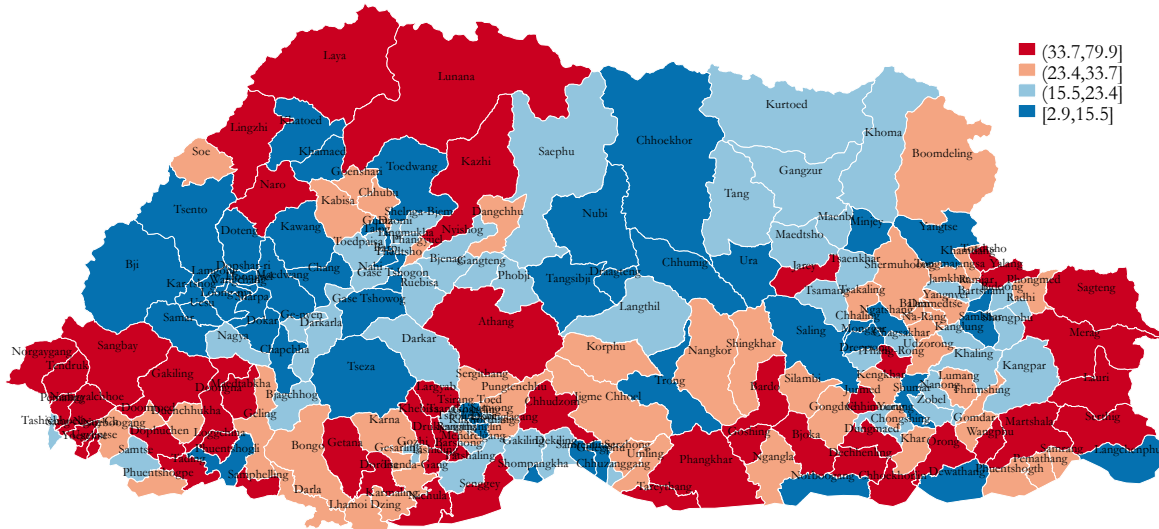
Map 3 and Map 4 present the results for H and A respectively which confirms these patterns. This information can be of use for the definition of regional policies. See the full list of figures in the statistical appendix for MVI, H and A for all Gewogs.

**Map 3. H by Gewog**



Source: Calculation based on PHCB 2017 data.

Map 4. A by Gewog



Note: Calculation based on PHCB 2017 data.

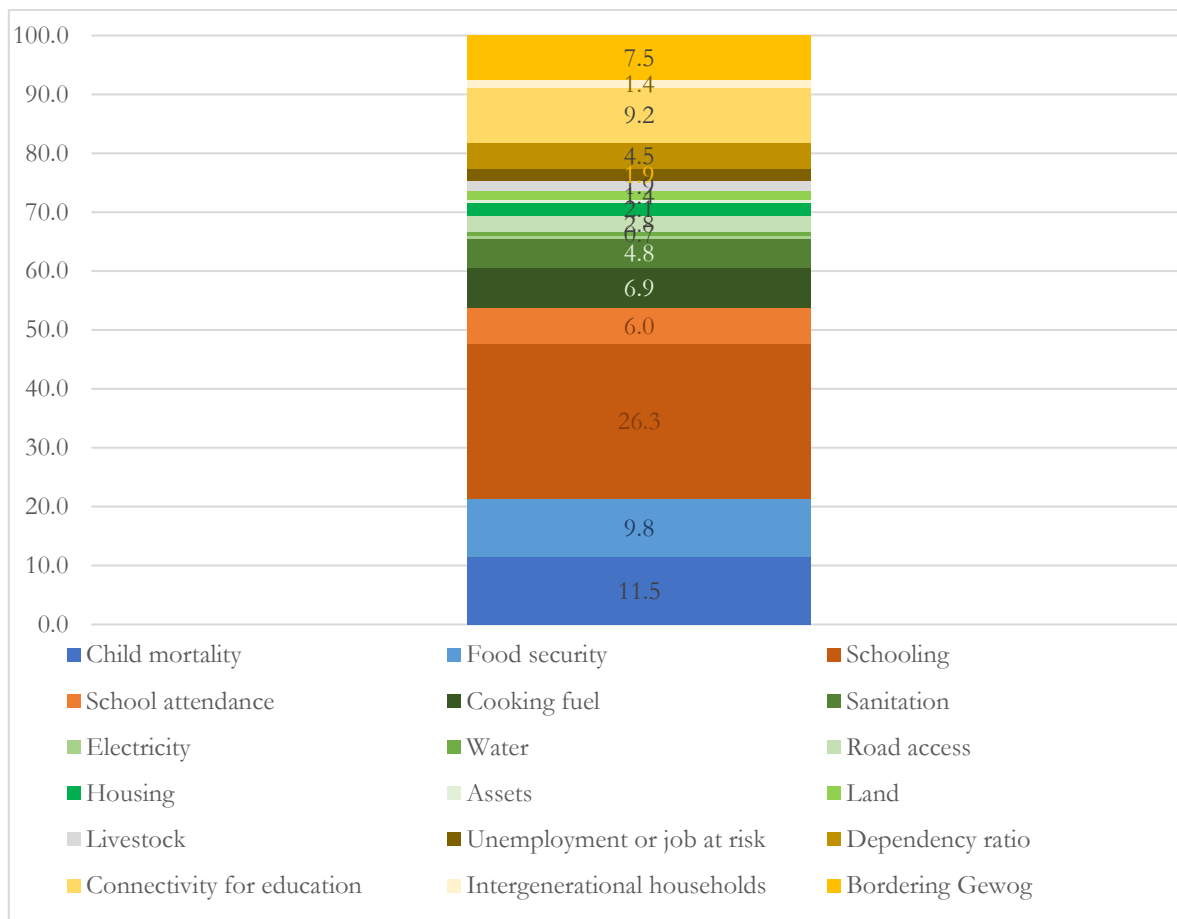
## Indicators contribution to the MVI

For a more in-depth view on multidimensional vulnerability, it is useful to see the percentage contribution of each of the 18 indicators to overall vulnerability. As described in the methodological section, the weights for the four dimensions are the same but there is a different number of indicators within each dimension. Because of this the indicators in the dimensions of

Health and Education, with two indicators each, have the highest weight in the MVI. It is expected that these indicators will contribute relatively more to overall vulnerability.

**Figure 8** shows the contribution of each individual indicator at the national level. For the sake of clarity, the chart uses four graded tones for each dimension. Overall, the dimension of education has the largest contribution to the MVI in terms of dimensions. In terms of the percentage contribution of each of the indicators to the MVI, the largest contributors to national vulnerability are deprivations in years of schooling (26.3%), followed by Child mortality (11.5%). These results confirmed previous findings so the focus goes to the vulnerability dimension. **Table 11** shows that the indicator of “Connectivity for Education” displays the largest contribution (9.2%) within this fourth dimension. This indicator is followed by “Bordering Gewogs” with a contribution of 7.5%.

**Figure 8. Percentage Contribution of Each Indicator to national MVI**



Source: Calculation based on PHCB 2017 data.

This analysis is now applied to both rural and urban areas and multiple age groups. **Table 11** shows the weighted percentage contribution of each indicator. Once more, the dimension of Education is also the dimension with the largest contribution to the MVI. As a matter of fact, this pattern is preserved in other subnational disaggregations contained in the table. Within this fourth dimension, the Connectivity for Education ranks first except for the urban areas where the contribution of Dependency ratio indicator seems to be slightly larger given the nil contribution of Bordering Gewog indicator. In all the other age-groups, included in the table, the contribution of Connectivity for Education is also the largest. Corresponding results for Thromde, Dzongkhag, and Towns are shown in detail in the appendix.

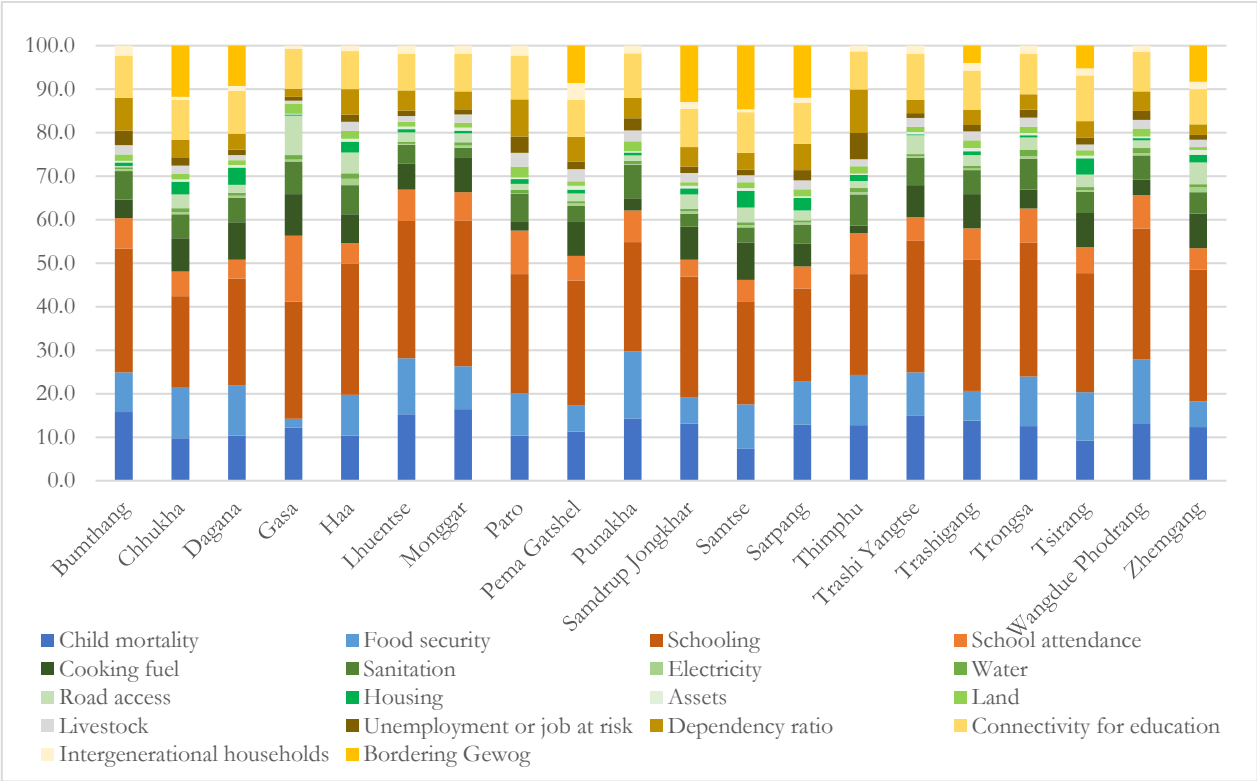
**Table 11. Percentage contribution of each indicator to MVI:  
national, areas, and age groups**

Indicator	National	Rural	Urban	Age 0-9	Age 10-17	Age 18-39	Age 40-59	Age 60+
Child mortality	11.5	11.3	15.4	11.0	14.3	11.8	14.8	5.6
Food security	9.8	9.6	13.3	8.7	11.1	10.1	10.6	9.0
Schooling	26.3	26.7	21.4	27.0	15.0	25.3	27.5	34.3
School attendance	6.0	5.7	9.6	7.6	8.7	6.4	4.4	3.1
Cooking fuel	6.9	7.3	1.3	6.2	6.4	6.8	7.5	7.5
Sanitation	4.8	4.6	7.6	4.7	4.8	5.1	4.7	4.8
Electricity	0.5	0.5	0.3	0.4	0.4	0.5	0.6	0.6
Water	0.7	0.7	0.5	0.6	0.6	0.8	0.8	0.7
Road access	2.8	3.0	0.4	2.4	2.3	2.9	3.2	3.0
Housing	2.1	2.2	1.4	1.8	2.1	2.4	2.3	1.8
Assets	0.6	0.6	0.3	0.5	0.5	0.5	0.6	0.9
Land	1.4	1.5	0.0	1.5	1.4	1.6	1.2	1.3
Livestock	1.9	2.0	0.0	1.8	1.8	1.8	1.8	2.2
Unemployment or job at risk	1.9	1.5	6.3	1.8	2.3	2.3	1.8	0.9
Dependency ratio	4.5	4.1	11.0	5.5	6.0	4.3	2.8	4.7
Connectivity for education	9.2	9.2	10.2	11.4	13.9	9.3	7.5	4.8
Intergenerational households	1.4	1.4	1.0	0.3	0.6	0.0	0.0	7.8
Bordering Gewog	7.5	8.1	0.0	6.9	7.9	7.9	7.9	7.0
<i>Total</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>

Source: Calculation based on PHCB 2017 data.

In the case of subnational disaggregations, **Figure 9** below depicts a similar pattern. The indicator of schooling and school attendance have the largest contributions. In terms of the indicators in the vulnerability dimension the largest contributor is “Connectivity for Education” in most Dzongkhag except for those over the country’s Border where the indicator of “Bordering Gewog” has an important share. In Gasa, for instance, the Dzongkhag with the largest incidence of vulnerability in relative terms, the indicator of “Connectivity for Education” contributes with nearly 9% to overall index of vulnerability. Detailed statistics about indicators’ contribution to MVI by Dzongkhag, Thromde, Town and Gewogs appears in statistical appendix.

**Figure 9. Percentage Contribution of Each Indicator to MVI by Dzongkhag**



**Final remarks**

This study provides an analytical tool to inform public policies under a multidimensional framework. The empirical implementation resorted to the Population and Housing Census of

Bhutan (PHCB) 2017 provided that it offered the advantage of subnational disaggregation analyses at the Dzongkhag and Gewog level. The study design employed five additional indicators on top of the 13 indicators already used in the current MPI for Bhutan. The proposed measure followed the Alkire-Foster method which allows for further analysis in terms of the incidence and intensity of vulnerability profiles.

The analysis documents a vulnerability profile that could be used for policy interventions considering the following:

- The lack of Connectivity for Education (a computer device and internet) appears amongst the most prevalent deprivation indicators. This applies for both the general population and among the population that is multidimensionally deprived: 32% of the population for the uncensored headcount ratio (i.e. the proportion of people deprived in each indicator) and 10.5 for the censored headcount ratio (i.e. the proportion of people deprived in each indicator and vulnerable).
- The incidence of multidimensional vulnerability shows that nearly one-fifth of population is prone to be affected by the adverse effects of the pandemic (multidimensionally vulnerable).
- In terms of age, the most vulnerable population groups are elder population and children of school age under 10.
- The rural vulnerability headcount ratio is much higher than that for urban areas – 27% versus 3.6%, respectively. This pattern is relevant given that nearly 62% of the population live in rural areas.
- The largest multidimensionally vulnerable population group is characterized by the households with an uneducated head This is relevant given that more than half of the population live in these households.
- In terms of geographic disaggregation, the analysis shows that two of Dzongkhag with the highest vulnerability profile are in the west borders of Bhutan: Gasa (with 36% of the population being multidimensionally vulnerable) and Samtse, over the Indian border, with 31% of vulnerable population.



- The study provides a list of the most deprived Gewogs with a disproportionately high levels of multidimensionally deprivation both in terms of incidence and intensity.
- With some exceptions, many of the Gewogs with the highest MVI levels are close to some borderline although it is also truth that some Gewogs over the Indian border have some of the lowest levels of MVI.
- The north-east border of Bhutan has the lowest levels of MVI. This northeast quadrant of Bhutan displays the lowest multidimensional vulnerability levels.

