Interpreting the GNH Determinants From Health Policy Perspective: A Guide for Health Policy Makers

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Introduction

Gross National Happiness (GNH) is a developmental philosophy which aims to strike a balance between material and non-material values, prioritizing the happiness and well-being of all sentient beings. The objective of GNH is to achieve a holistic, sustainable and balanced form of development by considering a range of domains each of which makes a vital contribution to happiness. The domains are living standard, good governance, education, health, ecology diversity, community resilience, time use & balance and psychological well-being.

The concept of GNH was introduced in 1972. Over the period of 45 years, two national GNH surveys (2010 and 2015) were conducted. GNH transitioned from developmental philosophy to policy formulation tool. The GNH Index, GNH domains, GNH indicators, GNH determinants and GNH Policy Screening Tool (GNH-PST) all assist in policy formulation and policy screening (Table 1).

In 2010, the GNH Policy Screening Tool that systematically reviews the effect of policies and projects on GNH was developed by the

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Centre for Bhutan Studies and Gross National Happiness (CBS & GNH) and implemented by Gross National Happiness Secretariat (GNHC). The purpose of GNH-PST is to screen the adverse effect of the policies on GNH determinants (Table 2) during the policy formulation.

Protocol for GNH Policy Formulation

All policies in Bhutan with exception of Royal commands or national exigencies should originate as a concept note which should be approved by the Gross National Happiness Commission (GNHC) and then by the Cabinet (Cabinet Secretariat, 2015). Upon approval of the concept note, the proponent commences with the policy formulation and submits the draft policy to the GNHC. The GNHC reviews the draft policy and circulates the draft to all relevant sectors and even publishes draft policies online, allowing the public to comment. After incorporation of the comments agreed on between the sectors and GNHC, the revised draft will be reviewed by an independent 15-member multi-sector committee constituted by the GNHC. This committee will use the GNH-PST to review the policy impact on GNH domains. As of June 2017, 22 policies have been approved by GNHC. The implementation process of GNH-PST is detailed below.

GNH Policy Screening Tool and the GNH Determinants

GNH policy screening tool is a mandatory step in policy formulation protocol (Cabinet Secretariat, 2015). The purpose is to assess the policy impact on GNH domains so that all possible mitigations by way of revisions and negotiations with relevant sectors are explored.

The GNH-PST constitutes a list of 22 GNH determinants (Table 1) against which specific policy questions are articulated to assess the broad effect of the policy on each of these determinants. The multi-sector committee members score each of the 22 determinants from 1

to 4. 1 denotes negative impact of the policy on the determinant, 2 uncertain, 3 neutral and 4 denotes positive impact. The minimum score for the policy to be approved is 66 point (3x22), below which the policy would require changes to acquire the minimum points to be considered, or it will be rejected. Those policies which attain the minimum required score will be submitted to the Cabinet for approval (GNH, 2015).

This approach mandates that all 9 domains of GNH are considered in the policy process and, consequently, supports an integrated approach to policy development. It also provides a platform for all stakeholders across all sectors to work a consensus about a policy impact. The tool primarily reviews the potential effect of the policy on the GNH of the population based on expected impacts on the key determinants of GNH. It facilitates policies that enhances GNH and reject policies that adversely affect the determinants of GNH.

GNH Determinants and Health Policy

There are 22 GNH determinants (Table 1) in the GNH-PST. An adverse policy effect on each of these determinants will impact the nine GNH domains, and health is one of the GNH domains. Any negative or adverse effect of the policy on health would also compromise on achieving the GNH because health and happiness are interdependent. Therefore, protecting the health domain would increase GNH.

There is compelling evidence showing that health is the single most important determinant of well-being and increasing happiness will only occur where health is protected and promoted. An adverse health conditions have negative effect on well-being (Easterlin, 2003; Gerdtham & Johannesson, 2001; Graham, 2008; Sithey, Thow, & Li, 2015). Further, health and happiness share similar determinants which affect health and happiness in the same directions (Oshio & Kobayashi, 2010; Pierewan & Tampubolon, 2015). The GNH

health domain contributes the highest (14%) to Gross National Happiness (Ura, Alkire, Zangmo, & Wangdi, 2012).

Realising the role of health in GNH, health has been identified as a GNH domain with four indicators. They are self-reported health status, mental health (GHQ-12), healthy days and disability. These four indicators collectively assess the health domain.

Health domain can be promoted and protected by integrating health priorities in all policies and by mitigating the adverse effect of the policy on health domain. This can be achieved by articulating the GNH determinants during the GNH policy formulation. The process involves identifying the shared agenda between GNH and health and asking specific policy questions for each shared agenda. The detail analysis is given in a separate paper titled 'Strengthening non-communicable disease policy through shared agendas: lessons from Bhutan for linking happiness and health policy action".

For this, health sector requires a broad definition of the GNH determinants and how each GNH determinants affect the health.

Therefore, the objective of this paper is to define the 22 GNH determinants from health policy perspective and their implication on health sector. It intends to provide a reference point for planners and policymakers to understand GNH and its determinants from a health policy perspective.

Methodology

The GNH determinants were obtained from the 'Gross National Happiness Policy Screening Tool' available on the GNHC website (Gross National Happiness Commission, 2017)

A systematic search of the GNH determinant was conducted in Medline to identify relevant literature that explains the relevance of the determinants to health policy in context to Bhutan.

