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## JOURNAL OF BHUTAN STUDIES

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# **Gross National Happiness Policy Outputs in Bhutan from 1972 to 2014\***

*Michael Givel\*\**

## **Abstract**

In 1972, Bhutan's Fourth King declared Gross National Happiness (GNH) more important than Gross Domestic Product. But what was the nature of GNH legislation policy outputs before and after the adoption of the written 2008 Bhutanese Constitution that required that Bhutan to promote GNH as a national policy goal? This study examines from 1972 to 2014 (six years after the adoption of the Bhutan Constitution) GNH policy outputs. There were two stages related to Bhutan's four pillars that include sustainable and equitable economic development, good governance, cultural preservation, and environmental protection. In the first stage lasting to the 1990s, Bhutanese policy outputs emphasized preserving traditional culture. In the second phase from the 1990s to 2014, Bhutanese policy outputs emphasized Buddhist modernism in which all four pillars balanced traditional Buddhist values with modern issues like health care and illiteracy.

**Keywords:** public policy, Gross National Happiness, Bhutan

## **Introduction**

Bhutan is a small, landlocked, and highly mountainous east Himalayan Mahayana Buddhist nation located between India and the People's Republic of China (Rose, 1977b; Dorji, 1997; Mathou, 1999, 2001; Gulati, 2003a; Wangchuk, 2004; Dorji, 2008; Givel, 2009). On Bhutan's northern border is the Tibet Autonomous region of the People's Republic of China (Sinha,

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2001). On Bhutan's western, southern, and eastern borders lie the Indian states of Sikkim, Bengal, Assam, and Arunachal Pradesh (Royal Government of Bhutan, 2011). Bhutan's population in 2013 was close to 753,000 with a total land area equal to about one half the size of the U.S. state of Indiana (Royal Government of Bhutan, 2011; World Bank, 2013).

In 1972, the Fourth King of Bhutan, Jigme Singye Wangchuck, indicated that Gross National Happiness (GNH) was more important than Gross Domestic Product (GDP) (Dorji, 1997; Dorji, 2008; Honorable Prime Minister Jigme Y. Thinley, 2009a, 2009b; Lyonchhen Jigmi Y. Thinley, 2009). The primary reason that King Jigme Singye Wangchuck called for GNH as a national policy goal was to guide Bhutan in balancing capitalism and modernization with traditional Mahayana Buddhist religious and values (Honorable Prime Minister Jigme Y. Thinley, 2009a, 2009b; Lyonchhen Jigmi Y. Thinley, 2009). GNH was also initiated to preserve Bhutan's traditional culture and society (Honorable Prime Minister Jigme Y. Thinley, 2009b; Lyonchhen Jigmi Y. Thinley, 2009). In this paper, an examination is made from 1972 to 2014 to provide a detailed and nuanced analysis on the nature and quantity, over time, of how and what impact GNH legislative public policy outputs have had.

Public policy outputs are what governments do or do not do that impact segments of the public and the public interest (Birkland, 2011a; Dye, 2011). In the modern age, governments can regulate adverse behaviours such as pollution, distribute benefits to certain groups in society, or redistribute wealth or income from certain classes to other classes (Lowi, 1964). The instrumentalities used to carry out administrative and legal requirements include executive, legislative, and judicial institutions in policy regimes. Policy regimes reflect the relationships between the agendas, interests, and ideology of those that govern and the state (Stone, 1989; Jochim & May, 2010). Policy outcomes, in this paper are the intended or unintended consequences of the goals and objectives of policy outputs. For example, if Bhutan adopted legislation designed

to bolster protection of its natural environment, has that occurred or do the Bhutanese people in a national random sample survey believe or perceive that environmental quality is being enhanced. From 2008 to 2013, the ruling Druk Phuensum Tshogpa continued to promote GNH as a prime development policy for Bhutan to balance non-GDP values including cultural preservation of traditional Mahayana Buddhism with modern globalization and capitalism (BBC News, 2013; DeHart, 2013; Pandey, 2013). In June 2013, with the election of People's Democratic Policy of Bhutan, GNH as a policy took a new direction under new Prime Minister Tshering Tobgay:<sup>1</sup>

Although Tobgay has been outspoken in his belief that the government must turn to more concrete matters, he has left the door open to promoting GNH – in its right place. This is where the nation's beloved monarch comes in. As the country's symbolic leader, King Jigme Khesar Namgyel Wangchuck, is well suited to take up the torch for GNH in Tobgay's view.

“We have experts, the foremost of whom is our king,” Tobgay said. “I would like for real experts to take centre stage, leading the discourse at home and abroad. I think

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<sup>1</sup> Some western observers and others have over-stated the change in policy direction of GNH under People's Democratic Party Prime Minister Tshering Tobgay to mean Bhutan has abandoned GNH almost altogether as a prime policy and development goal. This statement written in a 2015 anonymous review in the *Asian Politics & Policy* journal is typical of this opinion. “...The First Prime Minister Jigme Thinley was resoundingly defeated in the 2013 elections. One of the most significant drivers of this defeat was that he was parading around the world, “selling GNH”, while the country was falling apart. Moreover, a Rupee crisis ensued and value of Bhutan currency went from low to not even being accepted in India to whom they were increasingly in debt. The new Prime Minister Tshering Tobgay has taken the helm and it is clear from both reading the papers, talking with insiders and looking at international proclamations and pronouncements that while GNH is valued, it is no longer the driving factor or component of development that it once enjoyed. In fact, GNH seems to have been displaced as the model in favor of pursuing an approach of less idealistic but more practical paths to development.”

the Bhutanese people will be thrilled if His Majesty champions the cause” (DeHart, 2013).

The four concrete matters of primary concern to the new government in addition to promoting GNH were: high government debt, rupee shortages, unemployment, and growing corruption (DeHart, 2013). By 2015, in addition to addressing significant domestic problems at home, Bhutan’s continued to promote GNH policy including using GNH as a screening, planning, and evaluation tool for national government plans and projects by the national GNH Commission, utilizing 20 GNH Index measurement indicators in the 11th Five Year Plan, and completion of GNH Index national surveys to track with the publication of new national Five Year Plans (Phuntsho, 2015). The newest GNH Index survey will be released later in 2015 (Phuntsho, 2015).

The GNH Index, which is conducted through national public opinion surveys in Bhutan, is a mix of subjective and objective indicators developed in the mid-2000s by the Thimphu-based think tank, Centre for Bhutan Studies (Thinley, 2009; Centre for Bhutan Studies 2011a, 2011b). The index is generally based on four recognized pillars of GNH including sustainable and equitable economic development, good governance, cultural preservation, and environmental protection (Thinley, 2009; Centre for Bhutan Studies, 2011a, 2011b). Integrated into the four pillars are nine domains that are a subset of and are congruent with the four pillars (Thinley, 2009). They include: standard of living, health and education within the pillar of sustainable and equitable economic development, good governance congruent with the pillar of good governance, cultural vitality and diversity, psychological wellbeing, time use and balance, and community vitality within the pillar of cultural preservation, and ecosystem vitality congruent with the environmental protection pillar (Thinley, 2009).

While the GNH Index represents snapshots at different times of subjective Bhutanese public opinion on policy outcomes of happiness in the four pillars it does not measure concurrent



public policy outputs initiated or not by the Bhutanese government to implement GNH. Little is known to date of how and what emphasis the Bhutanese placed shortly after the adoption of the 2008 written Constitution that required GNH as a national policy on the enactment of GNH public policy outputs. In this paper, an examination will be made from 1972 to 2014 of enacted GNH public legislative policy outputs to ascertain what GNH legislative public policy outputs trends have been over time. This includes whether GNH legislative policy outputs have emphasized all four pillars, over time, and the degree and nature of the public policy outputs in terms of implementing the four pillars.

