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## **Gross National Happiness Index Explained in Detail**

The GNH measure has been designed to fulfill the various criteria that are needed for an official national measure of happiness that is relevant to national and district policy.

A measure of Gross National Happiness might be presumed to comprise a single psychological question on happiness such as ‘Taking all things together, would you say you are: Very happy, Rather happy, Not very happy, or Not at all happy?’ However, this is not the case. The objectives of Bhutan and Buddhist understandings of happiness are much broader than what is referred to as ‘happiness’ in Western literature. Under the title of happiness in GNH comes a range of domains of human wellbeing. Some of these are traditional areas of social concern such as living standards, health, and education. Some are less traditional, such as time use, psychological wellbeing, culture, community vitality, and environmental diversity.

The Gross National Happiness Index is generated to reflect the happiness and general wellbeing of the Bhutanese population more accurately and profoundly than a monetary measure. The measure will both inform the Bhutanese people and the wider world about the current levels of human fulfillment in Bhutan and how these vary across districts and across time, and will also inform government policy.

### **Domains and Indicators**

The GNH measure has been designed to include nine core *domains* that are regarded as components of happiness in Bhutan and is constructed of *indicators* which are robust and informative with respect to each of the domains. The nine domains were selected on *normative* as well as *statistical* grounds, and are equally *weighted*, because each domain is considered to be relatively equal in terms of its intrinsic importance as a component of gross national happiness. Within each domain, two to four *indicators* were selected that seemed likely to remain informative across time, had high response rates, and were relatively uncorrelated. The nine domains are:



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1. *Psychological wellbeing*
2. *Health*
3. *Time use*
4. *Education*
5. *Cultural diversity and resilience*
6. *Good Governance*
7. *Community vitality*
8. *Ecological diversity and resilience*
9. *Living standard*



In this perspective, 'happiness' comprises having sufficient achievements in six out of the nine domains. In practice, we look for achievement in 66% of the weighted indicators, whichever domains they come from.

The Gross National Happiness Index is constructed in two steps, one which pertains to identification and one to aggregation.<sup>1</sup>We describe each of these steps and then describe the mechanism for breaking the index down to report domain achievements for each district or group.

## ***Identification***

The *first* step is to define whether each household has attained sufficiency in each of the nine domains. This is done by applying a sufficiency cutoff to each domain. As this is an innovative methodology that is not familiar to most readers, we pause to explain.

In poverty measurement, it is quite common to apply an income poverty line, which distinguishes people who do not have enough money from those who are non-poor. Of course income poverty lines are very imperfect, but the concept of being able to distinguish people who are income poor is well-understood. Similar procedures are used to construct the Multidimensional Poverty Index (MPI) in Bhutan. Bhutan holds that it is possible to distinguish, additionally, between those people who have attained a 'sufficient' level of achievement and those whose attainments fall short of sufficiency.

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<sup>1</sup> For a detailed justification of this methodology please see Alkire, S and J.E. Foster. 2011. 'Counting and Multidimensional Poverty'. *Journal of Public Economics*. 95(7-8).



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## *Sufficiency Cutoff*

The Gross National Happiness Index applies a 'sufficiency' cutoff to each indicator. The sufficiency line is set, naturally, at a higher level than a poverty line. In some indicators it is set at the top level of achievement for that indicator. In other indicators it is set at a level that is deemed 'sufficient' for most people. A person is identified as having a *sufficient* quality of life if his or her achievements in that indicator exceed the cutoff. If the achievements do exceed the cutoff, the person's actual achievements are replaced by the 'sufficiency' level. For example, if a person's actual income were 1,000 and the sufficiency cutoff were 150, then the person would be treated as if they earned 150. Thus achievements *above* the sufficiency cutoff do not further *increase* someone's GNH score. The level at which the sufficiency cutoff is set is a value judgment, which can be a topic for public discussion, but the fact that it may be difficult to set an exact cutoff should not obscure the reasonableness of setting *some* sufficiency cutoff.

The Gross National Happiness Index takes the position that beyond a certain point, we don't need to keep adding in higher achievements to the quality of life mechanically; we confine our attention somewhat to a middle band of achievements that contribute significantly to human wellbeing for most people.