The key national documents, in particular, the 'protocol for policy formulating', 'An extensive analysis of GNH Index', 'National health policy 2011', "Eleventh five year plan volume 1 & 2', '2015 GNH survey report' and 'The experience of Gross National Happiness as development framework' were reviewed in conjunction with the specific policy questions outlined in the GNH policy screening tool with a focus to define the GNH determinants in relation to present health situation and policy priorities in Bhutan. Furthermore, a specific policy questions were drafted for every determinant to give a general idea of its application to health policy.

GNH Determinants From Health Policy Perspective

Equity

World Bank defined equity in terms of two basic principles. First is equal opportunity for life achievements based on his or her talents and efforts, rather than by pre-determined circumstances such as race, gender, social or family background. The second principle is the avoidance of deprivation in outcomes, particularly in health, education and consumption levels (World Bank, 2006). In GNH framework, equity is under the domain living standard or the material wellbeing (income, assets and housing) (Ura et al., 2012: 168).

Most frequently cited definition of health equity is 'differences in health that are unnecessary, avoidable, unfair and unjust' (Whitehead, 1992). WHO documents quote equity as the absence of avoidable or remediable differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically (World Health Organization, 2017b).

Health sector can articulate this determinant to reduce the systematic disparities in health which primarily arise due to disparities in the social determinants of health between different

groups or communities (Braveman & Gruskin, 2003). Reducing health inequities is important because health is a fundamental human right enshrined in the constitution of the Kingdom of Bhutan and in the WHO constitution (Kingdom of Bhutan, 2008; World Health Organization, 1948) Empirical evidence report that difference in health status occurs by socioeconomic, political and cultural stratification within the country. For instant children born in the poorest section of household in India are three times more likely to die before their fifth birthday than children in the richest 20% of the households. Similarly, in Bhutan children of uneducated mothers (37%) and from the poorest family (41%) have the highest prevalence of malnutrition compared to educated mothers (23%) and from the richest family (21%). Antenatal attendance is 64% among poorest household compared to 92% among the richest household and literacy rate (among women 15-24) is higher in the urban area (78%) compared to rural areas (46% (National Statistics Bureau, 2011a, 2011b, 2011c).

The determinant 'equity' can identify priority determinants of health inequities and review the impact of the proposed policy on these inequities during the GNH policy screening tool.

Does the policy negatively affect the accessibility to health, education and safe drinking water?

Economic Security

Economic security is defined as the ability of individuals, households and communities to sustainably meet their essential needs particularly about health, education, dwelling, information and social protection (International Committee of the Red Cross, 2013). In GNH, economic security features under the domain of living standard. It covers income, financial and food security, housing and asset (table 1).

Economic security is critical to health because health and economic profiles are inherently intertwined as it affects the delivery of quality and timely health care services. One year improvement in life expectancy contributes to an increase of 4% in output indicating that increased expenditure in improving health contributes to productivity (Bloom, Canning, & Sevilla, 2004). In Bhutan, government predominantly finances health expenditure. The total health expenditure as percentage of GDP is 3.6% in 2014. In absolute figure, the budget allocation for the current five year plan (11FYP) is Nu. 13952 million and the out of pocket expenditure constitute only 12% in 2014 (Thinley et al., 2017). Existing policy initiatives like health contribution from salary and Bhutan Health Trust Fund to supply Essential Drugs supports the economic security for health.

The determinant 'economic security' can function to ensure continued government resources to provide access to basic public health services in both modern and traditional medicines.

Does the policy lead to increase in out-of-pocket expenditure for health? Does the policy impact health financing and the likely drain of financial resources?

Material Well-being

Material wellbeing refers to the fulfilment of basic material needs for comfortable living. In GNH framework three indicators are used to assess the material wellbeing. They are household income, assets and housing conditions (Ura et al., 2012). Household income includes income earned by all the individuals in a household from within or outside the country and are adjusted for in-kind payments. Assets include livestock, land and household appliance while housing conditions include room ratio, roofing type and sanitation facilities.

Material wellbeing closely relates to poverty. World Bank describes poverty as being hungry, lack of shelter, clothing, to be sick and

illiterate. In absolute terms, World Bank defines poverty as anyone living below US$1.90 a day (World Bank, 2016)

Material wellbeing or poverty is a major cause of ill health and a barrier to accessing health care. Poverty denies access to health services, medicines, routine vaccination and poverty creates illiteracy affecting their employability (Marmot, 2005; Organization, 2001, 2002). In Bhutan 12% of the population are under poverty (US$1.25) (Bhutan National Statistics Bureau; World Bank, 2014). Poverty creates ill-health because poverty forces people to live in environment that makes them sick, without decent shelter, clean water or adequate food and sanitation. Annual Health Bulletin 2016, reports diarrhoeal diseases and respiratory related infections as the top cause of morbidity. These diseases are related to poverty, hygiene, sanitation and literacy.

The determinant 'material well-being' can assess the policy impact on poverty. Health and poverty are inextricably linked and poverty is cause and consequence of poor health. These conditions make people vulnerable and susceptible to diseases.

Does the policy support poverty alleviation? Does the policy affect the local employment opportunities?