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In: [https://en.wikipedia.org/wiki/COVID-19\\_pandemic\\_in\\_Bhutan#cite\\_note-15](https://en.wikipedia.org/wiki/COVID-19_pandemic_in_Bhutan#cite_note-15).

## ANNEX 1. The match of Town and Thromde with Gewogs

This annex describes the 60 Town-Gewog matches and 4 Thromde-Gewog matches. The following list shows the name of each town and the corresponding Gewog appear in parenthesis: Tsimasham Town (Bjagchhog Gewog), Gedu Town (Bongo Gewog), Tsimasham Town (Chapchha Gewog), Darla Town (Darla Gewog), Dagana Town (Tseza Gewog), Lhamoi Dzingkha Town (Lhamoi Dzingkha Gewog), Dagapela Town (Tsenda-Gang Gewog), Haa Town (Kar-tshog Gewog), Autsho Town (Tsaenkar Gewog), Yadi Town (Ngatshang Gewog), Lingmethang Town (Saling Gewog), Monggar Town (Monggar Gewog), Kilikhar Town (Monggar Gewog), Gyalposhing Town (Monggar Gewog), Betykha Town (Nagya Gewog), Nganglam Town (Norboogang Gewog), Lobaysa Town (Barp Gewog), Samdrupcholing Town (Phuentshogthang Gewog), Jomotsangkha Town (Langchenphu Gewog), Samdrupcholing Town (Pemathang Gewog), Gomtu Town (Phuentshogpelri Gewog), Samtse Town (Samtse Gewog), Sarpang Town (Shompangkha Gewog), Rangjung Town (Shongphu Gewog), Trashigang Town (Samkhar Gewog), Khaling Town (Khaling Gewog), Duksum Town (Khamdang Gewog), Trongsa Town (Nubi Gewog), Mendrelgang Town (Mendrelgang Gewog), Rurichu Town (Darkar Gewog), Nobding Town (Dangchhu Gewog), Tingtibi Town (Trong Gewog), Panbang Town (Ngangla Gewog), Bumthang Town (Chhoekhor Gewog), Chhukha Town (Bjagchhog Gewog), Chhumig Town (Chhumig Gewog), Damji Town (Khamaed Gewog), Denchi Town (Shumar Gewog), Dramedtse Town (Dramedtse Gewog), Drukjeygang Town (Drukjeygang Gewog), Gasa Town (Khatoed Gewog), Jomotsangkha Town (Serthig Gewog), Jyenkana Town (Samar Gewog), Kanglung Town (Kanglung Gewog), Khasadrapchu Town (Maedwang Gewog), Kherigonpa Town (Zobel Gewog), Khothakpa Town (Shumar Gewog), Kuengarabten Town (Draagteng Gewog), Lhuentse Town (Gangzur Gewog), Mongling Town (Zobel Gewog), Nangkhor Town (Nangkor Gewog), Olde Pema Gatshel Town (Shumar Gewog), Paro Town (Wangchang Gewog), Punakha Town (Guma Gewog), Resarbu Town (Lumang Gewog), Sankosh Town (Tsankha Gewog), Sipsu Town (Tashichhoeling Gewog), Trashy Yangtse Town (Yangtse Gewog), Tsirang Town (Kilkhorthang Gewog), Wangdue Phodrang Town (Thedtsho Gewog), Wangrong Town (Lumang Gewog), Yalang Town (Shumar Gewog), Zhemgang Town (Trong Gewog), Gelegphu Town (Gelegphu Gewog), Phuentshogling Town (Phuentshogling Gewog), Samdrup Jongkhar Town (Dewathang Gewog).



## ANNEX 2. Sensibility tests

The study conducted two additional sensibility tests for Bhutan’s MVI. The first assessed the effect of identifying the Gewogs near to the Paro International Airport as deprived since the current lockdown was precipitated by transmission from this Airport. This test was performed by extending the definition in the indicator ‘Bordering Gewogs’, which is based on geographic location of Gewogs, to include the Wangchang Gewog that contains this airport and the Gewogs surrounding it: Sharpa, Lamgong, Hoongrel, and Loong-nyi. The second test extends age range of children of school aged in the “Connectivity for Education” indicator. The age reference for indicator now changed up to age 18.

In the first case, results contained in the **Table 1 of this annex** shows that the MVI and its composite indicators (H and A) changed marginally. The incidence of vulnerability (H) changed from 18.3% to 18.5% with a negligible change in A at the national level. Similarly, in the second case, the change in the MVI was negligible. In this case, the change in the incidence of vulnerability (H) is smaller: moved from 18.3% to 18.4% (again with negligible variation in A) at the national level.

**Table 1. MPI: benchmark and modified versions at the national level**

Cutoff (k)	Index	Benchmark Values	Values with modified indicators:	
			Paro airport in Border gewog (1)	Age of schooling up to 18 (2)
k-value= 3/13 (≈ 23%)	MVI	0.057	0.058	0.057
	Headcount ratio (H%)	18.3	18.5	18.4
	Intensity (A%)	31.2	31.2	31.2

Source: Calculation based on PHCB 2017 data. Note: 1) It includes adding the following five gewogs from Paro Dzongkhag to those in the “Indian border indicator”: Wangchang, Sharpa, Lamgong, Hoongrel, and Loong-nyi. (2) change the age range for children of school age (up to 18).

These results were further compared at subnational level, both at the Dzongkhag and Gewog levels, using the current MVI results as a benchmark. The following two sections discuss these findings further.

***Disaggregated results: MVI after including the Gewogs around Paro Airport to the indicator of “bordering gewogs”***

Once more, at the Dzongkhag level, the results in MVI and their components changed only marginally. As expected, this modification only altered the results in some Gewogs withing Paro Dzongkhag. **Table 2 in this annex** show that this modification only switched Paro and Bumthang (ranked 2 and 3 in the benchmark). These are among the two Dzongkhag with the lowest MVI levels (the lowest being Thimphu). At the Gewog level, only four out of these 5 gewogs changed their relative position as expected (see **graph 1 in this section**). All of them, however remain in the lowest end of the Gewogs distribution in terms of the incidence of multidimensional vulnerability.

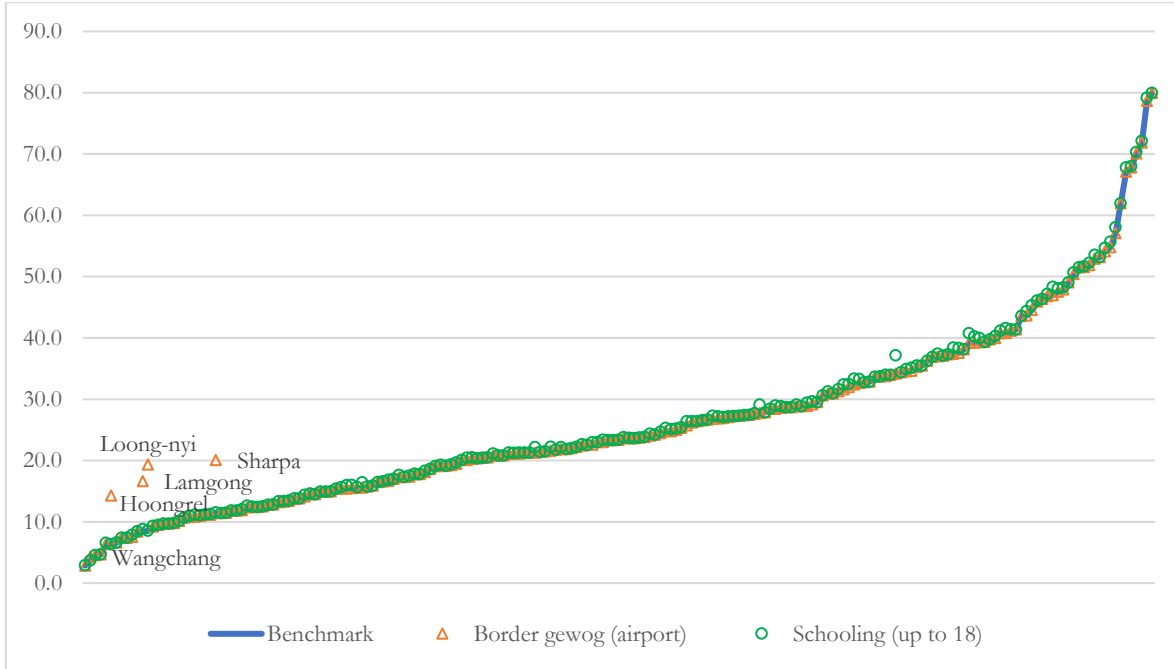
**Table 2. MVI after adapting the indicator of “Bordering Gewogs”**

	<b>Dzongkhag</b>	<b>Population (%)</b>	<b>MVI</b>	<b>Headcount ratio (H%)</b>	<b>Intensity (A%)</b>
<b>1</b>	Dzongkhag Thimphu	19.9	0.012	4.0	29.4
<b>2</b>	Dzongkhag Bumthang	2.4	0.031	10.2	30.3
<b>3</b>	Dzongkhag Paro	6.3	0.036	12.2	29.3
<b>4</b>	Dzongkhag Punakha	3.7	0.047	15.6	30.1
<b>5</b>	Dzongkhag Trongsa	2.1	0.048	15.7	30.5
<b>6</b>	Dzongkhag Wangdue Phodrang	5.2	0.050	15.9	31.3
<b>7</b>	Dzongkhag Haa	1.7	0.050	16.5	30.4
<b>8</b>	Dzongkhag Monggar	5.1	0.058	18.6	31.0
<b>9</b>	Dzongkhag Tsirang	3.2	0.059	19.1	30.7
<b>10</b>	Dzongkhag Sarpang	6.6	0.060	19.5	30.7
<b>11</b>	Dzongkhag Lhuentse	1.9	0.062	19.7	31.7
<b>12</b>	Dzongkhag Chhukha	9.9	0.066	20.5	32.0
<b>13</b>	Dzongkhag Pema Gatshel	3.4	0.065	21.4	30.3
<b>14</b>	Dzongkhag Trashigang	2.3	0.077	25.1	30.8
<b>15</b>	Dzongkhag Trashigang	5.9	0.082	25.8	31.8
<b>16</b>	Dzongkhag Samdrup Jongkhar	4.7	0.094	29.8	31.7
<b>17</b>	Dzongkhag Dagana	3.5	0.097	30.6	31.8
<b>18</b>	Dzongkhag Zhemgang	2.3	0.098	30.8	31.7
<b>19</b>	Dzongkhag Samtse	9.5	0.107	33.8	31.8

20	Dzongkhag Gasa	0.5	0.117	35.9	32.7
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Source: Calculation based on PHCB 2017 data. Ordinarily ranked by H.

**Figure 1. Value of H (%) after adapting each indicator**



Note: the graph shows the Gewogs increasingly ranked in terms of H (%) using the benchmark); the units with the largest incidence appear on the right side. Source: Calculation based on PHCB 2017 data.

***Disaggregated results: MVI after changing the “Connectivity for Education” indicator to include children up to age 18.***

This section shows the changes in the Dzongkhag and Gewogs after adapting the indicator of “Connectivity for Education”. As mentioned above, the age range of children of school aged was increased up to age 18. Results confirm that there is a negligible change in the MVI and composite indicators at these more disaggregated levels. There is no change in the Dzongkhags ranks (**Table 2 in this section**). Indeed, the value and rank in gewog is fundamentally the same (**graph 1 in this section**).

**Table 3. MVI after adapting the indicator of “Connectivity for Education”**

	Dzongkhag	Population (%)	MVI	Headcount ratio (H%)	Intensity (A%)
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1	Dzongkhag Thimphu	19.9	0.012	4.1	29.4
2	Dzongkhag Paro	6.3	0.026	8.9	29.0
3	Dzongkhag Bumthang	2.4	0.031	10.2	30.3
4	Dzongkhag Punakha	3.7	0.047	15.7	30.0
5	Dzongkhag Trongsa	2.1	0.048	15.8	30.5
6	Dzongkhag Wangdue Phodrang	5.2	0.050	16.0	31.3
7	Dzongkhag Haa	1.7	0.051	16.7	30.5
8	Dzongkhag Monggar	5.1	0.058	18.7	31.0
9	Dzongkhag Tsirang	3.2	0.059	19.3	30.7
10	Dzongkhag Sarpang	6.6	0.060	19.6	30.7
11	Dzongkhag Lhuentse	1.9	0.063	19.8	31.7
12	Dzongkhag Chhukha	9.9	0.066	20.7	32.1
13	Dzongkhag Pema Gatshel	3.4	0.065	21.5	30.3
14	Dzongkhag Trashigang	2.3	0.078	25.2	30.8
15	Dzongkhag Trashigang	5.9	0.082	25.9	31.8
16	Dzongkhag Samdrup Jongkhar	4.7	0.095	30.1	31.6
17	Dzongkhag Dagana	3.5	0.098	30.7	31.8
18	Dzongkhag Zhemgang	2.3	0.099	31.1	31.7
19	Dzongkhag Samtse	9.5	0.109	34.2	31.8
20	Dzongkhag Gasa	0.5	0.119	36.2	32.8

Source: Calculation based on PHCB 2017 data. Ordinarily ranked by H.

In the light of all these results, the study preserved the current methodology since the value of these estimates are fundamentally preserved.

## APPENDIX 1: MVI at subnational level

### *APPENDIX 1a: Incidence, Intensity, and MVI by Town*

No	Town	Population (%)	Population (absolute)	MVI	Headcount ratio (H%)	Intensity (A%)
1	Autsho Town	0.07	402	0.015	5.2	29.3
2	Beteykha Town	0.03	178	0.004	1.7	26.1
3	Bumthang Town	0.85	5,064	0.015	5.1	30.3
4	Chhukha Town	0.29	1,723	0.013	4.4	28.9
5	Chhumig Town	0.04	250	0.008	3.2	26.1
6	Dagana Town	0.14	828	0.018	5.2	35.5
7	Dagapela Town	0.08	464	0.022	8.0	27.6
8	Damji Town	0.03	179	0.018	6.1	28.7
9	Darla Town	0.16	973	0.015	5.1	30.1
10	Denchi Town	0.04	241	0.008	2.9	26.0
11	Dramedtse Town	0.05	294	0.002	0.7	26.1
12	Drukjeygang Town	0.03	153	0.020	6.5	31.1
13	Duksum Town	0.04	263	0.029	10.6	26.8
14	Gasa Town	0.12	685	0.041	14.6	27.9
15	Gedu Town	0.27	1,622	0.010	3.2	30.4
16	Gomtu Town	0.58	3,418	0.019	6.3	29.7
17	Gyalposhing Town	0.29	1,724	0.010	3.0	31.7
18	Haa Town	0.30	1,767	0.014	4.5	29.9
19	Jomotsangkha Town	0.17	991	0.017	5.5	29.9
20	Jyenkana Town	0.05	297	0.025	8.1	30.9
21	Kanglung Town	0.24	1,449	0.013	4.5	28.7
22	Khaling Town	0.11	639	0.013	4.5	28.1
23	Khasadrapchu Town	0.15	898	0.010	3.6	28.4
24	Kherigonpa Town	0.01	59	0.000	0.0	0.0
25	Khothakpa Town	0.02	140	0.027	8.6	31.3
26	Kilikhar Town	0.06	343	0.003	1.2	27.3
27	Kuengarabten Town	0.06	380	0.019	6.1	31.6
28	Lhamoi Dzingkha Town	0.25	1,480	0.038	12.1	31.5
29	Lhuentse Town	0.14	844	0.016	4.6	35.6
30	Lingmethang Town	0.13	777	0.008	3.0	27.1
31	Lobaysa Town	0.11	661	0.008	2.9	28.4
32	Mendrelgang Town	0.01	56	0.054	16.1	33.8

33	Monggar Town	0.57	3,406	0.004	1.4	29.9
34	Mongling Town	0.01	36	0.091	33.3	27.2
35	Nangkhor Town	0.07	425	0.001	0.2	43.3
36	Nganglam Town	0.72	4,243	0.019	6.5	29.2
37	Nobding Town	0.07	419	0.020	6.7	29.2
38	Olde Pema Gatshel Town	0.13	778	0.016	5.4	29.9
39	Panbang Town	0.11	680	0.019	6.3	29.5
40	Paro Town	1.58	9,368	0.009	3.0	29.7
41	Punakha Town	0.68	4,021	0.019	6.3	30.8
42	Rangjung Town	0.18	1,090	0.017	6.1	28.4
43	Resarbu Town	0.03	172	0.009	1.7	50.8
44	Rurichu Town	0.04	210	0.009	3.3	28.3
45	Samdrupcholing Town	0.21	1,262	0.023	7.6	30.0
46	Samtse Town	0.73	4,323	0.011	3.9	29.4
47	Sankosh Town	0.01	52	0.066	21.2	31.1
48	Sarpang Town	0.39	2,336	0.012	4.1	28.2
49	Sipsu Town	0.09	563	0.006	2.0	28.6
50	Tingtibi Town	0.08	466	0.015	5.4	27.6
51	Trashigang Town	0.39	2,329	0.019	6.2	30.6
52	Trashigang Town	0.42	2,486	0.013	4.4	29.8
53	Trongsa Town	0.40	2,351	0.010	3.4	29.8
54	Tsimasham Town	0.29	1,700	0.009	2.7	31.5
55	Tsirang Town	0.39	2,295	0.011	3.8	29.8
56	Wangdue Phodrang Town	1.29	7,644	0.014	4.7	30.2
57	Wangrong Town	0.06	333	0.025	8.1	30.7
58	Yadi Town	0.04	223	0.026	7.6	34.1
59	Yalang Town	0.01	59	0.000	0.0	0.0
60	Zhemgang Town	0.24	1,445	0.006	2.2	27.2

Source: Calculation based on PHCB 2017 data.