Now how do we identify who is happy? The GNH Index wishes to respect diversity and freedom of choice and to also acknowledge the limitations of quantitative measures. Hence it identifies as happy any person who has achieved sufficiency in six of the nine domains, or in 66% of the weighted indicators. This allows for diversity in different ways. First, not all indicators are *relevant* to all people - wildlife damage to crops is not relevant to urban populations. Second, every person may not need sufficiency in 100% of the indicators to be happy; they may focus on some areas, depending on their own values and skills. Third, if people have a core of achievements, they may be able to compensate internally for other deficits. A person without education or electricity can find other routes to GNH.



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## *Aggregation*

The *second* step is to aggregate the data of the population into a decomposable measure that is sensitive to the 'depth' as well as 'breadth' of achievements (Alkire and Foster 2007, 2011). The GNH Index has been designed to provide policy incentives 1) to increase happiness and 2) to increase the sufficiency levels enjoyed by not-yet-happy people. To achieve these objectives, we calculate the GNH Index by looking at shortfalls from GNH – this construction means that if any shortfalls are remedied, GNH is improved. Then we subtract this from one – this simple step means that higher values of GNH correspond to more happiness. The resulting measure is GNH Index.

The GNH Index is equal to 1 minus the product of two measures  $HA$ .  $GNH = 1 - HA$

$H$  is the *headcount* and represents the percentage of people who do not enjoy sufficiency in six or more domains.

$A$  is the *average proportion* of domains in which people who are not yet happy still lack sufficiency. It shows the **breadth** of shortfalls.

## **Using the GNH Index**

So this shows how we calculate the GNH Index. Beyond the examples given above, how can we make sense of the measure?

First, we study the *sufficiency* achievements of people who are happy. How are they happy? Where do they live? What age, and gender, and educational level do they have?

To do this, it is easy to see that the percentage of people who are happy is given by  $H_h = 100\% - H$ .

Similarly, the percentage of domains in which not-yet-happy people already enjoy sufficiency is given by  $A_h = 100\% - A$



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Second, we compare GNH in different districts to see which districts have higher GNH.

This must be done with standard errors, to assess if differences are significant.

Third, we can compare GNH index across time to see if GNH is decreasing or increasing.

Fourth, to inform policies intended to increase happiness and to increase sufficiency among not-yet-happy people, we *decompose* the insufficiencies experienced by not-yet-happy people by domain (or indicator) and by district. In this way we can see how *shortfalls* in GNH vary across domains and across districts. This information reveals immediately in what domains of life *shortfalls* from sufficiency are most acute.

Fifth, we track the decomposition of the GNH index across time to see in which domains sufficiency is increasing, and also to track whether or not it is decreasing in any domains.

In these ways, the GNH Index can be an instrument of public imagination and of policy, and can capture a great deal of interconnected information that can not otherwise be presented so succinctly.

This note introduced the methodology for Gross National Happiness index consisting of (1) a cutoff identification method that identifies sufficiency both in terms of achievements in each domain and achievements across a range of domains and (2) an aggregation methodology that satisfies a range of desirable properties including decomposability. The 'sufficiency' cutoffs are set so that any person, who had achieved full sufficiency in six domains, or sufficiency in 66% of the weighted indicators, is identified as 'happy'. The measure seems to be *understandable and easy to describe*, because it relies on a cutoff approach which is widely used in policy already. It can reflect '*common sense*' notions of happiness because the domains and indicators were chosen due to their relevance in the Bhutanese context. Furthermore this measure is specifically geared not just to notice incremental changes over time, but also to *target, track changes, and guide policy*. This is because the measure is actually developed by considering the sector of the population



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which does *not* enjoy a sufficient quality of life at present and then scrutinizing the domains in which they fall short. The measure *can be decomposed* by variables such as district or language group, and the quality of life can then be broken down by domain to *identify which domains have the highest shortfalls* in different regions or groups. This last characteristic makes it a good tool for tracking changes across time or for guiding policies to address the specific needs of different groups efficiently. It is *technically solid*, enjoying properties of dimensional monotonicity and decomposability.



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