Engagement in Productive Activities

Engagement in productive activities reviews people capacity and opportunity to engage in productive activities along the life course. Despite the ambiguity over what constitutes a 'productive' role or a 'contribution' to society. Herein, productive activity is defined as that generates good and services and for which the individual may or may not be paid (Morrow-Howell, Hinterlong, & Sherraden, 2001).

Engagement in productive activities is a pathway to good health and well-being. However, 11% of the Bhutanese youth are unemployed according to 2015 labour force study (Ministry of Labour and Human Resources, 2015). Literatures report that prevalence of large

section of disengaged cohort is a risk factor for premature death and disability. This is because, unengaged or unemployed individuals or groups are more likely to indulge in unhealthy behaviours such as alcohol, tobacco consumption, diet and exercise which subsequently lead to increased risk for diseases, premature mortality and disabilities (Dooley, Fielding, & Levi, 1996). In addition, healthy workers lose less time from work due to ill health and are more productive when working (Bloom & Canning, 2000). An estimated US$ 23 billion was lost in India in 2004 from days spent ill and in care-giving efforts (World Health Organization, 2011).

Health sector can engage the determinant 'Engagement in productive activities' to review the impact of the policy on 'time and leisure' domain of GNH, employment opportunities, workplace health and safety and occupational health.

Does the policy consider provisions for productive engagement of people with special needs and the old age population (geriatric)?

Decision Making Opportunity

In the GNH Framework, this determinant relates to people's participation in decision making at local level (Zomdu) and participation in the electoral process (local government and Assembly election) (Ura et al., 2012).

Health participation in policy formulation and implementation is necessary as health problems are greatly influenced by social and economic determinants like income, education, environment, employment, gender, water, agriculture, urbanization etc. Also, health is a social determinant for both economic and spiritual well-being of the population (Howell, Kern, & Lyubomirsky, 2007; Koenig, 2009; Miret et al., 2014; Van Zon & Muysken, 2005).

Addressing the social determinants of health, economic growth and overall wellbeing of the population provides an opportunity for participatory alliance with government agencies (such as agriculture,

education, finance, media and information, urban planning, trade, transport), civil societies, academia, private sectors and development partners. Currently national level committees like Multisector Task Force for HIV/AIDS and National Committee for Disaster Management are few examples that considers health sector in policy implementation.

The determinant 'decision making opportunity' can review the role and level of health sector in the implementation of the policy.

Does the policy include health sector as a stakeholder in its policy implementation? Does the governance include all levels of society, including the poor themselves in formulation of the policy?

Anti-corruption

Corruption is defined by Transparency International as "the abuse of entrusted power for private gain" and is regarded as a major obstacle to any development. Anything that curbs and is against corruption is anti–corruption. The determinant anti-corruption falls under the domain good governance. GNH questionnaire 2015 has one question 'please rate the government performance in fighting corruption?'

Corruption hampers economic development, destabilise government systems and thereby negatively affects population health. The Royal Audit Authority of Bhutan report abuse of functions by public servants as the largest (43%) alleged corruptions. The same report also presents Nu. 524 million as unresolved irregularities in 2017 (Royal Audit Authority, 2016). Ministry of Health lost Nu.73 million to corruption in the procurement of medical equipment which accounts for 22% of the total contract value in 2011 (Anti-Corruption Commission, 2011).

Establishment of Anti-corruption Commission with Anti-corruption Commissioner as constitutional post in 2008 is a step towards anticorruption. The determinant 'anti-corruption' can review the

transparency and openness in policy formulation, implementation, policy impact on social determinants, policy beneficiaries, regressive and distorting subsidies etc. The purpose of the determinant is to screen all such policies that could reduce corruption practice.

Does the policy reveal the financial information that's easy to understand by the public? Does the policy provide opportunity for public to give feedback on the policy outcomes? Will the policy adversely influence the procurement system negatively providing more room for corruption?

Legal Recourse

Legal recourse stipulates that the legal frameworks are adequately in place to guarantee entitlements, and enable the population to enjoy rights and protection. Law guarantees access to justice, redress and reparation mechanisms for people whose entitlements and rights are violated. In GNH, legal recourse comes under good governance.

In health, the constitution, existing health related legislations and the national health policy 2011 provide a legal framework for health policies, programmes and services. The Constitution of the Kingdom of Bhutan mandates the State to provide "free access to basic public health services in both modern and traditional medicines." Tobacco control regulations or the enforcement of warning signs on baby food or tobacco products are examples of societal level benefits of health promoting laws. Such provisions guarantee citizen rights and access to services. There are, however, instances where existing legal framework could also negatively impact health. For example, criminalising consensual sex and enforcing third party authorization for services could hinder access and utilisation of services by the affected groups. It is critical, therefore, to revisit legal frameworks that could potentially have detrimental impact on health.

The absence of a Health Act and other limited health related legislations have limited the number of legal cases reaching the court.

The provision of free health care may have contributed to patients feeling obliged not to report cases for legal action and to accept errors as part of this free health services.

Eventually, seeking legal recourse for health-related events will emerge. A few health-related legislations have been adopted of which the Bhutan Medical and Health Council Act (2002) is most relevant for legal recourse. Others such as The Medicine Act (2003), Tobacco Control Act (2010) and the Narcotic Drugs, Psychotropic Substances & Substance Abuse Act of Bhutan (2015) are intended more for safeguarding public health.