***APPENDIX 1b: Incidence, Intensity, and MVI by Gewog***

No.	Gewog	Dzongkhag	Population (%)	Population (absolute)	MVI	H%	A%
1	Athang	Wangdue Phodrang	0.1%	649	0.119	34.4	34.7
2	Balam	Monggar	0.1%	817	0.092	28.4	32.5
3	Bardo	Zhemgang	0.3%	1,527	0.155	49.1	31.6
4	Barp	Punakha	0.8%	4,472	0.032	11.4	28.2
5	Barshong	Tsirang	0.1%	800	0.124	41.4	30.0
6	Bartsham	Trashigang	0.2%	1,343	0.044	15.4	28.3
7	Bidoong	Trashigang	0.2%	1,180	0.062	20.8	29.7
8	Bjagchhog	Chhukha	0.7%	4,288	0.047	15.5	30.6
9	Bjenag	Wangdue Phodrang	0.2%	1,405	0.065	22.5	29.0
10	Bji	Haa	0.4%	2,436	0.043	15.4	28.2
11	Bjoka	Zhemgang	0.1%	736	0.183	57.1	32.1
12	Bongo	Chhukha	0.8%	4,843	0.091	28.8	31.6
13	Boomdeling	Trashigang	0.3%	1,724	0.082	27.4	29.9
14	Chagsakhar	Monggar	0.4%	2,148	0.060	20.1	30.1
15	Chang	Thimphu	17.6%	104,263	0.008	2.9	29.5
16	Chapchha	Chhukha	0.7%	3,964	0.041	13.2	31.0
17	Chhaling	Monggar	0.2%	1,251	0.048	14.9	32.2
18	Chhimoong	Pema Gatshel	0.1%	485	0.062	21.4	28.7
19	Chhoekhor	Bumthang	1.4%	8,395	0.022	7.4	29.8
20	Chhoekhorling	Pema Gatshel	0.1%	640	0.113	38.1	29.5
21	Chhubu	Punakha	0.2%	1,310	0.080	24.7	32.4
22	Chhudzom	Sarpang	0.4%	2,445	0.176	50.4	35.0
23	Chhumig	Bumthang	0.4%	2,561	0.041	13.4	30.5
24	Chhuzanggang	Sarpang	0.4%	2,298	0.064	22.4	28.5
25	Chongshing	Pema Gatshel	0.1%	741	0.062	21.7	28.8
26	Dangchhu	Wangdue Phodrang	0.2%	1,370	0.074	23.8	30.9
27	Darkar	Wangdue Phodrang	0.4%	2,144	0.070	21.1	33.1
28	Darkarla	Thimphu	0.2%	1,316	0.051	17.2	29.7
29	Darla	Chhukha	1.3%	7,840	0.083	26.9	30.7
30	Dechhenling	Pema Gatshel	0.2%	1,421	0.126	40.7	31.0
31	Dekiling	Sarpang	0.8%	4,940	0.069	23.3	29.6
32	Dewathang	Samdrup Jongkhar	1.6%	9,771	0.041	13.3	30.6
33	Dokar	Paro	0.3%	1,974	0.034	11.9	28.5
34	Doomtoed	Samtse	0.2%	1,364	0.097	32.0	30.3
35	Doonglagang	Tsirang	0.2%	1,462	0.086	27.4	31.5
36	Doongna	Chhukha	0.2%	1,021	0.118	37.4	31.5
37	Dophuchen	Samtse	0.7%	4,412	0.124	39.3	31.7

38	Dopshar-ri	Paro	0.5%	2,940	0.019	6.6	28.4
39	Dorona	Dagana	0.1%	667	0.206	61.9	33.2
40	Doteng	Paro	0.2%	1,119	0.027	9.5	28.2
41	Draagteng	Trongsa	0.6%	3,554	0.036	12.4	28.8
42	Dramedtse	Monggar	0.3%	2,048	0.074	23.6	31.4
43	Drepoong	Monggar	0.1%	838	0.067	21.8	30.6
44	Drukjeygang	Dagana	0.3%	1,875	0.119	37.5	31.7
45	Duenchhukha	Samtse	0.3%	1,891	0.089	28.4	31.2
46	Dungmaed	Pema Gatshel	0.2%	1,107	0.150	47.5	31.5
47	Dzomi	Punakha	0.3%	1,605	0.048	15.7	30.3
48	Gakiling	Sarpang	0.3%	1,975	0.062	20.4	30.3
49	Gakiling	Haa	0.2%	1,010	0.179	54.8	32.7
50	Gangteng	Wangdue Phodrang	0.3%	1,784	0.056	18.6	30.2
51	Gangzur	Lhuentse	0.5%	2,853	0.065	19.5	33.4
52	Gase Tshogongm	Wangdue Phodrang	0.5%	2,850	0.030	10.1	29.4
53	Gase Tshowogm	Wangdue Phodrang	0.1%	644	0.031	9.8	31.2
54	Ge-nyen	Thimphu	0.2%	967	0.049	16.5	29.4
55	Gelegphu	Sarpang	2.3%	13,597	0.032	10.9	29.4
56	Geling	Chhukha	0.2%	1,121	0.105	32.6	32.0
57	Gesarling	Dagana	0.2%	928	0.084	27.6	30.6
58	Getana	Chhukha	0.1%	791	0.289	78.6	36.7
59	Goenshari	Punakha	0.1%	502	0.089	29.5	30.0
60	Gomdar	Samdrup Jongkhar	0.4%	2,385	0.098	32.4	30.3
61	Gongdue	Monggar	0.2%	1,107	0.084	27.7	30.2
62	Gosarling	Tsirang	0.3%	1,715	0.035	11.1	31.4
63	Goshing	Zhemgang	0.2%	1,223	0.170	53.1	32.0
64	Gozhi	Dagana	0.4%	2,290	0.072	23.4	30.9
65	Guma	Punakha	1.0%	6,101	0.025	8.3	30.2
66	Hoongrel	Paro	0.0%	126	0.016	6.3	25.7
67	Jamkhar	Trashi Yangtse	0.2%	918	0.072	23.3	30.9
68	Jarey	Lhuentse	0.1%	798	0.121	36.8	32.8
69	Jigme Chhoeling	Sarpang	0.5%	2,914	0.083	26.1	31.6
70	Jurmed	Monggar	0.2%	1,036	0.125	39.2	31.8
71	Kabisa	Punakha	0.4%	2,250	0.089	28.9	30.8
72	Kanglung	Trashigang	0.8%	4,839	0.054	17.3	31.4
73	Kangpar	Trashigang	0.2%	1,357	0.068	22.2	30.5
74	Kar-tshog	Haa	0.5%	3,049	0.013	4.7	29.0
75	Karmaling	Dagana	0.2%	1,055	0.084	26.5	31.6
76	Karna	Dagana	0.4%	2,391	0.106	33.6	31.6
77	Kawang	Thimphu	0.7%	4,359	0.030	10.6	28.4

78	Kazhi	Wangdue Phodrang	0.2%	1,133	0.135	37.1	36.5
79	Kengkhar	Monggar	0.3%	1,569	0.088	28.6	30.9
80	Khaling	Trashigang	0.5%	2,690	0.066	21.0	31.4
81	Khamaed	Gasa	0.1%	625	0.022	7.5	29.8
82	Khamdang	Trashi Yangtse	0.5%	2,950	0.084	26.8	31.4
83	Khar	Pema Gatshel	0.2%	1,377	0.101	33.7	30.0
84	Khatoed	Gasa	0.2%	918	0.042	14.5	28.7
85	Khebisa	Dagana	0.2%	1,170	0.123	39.7	30.9
86	Khoma	Lhuentse	0.2%	1,156	0.067	21.4	31.2
87	Kilkhorthang	Tsirang	0.7%	4,267	0.019	6.3	30.3
88	Korphu	Trongsa	0.1%	683	0.086	28.7	29.9
89	Kurtoed	Lhuentse	0.1%	582	0.055	19.1	28.8
90	Lamgong	Paro	0.8%	4,756	0.024	8.5	28.3
91	Langchenphu	Samdrup Jongkhar	0.3%	1,848	0.048	15.5	31.2
92	Langthil	Trongsa	0.4%	2,440	0.067	20.8	32.4
93	Largyab	Dagana	0.1%	627	0.135	43.5	31.1
94	Lauri	Samdrup Jongkhar	0.2%	1,409	0.220	67.8	32.5
95	Laya	Gasa	0.2%	930	0.137	44.5	30.7
96	Lhamoi Dzingkha	Dagana	0.4%	2,194	0.078	24.2	32.1
97	Lingmukha	Punakha	0.2%	912	0.053	17.8	29.7
98	Lingzhi	Thimphu	0.1%	445	0.137	47.0	29.2
99	Loggchina	Chhukha	0.4%	2,411	0.153	45.9	33.4
100	Loong-nyi	Paro	0.6%	3,701	0.025	8.5	29.0
101	Lumang	Trashigang	0.6%	3,265	0.078	25.3	31.0
102	Lunana	Gasa	0.1%	668	0.283	79.9	35.4
103	Maedtabkha	Chhukha	0.1%	630	0.123	37.3	33.1
104	Maedtsho	Lhuentse	0.1%	856	0.067	21.3	31.4
105	Maedwang	Thimphu	1.1%	6,603	0.027	9.2	29.0
106	Maenbi	Lhuentse	0.3%	1,581	0.054	17.7	30.5
107	Martshala	Samdrup Jongkhar	0.3%	1,832	0.153	46.8	32.6
108	Mendrelgang	Tsirang	0.3%	1,598	0.068	23.0	29.7
109	Merag	Trashigang	0.2%	1,412	0.228	67.1	34.1
110	Minjey	Lhuentse	0.2%	1,125	0.036	11.5	31.8
111	Monggar	Monggar	1.4%	8,367	0.013	4.6	29.3
112	Na-Rang	Monggar	0.2%	1,084	0.098	30.9	31.7
113	Nagya	Paro	0.5%	3,182	0.069	22.0	31.2
114	Nahi	Wangdue Phodrang	0.1%	508	0.062	19.1	32.3
115	Namgyalchhoeling	Samtse	0.5%	2,902	0.168	51.6	32.5
116	Nangkor	Zhemgang	0.3%	1,796	0.075	24.9	30.2
117	Nanong	Pema Gatshel	0.3%	1,878	0.065	21.6	30.3

118	Naro	Thimphu	0.0%	167	0.117	34.1	34.4
119	Ngangla	Zhemgang	0.4%	2,379	0.087	26.9	32.3
120	Ngatshang	Monggar	0.3%	1,767	0.040	13.8	29.3
121	Nichula	Dagana	0.1%	400	0.183	51.5	35.5
122	Norboogang	Samtse	0.6%	3,836	0.096	31.3	30.7
123	Norboogang	Pema Gatshel	0.9%	5,452	0.038	12.8	30.0
124	Norgaygang	Samtse	0.6%	3,335	0.171	51.8	33.1
125	Nubi	Trongsa	0.7%	4,250	0.042	13.7	30.4
126	Nyishog	Wangdue Phodrang	0.3%	1,797	0.059	19.2	30.9
127	Orong	Samdrup Jongkhar	0.4%	2,256	0.123	39.9	30.7
128	Patshaling	Tsirang	0.2%	1,057	0.059	20.3	29.2
129	Pemaling	Samtse	0.5%	3,051	0.129	41.2	31.4
130	Pemathang	Samdrup Jongkhar	0.2%	1,387	0.106	33.7	31.3
131	Phangkhar	Zhemgang	0.2%	1,004	0.175	54.1	32.4
132	Phangyuel	Wangdue Phodrang	0.1%	766	0.072	23.6	30.7
133	Phobji	Wangdue Phodrang	0.3%	1,927	0.062	20.3	30.7
134	Phongmed	Trashigang	0.3%	1,997	0.087	28.8	30.3
135	Phuentshogling	Chhukha	4.8%	28,210	0.035	10.8	32.3
136	Phuentshogpelri	Samtse	1.2%	7,305	0.076	24.0	31.8
137	Phuentshogthang	Samdrup Jongkhar	0.7%	4,107	0.078	24.7	31.5
138	Pungtenchhu	Tsirang	0.2%	1,233	0.095	30.9	30.9
139	Radhi	Trashigang	0.3%	2,026	0.051	17.0	30.2
140	Ramjar	Trashy Yangtse	0.2%	913	0.060	20.5	29.3
141	Rangthangling	Tsirang	0.3%	1,501	0.098	31.6	31.2
142	Ruebisa	Wangdue Phodrang	0.3%	1,603	0.067	21.3	31.5
143	Saephu	Wangdue Phodrang	0.3%	1,504	0.059	20.1	29.2
144	Sagteng	Trashigang	0.3%	1,905	0.252	70.1	36.0
145	Saling	Monggar	0.4%	2,484	0.047	15.3	30.5
146	Samar	Haa	0.2%	1,121	0.032	10.8	30.0
147	Samkhar	Trashigang	0.7%	4,152	0.033	11.1	29.8
148	Samphelling	Chhukha	0.6%	3,773	0.140	43.7	32.0
149	Samrang	Samdrup Jongkhar	0.0%	174	0.108	32.8	33.1
150	Samtenling	Sarpang	0.4%	2,535	0.043	14.1	30.5
151	Samtse	Samtse	1.3%	7,739	0.051	16.7	30.9
152	Sang-Ngag-Chhoelin	Samtse	0.5%	2,860	0.117	37.0	31.5
153	Sangbay	Haa	0.1%	760	0.127	40.8	31.2
154	Semjong	Tsirang	0.2%	1,161	0.054	16.5	32.6
155	Senggey	Sarpang	0.2%	938	0.110	34.6	31.6
156	Sergithang	Tsirang	0.2%	1,228	0.082	26.4	31.0
157	Serthig	Samdrup Jongkhar	0.2%	1,302	0.145	46.3	31.3