## **Methods**

The analysis of the legislative policy outputs implementing GNH, and the four pillars will include a content analysis of national legislation including 2008 constitutional provisions enacted from 1972 to 2014. Each enacted law or constitutional provision was examined to determine if the law was substantially promoting preservation of culture, good governance, environmental protection, and equitable economic development. Preservation of culture is defined as maintaining or bolstering Mahayana religion and traditions. Good governance is defined as government ethics, transparency in government, and anti-corruption practices. Environmental protection includes any legislation that preserves and conserves the parks and flora and fauna or counters environmental pollution. Equitable economic development including references to economics that also incorporates social and economic justice.

Data for this analysis was obtained from National Assembly of Bhutan's web site at: <http://www.nab.gov.bt/business/acts>. The data analysis occurred by determining whether a law explicitly mentioned in whole or part one or more of the four pillars. For each enacted law, if the law addressed in a substantial and substantive manner either cultural preservation, environmental protection, good governance, or equitable development then this was counted as one provision

of a law promoting any or all of the four pillars. The data is reported in tabular form as bar graphs depicting the quantity and degree of enactment of policies related to GNH from 1972 to 2014. Also included are tabular tables and list of the laws or constitutional provisions that promoted one or more pillars of GNH.

The analysis includes legislation enacted prior to 2013 when the Druk Phuensum Tshogpa was in power as well as from 2013 to 2014 when the People's Democratic Party was in power.

The method used in this archival research paper to counter subjectivity bias is the audit trail approach. As noted above I have a clear record of the research steps taken including the reporting of findings, which any third parties could replicate and analyse for themselves (Robert Wood Johnson Foundation, 2015). Additionally, this paper provides an overview of enacted legislation and does not review implementation of GNH policy as the implementation program has been incorporated into the GNH Commission program, planning, evaluation, and implementation process as well as national Five Year Plans (Phuntsho, 2015).

## **Literature Review**

U.S. political scientist, Harold Lasswell, developed the first public policy stages heuristics theory in the 1950s known in this period as policy sciences. The policy sciences was oriented toward resolving pragmatic public problems, utilizing interdisciplinary methodological approaches, and was grounded in primarily quantitative methodology (Lasswell, 1948, 1971; deLeon, 2006; Birkland, 2011b; Theodoulou, 2013). Moreover, policy sciences displayed a distinct value basis that incorporated anti-communist and Cold War ideology with “proper” public policy options in a democracy entailing a free-market system that included a mix of the public, civic, and market sectors. This was in contrast to an entirely public governmental approach or what Lasswell labelled a totalitarian

and un-democratic system (Lasswell, 1948, 1971; deLeon 2006).

The foundation for quantitative empirical analyses occurring in Lasswell's theory was evaluating how the staged public policy decision-making process progressed. Within this process, public policy developed in a unilateral and linear fashion from policy stage to policy stage (Lasswell, 1956; Jones, 1970; Lasswell & Kaplan, 1971; Anderson, 1975; Sabatier, 2007). This conception of policymaking known as the stages heuristic theory includes the following steps: a problem or issue of importance develops in the public realm, policy formulations and proposals, legislative policy enactment, policy implementation by a public agency, and feedback of whether the policy was meeting the original policy intent through usually quantitative policy evaluations (Sabatier, 2007). The stages heuristic theory remained a prominent policy theory until the 1980s.

By the 1980s, a number of critics argued the theory was flawed because it did not appropriately describe underlying critical policy drivers such as structural economic and political inequality, it was apolitical, policies do not always occur unilaterally from stage-to-stage, and the model does not lend itself to definitive predictions of possible future possible policy outputs or outcomes (Sabatier, 2007). Others argued it did not account for complex policy interactions between the top, middle, and bottom levels of government and did not describe non-linear government decision-making (Hjern & Hull, 1982; Sabatier, 1986, 2007).

Beginning in the 1980s, a new group of U.S.-based policy theories became predominant. In 2007, Sabatier argued in his authoritative book, *Theories of the Policy Process* the more promising policy theories included: institutional rational choice, punctuated equilibrium, multiple streams, advocacy coalition framework, policy diffusion, and large N-comparative studies (Sabatier & Jenkins-Smith, 1993; Kingdon, 1995; Ostrom, 1998; deLeon, 2006; Repetto, 2006; Berry & Berry,

2007; Ostrom, 2007; Sabatier, 2007; Zahariadis, 2007; Baumgartner & Jones, 2009; Birkland, 2011a). The selection criteria used by Sabatier for these American-based policy theories included they were: empirically tested with falsifiable hypotheses, provided a broad explanation of the policy process, and assessed a broad range of factors that political scientists have traditionally researched (Sabatier, 2007).

Notwithstanding the important criticisms of the stages heuristic theory and the new wave of policy theories since the 1980s, the stages heuristic theory provides an important descriptive approach on how policymaking occurs by partitioning public policy stages for identification and evaluation. Different policy scholars and analysts use different descriptions of the heuristic stages, and these descriptions are congruent with the primary stages of the policy process such as policy formulation. For instance, Kingdon describes a window of opportunity that might open that occurs between a policy issue or problem and policy formulation (Kingdon, 1995). This approach of analysing separate policy outputs will be utilized in analysing the policy enactment stage of GNH legislative resulting in policy outputs from 1972 to 2010.

### ***Happiness Under Buddhist Theocracy***

From 1616 to 1651, founder of Bhutan, Zhabdrung Ngawang Namgyal unified Bhutan under one governmental called Chhyosi Nyidhen. After the Zhabdrung's death in 1651, Chhyosi Nyidehn or the two-fold system of government basically intermixed as a Buddhist theocracy; secular affairs overseen by a secular ruler and spiritual matters overseen by a religious Buddhist leader with Mahayana Buddhism being the state religion. At that time (and up to the present), the predominant Mahayana Buddhist school in Bhutan was the Drukpa or Thunder Dragon school (Labh, 1996). The construction of Dzongs was also a key political, religious, and military approach by the Zhabdrung to consolidate his political power. Dzongs, also housed civil and religious administrators who governed Bhutan and its several regions. The Dzongs also proved to be a brilliant military strategy because they were

constructed in key military defensive positions like on prominent hillsides that successfully repelled all Tibetan, and in one case Tibetan and Mongol military attacks during this period (Ardussi, 2009).

The two-fold system of governance in Bhutan lasted for about 250 years until December 17, 1907. From 1903 to 1907, a political crisis ensued in Bhutan related to the unresolved issue of clear succession of heads of state (White, 1909). In 1903, the Zhabdrung Rinpoche died (a reincarnation of Zhabdrung Ngawang Namgyal who held the Buddhist religious leadership), followed by the civil leader or Druk Desi in 1904. This resulted in the Je Khenpo or the head monk temporarily filling both political offices from 1904 to 1907. During this period, British Political Officer in Sikkim, India, John Claude White, conducted several official visits to Bhutan to mediate the political crisis (White, 1909). As a result of these visits he helped to broker a political deal that enabled Bhutan to establish a hereditary monarchy. The position of Druk Gyalpo (Dragon King), the King of Bhutan, was eventually created in 1907 by the Buddhist religious hierarchy and other powerbrokers in Bhutan (White, 1909).