The determinant 'legal recourse' protects patients that may emerge from negligence and ensures that their rights are upheld during treatment. Further, this determinant also shields health providers and allows them to practice their profession without fear and anxiety when giving care. This determinant also ensures that citizen entitlements and rights are protected and that the proposed policies and programmes do not adversely impact these rights and entitlements. It also guarantees access to justice and that adequate legal mechanisms and support systems are available for people whose entitlements and rights have been violated or whose protection is hampered.

Does the policy contradict any legal provisions of the country? Is the policy aligned with international health regulations, covenants and agreements that health is signatory to? Does the policy provide legal mechanisms and support system in place for those adversely affected?

Rights

GNH framework includes 10 fundamental rights i.e. right to freedom of speech, right to vote, right to form *tshogpa* (political parties and any associations), right to equal access and opportunity to join public services, right to equal pay for equal work and free from

discriminations based on gender, religion, language and political affiliation (GNH 2015 Questionnaire). This is a summary of the fundamental rights as enshrined in Article 7 of the constitution of the Kingdom of Bhutan which guarantees every citizen with certain unalienable Rights.

In health, the right to health is defined as the 'the right to the enjoyment of the highest attainable standard of physical and mental health' (World Health Organization, 1948). Right to health ensure that health services are accessible, available, of a quality that is acceptable and equitably distributed for everyone irrespective of gender, religion, geographical location and political affiliation.

The determinant 'right' can review policies to provide health care as a public good that must be provided equitably including those conditions that are needed for good health such as a clean environment, sanitation, housing, adequate food and good working conditions.

Does the policy impact the rights of people to access health services? Are there pockets or groups of people that could be denied their fundamental rights including health because of this policy?

Gender

In GNH, gender address the difference in power and social relations between and among women and men in varied socio-cultural contexts and enable equitable access to resources, multiple roles, workloads, representation, voice, agency and status (Verma & Ura, 2015). Gender is one of the determinants of good governance and is considered an important component in the analysis for all other domains.

World Health Organization (2015) defines genders as 'socially constructed characteristics of women and men such as norms, roles and relationships of and between groups of women and men'. The needs of women, men, girls, boys and all those in the spectrum of

gender identities must be addressed in policies to ensure there is equitable delivery of health programs. Gender differences in health are well known. In Bhutan tobacco use, alcohol consumption and blood pressure are higher in men. Obesity and physical inactivity are higher in women (Ministry of Health, 2014). 2015 GNH study report that men fare better in the domain of education and psychological happiness while there is no significant difference in health domain (Verma & Ura, 2015).

The determinant 'gender' mainstreams gender concerns of both men and women as an integral part of policy formulation, implementation, monitoring and evaluation to achieve gender equality and equity. This determinant makes it possible to identify assess and overcome gender imbalances and inequities during the formulation of any development policy or project.

Will the policy negatively impact the health of women, men, boys, girls and those with diverse gender identities? To what extent does the policy lead to gender bias and possible discrimination? Are people with certain gender excluded by the policy?

Transparency

Transparency is defined as 'the legal, political, and institutional structures that make information about the internal characteristics of a government and society available to actors both inside and outside the domestic political system' (Finel & Lord, 1999). It is also summarised as a public value demanded by citizens to combat corruption, open decision making by organizations and as a tool for good governance by governments and non-government agencies (Ball, 2009). Transparency in decision making curbs corruption whether real or perceived, and restricts secrecy and collusion through more openness.

Formation of Bhutan Transparency Initiative as a Civil Society Organization is a positive step to improve transparency. However,

the 'right to information bill' which guarantee right to information is still not passed by the parliament.

Transparency in governance enhances accountability of decision makers for safer systems, engaging clinicians and care providers in improving services and garnering the trust of the patients. Recruitment, appointment and trainings and health supply and procurement needs to be done in a transparent manner. Abuse of functions by public servants constitutes the largest (43%) alleged corruption type according to Royal Audit report 2016.

At the patient level, health systems need to be more transparent on the provision of health information including costs, duration of treatment, risks and potential harm. Private health services are just beginning in the country and it is crucial that transparency in health care be promoted.

The determinant 'transparency' can assess the extent of transparency in health care including accountability and equity in services.

When reviewing any policy, the impact of the policy on the transparency of public services needs to be reviewed as it will impact on the quality of public service. Some specific questions to review are provided below.

Does the policy impair access to information by public? Does the policy make provision of health care more transparent or opaque?

Skills and Learning

Determinant 'Skills and learning' represents the 'education' domain in GNH Policy screening tool. GNH promotes holistic education which includes modern education and building a foundation in traditional knowledge, common values and skills. The purpose is to nurture productive and employable citizen with high ethical values grounded on the principles of Buddhist values. The domain has four indicators 1) literacy, 2) schooling, 3) knowledge and 4) value.