158	Serzhong	Sarpang	0.3%	1,808	0.081	26.7	30.4
159	Sharpa	Paro	0.8%	4,524	0.031	11.4	27.5
160	Shelnga-Bjemi	Punakha	0.1%	833	0.062	21.2	29.3
161	Shermuhoong	Monggar	0.2%	1,348	0.092	29.2	31.5
162	Shingkhari	Zhemgang	0.2%	1,023	0.084	25.7	32.7
163	Shompangkha	Sarpang	0.6%	3,722	0.035	11.8	29.6
164	Shongphu	Trashigang	0.5%	2,809	0.064	21.0	30.5
165	Shumar	Pema Gatshel	0.8%	4,525	0.035	11.8	29.6
166	Silambi	Monggar	0.2%	1,043	0.091	30.6	29.7
167	Soe	Thimphu	0.0%	164	0.080	28.7	28.0
168	Tading	Samtse	0.8%	4,537	0.180	52.9	34.0
169	Talog	Punakha	0.2%	1,041	0.067	23.0	29.0
170	Tang	Bumthang	0.3%	1,694	0.053	17.3	30.7
171	Tangsibji	Trongsa	0.3%	1,523	0.045	14.9	30.3
172	Tareythang	Sarpang	0.0%	265	0.100	34.0	29.3
173	Tashichhoeling	Samtse	0.7%	4,148	0.067	22.5	29.6
174	Tashiding	Dagana	0.3%	1,587	0.152	47.9	31.7
175	Tendruk	Samtse	0.9%	5,270	0.105	34.5	30.4
176	Thang-Rong	Monggar	0.2%	1,399	0.117	35.5	33.0
177	Theedtsho	Wangdue Phodrang	1.8%	10,485	0.022	7.4	30.1
178	Thrimshing	Trashigang	0.3%	1,924	0.085	27.9	30.6
179	Toedpaisa	Punakha	0.3%	1,671	0.046	15.6	29.8
180	Toedtsho	Trashy Yangtse	0.2%	1,432	0.114	35.3	32.4
181	Toedwang	Punakha	0.2%	1,184	0.045	14.9	30.5
182	Tongmajangsa	Trashy Yangtse	0.2%	1,184	0.080	27.3	29.2
183	Trong	Zhemgang	0.7%	3,947	0.038	12.4	30.7
184	Tsaenkhar	Lhuentse	0.3%	2,054	0.055	18.1	30.3
185	Tsakaling	Monggar	0.2%	945	0.071	23.7	30.1
186	Tsamang	Monggar	0.1%	787	0.050	15.9	31.2
187	Tsangkhā	Dagana	0.2%	1,449	0.069	21.8	31.5
188	Tsenda-Gang	Dagana	0.4%	2,148	0.079	24.4	32.3
189	Tsento	Paro	0.8%	4,519	0.027	9.7	28.2
190	Tseza	Dagana	0.3%	1,814	0.039	12.4	31.1
191	Tsholingkhr	Tsirang	0.3%	1,646	0.057	19.1	30.0
192	Tsirang Toed	Tsirang	0.2%	1,301	0.038	12.8	30.1
193	Udzorong	Trashigang	0.4%	2,268	0.102	32.8	31.1
194	Uesu	Haa	0.3%	1,787	0.027	9.7	27.8
195	Ugyentse	Samtse	0.2%	1,237	0.116	36.2	32.1
196	Umling	Sarpang	0.2%	1,446	0.066	23.6	28.1
197	Ura	Bumthang	0.2%	1,379	0.039	12.5	31.1



198	Wangchang	Paro	1.8%	10,387	0.011	3.7	29.0
199	Wangphu	Samdrup Jongkhar	0.3%	1,617	0.241	71.9	33.6
200	Yalang	Trashi Yangtse	0.2%	1,201	0.114	39.3	28.9
201	Yangnyer	Trashigang	0.3%	2,005	0.081	27.0	30.1
202	Yangtse	Trashi Yangtse	0.6%	3,521	0.047	14.5	32.4
203	Yoeseltse	Samtse	0.4%	2,457	0.125	39.2	31.9
204	Yurung	Pema Gatshel	0.2%	1,048	0.081	27.2	29.7
205	Zobel	Pema Gatshel	0.2%	1,459	0.067	20.8	32.3

Source: Calculation based on PHCB 2017 data. This table contains Gewogs after being matched with 60 towns and 4 thromdes. The following list shows the name of each town/thromde and the corresponding Gewog appear in parenthesis: Tsimasham Town (Bjagchhog Gewog), Gedu Town (Bongo Gewog), Tsimasham Town (Chapchha Gewog), Darla Town (Darla Gewog), Dagana Town (Tseza Gewog), Lhamoi Dzingkha Town (Lhamoi Dzingkha Gewog), Dagapela Town (Tsenda-Gang Gewog), Haa Town (Kar-tshog Gewog), Autsho Town (Tsaenkhar Gewog), Yadi Town (Ngatshang Gewog), Lingmethang Town (Saling Gewog), Monggar Town (Monggar Gewog), Kilikhar Town (Monggar Gewog), Gyalposhing Town (Monggar Gewog), Beteykha Town (Nagya Gewog), Nganglam Town (Norboogang Gewog), Lobaysa Town (Barp Gewog), Samdrupcholing Town (Phuentshogthang Gewog), Jomotsangkha Town (Langchenphu Gewog), Samdrupcholing Town (Pemathang Gewog), Gomtu Town (Phuentshogpelri Gewog), Samtse Town (Samtse Gewog), Sarpang Town (Shompangkha Gewog), Rangjung Town (Shongphu Gewog), Trashigang Town (Samkhar Gewog), Khaling Town (Khaling Gewog), Duksum Town (Khamdang Gewog), Trongsa Town (Nubi Gewog), Mendrelgang Town (Mendrelgang Gewog), Rurichu Town (Darkar Gewog), Nobding Town (Dangchhu Gewog), Tingtibi Town (Trong Gewog), Panbang Town (Ngangla Gewog), Bumthang Town (Chhoeckhor Gewog), Chhukha Town (Bjagchhog Gewog), Chhumig Town (Chhumig Gewog), Damji Town (Khamaed Gewog), Denchi Town (Shumar Gewog), Dramedtse Town (Dramedtse Gewog), Drukjeygang Town (Drukjeygang Gewog), Gasa Town (Khatoed Gewog), Jomotsangkha Town (Serthig Gewog), Jyenkana Town (Samar Gewog), Kanglung Town (Kanglung Gewog), Khasadrapchu Town (Maedwang Gewog), Kherigonpa Town (Zobel Gewog), Khothakpa Town (Shumar Gewog), Kuengarabten Town (Draagteng Gewog), Lhuentse Town (Gangzur Gewog), Mongling Town (Zobel Gewog), Nangkhor Town (Nangkor Gewog), Olde Pema Gatshel Town (Shumar Gewog), Paro Town (Wangchang Gewog), Punakha Town (Guma Gewog), Resarbu Town (Lumang Gewog), Sankosh Town (Tsankha Gewog), Sipsu Town (Tashichhoeling Gewog), Trashi Yangtse Town (Yangtse Gewog), Tsirang Town (Kilkhorthang Gewog), Wangdue Phodrang Town (Theedtsho Gewog), Wangrong Town (Lumang Gewog), Yalang Town (Shumar Gewog), Zhemgang Town (Trong Gewog), Gelegphu Thromde (Gelegphu Gewog), Phuentshogling Thromde (Phuentshogling Gewog), Samdrup Jongkhar Thromde (Dewathang Gewog) and Thimpu Thromde (Chang Gewog).

## APPENDIX 2: Percentage contribution of each indicator to MVI

### *APPENDIX 2a: Percentage contribution of each indicator to MVI by Dzongkhag*

Dzongkhag	Populat ion (%)	Child mortal ity	Food secur ity	School ing	Scho ol Att.	Cooki ng fuel	San it.	Ele ct.	Wat er	Roa d acce ss	Housi ng	Ass ets	La nd	Livest ock	Unemp /job risk	Depende ncy ratio	Conne ct. Ed.	Interg en HH	Bord er Gew og	Tot al
Bumthang	2.36	15.8	9.1	28.5	7.0	4.2	6.6	0.4	0.5	0.3	0.8	0.3	1.5	2.1	3.3	7.6	9.7	2.3	0.0	100
Chhukha	9.93	9.8	11.6	21.0	5.7	7.6	5.5	0.6	0.9	3.1	2.9	0.6	1.2	1.8	1.9	4.1	9.2	0.6	11.8	100
Dagana	3.47	10.4	11.6	24.5	4.3	8.6	5.6	0.5	0.6	1.8	4.0	0.6	1.1	1.1	1.3	3.7	9.8	1.1	9.3	100
Gasa	0.53	12.2	2.0	26.9	15.2	9.5	7.6	0.4	1.0	9.0	0.3	0.2	2.4	0.7	0.9	1.8	9.2	0.7	0.0	100
Haa	1.71	10.4	9.4	30.1	4.8	6.6	6.7	1.4	1.3	4.8	2.5	0.6	1.8	2.1	1.6	5.9	8.7	1.3	0.0	100
Lhuentse	1.85	15.3	12.8	31.5	7.2	6.0	4.2	0.3	0.4	2.2	0.7	0.6	1.1	1.3	1.2	4.7	8.3	1.9	0.0	100
Monggar	5.06	16.5	9.8	33.4	6.5	7.9	2.3	0.5	0.7	2.0	0.6	0.7	1.1	2.0	1.2	4.1	8.6	1.8	0.0	100
Paro	6.27	10.4	9.8	27.4	10.0	2.0	6.4	0.1	0.8	1.3	1.1	0.4	2.5	3.2	3.8	8.6	10.1	2.2	0.0	100
Pema Gatshel	3.38	11.3	6.0	28.7	5.7	7.8	3.7	0.6	0.5	1.8	0.9	0.9	1.1	2.8	1.7	5.8	8.5	3.9	8.6	100
Punakha Samdrup Jongkhar	3.69	14.3	15.4	25.1	7.3	2.8	7.7	0.2	0.7	1.3	0.7	0.3	2.3	2.5	2.7	4.7	10.2	1.8	0.0	100
Samtse	4.73	13.1	6.0	27.8	3.9	7.6	3.1	0.5	0.5	3.3	1.4	0.6	0.8	2.1	1.5	4.4	8.9	1.5	13.0	100
Sarpang	9.50	7.3	10.2	23.7	4.9	8.6	3.5	0.5	0.7	3.3	3.9	0.6	1.4	1.6	1.3	3.8	9.3	0.7	14.6	100
Sarpang	6.55	12.9	9.9	21.4	5.1	5.3	4.3	0.5	0.5	2.3	2.8	0.4	1.6	2.0	2.4	6.0	9.5	1.1	12.0	100
Thimphu Trashhi	19.94	12.8	11.5	23.2	9.4	1.8	7.1	0.5	1.0	1.6	1.4	0.3	1.7	1.6	6.0	10.0	8.7	1.3	0.0	100
Yangtse	2.34	14.9	10.0	30.2	5.4	7.3	6.4	0.3	0.5	4.3	0.3	0.5	1.1	2.1	1.1	3.1	10.5	1.9	0.0	100
Trashigang	5.93	13.8	6.8	30.3	7.1	7.8	5.5	0.4	0.6	2.5	0.8	0.7	1.8	2.1	1.5	3.6	8.9	1.8	4.0	100
Trongsa	2.10	12.5	11.4	30.8	7.8	4.3	7.1	0.7	1.5	2.8	0.5	0.5	1.4	2.1	1.8	3.5	9.3	1.9	0.0	100
Tsirang	3.20	9.2	11.1	27.3	6.0	7.9	4.9	0.3	0.7	2.9	3.8	0.6	1.3	1.3	1.6	3.8	10.5	1.6	5.2	100

Wangdue																				
Phodrang	5.15	13.2	14.7	30.0	7.8	3.5	5.6	0.5	1.2	1.8	0.5	0.3	1.8	2.0	2.1	4.4	9.1	1.4	0.0	100
Zhemgang	2.30	12.3	5.9	30.3	4.9	7.9	4.9	1.2	0.6	5.0	1.7	1.1	0.7	1.7	1.2	2.4	8.1	1.7	8.3	100

Source: Calculation based on PHCB 2017 data.

**APPENDIX 2b: Percentage contribution of each indicator to MVI by Thromde**

Thromde	Popul ation (%)	Child mort ality	Foo d secu rity	Schoo ling	Sch ool Att.	Cook ing fuel	Sa nit.	Ele ct.	Wa ter	Roa d acc ess	Hous ing	Ass ets	La nd	Livest ock	Unemp /job risk	Depen dency ratio	Conn ect. Ed.	Inter gen HH	Bor der Ge wog	To tal
Gelegphu Thromde	1.38	13.9	15.3	20.1	11.7	0.4	7.4	0.1	0.4	0.2	1.3	0.4	0.0	0.0	8.2	10.0	10.0	0.5	0.0	100
Phuentshogling Thromde	3.85	12.5	12.5	19.9	12.3	1.9	8.7	0.7	0.8	1.6	2.1	0.5	0.0	0.0	7.1	8.8	10.2	0.6	0.0	100
Samdrup Jongkhar Thromde	1.23	21.8	9.7	20.7	5.2	1.2	9.2	0.4	0.6	0.0	0.8	0.2	0.0	0.0	3.6	13.3	12.8	0.6	0.0	100
Thimphu Thromde	16.72	15.2	14.6	19.6	10.5	0.8	8.0	0.4	0.6	0.4	1.7	0.3	0.0	0.0	7.5	10.8	8.9	0.7	0.0	100

Source: Calculation based on PHCB 2017 data.