In 1907, the First Druk Gyalpo, Ugyen Wangchuck, was inaugurated at the Punakha Dzong. This ceremony established the Wangchuck rule of five successive hereditary kings of Bhutan during the 20th and into the 21st century. Under the new monarchy, the king exercised significant power over the executive, legislative, and judicial functions, and structures of government. Among the main functions of the government was to bolster the state Mahayana religion. As a result, the Je Khenpo remains an important advisor to the hereditary monarchy to this day (Zurick, 2006).

In the mid-twentieth century, the hereditary monarchy slowly began to democratize initially with the establishment of a new legislative National Assembly in 1953 (Rose, 1977a; Labh, 1996; Gulati, 2003b). In July 1998, the National Assembly was granted the ability to elect a Council of Ministers to administer

the government. The National Assembly could also remove the king with a two-thirds no-confidence vote (Rose, 1977a; Labh 1996; Gulati, 2003b).

On December 17, 2005, the fourth hereditary king, King Jigme Singye Wangchuck, relinquished the throne and calling for a transition to a Constitutional Monarchy including national elections (Dorji, 2008; Turner *et al.*, 2011; Turner & Tshering, 2014a, 2014b). King Jigme Singye Wangchuck also announced that he would abdicate the royal throne to his oldest son (Dorji, 2008; Turner & Tshering, 2014a, 2014b). In July 2008, the first written Constitution of Bhutan was approved that included democratic elections and civil and political rights (Dorji, 2008). While numerous scholars have advanced several key factors for democratization in modern times including: regime disunity, elite agreements to democratize, economic crises, pressure from international sources, and popular mobilizations and social movements for civil and democratic rights none of these applied to Bhutan (Turner *et al.*, 2011; Turner & Tshering, 2014a). Instead, it was the legitimacy of the Bhutanese state in tandem with a transformational monarch, namely King Jigme Singye Wangchuck that resulted in the promotion and enactment of democratization in Bhutan (Turner *et al.*, 2011; Turner & Tshering, 2014a). King Wangchuck's success in promoting democratization occurred in a societal culture that was comfortable with centralized rule under a monarchical form of government (Turner *et al.*, 2011; Turner & Tshering, 2014a).

### ***Gross National Happiness***

The modern institution of Gross National Happiness began in 1972 as Bhutan began its movement to democratize from a hereditary monarchy. The establishment of GNH as national policy began when the fourth hereditary King Jigme Singye Wangchuk indicated that "Gross National Happiness was more important than Gross Domestic Product" (Gross National Happiness Commission, 2002-2007). King Wangchuck believed that change from modernization and global capitalism was inevitable (Gross National Happiness Commission, 2002-

2007). At the same time he wanted to balance this change by maintaining key features of Bhutan's traditional Mahayana Buddhist culture and society (O'Flynn & Blackman, 2009). GNH has been Bhutan's primary guiding public policy for development since the 1970s, even though the development of quantitative indicators for GNH did not happen until 1998. They were established after 1998 when Lyonpo (Foreign Minister) Jigme Y. Thinley spoke to an international audience at the Asian-Pacific Millennium meeting in Seoul, South Korea (Thinley, 2010).

This modern happiness policy assumes that happiness is universal and should or can be a primary focus for all human beings (Lyonpo Jigme Y. Thinley, 1998). The philosophy of GNH, in great part, is derived from Mahayana Buddhist beliefs (Tashi, 2004). Mahayana Buddhism of GNH in Bhutan is viewed as an important step for all laypeople to obtain Enlightenment. This obtainment of Enlightenment occurs by governmental public policies establishing the proper and optimal conditions for Bhutanese citizens to individually become Enlightened. As Lyonpo Thinley indicated in 1998:

This follows from an original meaning of development in Bhutanese context in which development meant enlightenment of the individual. I hasten to add that enlightenment is not solely an object of religious activity. Enlightenment is blossoming of happiness. It is made more probable by consciously creating a harmonious psychological, social, and economic environment (Lyonpo Jigme Y. Thinley, 1998).

A focus only on the ego cravings of materialism and greed that occurs under GDP, according to Mahayana Buddhism and the Four Noble Truths of Buddhism leads to suffering and unhappiness (Lyonpo Jigme Y. Thinley, 1998; Lyonchhen Jigmi Y. Thinley, 2009). Happiness and bliss from a Mahayana perspective occurs with the mitigation of unwarranted ego cravings (Lyonpo Jigme Y. Thinley, 1998). This primarily occurs according to the Fourth Noble Truth of Buddhism by

individuals undertaking an Eightfold path (Snelling, 1998; Gethin, 2004). The Path is divided into three parts (Snelling, 1998; Gethin, 2004). Sila encompasses proper physical actions and refraining from improper deeds of body and speech. Samadhi focuses on meditation practices, which help to gain the mastery over ones' own mind necessary to achieve the Ultimate Truth. Prajñā offers insight into the true nature of the Ultimate Truth of the Universe. Contained within Sila are Right Speech, Right Action, and Right Livelihood (Snelling, 1998; Gethin, 2004). Within Samadhi are Right Effort, Right Mindfulness, and Right Concentration. Within Prajñā are the final two parts of the Eightfold Path, Right Understanding and Right Thought.

GNH happiness also intertwines material needs with inner happiness and bliss (Tashi, 2004; Thinley, 2007). Inner activities, for instance, would include aiding all sentient beings in achieving Enlightenment. Outer activities would include meeting modern human needs and environmental sustainability through good governance, equitable economic development, and environmental protection. Through this holistic approach to institute a GNH state, Bhutan seeks to establish collective happiness in a caring society while mitigating the conflict between modernization and capitalism with traditional cultural and Mahayana Buddhist religious values (Royal Government of Bhutan, 2000; Dasho Karma Ura, 2008).

Bhutan originally declined to develop quantitative indicators of GNH, because the Bhutanese opposed measuring their GNH policy, which was also based on their Mahayana Buddhist religious beliefs (Honorable Prime Minister Jigme Y. Thinley 2009a). However, due to claims, pressure, and demands primarily from the west that complex social phenomena that is not measured in an empirical and positivist manner is not valid, Bhutan developed quantifiable measures of GNH (Honorable Prime Minister Jigme Y. Thinley, 2009a). The first quantifiable indicators were the four pillars of equitable economic development, cultural vitality and diversity, good



governance, and ecological preservation. The four pillars have been subdivided in 2010 into nine domains (Thinley, 2009). Contained within the original pillar of equitable economic development are the domains of standard of living, health, and education. Good governance is the same as the pillar of good governance. Cultural vitality and diversity, psychological well-being, time use and balance, and community vitality are domains contained within the pillar of cultural preservation. Ecosystem vitality is equal to the environmental protection pillar (Thinley, 2009).

The pillar of sustainable and equitable development is primarily oriented to reducing poverty and income and wealth inequality (Thinley, 2007). Additionally, due to Bhutan's emphasis on all individual's seeking Enlightenment through Mahayana Buddhist, this pillar also includes bolstering individuals to pursue free time and leisure (Thinley, 2007). Another key feature of equitable economic development the development of human capital in areas like health and education (Gross National Happiness Commission 2002-2007). Also emphasized in equitable economic development is further enhancement and maintenance of roads, telecommunications, energy, and air transport (Gross National Happiness Commission, 2002-2007). Finally, another goal of this pillar is to increase economic productivity and viability in key Bhutanese economic sectors including tourism, energy and hydropower, and agriculture (Gross National Happiness Commission, 2002-2007).

Bhutan also regards the promotion of the natural environment and robust ecosystems as key to quality emotional well-being, including emotional and Mahayana Buddhist well-being (Thinley, 2007). Underpinning this strong environmental ethos is a traditional Buddhist respect for the harmony of the natural environment and all sentient beings (Gross National Happiness Commission, 2002-2007). Additionally, environmental preservation complements economic development in which both are thought to occur in sync with

each other (Gross National Happiness Commission, 2002-2007).