Education is a strong determinant of physical and mental health (CSHD, 2008; Ross & Wu, 1995). The association between education and health is reported by many countries. Educated people experience better health than the poorly educated and conversely low educational attainment is associated with higher rates of infectious and chronic diseases, poor self-reported health status and shorter life expectancy (Pincus, Callahan, & Burkhauser, 1987; Ross & Wu, 1995; Russ et al., 2012). Education level is also associated with healthy life style behaviour; well-educated are less likely to smoke, have higher physical activity and likely to drink moderately than the poorly educated (Ross & Wu, 1995). In Bhutan, more than half of the population (55%) have no education (National Statistics Bureau of Bhutan and Asian Development Bank, 2013). Further, the National Health Survey 2012 report that only 16.8% of the population have comprehensive knowledge of HIV/AIDS which is considered as a measure of health literacy in GNH study.

The determinant 'skills and learning' can assess the impact of the policies on early childhood care and development, education for all, basic minimum education, non-formal education programme, Educating for GNH, school health programme, religion and health, health literacy.

Does the policy recognize that health literacy improves physical and mental health of the population? Does the policy recognize that there are strong links between poor health and educational achievement?

Health

Health is one of the nine domains and it is gauged by four indicators i.e. 1) Self-reported-health status, 2) mental health (GHQ-12 item), 3) healthy days and 4) disability. GNH aspired to have over 26 healthy days a month, have high self-reported health, and must not suffer from serious deprivations from disabilities (Ura, 2015).

World Health Organization (WHO) defined health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (World Health Organization, 1948). The constitution of the kingdom of Bhutan reads that "The State shall provide free access to basic public health services in both modern and traditional medicines". Therefore, any policy that would negatively contravene the delivery of public health services needs to be mitigated.

Empirical evidence suggests that health is necessary for achievement of happiness and increasing the happiness will only occur where health is protected and promoted. At present NCDs account for 56% of all deaths in Bhutan and mental health affects about 30% of the population. Health is one of the single most important determinants of well-being and adverse health changes have lasting and negative affect on wellbeing (Easterlin, 2003; Graham, 2008). GNH 2010 study report that health is an important contributor to GNH.

In the GNH Policy Screening Tool, health domain is assessed by only one determinant i.e. 'health'. Therefore 'health' includes delivery of basic public health services in both modern and traditional medicine as enshrined in Article 9 clause 21 of the constitution of the Kingdom of Bhutan. The health services include primary health care services, medical services, supply of essential drugs and immunization. The determinants 'health' must capture the health impact of the policy.

Does the policy impact the health (physical and mental health) of the population either during implementation or after the implementation?

Water and Air Pollution

This determinant encompasses two primary facets of environmental pollution. Air pollutants are classified as suspended particulate matter (dusts, fumes, mists, and smokes), gaseous pollutants (gases

and vapours) and odours (Kjellstrom et al., 2006). Water pollution is the contamination of ground, surface and coastal water with chemicals, heavy metals, synthetic compounds and persistent organic pollutants attributed to discharge of untreated waste, industrial waste and run-off from agricultural lands.

Clean air (indoor and outdoor) and water are basic requirements of human health and well-being. However, air and water pollution causes 12.6 million deaths globally and of the 133 disease groups listed in the Global Health Observatory, 101 are linked to environmental health (A. J. Cohen et al., 2005; Prüss-Üstün & Neira, 2016). In Bhutan, Annual Health Bulletin reports high incidence of respiratory infections (pneumonia, bronchitis and bronchiolitis), diarrhoeal diseases, and skin infections which can be caused environmental risk factors. The most relevant environmental risk factor is exposure to indoor smoke pollution from traditional firewood stoves in Bhutan. Most of the rural households use traditional fire wood stoves as Liquid Petroleum Gas and Kerosene are expensive and short in supply (Tenzin Wangchuk, 2017; Wangchuk, He, Knibbs, Mazaheri, & Morawska, 2017).

The water and air pollution determinant can review the health impacts of water and air pollution. It screens policies that could cause adverse impact on the air and water quality.

Does the policy impact the prevention and control of water and airborne diseases? Does the policy increase stress and health hazards to residents and commuters due to noise, air and water pollution during the policy implementation (hydro project sites, road widenings and house construction)?

Land Degradation

Land degradation is "any form of deterioration of the natural potential of land that affects ecosystem integrity" (McDonagh, Lu, & Stocking, 2006). The issue is largely bound in the ecological concepts

of ecosystem integrity, productivity, species richness and ecological resilience (Board, 2005)

Land degradation impacts directly and indirectly in many ways on people's livelihoods, food security and nutritional status. Long term good health relies on continued stability and functioning of ecosystem (Chivian & Bernstein, 2010). The possible impacts of land degradation on human health are indirect, contributed through its impacts on climate, biodiversity, agriculture and others.

The determinant 'land degradation' can articulate the policy impact on food security, availability, nutritional status as well as infectious diseases which are strongly associated with poverty, agricultural productivity and ecological health.

Does the policy promote agriculture productivity through better land management?

Bio-diversity Health

Biodiversity refers to all kinds of living organisms. It includes plants, animals, fungi and other living things. World Wild Life states 'when we say we want to save the planet, we use the word 'biodiversity' to encompass this entire concept'. There is no single indicator for biodiversity. The constitution of the Kingdom of Bhutan states the 'a minimum of 65% of Bhutan's total land shall be maintained under forest cover for all time'.

Human health depends upon availability of water, food and fuel. Disruption of ecosystem have major influence on the emergence, transmission, and spread of infectious diseases (Lewis, 2006). Policies that degrade land, water, flora and fauna will impact health of the population directly and indirectly.