**APPENDIX 2c: Percentage contribution of each indicator to MVI by Town**

Town	Populat ion (%)	Child morta lity	Food secur ity	School ing	Sch ool Att.	Cooki ng fuel	San it.	Ele ct.	Wat er	Roa d acce ss	Housi ng	Ass ets	La nd	Livest ock	Unemp /job risk	Depend ency ratio	Conn ect. Ed.	Inter gen HH	Bord er Gew og	Tot al
Mongling Town	0.01	30.6	0.0	30.6	0.0	4.4	5.5	0.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0	12.3	6.1	6.1	0.0	100
Sankosh Town	0.01	21.9	29.2	18.3	0.0	6.3	3.1	0.0	0.0	0.0	0.0	0.7	0.0	0.0	14.6	1.5	0.0	4.4	0.0	100
Mendrelgang Town	0.01	0.0	0.0	37.0	28.8	2.3	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	3.3	11.5	11.5	3.3	0.0	100
Gasa Town	0.12	16.1	1.8	33.6	5.8	6.0	9.4	0.0	0.0	0.0	2.7	0.2	0.0	0.0	5.6	5.4	12.4	1.1	0.0	100
Lhamoi Dzingkha Town	0.25	10.4	28.4	15.7	5.8	6.5	5.0	0.6	1.6	1.3	2.6	0.7	0.0	0.0	3.0	7.6	9.7	1.1	0.0	100
Duksum Town	0.04	6.7	0.0	46.6	0.0	1.9	10.5	1.9	0.0	0.0	0.5	0.8	0.0	0.0	1.3	17.3	11.3	1.3	0.0	100
Khothakpa Town	0.02	10.0	30.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	12.0	0.0	0.0	100
Wangrong Town	0.06	7.5	9.0	24.1	13.6	5.6	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	16.3	12.7	3.0	0.0	100
Jyenkana Town	0.05	8.4	11.8	25.3	10.1	2.9	10.1	0.0	2.9	0.0	0.0	1.0	0.0	0.0	7.4	6.1	14.1	0.0	0.0	100
Dagapela Town	0.08	9.8	13.4	28.1	0.0	4.9	7.7	0.3	0.0	0.0	4.5	1.4	0.0	0.0	3.4	11.2	13.2	2.0	0.0	100
Yadi Town	0.04	36.7	25.9	0.0	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	14.7	9.5	0.0	0.0	100
Samdrupcholing Town	0.21	17.4	9.6	26.5	8.7	1.2	8.7	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.4	12.5	12.9	0.7	0.0	100
Nobding Town	0.07	13.7	0.0	33.6	9.2	1.7	10.5	0.0	0.0	0.0	0.4	0.9	0.0	0.0	5.5	9.8	10.4	4.3	0.0	100
Drukjeygang Town	0.03	16.1	32.2	8.0	0.0	2.3	6.9	0.0	2.3	0.0	0.0	0.0	0.0	0.0	6.4	16.1	6.4	3.2	0.0	100
Nganglam Town	0.72	17.8	7.8	22.8	7.8	2.3	8.2	0.5	0.3	0.8	0.9	0.4	0.0	0.0	5.8	12.0	11.2	1.7	0.0	100
Panbang Town	0.11	11.8	22.7	20.7	12.8	2.3	6.2	0.6	0.0	1.4	0.0	0.8	0.0	0.0	3.5	9.5	7.9	0.0	0.0	100
Gomtu Town	0.58	9.4	10.9	28.1	9.2	0.6	9.6	0.2	0.2	0.9	0.3	0.2	0.0	0.0	5.5	12.6	12.1	0.3	0.0	100
Punakha Town	0.68	13.8	20.7	13.8	11.4	0.3	8.3	0.0	0.8	0.0	1.0	0.0	0.0	0.0	8.0	10.3	11.1	0.7	0.0	100
Trashig Yangtse Town	0.39	14.8	20.7	23.8	9.1	1.3	3.8	0.6	0.0	0.8	0.8	0.1	0.0	0.0	3.5	9.9	9.5	1.2	0.0	100
Damji Town	0.03	11.9	11.9	19.8	0.0	0.0	12.4	0.0	0.0	0.0	3.4	1.1	0.0	0.0	4.7	17.4	17.4	0.0	0.0	100
Rangjung Town	0.18	24.0	7.3	26.7	4.0	0.4	5.9	0.4	0.6	0.0	0.8	0.2	0.0	0.0	7.5	12.0	9.1	1.3	0.0	100
Kuengarabten Town	0.06	5.2	20.6	18.9	20.6	1.5	9.3	0.0	0.0	0.0	0.0	0.5	0.0	0.0	2.8	11.7	5.5	3.4	0.0	100

Jomotsangkha Town	0.17	26.6	3.8	35.7	6.1	0.0	4.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	3.6	10.6	7.3	1.8	0.0	100
Olde Pema Gatsel Town	0.13	15.9	13.9	11.9	17.9	0.0	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	13.5	14.7	0.8	0.0	100
Tingtibi Town	0.08	27.1	10.9	10.9	0.0	0.0	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	15.9	16.6	4.3	0.0	100
Autsho Town	0.07	16.3	12.2	42.7	0.0	0.0	4.1	0.0	0.0	0.0	1.7	0.2	0.0	0.0	7.3	10.6	2.4	2.4	0.0	100
Dagana Town	0.14	27.0	17.2	8.2	6.5	6.8	8.0	0.7	0.0	0.0	4.0	0.4	0.0	0.0	1.6	11.5	7.5	0.7	0.0	100
Darla Town	0.16	25.7	3.3	20.8	0.0	3.1	8.5	1.4	0.0	0.0	1.9	0.0	0.0	0.0	6.3	16.6	11.6	0.7	0.0	100
Bumthang Town	0.85	13.7	9.1	23.9	12.4	2.2	7.1	0.4	0.7	0.0	2.2	0.3	0.0	0.0	4.8	10.4	10.7	2.2	0.0	100
Wangdue Phodrang Town	1.29	21.0	20.6	19.9	4.7	0.0	5.7	0.0	0.2	0.0	0.7	0.1	0.0	0.0	5.4	12.3	8.8	0.8	0.0	100
Lhuentse Town	0.14	16.2	16.2	15.3	16.2	0.0	5.7	0.0	0.0	0.0	3.1	0.0	0.0	0.0	10.1	10.4	6.5	0.4	0.0	100
Khaling Town	0.11	16.9	0.0	44.4	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.9	0.0	0.0	4.9	11.0	14.7	3.7	0.0	100
Haa Town	0.30	19.8	7.8	29.2	4.7	1.3	7.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	5.2	12.7	9.8	1.7	0.0	100
Kanglung Town	0.24	12.7	5.4	30.2	8.0	6.1	7.5	0.8	1.0	0.0	3.4	1.3	0.0	0.0	4.8	5.6	12.9	0.3	0.0	100
Trashigang Town	0.42	14.2	7.3	27.3	12.3	0.4	7.8	0.1	0.0	0.7	0.4	0.1	0.0	0.0	5.7	11.4	10.2	2.0	0.0	100
Chhukha Town	0.29	22.5	1.2	27.1	4.6	0.0	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	16.8	14.8	0.0	0.0	100
Sarpang Town	0.39	8.8	8.3	19.9	18.5	0.9	6.7	0.0	1.2	0.3	0.0	0.0	0.0	0.0	10.7	10.5	12.4	1.8	0.0	100
Samtse Town	0.73	14.5	9.2	26.0	8.2	2.2	7.5	0.1	0.3	0.1	1.5	0.1	0.0	0.0	4.4	14.2	11.1	0.7	0.0	100
Tsirang Town	0.39	14.5	19.3	12.5	12.5	1.5	7.6	0.0	0.0	0.0	1.5	0.0	0.0	0.0	7.1	9.8	13.5	0.2	0.0	100
Khasadrapchu Town	0.15	17.9	2.8	16.5	16.5	0.0	2.0	0.0	0.0	7.9	3.9	0.0	0.0	0.0	3.9	14.9	12.7	1.1	0.0	100
Trongsa Town	0.40	10.5	16.8	26.8	6.3	0.0	8.5	0.0	0.0	1.0	0.9	0.6	0.0	0.0	6.1	9.2	11.3	1.9	0.0	100
Rurichu Town	0.04	0.0	0.0	18.9	25.2	0.0	12.6	0.0	0.0	0.0	5.4	0.0	0.0	0.0	10.1	10.1	17.7	0.0	0.0	100
Gedu Town	0.27	10.3	6.3	31.7	11.1	2.7	5.9	0.2	0.0	0.9	3.6	0.1	0.0	0.0	9.2	10.4	7.3	0.3	0.0	100
Chhumig Town	0.04	0.0	0.0	47.9	0.0	0.0	13.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.2	0.0	19.2	0.0	0.0	100
Gyalposhing Town	0.29	25.0	12.1	12.1	18.2	1.5	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.8	9.7	9.7	0.3	0.0	100
Paro Town	1.58	10.0	12.6	21.7	13.9	0.4	7.2	0.4	0.7	0.2	1.2	0.2	0.0	0.0	7.5	11.4	11.0	1.6	0.0	100
Lingmethang Town	0.13	18.1	2.0	30.1	16.1	0.6	7.5	0.0	0.0	2.3	0.0	0.2	0.0	0.0	0.0	12.8	8.8	1.6	0.0	100
Denchi Town	0.04	34.3	0.0	13.7	0.0	3.9	13.7	0.0	0.0	0.0	0.0	1.3	0.0	0.0	13.7	0.0	13.7	5.5	0.0	100

Lobaysa Town	0.11	11.6	2.3	32.5	18.5	0.0	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	12.1	9.3	0.9	0.0	100
Tsimasham Town	0.29	11.2	17.2	27.6	8.6	2.2	4.4	0.2	0.0	0.0	0.5	0.3	0.0	0.0	6.9	10.7	7.6	2.4	0.0	100
Zhemgang Town	0.24	12.9	7.2	34.5	0.0	4.9	9.4	1.6	0.0	0.0	3.7	1.0	0.0	0.0	2.9	8.0	8.6	5.2	0.0	100
Sipsu Town	0.09	35.8	0.0	11.9	23.9	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5	6.4	0.0	0.0	100
Resarbu Town	0.03	24.6	24.6	24.6	0.0	7.0	7.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	9.8	0.0	0.0	0.0	100
Beteykha Town	0.03	0.0	0.0	47.9	0.0	0.0	13.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8	6.4	12.8	6.4	0.0	100
Monggar Town	0.57	17.8	16.0	19.6	4.4	0.5	6.3	0.5	0.5	0.5	3.3	0.7	0.0	0.0	7.5	13.5	7.1	1.8	0.0	100
Kilikhar Town	0.06	22.9	0.0	45.8	0.0	6.5	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.2	0.0	9.2	0.0	100
Dramedtse Town	0.05	0.0	0.0	47.9	0.0	0.0	13.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	9.6	0.0	19.2	0.0	100
Nangkhor Town	0.07	0.0	28.8	28.8	0.0	8.2	8.2	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	11.5	0.0	11.5	0.0	100
Kherigonpa Town	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
Yalang Town	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100

Note: There are no households with a counting vector larger than the poverty threshold in Kherigonpa and Yalang Town. Source: Calculation based on PHCB 2017 data.

*APPENDIX 2e: Percentage contribution of each indicator to MVI by Gewog*

Gewog	Dzongkhag	Population (%)	Child mortality	Food security	Schooling	School attendance	Cooking fuel	Sanitation	Electricity	Water	Road access	Housing	Assets	Land	Livestock	Unemployment or job at risk	Dependency ratio	Connectivity for education	Intergenerational households	Bordering Gewog	Total
Athang	Wangdue Phodrang	0.1	12.1	14.2	34.8	7.1	8.4	1.0	0.0	0.0	9.0	0.1	0.4	0.8	0.5	0.5	0.5	10.3	0.3	0.0	10.0
Balam	Monggar	0.1	18.2	16.2	35.8	6.3	8.1	1.0	0.3	0.5	0.7	0.2	0.5	0.7	2.0	0.6	1.3	6.2	1.5	0.0	10.0
Bardo	Zhemgang	0.3	14.1	5.6	29.1	7.2	10.3	5.0	1.1	0.4	7.8	1.2	1.4	0.6	1.4	0.7	2.2	10.7	1.3	0.0	10.0
Barp	Punakha	0.8	12.5	14.8	21.9	10.7	0.1	7.3	0.1	0.3	0.4	0.7	0.1	3.4	3.7	5.0	7.6	10.1	1.3	0.0	10.0
Barshong	Tsirang	0.1	6.7	6.0	30.0	2.0	9.2	4.4	0.2	0.8	4.6	3.9	0.4	0.7	0.6	0.9	3.1	8.4	1.4	16.6	10.0
Bartsham	Trashigang	0.2	20.3	5.3	35.6	2.6	1.0	4.5	0.1	0.1	3.7	0.4	0.3	2.8	3.2	3.6	6.1	7.5	2.9	0.0	10.0
Bidoong	Trashigang	0.2	15.3	14.4	37.5	6.9	2.8	0.9	0.1	0.0	1.2	0.1	0.7	1.9	3.4	0.5	3.0	7.9	3.2	0.0	10.0
Bjagchhog	Chhukha	0.7	8.7	7.6	29.7	6.3	6.2	8.9	0.5	1.2	0.2	4.0	1.1	2.7	2.9	1.6	6.8	10.5	1.1	0.0	10.0
Bjenag	Wangdue Phodrang	0.2	9.8	9.8	38.4	6.3	3.2	7.1	0.2	0.2	0.9	0.3	0.6	2.4	2.9	1.6	3.8	10.2	2.3	0.0	10.0
Bji	Haa	0.4	13.1	7.1	30.0	4.4	1.9	3.6	1.0	1.4	1.4	1.0	0.1	3.2	3.8	1.6	12.8	12.6	1.0	0.0	10.0
Bjoka	Zhemgang	0.1	7.9	8.0	29.8	3.3	9.1	3.8	0.2	0.3	7.6	2.1	1.0	0.4	1.6	0.6	0.9	7.2	0.8	15.6	10.0
Bongo Boomdelin g	Chhukha Trashiyangtse	0.8	11.5	9.5	17.6	6.0	8.2	5.1	0.8	0.3	2.8	1.3	0.6	0.8	2.4	2.2	3.9	10.5	1.1	15.2	10.0
Chagsakhar	Monggar	0.3	16.2	4.7	26.4	9.7	7.7	6.1	0.2	0.3	8.3	0.3	0.3	1.2	1.6	1.4	3.7	10.5	1.4	0.0	10.0
Chang	Thimphu	0.4	13.1	12.1	33.2	6.5	7.4	2.9	0.4	0.2	1.8	1.7	0.7	1.4	2.8	0.8	4.5	9.3	1.0	0.0	10.0
Chapchha	Chhukha	17.6	13.8	13.1	21.9	10.2	1.2	7.7	0.5	0.8	0.5	1.8	0.3	0.7	0.8	6.9	10.3	8.6	1.1	0.0	10.0
Chhaling	Monggar	0.7	7.0	12.7	30.2	5.4	6.0	8.6	0.3	3.7	0.6	3.1	0.6	2.3	3.1	2.5	5.0	6.6	2.2	0.0	10.0
		0.2	16.8	9.3	32.8	9.8	4.7	2.7	0.2	0.5	1.4	0.2	0.5	1.2	2.6	0.6	5.3	9.1	2.2	0.0	10.0