Cultural preservation is also an important aspect of development, particularly regarding state policies that allow individuals to pursue Enlightenment as well as maintain cultural traditions such as Bhutanese art and handicrafts (Thinley, 2007). Bhutan views its preservation of cultural heritage through GNH as a means safeguard its unique Mahayana religious and cultural identity and traditions.

Finally, good governance is grounded in government operating in a transparent manner that is free of corruption (Thinley, 2007). Through this approach, good governance entails a government that promotes development with the greatest well-being and happiness for its citizens, and “integrity, accountability, and transparency in governmental practices” (Gross National Happiness Commission, 2002-2007).

### ***GNH Policy Outcomes***

Each of the four pillars containing the nine domains was subdivided in 2010 into 33 measures of happiness (Centre for Bhutan Studies, 2009). These measures, which are averaged together are obtained by the Centre for Bhutan Studies in periodic national opinion surveys of Bhutanese citizens (Centre for Bhutan Studies, 2009). The 2010 GNH Index survey found policy outcomes for all domains that men were happier than women (Centre for Bhutan Studies, 2011c). The Bhutanese were also, on the average, happiest in health, environmental protection, psychological wellbeing, and community vitality (Centre for Bhutan Studies, 2011c). In urban areas, 50% of people were happy, while in rural areas, it was 37% (Centre for Bhutan Studies, 2011c). Happiness is highest for Bhutanese with primary education or above, in comparison to those with no formal education (Centre for Bhutan Studies, 2011c). By subgroups, the happiest people, on the average, were civil servants, monks and nuns, single people and young people (Centre for Bhutan Studies, 2011c). The overall average rating

for happiness in 2010 for all domains was 74.3% based on a scale of 0% to 100% (Centre for Bhutan Studies, 2011c).

### ***Modernization and Traditional Societies***

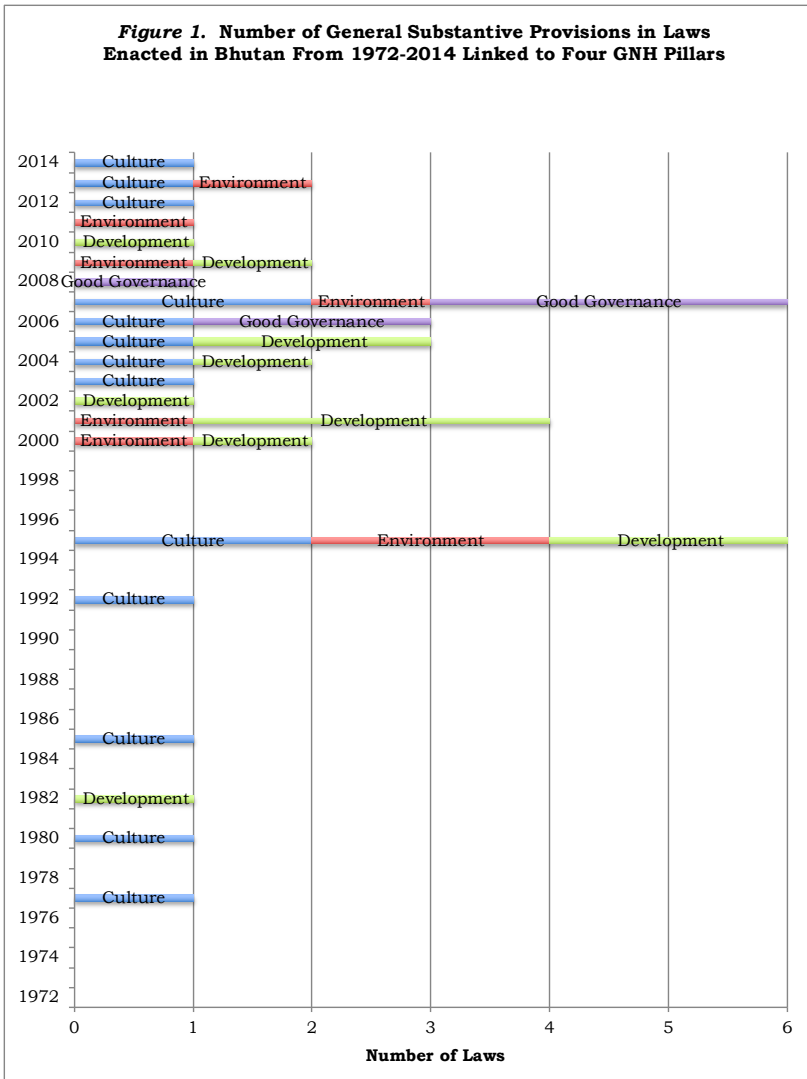
Modernization and global capitalism can often have a highly disrupting impact on traditional societies that are modernizing (Walcott, 2009). A primary purpose of GNH is to take a middle path between the excesses of modernization and the maintenance of traditional Mahayana cultural values. But what characterizes a traditional society, in general, and specifically in Bhutan's case? Rituals and practices that are not usually practiced in an industrial society usually denote traditional societies (Langlois, 2002). In this regard, traditional societies are focused on past traditions and practices while modern industrial societies focus on the present and the future (Langlois, 2002). Traditions in traditional societies are often conveyed to others in symbolic and oral forms and traditions that provide strong social messages on mores for understanding important questions of religion, culture, and society. Global capitalism and modernization can transform or supplant these cultural traditions with modern industrial, capitalistic, and high technology culture. Traditional Bhutanese culture prior to the 1960s has included subsistence agrarian practices, barter economies, and a highly pious devotion to Mahayana Buddhism (BBC News, 2015; BBC Travel, 2015). Bhutan remained closed to much of the world until the early 2000s (BBC News, 2015; BBC Travel, 2015). GNH in this context is a concerted policy effort to maintain a devotion and reverence to a traditional past Mahayana culture and society in the present while mitigating the excesses of modernization and global capitalist culture. In essence, Bhutan is attempting to steer a middle path into the 21st century.

### **Results**

In tandem to the policy outcomes reported in the results of the latest GNH Index national survey, Bhutan has engaged in ongoing enactment since 1972 of various legislation. From 1972 to 2014 (National Assembly of Bhutan, 2015), Bhutan

enacted 115 national laws. As indicated in Figure 1 and Appendix 1, GNH legislation from 1972 until the mid-1990s included few laws, almost solely focusing on the cultural preservation pillar. Only one law addressed equitable development. The focusing on traditional cultural concerns in Bhutan reflected a national government policy effort on maintaining Bhutan's ancient cultural and religious traditions. In this period, when it comes to national legislation, the other pillars of environmental protection, good government, and equitable economic development were not a primary focus in terms of legislation enacted.