Determinant 'biodiversity health' emphasises the importance of maintaining a healthy bio-diversity to secure maximum population health gains. The determinant can be used to articulate the health

impact associated with changes to the ecosystem, climate change, deforestation and loss of bio-diversity. It attempts to moderate human activity as a threat to bio-diversity.

Does the policy minimize human activity as a threat to bio-diversity? Are infectious diseases outbreaks more probable because of this policy?

Social Support

There is no consensual definition of social support and its measurements (Heitzmann & Kaplan, 1988; House, 1987). It is described as a social support accessible to an individual through social ties to other individuals, groups and larger community (Lin, Ensel, Simeone, & Kuo, 1979). The most commonly mentioned supports are emotional, informational, instrumental (House, Kahn, McLeod, & Williams, 1985). Emotional support includes love, care, encouragement; informational pertains to providing advice or relevant information that may help to solve the problem and instrumental support refers to material assistance like monetary help.

From GNH standpoint, social support depicts the civic contributions made, pertains to availability of social safety nets and measures people's perceived social support (Page 133, GNH 2015). Social support is a determinant of domain community vitality.

Social support affects mental and physical health through its influence on emotions, cognition and behaviour (Cohen 1988). Social support also plays role in the progression of, and recovery from physical illness. Hypothesis is that social relationships influence behaviour with implications for health such as diet, exercise, smoking, alcohol, and sleep. Social support is now recognized as a determinant of health (House, Landis, & Umberson, 1988; World Health Organization, 2018). Lack of social support is a risk factor for mortality and morbidity (House et al., 1988). Review by Fatih et al (2007) report low levels of social support is associated with heighten

stress, elevated heart rate and increased blood pressure, depression and mood disorder. Uchino (2006) cited evidences linking social support to cardiovascular, neuroendocrine and immune system. Further, a large body of data suggests that social support may have impacts on physical and psychological health through its stress-mediating or stress buffering role and several pathways have been proposed (Cohen, 2004; Cohen, Underwood, & Gottlieb, 2000). Therefore, social supports have strong influence on NCD and well-being (Berkman, Glass, Brissette, & Seeman, 2000; Cohen & Wills, 1985).

The determinant 'social support' can assess and support the integration of social support components (social security, safety nets, old age and disability supports systems, social cohesions among family and neighbourhood) in the policies across sectors.

Does the policy consider community engagement, volunteer, counselling, domestic violence, shelter homes, geriatric care and community safety in the neighbourhood?

Family

From GNH standpoint, well-being of families is the cornerstone on which society rests. The quality of family relations is detrimental to mental wellbeing throughout a person's entire life cycle, from childhood to old age. Bhutanese social structure and religion deem that we take care of each other as if we are all related (Leaming, 2004). Family is one of the determinants of domain community vitality. GNH 2015 report that 96% of the respondents were satisfied with family relationship.

Family is a social determinant of health and greater support from families, friends and communities is linked to better health (McNeill, 2010; World Health Organization, 2017a). For health sector, family is an economic unit bound together by emotional ties. Hence, family has a pivotal role to care (emotional care, material care like housing

and nutrition) for family members, and, in the case of children, readying them for healthy, happy and productive lives (McNeill, 2010). The socio-economic status of the family (income, education and occupation-family size, number of children) and the social support within the family have impact on the physical and mental health (Reyes et al., 2004; Ross, Mirowsky, & Goldsteen, 1990).

The determinant 'family' can assess the impact of the policy on family cohesion and Bhutanese family values.

Does the housing framework of the Draft Human Settlement Policy consider enough space for joint families to stay together?

Leisure

Determinant leisure broadly encompasses working hours, sleep duration and leisure. Working hours include both paid and unpaid work such as child care, labour contribution, voluntary work and informal help (Ura et al., 2012). Leisure is defined as amount of activities/time spent outside obligated work time and/or engagement in leisure as subjectively defined, preferred activities pursued during free time for their own sake, fun, entertainment, or self-improvement (Argyle, 1996), as time not occupied by paid or unpaid personal chores and obligations (Sonnentag, 2001).

Overall leisure is intended to review the work-life balance in the population by administering time use diary of the last 24 hours from which one can estimate the number of hours an individual spends on paid work, unpaid work, sleep duration and other activities such as social cultural activity, sports and other leisure activities (Galay, 2009; Ura et al., 2012). It attempts to analyse the importance of maintaining a harmonious work-life balance.

Empirical literatures report that prolonged working hours are associated with numerous health risk, including hypertension, cardiovascular diseases, depression, anxiety, sleep lost, fatigue and occupation injuries (Shields, 1999; Sparks, Cooper, Fried, & Shirom,

1997; Virtanen et al., 2011). Meta-analysis found that working hours is detrimental to health and an increased health symptoms is reported with increasing hours (Sparks et al., 1997). The study report that those work 55 hours or more per week have 1-3 times higher risk of incident of stroke than those working standard hours (35-40 hours). In addition, there is a U-shaped association between sleep duration (Cappuccio, D'Elia, Strazzullo, & Miller, 2010) and increased health risk. Sithey et al (2017b) found that both short (≤ 6 h) and long sleep duration (≥ 11 h) were independently associated with poor self-reported health status in a study among Bhutanese population.