Chhimoon g	Pema Gatshel	0.1	10.5	8.4	31.0	4.2	10.8	1.8	0.0	0.0	4.7	1.1	1.6	0.8	3.0	1.5	5.5	9.4	5.9	0.0	0.0	10
Chhoekhor Chhoekhor ling	Bumthang Pema Gatshel	1.4	15.9	8.4	24.8	10.4	2.6	6.3	0.4	0.5	0.1	1.4	0.3	1.5	1.6	4.7	9.5	9.3	2.4	0.0	0.0	10
Chhubu	Punakha	0.2	15.8	13.8	26.8	4.8	4.6	9.6	0.1	0.4	4.6	0.4	0.5	2.2	1.7	1.2	2.0	10.5	1.0	0.0	0.0	10
Chhudzom	Sarpang	0.4	10.2	13.5	20.4	3.8	9.2	4.2	0.6	0.5	4.1	5.1	0.4	1.3	0.9	1.2	2.2	7.9	0.2	14.3	0.0	10
Chhumig Chhuzang g	Bumthang Sarpang Pema Gatshel	0.4	14.7	11.2	27.8	3.2	5.0	6.0	0.2	0.6	0.6	0.7	0.2	2.1	2.9	3.9	8.6	9.4	2.7	0.0	0.0	10
Chongshin g	Wangdue	0.4	15.6	5.6	20.8	4.0	4.0	3.6	0.8	1.0	0.5	1.8	0.3	1.3	2.8	2.5	3.8	11.9	2.2	17.6	0.0	10
Dangchhu	Phodrang	0.1	14.6	3.8	34.3	0.0	11.3	2.5	0.4	0.0	5.5	0.0	1.4	1.4	3.0	0.4	5.8	8.6	6.9	0.0	0.0	10
Dangchhu	Phodrang	0.2	16.3	13.5	34.4	9.2	4.2	4.3	0.6	0.2	0.2	0.5	0.5	1.1	1.2	0.9	1.9	10.0	0.9	0.0	0.0	10
Darkar	Phodrang	0.4	9.6	13.9	28.2	7.3	4.8	6.8	2.2	0.6	3.8	0.9	0.6	1.6	2.3	2.3	5.5	8.4	1.1	0.0	0.0	10
Darkarla	Thimphu	0.2	18.2	3.9	22.8	10.8	2.9	6.5	0.6	2.4	3.0	0.2	0.2	3.2	2.9	2.4	10.5	8.6	0.8	0.0	0.0	10
Darla Dechhenlin g	Chhukha Pema Gatshel	1.3	13.1	8.4	18.8	4.2	7.9	3.5	0.4	0.8	4.3	2.0	0.4	1.4	2.2	1.7	5.6	8.8	0.7	15.9	0.0	10
Dekiling	Sarpang	0.2	8.3	6.5	32.4	1.5	8.8	2.1	0.6	0.3	3.2	0.7	0.8	0.7	3.3	1.2	3.3	5.5	4.6	16.1	0.0	10
Dewathang	Samdrup Jongkhar	0.8	11.3	6.6	24.0	4.2	3.1	3.7	0.2	0.5	1.1	1.7	0.2	2.0	2.6	2.9	7.9	9.7	1.3	16.9	0.0	10
Dokar	Paro	1.6	16.3	7.1	22.9	5.5	2.6	6.3	0.5	0.5	0.4	0.7	0.3	1.1	1.9	2.9	10.5	10.5	1.0	9.1	0.0	10
Dokar	Paro	0.3	19.7	5.6	32.2	5.2	0.6	6.4	0.2	0.4	1.9	0.3	0.2	1.8	3.2	3.5	6.3	9.7	2.5	0.0	0.0	10
Doomtoed Doonglaga ng	Samtse Tsirang	0.2	11.1	8.0	34.2	4.1	10.4	1.1	0.5	1.0	4.8	6.4	0.6	1.3	2.4	0.9	1.2	11.5	0.6	0.0	0.0	10
Doomtoed Doonglaga ng	Tsirang	0.2	11.7	8.0	32.8	6.9	8.8	5.0	0.7	1.0	2.2	2.3	0.4	1.2	1.7	1.2	4.3	10.7	1.2	0.0	0.0	10
Doongna Dophuche n	Chhukha Samtse	0.2	14.5	15.7	22.3	9.1	7.7	7.2	0.3	0.9	2.6	2.2	0.4	0.8	1.5	1.4	1.4	11.5	0.5	0.0	0.0	10
Doongna Dophuche n	Samtse	0.7	6.4	8.6	27.1	3.9	9.4	2.5	1.4	0.9	3.2	4.8	1.0	1.4	2.3	0.7	1.7	8.2	0.7	15.8	0.0	10
Dopshar-ri	Paro	0.5	8.2	11.9	25.8	8.9	0.9	6.6	0.0	2.5	0.6	0.8	0.3	3.0	3.9	6.8	6.8	10.7	2.4	0.0	0.0	10

Dorona	Dagana	0.1	9.0	12.7	19.9	3.1	9.5	2.8	1.1	0.3	5.3	5.7	0.6	0.7	1.1	1.6	2.6	8.1	0.7	15.1	0.0	10
Doteng	Paro	0.2	18.0	13.0	19.7	12.1	1.3	5.1	0.0	1.1	1.6	0.0	0.4	2.7	3.4	4.0	5.4	9.2	3.2	0.0	0.0	10
Draagteng	Trongsa	0.6	10.7	8.8	34.8	7.4	3.9	6.3	0.2	0.3	2.3	0.3	0.5	2.1	3.1	3.2	4.7	9.5	2.1	0.0	0.0	10
Dramedtse	Monggar	0.3	20.5	3.9	34.1	9.0	7.6	1.3	0.1	0.1	3.4	0.1	0.8	0.8	1.4	0.8	3.3	12.1	0.8	0.0	0.0	10
Drepoong	Monggar	0.1	10.7	19.4	34.4	6.7	7.1	1.9	0.6	0.5	0.8	0.4	0.6	1.0	1.4	0.6	3.3	8.2	2.2	0.0	0.0	10
Drukjeygan	Dagana	0.3	8.4	5.4	27.1	4.8	8.4	6.8	0.6	1.5	0.8	1.3	0.7	0.8	1.3	0.9	3.3	10.2	2.0	15.6	0.0	10
Duenchhukha	Samtse Pema	0.3	5.9	17.1	25.6	6.4	10.7	3.1	0.3	1.0	7.2	7.8	0.9	1.6	1.0	0.6	2.8	7.8	0.3	0.0	0.0	10
Dungmaed	Gatshel	0.2	11.2	1.7	28.7	4.8	9.6	3.0	0.3	0.5	2.7	1.2	1.0	0.9	2.4	1.4	4.0	7.5	3.2	15.9	0.0	10
Dzomi	Punakha	0.3	17.5	12.6	28.2	9.0	2.6	8.3	0.0	0.5	0.2	0.6	0.5	2.1	2.1	0.6	2.6	10.8	1.7	0.0	0.0	10
Gakiling_13	Sarpang	0.3	8.4	13.6	23.9	5.5	9.1	4.9	0.9	1.5	5.8	5.7	0.5	1.5	1.8	1.6	5.2	9.2	1.0	0.0	0.0	10
Gakiling_5	Haa Wangdue	0.2	9.6	11.2	25.5	3.9	10.6	8.4	2.6	2.2	6.2	4.6	1.2	1.1	1.3	1.1	2.0	7.5	0.9	0.0	0.0	10
Gangteng	Phodrang	0.3	11.9	18.6	28.7	6.6	3.8	5.5	0.1	1.0	2.0	0.2	0.2	2.7	2.6	2.4	4.3	7.9	1.4	0.0	0.0	10
Gangzur Gase	Lhuentse	0.5	14.3	14.6	26.7	11.9	7.0	4.0	0.4	0.5	0.5	0.7	0.5	1.1	0.6	1.3	4.6	10.2	1.1	0.0	0.0	10
Tshogongm	Wangdue Phodrang	0.5	11.9	17.1	28.7	6.5	1.3	5.4	0.3	0.8	0.9	1.1	0.3	2.7	3.3	4.2	6.1	8.7	0.7	0.0	0.0	10
Gase	Wangdue Phodrang	0.1	19.7	10.2	37.5	9.5	2.2	3.6	0.0	0.2	0.0	0.0	0.0	2.0	1.9	3.3	2.0	6.4	1.5	0.0	0.0	10
Tshowogm	Phodrang	0.1	19.7	10.2	37.5	9.5	2.2	3.6	0.0	0.2	0.0	0.0	0.0	2.0	1.9	3.3	2.0	6.4	1.5	0.0	0.0	10
Ge-nyen	Thimphu	0.2	4.8	19.4	26.0	7.2	1.3	5.6	0.0	2.0	0.9	0.5	0.4	2.3	3.2	6.8	9.2	7.2	3.1	0.0	0.0	10
Gelegphu	Sarpang	2.3	16.8	10.7	17.1	6.4	1.1	3.6	0.0	0.3	0.6	0.9	0.2	2.1	2.5	3.8	11.7	9.0	0.6	12.7	0.0	10
Geling	Chhukha	0.2	10.7	8.3	24.4	8.6	8.7	7.3	1.5	1.1	6.2	3.6	0.5	1.6	1.6	2.0	2.9	9.9	1.1	0.0	0.0	10
Gesarling	Dagana	0.2	8.3	8.0	29.5	2.1	8.8	4.8	1.1	0.1	0.2	4.3	0.4	1.4	1.1	2.2	2.4	7.5	1.3	16.3	0.0	10
Getana	Chhukha	0.1	13.1	11.2	18.1	5.9	8.8	7.8	0.1	0.3	7.4	2.3	0.5	0.3	0.9	0.1	2.4	7.0	0.2	13.6	0.0	10
Goenshari	Punakha	0.1	13.2	18.8	30.1	3.7	4.0	8.0	0.0	0.2	2.2	2.1	0.5	2.1	2.0	0.9	2.7	7.8	1.7	0.0	0.0	10

Gomdar	Samdrup Jongkhar	0.4	17.0	6.4	32.7	2.3	9.6	3.0	0.7	1.1	4.2	0.9	0.7	1.0	2.1	1.5	4.8	9.4	2.7	0.0	0.0	10
Gongdue	Monggar	0.2	15.9	4.6	33.6	7.6	10.3	1.4	0.4	1.3	5.7	0.7	0.8	0.6	2.1	1.8	3.3	7.8	2.1	0.0	0.0	10
Gosarling	Tsirang	0.3	11.9	14.4	19.0	8.5	6.0	4.3	0.7	0.9	0.7	3.3	0.5	2.3	1.9	4.2	7.2	13.3	1.1	0.0	0.0	10
Goshing	Zhemgang	0.2	11.5	7.1	30.1	1.6	9.2	4.7	1.2	1.1	2.7	1.6	1.3	0.5	1.3	0.7	1.0	7.2	1.8	15.6	0.0	10
Gozhi	Dagana	0.4	11.9	4.9	24.6	5.0	7.0	3.2	0.1	0.6	0.4	2.8	0.2	1.6	1.9	2.1	4.8	11.8	1.1	16.2	0.0	10
Guma	Punakha	1.0	14.0	16.2	19.2	10.8	1.0	8.3	0.1	0.9	0.4	0.8	0.1	1.5	1.7	5.9	8.4	9.6	1.1	0.0	0.0	10
Hoongrel	Paro Trashhi	0.0	0.0	0.0	24.4	24.4	1.7	12.2	0.0	0.0	0.0	0.0	1.2	2.9	4.1	0.0	9.7	9.7	9.7	0.0	0.0	10
Jamkhar	Yangtse	0.2	12.5	10.8	36.1	3.0	7.8	3.9	1.2	1.2	1.5	1.2	0.9	1.9	2.7	0.5	2.6	9.2	2.8	0.0	0.0	10
Jarey Jigme Chhoeling	Lhuentse Sarpang	0.1 0.5	13.7 15.7	11.9 8.6	31.1 24.5	4.9 5.4	10.1 9.2	6.4 5.4	0.3 1.0	0.4 0.9	2.4 7.1	1.3 3.5	1.2 0.7	0.6 1.4	0.7 1.3	0.8 1.6	3.7 2.9	9.6 9.9	0.8 0.9	0.0 0.0	0.0 10	10
Jurmed	Monggar	0.2	16.1	12.4	33.8	4.8	9.4	2.0	0.1	2.6	3.5	1.0	0.8	0.7	1.6	0.9	2.1	7.0	0.9	0.0	0.0	10
Kabisa	Punakha	0.4	14.4	18.3	21.0	7.9	3.8	7.6	0.5	0.7	1.1	0.7	0.5	2.2	2.7	2.0	2.6	12.7	1.0	0.0	0.0	10
Kanglung	Trashigang	0.8	13.1	8.9	28.6	6.9	6.6	6.8	0.9	0.6	0.8	3.7	1.0	2.2	2.8	2.7	3.6	9.9	0.9	0.0	0.0	10
Kangpar	Trashigang	0.2	17.9	9.0	37.6	4.2	10.1	2.6	0.0	0.1	4.6	0.6	0.5	0.7	1.6	0.6	1.0	6.0	2.7	0.0	0.0	10
Kar-tshog	Haa	0.5	11.9	5.5	35.9	2.7	1.6	7.7	0.1	0.0	1.5	0.0	0.3	1.3	1.5	3.9	11.7	10.5	4.1	0.0	0.0	10
Karmaling	Dagana	0.2	9.2	14.4	27.3	5.7	10.3	4.7	0.6	0.4	0.4	5.9	0.7	1.3	1.1	0.6	6.2	9.8	1.4	0.0	0.0	10
Karna	Dagana	0.4	10.6	15.6	25.0	6.6	9.2	6.9	0.7	0.6	1.9	4.2	0.5	1.1	1.4	0.8	2.6	11.6	0.7	0.0	0.0	10
Kawang	Thimphu Wangdue	0.7	9.3	8.1	28.8	5.7	0.9	6.9	0.1	0.6	2.1	0.4	0.3	3.7	4.1	4.2	14.7	7.2	2.9	0.0	0.0	10
Kazhi	Phodrang	0.2	11.1	9.9	27.6	12.6	5.1	6.4	0.7	3.7	3.8	0.6	0.3	1.9	1.4	0.4	3.4	9.0	2.2	0.0	0.0	10
Kengkhar	Monggar	0.3	17.1	9.6	33.2	5.1	10.2	3.1	0.4	1.2	1.6	0.2	0.8	1.4	2.4	1.7	2.2	8.0	2.0	0.0	0.0	10
Khaling	Trashigang	0.5	13.0	4.4	30.9	7.4	8.4	6.2	1.5	1.3	1.6	2.4	1.0	1.5	2.8	1.6	4.8	8.9	2.2	0.0	0.0	10