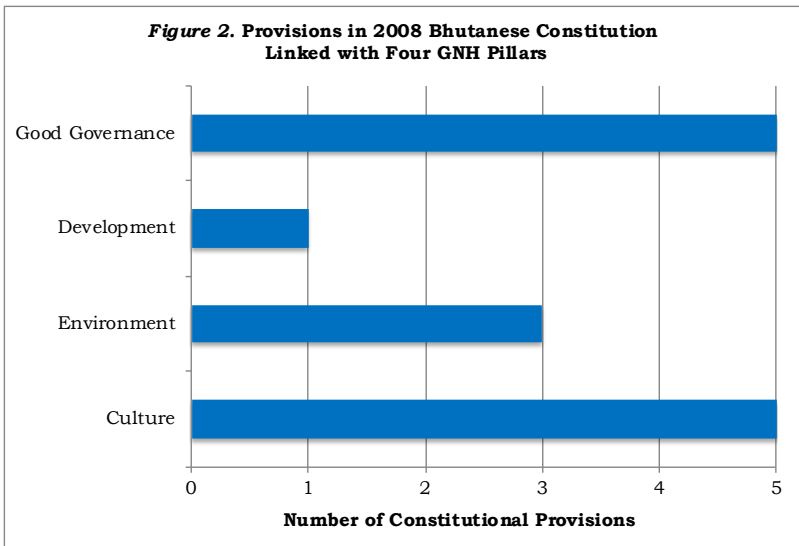
**Figure 1. Number of General Substantive Provisions in Laws Enacted in Bhutan From 1972-2014 Linked to Four GNH Pillars**



This began to change by the mid-1990s, when legislation also originated to address environmental protection, as well as sustainable development and cultural preservation. By the 2000s, Bhutanese policymakers focused their orientation on GNH with a large cluster of new laws addressing the four pillars. In this regard, GNH policymaking and policy outputs in Bhutan from 1972 to 2014 are characterized by two distinct phases. In the first phase, from 1972 to the mid-1990s, Bhutan focused on maintaining the traditional cultural identity and values of a Mahayana Buddhist monarchy and society.

Phase two of GNH policymaking commenced in the mid-1990s and expanded the scope of the policies to include all four (or, the other two) pillars of GNH. Policies addressing ecosystem protection began in the 1990s and were extended in the 2000s. Beginning in the mid-2000s, several good governance policies were enacted to limit corruption, promote greater transparency, and raise accountability in government. Other policies continued to emphasize cultural preservation and economic development. From 2013 to 2014, the People's Democratic Party enacted three laws that had significant provisions related to GNH.

Tracking with the new surge of GNH legislation for all four pillars in the 2000s in the second phase are key provisions in the 2008 Bhutanese Constitution, (Figure 2) which specifically address cultural preservation, sustainable development, environmental protection, and good governance. Similarly, the 2008 Bhutanese Constitution (Figure 2) addresses the realms of cultural vitality, standard of living, ecosystem vitality, and cultural vitality. Again, this represents a modern effort to maintain traditional cultural values balanced with the forces of modernization and capitalism.



## **Conclusion**

Prior to the 1990s, the enacted legislation was based on maintaining a traditional Mahayana Buddhist culture and society. The expansion of the GNH policy agenda from the mid-1990s to 2014 also occurred in conjunction with Bhutan's successful effort to steadily modernize the state including mitigating the effects of the global economy. In essence, this was aligned with long-standing government policies to modernize Bhutan. This included channelling or maintaining the traditional Mahayana Buddhist tradition and values that were established from early statehood to modern times. This second phase of GNH legislation also coincided with Bhutan slowly opening itself to the outside world.

Thus, the two distinct phases in GNH public policy outputs with the first phase focusing on maintaining traditional Mahayana Buddhist values and the second phase focused on mitigating too much erosion of traditional Mahayana Buddhist by globalization and the modern world represent a distinct evolution of GNH public policy output in Bhutan. The second

phase represents a clear expansion, as well, with the enactment and implementation of all four pillars as public policies. It is important to note that the roots of the second phase are contained in the first phase with an emphasis on traditional Mahayana Buddhist values. The second phase while expanding into new policies areas has a primary historical foundation in the first phase of traditional Mahayana religious values.

Because GNH legislative public policies has been enshrined in modern Bhutan as a proper collective goal for society to pursue, a key question for Bhutanese policymakers is whether the enactment and implementation of GNH policies will move Bhutan closer to being a robust GNH society. Is GNH more important than GDP and modernization and will it counter and mitigate the excesses of global capitalism and culture? One primary policy output of GNH is balancing ongoing modernization and capitalism trends with traditional Mahayana Buddhist cultural values.

Officially, GNH is more important than GDP and modernization in Bhutan but the growth or not of GDP and the modernization of the Bhutanese free market economy can be a powerful influence on whether the effort to maintain GNH in a viable form is successful in maintaining traditional cultural values. If GDP unduly alters traditional Mahayana Buddhist values and culture, the legislative policy outputs to enact GNH policies will result in unintended policy outcomes and policy consequences. Thus, a key challenge in the present and future for Bhutanese policymakers is ensuing that Bhutan retains its traditional Mahayana culture while it continues to modernize. Whether Bhutanese policy makers can succeed in this effort remains an open question at this juncture. Will Bhutan develop into a modern capitalist state with less reliance and need by Bhutanese citizens on the old traditions? The GNH Index seeks to track this important policy question that includes questions of happiness on the maintenance of traditional culture and religious beliefs and practices. Any current or future Bhutanese government devoted to maintaining GNH as a



national policy will need to successfully intervene through legislation and other government actions to maintain this balance between modernity and tradition.

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*Gross National Happiness Policy Outputs*

*Appendix 1. Chronological List of Laws Enacted in Bhutan From 1972-2014 Linked to Four GNH Pillars*

<b>Year</b>	<b>Name of Law</b>	<b>Pillars Covered</b>
1977	Bhutan Citizen Act	Culture
1980	Marriage Act	Culture
1982	Royal Monetary Authority Act of Bhutan	Development
1985	Bhutan Citizen Act	Culture
1992	National Security Act	Culture
1995	Mines and Mineral Management Act	Development, Environment, Culture
1995	Forest and Nature Conservation Act	Development, Environment, Culture
2000	Seeds Act	Development
2000	Environmental Assessment Act	Environment
2001	Livestock Act	Development
2001	Electricity Act	Development
2001	Co-operative Act	Development
2003	Biodiversity Act	Development, Culture
2004	Penal Code of Bhutan Act	Culture
2005	Narcotic Drugs, Psychotropic Substances, and Substance Abuse Act	Development
2005	Movable Cultural Property Act	Culture
2005	Food Act	Development

2006	Bhutan Information Communications & Media Act	Culture
2006	Audit Act	Good Government
2006	Anti-Corruption Act	Good Government
2007	Local Government Act	Good Government
2007	Thromde Act	Good Government
2007	Religious Organizations Act	Culture
2007	Public Finance Act	Good Government
2007	Natural Environment Protection Act	Environment
2007	Civil Society Organizations Act	Culture
2008	Public Election Fund	Good Government
2009	Cooperative (Amendment) Act	Development
2009	Waste Prevention and Management Act	Environment
2010	Bhutan Standards Act	Development
2010	Royal Monetary Act of Bhutan	Development
2010	Tobacco Control Act of Bhutan	Culture
2011	Anti-Corruption Act	Good Government
2011	Water Act of Bhutan	Environment
2012	Tobacco Control Act (Amendments)	Culture



*Gross National Happiness Policy Outputs*

2013	Domestic Violence Prevention Act	Culture
2013	Road Act of Bhutan	Environment
2014	Tobacco Control Act (Amendments)	Culture

*Appendix 2. List of 2008 Constitutional Provisions Linked to Four GNH Pillars*

<b>Name</b>	<b>Intent</b>	<b>Pillars Covered</b>
Article 3	Promotion of spiritual heritage	Culture
Article 4	Preservation and protection of culture	Culture
Article 5	Protection of natural resources and environment	Environment
Article 6	Designation of citizenship including knowledge of culture, customs, traditions and history	Culture
Article 7	Citizens shall refrain from division based on race, sex, language, religion, or region; no person shall be compelled to join another religion nor incite disunity	Culture
Article 8	Citizens have duty to foster tolerance of all, cultural preservation, environmental preservation	Culture, Environment
Article 9	State shall promote GNH, human rights,	Culture, Environment, Development

	minimize inequality of income and wealth, private sector development, adequate livelihood, education, cooperation in community life, Buddhist ethos, public health for all, culture,	
Article 14	Proper management of monetary and public finance	Good Government
Article 22	Local governments shall be accountable	Good Government
Article 25	Royal Audit Authority will audit and report on economy, efficiency, and effectiveness in use of public resources	Good Government
Article 26	Royal Civil Service Commission operations	Good Government
Article 27	Anti-Corruption Commission operations	Good Government