Further, leisure-time physical activity protects against the risk of chronic diseases such as cardiovascular disease, diabetes, cancer, obesity, hypertension and mental health, including death (Bauman, 2004; Paluska & Schwenk, 2000; Penedo & Dahn, 2005). Physical activity contributes to primary and secondary prevention of these diseases and there is a linear relationship between hours of physical activity and health status. The most physically active groups are found to be at the lowers risk of premature death (Warburton, Nicol, & Bredin, 2006; World Health Organization, 2013). Hence, participation in leisure activities has a therapeutic affect because it serves as a means for preventing risk, coping with stress and impact of negative life events and transcending illness and disability (Caldwell, 2005; Coleman & Iso-Ahola, 1993). Therefore, leisure has a restorative and beneficial effect on the health of an individual.

The determinant 'leisure' can assess the policy impact on life style related diseases such as hypertension, diabetes, obesity, cardiovascular diseases and mental health diseases which are strongly associated with physical activity, working hours, work conditions, social engagements.

Does the policy consider public amenities (like sports facilities, parks, outdoor gyms, temples and monasteries) for children, disabled and old age to balance work-leisure relationship? Does the policy impact

the working hours, working conditions and leisure time of the community?

Culture

GNH seeks to preserve and promote distinctive Bhutanese culture (language, dress, music, arts and crafts, festivals, events, ceremonies, etiquette) to protect the sovereignty in the face of evolving socio-cultural change. The preservation and promotion of culture is a domain in GNH.

Culture has a strong effect on health outcomes by way of its influence on attitudes, beliefs and practices. For example, a study conducted found that 99% (105) of the respondents performed religious ceremonies when someone is sick (Pelzang, 2010). Culture is identified as one of the social determinants of health. World Health Organization recommends using the UNESCO definition of culture 'set of distinctive spiritual, material, intellectual and emotional features of society or a social group, and that it encompasses in addition to art and literature, ways of living together, value systems, traditions and belief' as it conceives cultures as a way of life (WHO Regional Office for Europe, 2015)

When culture works unchecked to hinder positive health outcomes, an effort should be made to address the cultural practise. For example, a study from the eastern Bhutan report that a breastfeeding mother would stop breastfeeding if her child gets diarrhoea for fear of causing it more harm (Bøhler & Ingstad, 1996). On the contrary, when culture creates favourable conditions to optimise health outcomes, endeavour should be made to understand and promote those practices (Napier et al., 2014). For example, the long median duration of breastfeeding (23 months) due to cultural norm is a desired practise as breastmilk is an important source of nutrition and helps in optimal development of infant and young child (National Statistics Bureau, 2010). Neglect of culture in health and health care

is considered single biggest barrier to the advancement of highest standard of health (Lancet, 2014).

The determinant 'culture' can enhance health services to achieve highest standard of health.

Will the policy negatively impact the health seeking practices due to promotion of certain Bhutanese culture?

Values

Bhutan is predominantly a Buddhist country that believes in the principles of peace, compassion and Karma (cause and affect). The core GNH values are the five Buddhist moral precepts. 1). Refraining from harming a living thing 2) taking what is not given (stealing) 3) sexual misconduct, 4) lying, and 5) taking intoxicating substances (creating disharmony) (Ura et al., 2012).

These GNH values have a strong influence on health outcomes. Study among health workers report that the belief in the law of cause and affect espouse loyalty and mindfulness in their work for fear of accumulating negative merit (Pelzang, Johnstone, & Hutchinson, 2017). These basic precepts support family and community coherence, healthy vegetarian diet, care for the vulnerable, refraining from multiple sexual partners and substance abuse.

Policies that promote these core GNH values can positively impact health outcomes and can enhance the quality of health care services. Determinant 'values' can assess the impact of the policy on culture, tradition and values.

Will the policy impact the Bhutanese culture, tradition and values?

Stress

Stress has been defined as 'a response characterised by physiological arousal and negative affect, especially anxiety' (Folkman, 2013). It is

the physical, mental and emotional human response to a stimulus, often referred to as 'stressor' such as unemployment, hectic work schedule, family and relationship problems, financial stress, etc. In children and adolescent, the most common stressors are exposures to violence abuse (sexual, physical, emotional, neglect) and divorce (Cicchetti & Toth, 2005). Stressful life events are causal for the onset of depression and it often precedes anxiety disorders.

Over all 30% of the Bhutanese report mental distress with women, divorced, and illiterates reporting higher prevalence of mental distress (Sithey, Li, Wen, Kelly, & Kelly, 2017b). Population that live in stressful environment are at increased risk of anxiety, mood disorder, morbidity and mortality. Stress is also associated with unhealthy behaviours like smoking, substance abuse, higher consumption of alcohol, accidents, increased sleep problem and eating disorders (Cooper & Marshall, 2013; Schneiderman, Ironson, & Siegel, 2005; Vrijkotte, Van Doornen, & De Geus, 2000). Stress in work environment leads to peptic ulcer, cardiovascular disorders and high blood pressure (Schuler, 1980).