Khamaed	Gasa	0.1	15.2	8.9	32.1	3.6	2.0	10.2	0.8	0.0	0.0	1.3	0.8	0.8	1.2	2.5	9.3	6.8	4.6	0.0	0.0	10
Khamdang	Trashhi																					10
	Yangtse Pema	0.5	14.3	13.7	27.8	5.2	7.1	7.5	0.5	0.4	2.2	0.6	0.4	1.0	2.3	1.2	3.4	10.9	1.3	0.0	0.0	10
Khar	Gatshel	0.2	10.5	5.8	25.4	2.7	9.2	2.5	0.1	0.6	0.3	0.2	0.5	0.9	3.0	1.4	6.3	9.8	4.2	16.7	0.0	10
Khatoed	Gasa	0.2	15.1	3.9	32.8	9.2	6.2	8.3	0.0	0.0	0.0	2.0	0.2	0.5	0.4	4.5	4.1	11.8	1.2	0.0	0.0	10
Khebisa	Dagana	0.2	13.0	13.5	23.2	7.7	9.7	6.0	0.7	0.0	3.1	4.3	0.8	0.7	0.4	1.1	3.8	11.5	0.5	0.0	0.0	10
Khoma Kilkhorthang	Lhuentse	0.2	12.2	17.0	33.7	5.5	3.9	5.6	0.1	0.0	4.6	0.8	0.2	1.2	1.6	1.2	4.3	5.8	2.1	0.0	0.0	10
	Tsirang	0.7	10.9	14.4	22.4	9.8	4.0	6.1	0.0	0.6	0.7	3.4	0.3	1.6	1.6	4.8	6.1	12.0	1.3	0.0	0.0	10
Korphu	Trongsa	0.1	15.4	4.3	30.7	9.6	8.4	9.1	0.3	0.4	0.4	0.0	0.4	0.6	2.7	0.6	2.4	12.4	2.3	0.0	0.0	10
Kurtoed	Lhuentse	0.1	18.8	7.0	34.4	9.8	5.0	4.6	0.2	0.0	1.3	0.0	0.2	0.9	1.3	0.6	3.4	10.9	1.4	0.0	0.0	10
	Paro Samdrup Jongkhar	0.8	9.1	13.1	25.5	9.1	0.8	7.0	0.1	0.6	0.6	0.8	0.3	3.3	3.8	6.6	8.8	7.5	3.0	0.0	0.0	10
Lamgong Langchenphu	Paro Samdrup Jongkhar	0.3	17.9	7.8	26.1	3.6	6.0	4.6	0.3	1.2	0.2	2.0	0.5	0.9	1.3	2.3	3.9	6.6	1.8	12.9	0.0	10
	Trongsa	0.4	11.7	14.5	28.6	4.3	5.3	7.1	1.6	2.5	4.8	0.9	0.8	1.3	2.2	1.1	3.3	8.1	1.9	0.0	0.0	10
Largyab	Dagana Samdrup Jongkhar	0.1	13.1	13.9	31.9	1.0	10.4	8.0	0.3	0.2	1.9	5.4	0.6	1.0	1.3	1.8	1.4	7.0	0.9	0.0	0.0	10
Lauri	Jongkhar	0.2	8.1	3.6	33.4	2.8	10.2	2.8	0.4	0.9	8.3	0.1	0.9	0.8	2.5	0.7	2.6	5.3	1.2	15.4	0.0	10
Laya Lhamoi Dzingkha	Gasa	0.2	16.4	2.1	21.8	14.2	10.4	5.8	0.3	0.6	5	0.1	0.1	2.3	1.2	0.7	1.6	10.3	0.5	0.0	0.0	10
	Dagana	0.4	8.1	16.6	21.0	5.9	7.3	4.9	0.4	1.1	1.0	2.9	0.6	1.3	1.0	1.9	5.6	9.4	0.8	10.3	0.0	10
Lingmukha	Punakha	0.2	14.8	12.5	30.7	5.7	2.8	6.2	0.3	1.0	0.1	0.6	0.1	2.0	2.9	4.0	5.8	8.4	1.9	0.0	0.0	10
Lingzhi	Thimphu	0.1	12.1	0.0	29.4	10.6	10.8	6.7	3.1	1.7	7	0.0	0.3	2.8	0.3	0.5	0.4	9.6	0.0	0.0	0.0	10
Loggchina	Chhukha	0.4	9.4	11.9	20.1	5.1	9.5	3.8	0.6	1.1	2.4	6.1	0.8	1.0	1.5	0.8	1.5	9.2	0.3	15.0	0.0	10
Loong-nyi	Paro	0.6	8.0	12.1	26.2	10.7	1.9	7.2	0.1	0.2	1.0	0.9	0.4	3.3	3.9	5.1	7.5	9.3	2.2	0.0	0.0	10
Lumang	Trashigang	0.6	17.2	6.2	31.6	4.8	8.4	5.1	0.6	1.3	2.3	1.4	1.0	1.0	2.6	1.5	3.3	9.5	2.3	0.0	0.0	10

Lunana	Gasa	0.1	8.6	1.1	28.8	17.9	10.1	8.4	0.6	1.6	9.8	0.0	0.1	2.9	0.3	0.1	1.0	8.2	0.4	0.0	10.0
Maedtabkha	Chhukha	0.1	21.1	10.5	22.7	9.3	10.2	8.3	0.6	0.7	1.8	0.3	0.8	0.5	0.5	0.0	2.4	9.8	0.5	0.0	10.0
Maedtsho	Lhuentse	0.1	19.0	6.3	34.1	5.5	8.6	1.9	0.2	0.5	2.9	0.7	0.9	1.2	1.0	0.6	3.5	11.1	1.8	0.0	10.0
Maedwang	Thimphu	1.1	11.0	10.9	24.4	8.7	0.9	5.3	0.2	0.2	1.2	1.6	0.4	3.4	3.7	6.1	9.6	10.7	1.7	0.0	10.0
Maenbi	Lhuentse	0.3	20.3	15.1	33.0	3.2	3.1	3.8	0.1	0.1	2.3	0.5	0.6	1.6	2.4	2.9	4.7	4.3	2.2	0.0	10.0
Martshala	Samdrup	0.3	12.6	5.2	29.6	4.9	8.7	1.8	0.6	0.6	3.7	1.8	0.6	0.6	1.9	1.2	2.3	6.6	1.9	15.3	0.0
Mendrelgaling	Jongkhar	0.3	12.6	5.2	29.6	4.9	8.7	1.8	0.6	0.6	3.7	1.8	0.6	0.6	1.9	1.2	2.3	6.6	1.9	15.3	0.0
	Tsirang	0.3	8.4	9.6	25.8	4.4	4.5	4.2	0.0	0.0	2.0	1.9	0.3	1.6	2.2	3.3	5.1	8.4	2.0	16.4	0.0
Merag	Trashigang	0.2	8.7	3.6	27.8	9.6	9.9	6.6	0.4	0.2	0.7	0.1	0.6	3.2	0.8	0.9	3.2	8.6	0.4	14.7	0.0
Minjey	Lhuentse	0.2	13.7	17.4	29.9	8.2	3.3	4.0	0.8	0.4	1.7	0.0	0.5	1.6	2.3	0.0	6.8	5.9	3.5	0.0	10.0
Monggar	Monggar	1.4	23.5	6.8	29.1	6.1	2.8	2.9	0.2	0.4	0.4	0.5	0.5	1.4	2.1	3.4	8.6	7.9	3.1	0.0	10.0
Na-Rang	Monggar	0.2	17.0	5.7	36.7	5.4	7.5	4.0	1.7	2.0	0.4	1.6	0.9	1.6	2.4	1.3	3.1	7.7	1.2	0.0	10.0
Nagya	Paro	0.5	9.6	7.9	26.8	14.0	5.6	7.4	0.1	1.3	2.0	2.7	0.8	1.8	2.7	0.5	4.0	11.3	1.3	0.0	10.0
Nahi	Wangdue	0.1	12.4	18.8	30.4	8.8	3.4	4.2	0.5	0.0	0.6	0.6	0.5	1.9	2.7	1.4	2.1	8.6	3.2	0.0	10.0
Namgyalchoeling	Phodrang	0.1	12.4	18.8	30.4	8.8	3.4	4.2	0.5	0.0	0.6	0.6	0.5	1.9	2.7	1.4	2.1	8.6	3.2	0.0	10.0
	Samtse	0.5	3.9	11.4	25.7	5.6	8.7	3.5	0.2	0.5	4.6	4.5	0.6	1.0	1.7	0.6	3.4	8.4	0.3	15.4	0.0
Nangkor	Zhemgang	0.3	11.2	6.7	35.3	5.5	8.7	5.7	0.8	0.7	6.0	1.1	0.8	0.6	1.3	2.0	2.0	9.1	2.6	0.0	10.0
Nanong	Pema	0.3	12.1	7.3	30.4	6.1	10.1	5.7	0.6	0.9	2.6	1.4	0.7	1.0	2.3	1.4	3.6	10.4	3.3	0.0	10.0
Naro	Gatshel	0.3	12.1	7.3	30.4	6.1	10.1	5.7	0.6	0.9	2.6	1.4	0.7	1.0	2.3	1.4	3.6	10.4	3.3	0.0	10.0
	Thimphu	0.0	11.5	14.7	14.7	3.2	10.0	6.6	1.3	8.6	4	0.9	0.0	3.1	0.7	2.0	4.6	7.9	0.0	0.0	10.0
Ngangla	Zhemgang	0.4	10.4	6.7	27.1	3.7	6.2	3.6	2.1	0.6	3.3	3.2	1.6	0.7	2.2	1.2	3.1	8.1	1.8	14.4	0.0
Ngatshang	Monggar	0.3	19.4	15.9	23.8	7.0	5.2	2.5	0.3	0.3	0.1	0.0	0.3	1.3	2.1	1.4	7.9	11.3	1.2	0.0	10.0
Nichula	Dagana	0.1	9.1	10.3	23.9	0.5	8.0	3.9	1.8	1.0	8.3	9.0	0.6	1.5	0.6	1.4	1.6	3.6	1.0	14.1	0.0
Norboogan	Samtse	0.6	7.1	6.5	22.8	6.4	9.1	3.7	0.6	0.4	1.4	3.7	0.8	1.5	1.9	2.0	4.2	10.9	0.7	16.3	0.0
g_12																					

Norboogan g_9	Pema Gatshel	0.9	13.4	5.4	29.2	5.4	4.5	4.4	0.6	0.2	0.7	0.7	0.6	0.5	1.9	3.3	7.0	8.8	3.3	10.1	0.0	10
Norgaygan g	Samtse	0.6	7.7	10.1	23.3	4.9	9.1	2.9	0.2	0.3	7.3	3.0	0.5	1.3	1.7	0.7	2.7	8.5	0.6	15.1	0.0	10
Nubi	Trongsa Wangdue	0.7	15.6	14.1	29.9	11.2	2.2	7.0	0.3	1.1	2.2	0.5	0.3	0.8	1.0	1.5	2.5	8.5	1.2	0.0	0.0	10
Nyishog	Phodrang Samdrup	0.3	12.3	18.5	28.8	8.9	1.6	6.2	0.2	1.3	1.7	0.1	0.1	1.6	2.6	2.1	3.6	8.5	1.7	0.0	0.0	10
Orong	Jongkhar	0.4	15.1	4.7	27.8	3.3	6.5	2.6	0.4	0.4	2.4	0.7	0.3	0.8	2.4	1.5	2.8	10.2	1.9	16.3	0.0	10
Patshaling	Tsirang	0.2	8.4	9.9	26.1	10.1	9.0	6.0	0.4	1.8	2.8	5.3	0.7	1.5	1.3	1.0	3.7	10.7	1.2	0.0	0.0	10
Pemaling	Samtse Samdrup	0.5	8.8	16.8	19.7	2.7	10.0	3.1	0.1	0.1	1.0	4.2	0.4	1.0	1.5	0.7	2.2	10.9	0.9	15.9	0.0	10
Pemathang	Jongkhar	0.2	14.8	6.7	23.1	4.0	6.7	3.1	0.3	0.1	0.9	2.0	0.9	1.1	2.7	0.5	5.2	10.4	1.4	16.0	0.0	10
Phangkhar	Zhemgang Wangdue	0.2	11.0	1.8	29.8	4.2	6.4	6.0	1.3	0.6	6.3	1.3	1.0	0.7	1.8	1.2	2.6	7.7	1.0	15.4	0.0	10
Phangyuel	Phodrang Wangdue	0.1	9.7	24.6	33.6	3.4	1.4	6.1	0.1	0.5	0.8	0.5	0.2	2.1	2.0	1.7	2.9	8.7	1.8	0.0	0.0	10
Phobji	Phodrang	0.3	20.9	12.9	33.0	4.4	5.9	5.0	0.4	1.8	0.5	0.1	0.4	1.5	1.0	0.5	0.9	10.4	0.4	0.0	0.0	10
Phongmed Phuentsho gling	Trashigang	0.3	14.5	6.9	33.2	6.2	8.7	4.2	0.1	1.2	1.6	0.7	1.0	2.0	2.9	1.4	2.9	9.8	2.8	0.0	0.0	10
Phuentsho gpelri	Chhukha	4.8	5.9	14.3	22.3	6.6	6.7	5.1	0.5	0.9	2.8	3.7	0.7	1.0	1.4	2.3	3.8	9.6	0.4	11.9	0.0	10
Phuentsho gthang	Samtse Samdrup	1.2	5.2	7.2	24.3	5.0	7.7	5.0	0.7	1.0	4.0	3.7	0.7	1.6	1.4	3.7	4.9	9.5	0.5	13.8	0.0	10
Pungtench hu	Jongkhar	0.7	10.3	10.9	18.7	5.8	7.4	3.0	0.3	0.7	1.6	3.4	0.5	1.3	2.0	1.6	6.3	10.8	1.1	14.4	0.0	10
	Tsirang	0.2	10.5	11.5	29.4	5.8	10.0	6.1	0.1	0.2	4.8	4.6	0.9	0.7	0.9	0.9	2.3	9.6	1.7	0.0	0.0	10
Radhi	Trashigang Trashi	0.3	21.5	7.4	33.9	5.7	4.6	2.2	0.0	0.4	0.8	0.3	0.5	1.7	3.3	1.4	3.3	9.3	3.8	0.0	0.0	10
Ramjar Rangthangl ing	Yangtse	0.2	22.6	7.8	34.2	5.0	5.9	3.6	0.3	0.1	2.3	0.1	0.5	1.2	2.7	1.9	0.9	9.3	1.7	0.0	0.0	10
	Tsirang Wangdue	0.3	5.8	6.5	27.7	5.6	7.6	3.2	0.3	0.9	5.2	3.5	0.5	1.5	0.8	0.8	2.9	10.0	1.2	16.0	0.0	10
Ruebisa	Phodrang Wangdue	0.3	15.1	15.3	28.7	9.4	4.8	6.6	0.3	0.6	0.6	0.5	0.2	1.6	1.9	1.2	3.3	8.5	1.4	0.0	0.0	10
Saephu	Phodrang	0.3	9.6	9.4	34.9	9.4	3.0	4.7	0.9	0.5	0.5	0.8	0.3	2.8	3.1	1.6	4.5	10.3	3.9	0.0	0.0	10

Sagteng	Trashigang	0.3	9.3	3.9	21.5	11.5	9.3	6.2	0.0	0.3	7.9	0.1	0.5	2.0	0.6	1.1	2.3	9.0	0.5	13.9	0.0	10
Saling	Monggar	0.4	14.2	7.8	35.1	6.0	7.0	3.6	0.7	0.1	1.7	0.5	0.5	1.7	2.1	1.5	5.3	10.5	1.8	0.0	0.0	10
Samar	Haa	0.2	6.9	24.1	36.8	7.2	2.1	7.4	0.0	1.0	0.2	0.1	0.4	0.7	1.5	1.9	2.9	6.1	1.0	0.0	0.0	10
Samkhar Samphellin g	Trashigang	0.7	19.2	10.4	31.4	5.2	3.2	5.7	0.4	0.4	0.6	0.6	0.4	1.3	2.4	2.6	6.5	7.2	2.5	0.0	0.0	10
	Chhukha Samdrup Jongkhar	0.6	8.4	13.6	18.6	3.5	7.2	5.8	0.7	0.5	2.7	2.1	0.3	1.8	1.9	3.2	5.0	8.6	0.5	15.6	0.0	10
Samrang	Jongkhar	0.0	8.6	9.3	23.2	9.3	8.3	7.2	1.1	0.0	0.2	3.4	0.9	1.2	1.3	2.4	1.3	6.4	0.8	15.1	0.0	10
Samtenling	Sarpang	0.4	17.1	10.1	20.7	9.5	4.6	4.5	0.4	0.6	1.0	3.5	0.5	2.3	2.1	3.4	6.5	11.9	1.4	0.0	0.0	10
Samtse Sang-Ngag- Chhoelin	Samtse	1.3	8.5	11.4	21.6	5.2	7.2	4.3	0.5	0.6	1.6	3.6	0.5	1.3	1.2	2.1	5.4	10.0	0.8	14.1	0.0	10
	Samtse	0.5	7.4	11.4	19.1	6.6	8.9	2.5	0.3	0.2	1.9	3.6	0.7	1.2	1.1	1.3	5.2	11.4	1.2	15.9	0.0	10
Sangbay	Haa	0.1	6.1	6.5	35.0	6.2	10.8	6.6	1.5	0.9	2	3.4	0.7	1.6	1.4	0.3	1.2	5.9	0.8	0.0	0.0	10
Semjong	Tsirang	0.2	11.2	14.3	32.1	5.0	9.5	4.1	0.3	0.7	1.4	4.4	0.6	1.2	0.7	1.1	1.2	10.4	1.8	0.0	0.0	10
Senggey	Sarpang	0.2	7.4	9.2	23.9	4.3	7.0	5.0	0.6	0.3	2.0	4.2	0.8	1.8	2.2	0.5	5.3	8.9	0.7	15.8	0.0	10
Sergithang	Tsirang Samdrup Jongkhar	0.2	8.3	16.6	25.4	6.8	9.1	5.7	0.5	1.6	3.6	4.8	0.9	1.0	0.8	0.6	0.9	12.0	1.4	0.0	0.0	10
Serthig	Jongkhar	0.2	10.1	2.5	31.2	3.6	9.9	2.2	0.5	0.4	4.5	0.1	0.6	0.6	2.7	1.9	3.5	7.6	2.1	16.0	0.0	10
Serzhong	Sarpang	0.3	13.1	18.0	15.5	4.3	3.3	4.7	0.3	0.3	0.2	0.9	0.3	1.4	2.7	2.4	4.7	8.9	2.7	16.4	0.0	10
Sharpa Shelnga- Bjemi Shermuhoo ng	Paro	0.8	9.4	9.0	31.3	5.6	0.7	4.7	0.0	0.2	1.3	0.6	0.2	3.3	4.1	2.6	14.5	10.0	2.6	0.0	0.0	10
	Punakha Monggar	0.1	15.2	18.6	25.8	3.6	5.7	5.2	0.0	1.7	1.0	0.8	0.2	2.4	2.1	0.6	4.4	8.6	4.1	0.0	0.0	10
Shingkar Shompang kha	Monggar	0.2	16.0	6.4	33.3	9.0	8.9	3.3	1.4	0.7	2.6	0.4	0.7	1.3	1.5	0.8	3.3	8.5	2.0	0.0	0.0	10
	Zhemgang Sarpang	0.2	14.6	4.4	37.8	6.7	6.0	4.2	2.0	0.7	5.8	1.7	0.8	1.1	2.1	0.7	3.8	4.0	3.7	0.0	0.0	10
Shongphu	Sarpang	0.6	9.5	4.8	20.9	7.6	4.9	5.6	0.4	0.9	0.9	4.1	0.5	1.7	1.9	3.3	8.7	9.5	1.7	13.2	0.0	10
	Trashigang	0.5	11.3	12.3	32.8	6.3	6.0	6.1	0.3	0.4	1.0	0.5	0.5	1.5	2.9	1.4	4.5	9.0	3.2	0.0	0.0	10