# **Innovation and Economic Value: A Prospective Benefit-Cost Analysis of the Fab Bhutan Challenge\***

*Milan Thomas\*\**

## **Abstract**

National governments and international donors fund challenge competitions to foster innovation, but there is little evidence on the economic return to such investments. This paper conducts an ex-ante benefit-cost analysis to project the economic return on the 2023 Fab Bhutan Challenge, which was part of FAB23 Bhutan (the 19th annual international Fab Lab Conference). For the Challenge benefits side of the analysis, studies covering five topics were drawn from: crop yield improvements from climate adaptation (for Challenge 1 in Sarpang), cost and time savings from improved water supply (for Challenge 2 in Pangbisa), livelihood savings from human-wildlife conflict prevention (Challenge 3 in Limbukha Chiwog), revenue generation from cultural exports (Challenge 4 in Thimphu), and economic returns from special needs education (Challenge 5 in Rinchending). For the Challenge costs side, budget data were collected and interviews with challenge participants were conducted. Conservative estimates that account for the probability of some challenge solutions ultimately being non-viable place the economic return to Bhutan between \$5 and \$12 per dollar invested. The paper concludes by discussing opportunities for scaling solutions from the structured innovation challenge based on the global evidence, and implications of the study for Bhutan's economic aspirations.

**Keywords:** agriculture, benefit-cost analysis, economics, human-wildlife conflict, innovation, labour productivity, special education needs, water supply

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## **Introduction**

To foster solutions to some of the most intractable challenges facing Bhutan's economic development, the Fab Bhutan Challenge (FBC) was held in July 2023. It was part of FAB23 Bhutan - the 19th edition of the international Fab Lab Conference and Symposium. Designed and implemented by Fab City Foundation (FCF), and Druk Holding & Investments (DHI), FBC tasked five teams (constituted of members selected through a competitive selection process) with designing solutions to five difficult problems facing Bhutan: agricultural susceptibility to extreme weather and climate change, water supply inadequacy, human-wildlife conflict, textile production challenges, and inaccessibility of education for special needs students. The challenges were formulated by the five Fab Labs in consultation with their local communities, FCF and DHI. The teams designed their solutions to the challenges between July 16 and 21 at sites spread across Bhutan. The five challenges are explained in more detail in Sections 1.1-1.5, along with the proposed solutions.

FBC is part of a growing practice of using structured innovation challenges or competitions to produce solutions to societal and design issues. Governments, foundations, and private sector companies spend billions of dollars every year sponsoring research and development (R&D), challenges, funds, hackathons, and other mechanisms designed to produce innovation. But there is scarce evidence on whether such efforts pay off from a societal point of view.

While scientific discovery has intrinsic value, it is important to know whether innovation challenges pay off from an economic perspective, especially when public funds are used to finance them. Conducting benefit-cost analysis of innovation challenges can help ensure that funds are being spent effectively on issues that will generate sufficient societal benefit to cover innovation costs.

The true economic return of FBC will not be known for years. It can take innovations decades to develop into viable solutions

and scale up. But given what we know today about the challenges and the proposed solutions, what are reasonable estimates for the economic return on the investment in FBC?

This paper answers that question based on a literature review and data collected from FBC participants. It projects a benefit-cost ratio – a measure of how much social benefit FBC is expected to generate per dollar invested – for FBC.

Even under conservative assumptions about the probability that each solution will be successful, the projected benefit-cost ratio is high (\$5-12 per dollar spent), confirming that FBC tasked the teams with high-impact social challenges, and that the proposed solutions collectively are cost-effective.

## **1. Methodology**

To project the economic return on Fab Bhutan Challenge, an approach to assessing the return on innovation investments developed by Kremer et al. (2021) is adapted. The authors start with the basic definition of benefit-cost ratio and social rate of return and tweak them to make them more appropriate for analysing innovation investments.

Similarly, adjustments are made to make the benefit-cost calculations more relevant for FBC. Each challenge can be thought of as an investment in a solution. Together, they form a portfolio of innovations that can be valued prospectively just like any investment portfolio.

### ***Benefit-Cost Ratio of an investment in an innovation***

A benefit-cost ratio indicates the return per dollar invested:

$$BCR_i = \frac{\sum_{t=0}^T \frac{N_{i,t} B_{i,t}}{(1+r)^t}}{\sum_{t=0}^T \frac{C_{i,t}}{(1+r)^t}}$$

where  $N_{it}$  is the number of people reached by challenge solution  $i$  in year  $t$ ,  $B_{it}$  is the estimated benefits per person reached (net

of operation costs – the recurrent spending and capital investment that are required to make the solution viable) of challenge solution  $i$  in year  $t$ , and  $C_{it}$  is the innovation costs of challenge solution  $i$  in year  $t$ . Innovation costs are any investments that are formative to the development of a challenge solution (brainstorming, piloting, testing).  $r$  is the discount rate used to make monetary values from different time periods comparable. Year  $T$  is the final year for which challenge solutions are assumed to be functional. In the case of FBC,  $i = 1, 2, 3, 4$ , or  $5$  (for each of the challenges), and the prospective benefits are evaluated through 2033, so  $t = 0$  corresponds to 2023 and  $T = 10$  corresponds to 2033.

An investment is deemed socially beneficial if its benefit-cost ratio is greater than 1 (i.e., it returns at least one dollar per dollar spent).

### ***Social Rate of Return of an investment in an innovation***

Social Rate of Return (SROR) is an alternative measure of the performance of an investment or portfolio of investments. Mathematically, it is the rate  $SROR_i$  that equalizes the two sides of the equation below, setting the value of discounted costs equal to the value of discount benefits:

$$\sum_{t=0}^T \frac{N_{i,t}B_{i,t}}{(1 + SROR_i)^t} = \sum_{t=0}^T \frac{C_{i,t}}{(1 + SROR_i)^t}$$

An investment is deemed socially beneficially if its social rate of return is greater than some threshold. Often this is taken to be 10% for development projects (Millennium Challenge Corporation, 2017).

### ***Extension to a portfolio of innovations***

To calculate the return of FBC, the returns on the individual challenges must be summed and set against the innovation costs of not only the individual challenge solutions, but the FBC as a whole. This includes conference transportation costs,

advertisement costs, and other expenses. They were borne by Druk Holding and Investments, Fab Foundation, and their sponsors in organizing and holding the conference, whereas the individual challenge solution costs (investment, maintenance, and operating costs) must be borne in the future by private or public funders as the solutions are scaled up.

### ***Introduction of uncertainty***

Kremer et al.'s application was ex-post. They assessed the economic return on an innovation portfolio ten years after the first funds were disbursed. In this case, the assessment is ex-ante. The economic return on investment is projected out ten years from today. Solutions have been developed but have not yet been applied, and their viability is uncertain. Scenarios with different probabilities of success are applied to give a range of benefit-cost ratios for Fab Bhutan Challenge in Section 2.