Stress in GNH Policy Screening Tool, represent the subjective wellbeing (Refer table). Subjective wellbeing is defined as person's cognitive and affective evaluation of his or her life (Diener, Oishi, & Lucas, 2009) and literatures report that health and wellbeing are interdependent (Howell et al., 2007; Sithey et al., 2015). In short subjective well-being adds 4 to 10 years to life compared to low subjective wellbeing (Diener & Chan, 2011).

The determinant 'stress' supports and promotes population well-being.

Has the policy considered the impact of long-term potential urban stressors? Does the policy consider the potential risk factors for mental health related to urbanisation and increase settlement?

Spiritual Pursuit

Religion connotes organised and institutional components of faiths, traditions or an organized system of beliefs, practices, rituals and worship of God (Koenig, McCullough, & Larson, 2001). Spirituality is more difficult to define as it is more personal and subjective. Pulchalski defined spirituality to find meaning and purpose in life by connecting to the moment, to nature, to others and to the scared (Puchalski, 2012). While Koenig (2009) defines spirituality as a personal quest for understanding life and about relationship with the sacred or transcendent. In fact, there is a growing trend that people categorise as spiritual but not religious.

In GNH framework, spirituality is one of the indicator for psychological well-being and it constitutes 1) self-reported spirituality level, 2) belief in Karma, 3) praying and 4) meditation (Ura et al., 2012).

Bhutan is a Buddhist (83%) country with a significant Hindu population (14.5%). GNH 2015 study reports that 91% of the population are spiritual and on an average Bhutanese people spent 51 minutes per day on religious related activities. The average time spent on religious activities by those engaged was 1 hour and 41 minutes (Centre for Bhutan Studies, 2016)

Spirituality and the religious involvement impacts physical and mental health, for example, frequent church attendance was associated with lower symptoms of depression, similarly person with greater religious involvement have lower rates of substance abuse (Koenig, 2009; Moreira-Almeida, Lotufo Neto, & Koenig, 2006; Smith, McCullough, & Poll, 2003). Sithey et al (2017a) found that spirituality and religious involvement are independent predictors of common mental disorders in Bhutan.

The determinant 'spirituality' can articulate the policy impact on Central Monastic Body (Dratshang Lhentshog), freedom and right of any individual to practise any faith base organization and to include

the Central Monastic Body in all aspects of GNH policy formulation and implementation.

Does the policy consult Central Monastic Body in the formulation and implementation of the policy? Does the policy consider monasteries, temples and retreat facilities as a core component and/or as basic public amenities to balance material and spiritual development?

Discussion and Conclusion

The protocol for GNH policy formulation provides legitimate institutional arrangements allowing stakeholders to participate in the development and implementation of GNH friendly policies and project. Further, the GNH Policy Screening Tool evaluates the policy impact on the GNH domains by assessing the policy impact on the GNH determinants. A well-defined GNH determinant would improve detection and mitigation of adverse impacts of the policy on the GNH domains.

Health is one of the GNH domains and to effectively assess the policy impact on health domain. Health sector must articulate the relationship between health and each of the GNH determinants. The literature reviews and the analysis of the GNH determinants conducted in this paper indicate that GNH determinants partially represent the social determinants of health. In which case, any adverse effect on the GNH determinants would also impact the health of the population. This is because, many factors combine to affect the health of the population. Factors such as where we live, environment, genetics, income, education level, and our relationships with friends and family etc. have bearings on health apart from factors such as health care and services.

The GNH-PST also provides an opportunity to integrate health in all sectors. Health sector can use GNH determinants (during GNH-PST) to select health enhancing polices because health is one of the

nine domains for GNH. In other words, the GNH-PST and the GNH determinants can function as health impact assessment tool allowing health to administer the scooping step of the health impact assessment. GNH-PST helps decision-makers make choices about alternatives and improvements to prevent unwanted health outcomes and to promote health.

However, for an effective use of the GNH policy screening tool, health sector must articulate the relationship between health and each of the GNH determinants. For this, our paper provides a preliminary definition of each of the 22 GNH determinants from health policy perspective and articulates the impact of the determinants on health.

As evident from the write up, the interpretation of GNH determinants can vary by policy, sectors, institution and with time and policy priority. This paper, therefore, intends to clarify and standardise the definition and evidences surrounding GNH determinants and its implications to health. It is intended as a reference point for planners and policy makers during policy screening and health impact assessment.

Table 1. GNH domains, determinants and the indicators.

GNH Domain	GNH Determinants	GNH Indicators
Living Standard	Equity Economic security Material well-being Engagement in productive activities	Per capita income Assets Housing
Education	Skills & learning	Literacy Schooling Knowledge Value
Health	Public Health	SRH Healthy days Disability Mental Health
Cultural diversity & resilience	Culture Values	Zorig Chusum skills (artistic skills) Cultural participation Speak native language Driglam Namzha
Community vitality	Social support Family	Donations Safety

		Community relationship Family
Time use and balance	Leisure	Work Sleep
Psychological Well-being	Spiritual pursuits Stress	Life satisfaction +ve emotions –ve emotions Spirituality
Ecology diversity & resilience	Water and air pollution Land degradation Bio-diversity health	Wildlife damage Urban issues Responsibility towards environment Ecological issues
Good Governance	Decision making opportunity Anti-corruption Legal recourse Rights Gender Transparency	Political participation Services Governance performance Fundamental rights

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