Shumar	Pema Gatshel	0.8	14.3	12.6	24.6	5.7	4.1	4.4	0.3	1.2	0.8	0.2	0.7	1.9	2.9	1.2	11.2	10.7	3.1	0.0	0.0	10
Silambi	Monggar	0.2	15.7	2.1	33.6	3.7	11.5	1.8	0.6	0.3	2.2	0.8	1.0	1.0	2.2	0.6	8.8	9.8	4.1	0.0	0.0	10
Soe	Thimphu	0.0	15.2	7.6	13.3	7.6	6.5	6.2	1.1	3.0	8	0.0	0.2	4.3	0.2	9.1	0.4	12.5	0.0	0.0	0.0	10
Tading	Samtse	0.8	7.3	10.2	24.0	5.8	9.4	3.9	0.9	1.0	3.8	3.8	0.7	0.9	1.1	0.7	2.3	8.9	0.4	14.7	0.0	10
Talog	Punakha	0.2	10.3	15.5	31.4	3.6	3.3	7.9	0.1	0.3	1.1	0.0	0.2	2.9	3.4	0.9	4.8	9.9	4.4	0.0	0.0	10
Tang	Bumthang	0.3	15.3	6.2	36.2	4.7	5.6	8.7	0.6	0.4	0.5	0.2	0.3	1.1	1.9	0.8	4.3	11.3	1.9	0.0	0.0	10
Tangsibji	Trongsa	0.3	7.8	7.8	31.1	6.5	4.8	7.2	0.5	3.0	2.7	0.6	0.4	2.6	2.5	3.0	5.6	11.1	2.7	0.0	0.0	10
Tareythang	Sarpang	0.0	16.1	4.7	29.4	0.0	7.2	5.5	1.4	0.0	0.4	2.7	0.1	0.4	1.6	2.5	0.4	8.5	2.1	17.0	0.0	10
Tashichhoe ling	Samtse	0.7	9.7	11.6	20.5	4.8	4.2	2.9	0.2	1.2	0.4	1.6	0.2	2.3	2.8	2.3	8.4	8.7	1.5	16.7	0.0	10
Tashiding	Dagana	0.3	10.1	10.0	19.5	3.1	9.0	6.0	0.3	1.0	1.6	4.3	0.8	1.3	0.9	0.6	3.8	11.0	1.0	15.8	0.0	10
Tendruk Thang-Rong	Samtse	0.9	8.7	8.4	24.6	4.5	8.0	3.6	0.1	0.1	2.8	2.8	0.3	2.1	2.1	1.0	5.9	8.1	0.6	16.5	0.0	10
Thedtsho	Monggar Wangdue Phodrang	0.2	13.3	18.8	32.9	7.7	8.7	0.9	0.5	0.0	2.1	0.3	0.8	0.6	1.4	0.9	2.3	7.5	1.0	0.0	0.0	10
Thrimshing	Trashigang	1.8	15.7	17.0	23.0	6.6	0.4	6.2	0.1	1.7	0.4	0.7	0.1	1.7	1.9	4.7	10.2	8.7	0.9	0.0	0.0	10
Toedpaisa	Trashigang	0.3	14.8	8.6	34.2	4.5	9.6	4.3	0.5	0.5	0.8	0.2	0.6	1.0	2.8	1.5	4.2	9.5	2.5	0.0	0.0	10
Toedtsho	Punakha Trashi Yangtse	0.3	12.6	12.6	31.3	4.5	3.5	6.4	0.5	1.4	2.1	0.6	0.2	2.5	3.2	2.4	4.3	8.8	3.2	0.0	0.0	10
Toedwang Tongmajangsa	Yangtse	0.2	12.5	10.6	29.9	6.5	8.2	7.6	0.1	0.6	4.7	0.0	0.9	1.2	2.2	0.6	1.8	10.8	1.9	0.0	0.0	10
Trong	Punakha Trashi Yangtse	0.2	19.6	11.9	30.8	5.6	2.1	8.1	0.0	0.8	0.7	0.0	0.1	1.7	1.8	2.0	4.0	9.3	1.6	0.0	0.0	10
Tsaenkhar	Zhemgang	0.2	16.7	6.6	31.5	3.6	6.8	8.7	0.1	0.9	0.8	0.0	0.5	1.6	2.2	1.1	5.5	10.0	3.5	0.0	0.0	10
Tsakaling	Lhuentse	0.7	18.9	6.4	29.3	8.6	6.3	6.4	0.9	0.5	1.1	1.4	0.6	1.1	1.9	2.4	4.3	7.8	2.2	0.0	0.0	10
	Monggar	0.3	14.3	9.4	35.8	5.4	4.7	3.3	0.3	1.1	2.9	1.0	0.6	1.0	1.8	1.2	6.0	7.7	3.6	0.0	0.0	10
		0.2	13.9	12.8	38.4	2.2	7.6	2.1	0.1	0.8	1.5	1.4	0.6	0.5	1.8	0.6	4.2	6.9	4.5	0.0	0.0	10



Tsamang	Monggar	0.1	17.9	7.0	35.5	7.7	7.5	1.6	0.4	0.4	3.6	0.7	0.4	0.8	1.7	1.0	4.1	6.5	3.1	0.0	0.0	10	
Tsangkha	Dagana	0.2	11.8	16.7	29.0	2.5	8.1	6.1	0.1	0.5	1.1	4.6	0.4	1.8	1.4	1.6	2.9	10.2	1.3	0.0	0.0	10	
Tsenda- Gang	Dagana	0.4	7.6	11.1	26.1	3.7	8.0	5.6	0.1	0.3	1.5	3.6	0.7	1.1	1.0	1.2	4.2	8.4	1.6	14.4	0.0	0.0	10
Tsento	Paro	0.8	8.3	7.9	31.5	8.7	1.2	5.4	0.1	0.7	2.2	0.4	0.1	2.8	3.3	4.2	10.0	10.8	2.4	0.0	0.0	10	
Tseza	Dagana	0.3	23.0	12.7	23.8	2.3	7.3	6.4	0.3	0.1	0.5	1.9	0.3	0.8	1.4	1.4	6.4	9.6	1.8	0.0	0.0	10	
Tsholingkh r	Tsirang	0.3	8.9	17.5	24.9	4.9	6.8	4.9	0.4	0.0	0.6	4.1	0.8	1.6	1.6	0.4	7.4	12.9	2.4	0.0	0.0	10	
Tsirang	Tsirang	0.2	12.2	10.5	27.7	4.0	10.6	6.2	0.5	0.9	2.4	6.1	0.9	1.2	1.5	1.4	1.2	9.5	3.1	0.0	0.0	10	
Toed	Tsirang	0.2	12.2	10.5	27.7	4.0	10.6	6.2	0.5	0.9	2.4	6.1	0.9	1.2	1.5	1.4	1.2	9.5	3.1	0.0	0.0	10	
Udzorong	Trashigang	0.4	14.7	6.7	35.2	6.4	8.9	5.7	0.5	1.0	1.1	0.7	1.2	1.0	2.0	1.0	3.7	8.7	1.7	0.0	0.0	10	
Uesu	Haa	0.3	17.1	6.0	27.3	6.2	1.0	6.0	0.0	0.0	0.0	0.3	0.2	3.3	3.8	4.1	11.8	10.9	2.1	0.0	0.0	10	
Ugyentse	Samtse	0.2	6.9	11.0	26.6	2.3	7.9	3.3	0.7	0.3	1.0	3.8	0.7	1.8	1.2	1.8	3.4	10.7	1.0	15.6	0.0	0.0	10
Umling	Sarpang	0.2	11.9	3.0	30.7	3.3	4.8	3.7	0.4	0.0	0.0	0.8	0.2	1.0	3.3	1.6	3.0	11.9	2.6	17.8	0.0	0.0	10
Ura	Bumthang	0.2	18.4	11.9	29.6	6.3	6.1	4.9	0.5	0.4	0.0	0.3	0.8	1.0	2.5	1.8	4.9	9.1	1.5	0.0	0.0	10	
Wangchang	Paro	1.8	12.3	11.8	21.7	12.1	0.5	6.9	0.3	0.6	0.4	1.1	0.2	0.9	1.0	5.8	12.2	10.4	2.0	0.0	0.0	10	
Wangphu	Samdrup Jongkhar Trashhi	0.3	12.8	4.8	32.2	2.2	8.9	1.2	0.8	0.1	4.6	2.0	0.9	0.4	1.7	0.8	1.2	9.5	0.9	14.9	0.0	0.0	10
Yalang	Yangtse	0.2	12.2	3.6	37.5	1.2	8.8	6.6	0.3	0.4	8.6	0.1	0.4	1.5	2.2	1.1	2.1	10.9	2.6	0.0	0.0	10	
Yangnyer	Trashigang Trashhi	0.3	19.5	6.4	31.4	4.3	7.2	7.2	0.3	1.1	1.4	0.2	0.5	1.5	2.2	1.2	4.4	9.7	1.4	0.0	0.0	10	
Yangtse	Yangtse	0.6	16.7	16.3	26.9	6.7	5.8	4.0	0.3	0.3	3.8	0.2	0.3	0.4	1.3	1.4	3.5	10.5	1.4	0.0	0.0	10	
Yoeseltse	Samtse Pema	0.4	9.0	9.0	21.4	3.9	8.6	4.0	0.4	1.2	2.9	4.4	1.2	1.1	1.1	1.1	4.0	10.1	0.9	15.7	0.0	0.0	10
Yurung	Gatshel Pema	0.2	11.8	6.9	16.2	22.0	7.7	4.2	0.2	0.0	0.3	0.3	1.1	1.4	3.3	2.7	7.7	11.1	2.9	0.0	0.0	10	
Zobel	Gatshel	0.2	8.7	2.3	31.9	11.6	8.6	5.2	3.5	0.7	1.4	3.6	1.6	1.9	2.5	1.1	3.6	8.9	2.8	0.0	0.0	10	

This table contains the match between Gewogs with towns and thromdes: 60 Town-Gewog matches and 4 Thromde-Gewog matches. The following list shows the name of each town/thromde and the corresponding Gewog appear in parenthesis: Tsimasham Town (Bjagchhog Gewog), Gedu Town (Bongo Gewog), Tsimasham Town (Chapchha Gewog), Darla Town (Darla Gewog), Dagana Town (Tseza Gewog), Lhamoi Dzingkha Town (Lhamoi Dzingkha Gewog), Dagapela Town (Tsenda-Gang Gewog), Haa Town (Kar-tshog Gewog), Autsho Town (Tsaenkhar Gewog), Yadi Town (Ngatshang Gewog), Lingmethang Town (Saling Gewog), Monggar Town (Monggar Gewog), Kilikhar Town (Monggar Gewog), Gyalposhing Town (Monggar Gewog), Betykha Town (Nagya Gewog), Nganglam Town (Norboogang Gewog), Lobaysa Town (Barp Gewog), Samdrupcholing Town (Phuentshogthang Gewog), Jomotsangkha Town (Langchenphu Gewog), Samdrupcholing Town (Pemathang Gewog), Gomtu Town (Phuentshogpelri Gewog), Samtse Town (Samtse Gewog), Sarpang Town (Shompangkha Gewog), Rangjung Town (Shongphu Gewog), Trashigang Town (Samkhar Gewog), Khaling Town (Khaling Gewog), Duksum Town (Khamdang Gewog), Trongsa Town (Nubi Gewog), Mendrelgang Town (Mendrelgang Gewog), Rurichu Town (Darkar Gewog), Nobding Town (Dangchhu Gewog), Tingtibi Town (Trong Gewog), Panbang Town (Ngangla Gewog), Bumthang Town (Chhoekhor Gewog), Chhukha Town (Bjagchhog Gewog), Chhumig Town (Chhumig Gewog), Damji Town (Khamaed Gewog), Denchi Town (Shumar Gewog), Dramedtse Town (Dramedtse Gewog), Drukjeygang Town (Drukjeygang Gewog), Gasa Town (Khatoed Gewog), Jomotsangkha Town (Serthig Gewog), Jyenkana Town (Samar Gewog), Kanglung Town (Kanglung Gewog), Khasadrapchu Town (Maedwang Gewog), Kherigonpa Town (Zobel Gewog), Khothakpa Town (Shumar Gewog), Kuengarabten Town (Draagteng Gewog), Lhuentse Town (Gangzur Gewog), Mongling Town (Zobel Gewog), Nangkhor Town (Nangkor Gewog), Olde Pema Gatshel Town (Shumar Gewog), Paro Town (Wangchang Gewog), Punakha Town (Guma Gewog), Resarbu Town (Lumang Gewog), Sankosh Town (Tsankha Gewog), Sipsu Town (Tashichhoeling Gewog), Trashy Yangtse Town (Yangtse Gewog), Tsirang Town (Kilkhorthang Gewog), Wangdue Phodrang Town (Thedtsho Gewog), Wangrong Town (Lumang Gewog), Yalang Town (Shumar Gewog), Zhemgang Town (Trong Gewog), Gelegphu Thromde (Gelegphu Gewog), Phuentshogling Thromde (Phuentshogling Gewog), Samdrup Jongkhar Thromde (Dewathang Gewog) and Thimpu Thromde (Chang Gewog). Source: Calculation based on PHCB 2017 data.