### ***Valuing solution benefits***

For each challenge, only economic productivity benefits are valued, while acknowledging that some of the most important benefits of the solutions (e.g., preservation of culture, protection of human and animal life, health improvements) cannot be valued. All five solutions aid workers in some way (by increasing their productive possibilities or saving time and effort) and are thus expected to improve their labour productivity. That is the primary benefit valued in this analysis (see Table 1 for an overview). The microdata of the 2022 Labor Force Survey (LFS) was used to calculate the size and status quo income of the occupational and geographic groups that would benefit from the solutions. All benefits were converted from ngultrum to United States Dollars (\$, USD) using the prevailing exchange rate in July 2023 (82 ngultrum to one USD).

### ***Valuing solution costs***

Challenge participants were very uncertain about solution costs at the time the study was conducted. They were

interviewed on investment, maintenance, and operating costs as comprehensively as possible, and a 27% overrun factor was priced in based on estimates of average R&D project cost overrun in Kumar and Thakkar (2017).

### **1.1 Challenge 1: Climate-adaptive agriculture with Technical Trainers Training and Resource Centre (TTTRC) Fab Lab in Sarpang, Sarpang Dzongkhag**

#### ***Problem***

Due to heavy monsoon rains, agricultural production comes to a halt in Sarpang between June and August. Unable to grow crops during those months, farmers instead purchase the vegetables that they grow during other times of the year (cabbage, cauliflower, potatoes, tomatoes, etc.) for consumption. Team 1 at the TTTRC Fab Lab was tasked with designing a solution that would extend the growing season through climate resilient infrastructure, tools, or practices.

#### ***Solution***

Team 1 developed a solution that would enable chilies and tomatoes to be grown in Sarpang during the monsoon months. Their proposal was to install cool, covered structures for farmers (naturally air-conditioned greenhouses) with raised planter boxes for growing vegetables in a controlled setting when the monsoon rains are strong, and the climate is too humid. While this would likely not enable them to match their output during non-monsoon times, it would allow them to maintain some productivity during those months.

#### ***Benefits***

Dekiling Gewog has 6,000 inhabitants, and 28% of the Dzongkhag's population is farmers according to the 2022 LFS<sup>1</sup>. Conservatively, it is assumed that half of those farmers stand to benefit from the proposed solution. By adding three additional months of agricultural productivity to the crop calendar, this solution raises the potential income of farmers.

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<sup>1</sup> Author's calculation using LFS 2022 microdata.



That increased productivity is valued in the economic analysis as a 15% gain over the average farmer income for Sarpang district according to the 2022 LFS (17,000 ngultrum per month<sup>2</sup>). 15% is a reasonable expected gain because although the growing months will increase by 33% (three months), chilies and tomatoes are lower value than cash crops grown during other parts of the year.

In addition to this monetary benefit to farmers, there would be a national benefit through increased food security (which has been a government priority in recent five-year plans). This and additional benefits are not valued in the analysis.

### **Costs**

The main cost associated with the solution is construction of the air-conditioned greenhouses and planter boxes. But as these will rely on recycled materials, the operating cost is estimated to be extremely low. More significant are the upfront investment costs. It is estimated that around 56,000 USD would be required in investment costs to train trainers and send them to Bhutan to instruct local craftspeople on building the structures. Since farmers would need to divert time away from their status quo economic activities during the monsoon season back to agriculture, the opportunity cost of their time must be accounted for. This is estimated based on secondary income reported in 2022 LFS.

### **Probability of success**

Challenge participants were circumspect about their solution and acknowledged that more testing was needed to determine the viability of the solution. Based on this, the probability of solution success was estimated at 50%.

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<sup>2</sup> Ibid.

## **1.2 Challenge 2: Water conservation with Druk Gyalpo's Institute (DGI) Fab Lab in Pangbisa, Paro Dzongkhag**

### ***Problem***

In Pangbisa, there is excessive sedimentation and inefficient filtration at the water source, resulting in high water turbidity. Providing clean water for the community remains a challenge, and many rely on bottled water. There is also suspected high nonrevenue water loss.

### ***Solution***

Team 2 at the DGI Fab Lab proposed to address this critical issue through several complementary solutions. First, to address the water turbidity, multimedia filters were designed to remove the yellowish colour from local water. Second, an electronic monitoring system has been proposed to identify faulty areas in the water distribution system and reduce the workload of plumbers. Third, a rooftop water reclamation device was proposed. Fourth, an educational tool was designed to teach the local population about how to identify drinkable water and how to filter water appropriately.

### ***Benefits***

Roughly 1,500 individuals (assumed to be 300 households) in Pangbisa stand to benefit from the solutions. Access to clean water has several health and non-health benefits (Kremer et al. 2023). For this study, the focus is on the benefits associated with the second component of the solution, while noting that first, third, and fourth have high value as well. The electronic monitoring system would help reduce non-revenue water and save substantial labour by the plumbers. Before the system has been implemented, it is hard to know how much water is being wasted in Pangbisa. Water usage in Bhutan is 945 cubic meters per person per year (Tariq et al. 2021). Based on the global average non-revenue water is 30% and valuing water at 0.31 USD per cubic meter, this implies a value of roughly 90 USD in losses per person under the status quo. The saved labour of plumbers, who currently have to spend hours per day

hiking to find faults and leaks in the distribution system, is also valued.

Other benefits from this solution include improved water consumption behaviour due to the educational tool. This will likely improve health of the local population, but the benefit is not valued.

### **Costs**

The main costs identified for this solution are the digital water pressure/flow sensors. It is assumed that several will have to be purchased and installed at strategic locations in the water distribution system. The cost is roughly 10 USD per sensor, and it is assumed that 100 sensors would be placed. Other costs (of the filtration system and rainwater recovery) are very low, as they rely largely on available household items, and are not priced.

### **Probability of success**

Challenge participants were confident in solution viability, since it relies on low-cost materials and proven technologies. The one threat identified was landslides and other climate-related issues. Based on this, the probability of solution success was estimated at 80%.

## **1.3 Challenge 3: Human-wildlife conflict in Limbukha Chiwog with Bio-Fab Lab College of Natural Resources (CNR), Punakha Dzongkhag**

### **Problem**

All over Bhutan, damage to crops is caused by conflict with local wildlife - wild boars, deer, and birds. Reducing those losses would greatly boost Bhutan's agriculture sector, which has stagnated for the past decade. Several traditional measures have been attempted over the years, including scarecrows, tree fencing, stone bunding, and fencing (chain link, electric, net). But none have taken hold as sustainable

solutions due to prohibitive costs, inadequate maintenance, or ineffectiveness.

### **Solution**

The Challenge 3 team at Bio-Fab Lab CNR proposed to prevent human-wildlife conflict in Punakha by improving the monitoring of existing electric fences in the area. In addition, complementary tactics would be used to support conflict prevention (laser scarecrows, remote sensing with support from Bio-Fab Lab CNR, and emission of predator sounds/smells).

### **Benefits**

There are 1,000 inhabitants of Limbukha, 63% of whom are farmers, implying that up around 600 farmers could be assisted by the improved fencing. To value the benefits, this paper draws on Sapkota et al. (2014), who find that electric fencing in Nepal reduced livestock predation by 30-60% and crop losses by 78%. In Bhutan, it is estimated that about 30% of yield is lost to human-wildlife conflict (Wangchuk et al. 2023), which implies that the protection could increase yield by 23%. The gain in crop yield is valued against the average income for farmers in Punakha according to the 2022 LFS (16,000 ngultrum per month)<sup>3</sup>. Since some of the fencing is communal, it is assumed that all farmers would benefit from this solution.

There is also the averted loss of human and livestock life from human-wildlife conflict. This is an important benefit, but it is not valued in the economic analysis.

### **Costs**

The cost of electric fencing is estimated at 600 USD per kilometre. Limbukha is a 33 square kilometre area, so it is assumed that around 48 kilometres of perimeter will have to be covered, placing the total cost at around 29,000 USD. It is

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<sup>3</sup> Author's calculation using LFS 2022 microdata.

conservatively assumed that maintenance equivalent to 25% of installation must be done in five years. The complementary solutions are very inexpensive, using open-source software and designs, and are not priced.

### ***Probability of success***

Challenge participants were fairly confident in solution viability, since it uses proven technology and has been applied in other settings without major issues. Based on this, the probability of solution success was estimated at 70%.

## **1.4 Challenge 4: Cultural Preservation with the Jigme Namgyel Wangchuck (JNW) Super Fab Lab in Thimphu, Thimphu Thromde**

### ***Problem***

Cultural exports have been identified as a potential area for growth for Bhutan (UNDP, 2022). But cost-effective production will require technological advancements in support of traditional methods. Bhutan has unique fabric designs, but they are not commonly exported. This is in part due to Bhutan's small population, but also due to the labour-intensive nature of textile production. Traditional techniques do not use technological supplements that would increase productivity. Wood is the main material used for weaving, and wood is prone to damage, not easily portable, and not readily available in Bhutan. More durable, efficient, standardized, and user-friendly weaving tools could revolutionize the industry. Modernizing practices could also contribute to cultural preservation by reversing the decline in numbers of people choosing weaving as a profession.

### ***Solution***

Team 4 at the JNW Super Fab Lab realized that a major constraint on weaver productivity is health issues caused by the manual labour. Specifically, standard chairs are not design for weaving and a more supportive prototype was developed that would reduce back issues for weavers. In addition, to

preserve weaving as a cultural tradition, the team came up with a series of related solutions: a standardized loom blueprint to facilitate construction, a heritage website to maintain cultural memory of weaving, and kits to encourage children to take up weaving.

### ***Benefits***

Based on the 2017 Population and Housing Census and 2022 LFS, there are 2,800 weavers working in Thimphu Thromde. It is conservatively assumed that 20% of them would be served by this solution. The proposed solution would increase craftsperson productivity by an estimated 15%. This increase in productivity is valued against the base of the current productivity level, which is taken as the average income for craftspeople in Thimphu according to the 2022 LFS (13,000 ngultrum per month).

By making the production of textiles more lucrative, the proposed solution may also contribute to the preservation of traditional techniques in Bhutan. But this is impossible to put a monetary value on.

### ***Costs***

The chair developed by Team 4 (further prototyping will be done) is expected to cost around 30 USD. The complementary solutions were already developed during the Challenge week. Weavers in Thimphu report no secondary sources of income in LFS 2022, so no opportunity cost of weavers' time is included in the calculations.

### ***Probability of success***

Challenge participants were confident in solution viability, due to the progress already made and feedback from weavers. Based on this, the probability of solution success was estimated at 75%.

### **1.5 Challenge 5: Assistive Technology with Fab Lab College of Science and Technology (CST) in Phuentsholing, Chhukha Dzongkhag**

#### ***Problem***

The 12 Special Education Needs (SEN) schools spread throughout Bhutan lack inclusive infrastructure and assistive devices for children with special learning needs. Dozens of students living with disabilities attend two of such schools in Phuentsholing, Chhukha – Sonamgang Primary School in Phuentsholing and Phuentsholing Rigsar Higher Secondary school. Their access to education is impeded by lack of assistive devices and infrastructure. 5% of out of school children are unenrolled due to disabilities.

#### ***Solution***

The Challenge 5 team developed eight prototype devices for assisted learning. These devices facilitate learning of students with various disabilities. Team 5 also developed a model for entrepreneurship and research partnerships among CST students and SEN students.

#### ***Benefits***

An analysis by Lamichhane (2015) finds that the economic return to a year of schooling for persons with disabilities is 19-26%. This is much higher than the global average (10%). This figure is used to value the benefits of increased school attendance and completion by SEN students.

There are two sets of beneficiaries. One is special needs students who are already enrolled in school and whose experience as students will improve due to the solution. Their graduation rate is likely to increase as a result. The other set of beneficiaries are student who may be encouraged to attend school given the improved experience made possible by assistive devices. 5% of out-of-school children in Bhutan are unenrolled for reasons related to disabilities according to the 2022 Bhutan Living Standards Survey. That implies that 75 of

the 1,500 school-aged children in Phuentsholing are both living with disabilities and out of school. It is assumed that 40% of them would be induced to enrol and finish high school due to the assistive technology.

For both types of beneficiaries, the benefit of the solution is valued as improved labour market earnings after graduation. Of course, there are non-monetary benefits such as personal dignity and pride that are more important but cannot be included in the economic analysis.

The benefits to the CST students and the community that benefits from their projects are also not valued. This analysis does not consider the outputs of student projects, which are impossible to know at this stage but likely to have high value.

### **Costs**

The solution is partnership-based and relies on college students and SEN students working together during their education years, so there is no opportunity cost of their time. The assistive devices are made from recycled material. One major cost will be trained representatives at each of Bhutan's 12 SEN schools. They will be connected to the country's Fab Labs and oversee student partnerships. It is assumed that 12 teachers will have to be supported for every year through 2033, with a salary of approximately 4,000 USD. This is assumed to be inclusive of training costs.

### **Probability of success**

Challenge participants were highly confident in solution viability, due to promising results from their week in Phuentsholing. Based on this, the probability of solution success was estimated at 90%.

### **1.6 Challenge-wide costs**

In addition to the challenge-specific investment, maintenance, and operating costs discussed above, the benefit-cost calculation must account for the challenge-wide cost of FBC.



## *Benefit-Cost Analysis of the Fab Bhutan Challenge*

Bringing together the international participants and giving them the space and resources to design solutions was an essential part of the innovation process. FBC organizers estimated that a total of 125,000 USD (funded by Druk Holding and Investments and their sponsors) was spent to bring FBC together. This included transportation costs of challenge participants and the opportunity cost of participants time (valued conservatively at 20 USD per hour).

Table 1. *Summary of valued economic benefits and costs*

<b>Challenge</b>	<b>Primary beneficiaries</b>	<b>Valued economic benefit</b>	<b>Non-valued benefits</b>	<b>Main costs</b>	<b>Opportunity costs</b>
Monsoon vs. sprouts	Farmers in Sarpang	Longer growing season	Food security, income stability	Training of trainers, structure development	Secondary income of farmers
Aesthetics of water	Families in Pangbisa	Reduced non-revenue water loss, time savings for plumbers	Aesthetic value of clean water, health knowledge	Filtration devices, monitoring system	None
Interspecies peace	Farmers in Punakha	Increased crop yield	Human and animal lives saved	Monitoring system installation, fence maintenance	None
Textiles + Tech	Weavers in Thimphu	Improved weaver productivity	Improved health, cultural preservation	Chair prototyping, production costs	Secondary income of weavers
Aluminium waste	SEN students in Phuentsholing	Increased enrollment, graduation, and employment of SEN students	Student projects, dignity of students	Teacher salaries	None

## **2. Results**

The discounted benefits of each challenge are set against the discounted costs of each challenge plus the upfront cost of bringing together FBC. The results of the benefit-cost analysis are shown in Table 2.

Table 2. *Benefit-cost ratio assuming each solution has 50% chance of viability*

Innovation	Real value (2023 USD)
Challenge 1	\$299,560
Challenge 2	\$403,794
Challenge 3	\$621,719
Challenge 4	\$393,841
Challenge 5	\$251,606

Total Net Benefits	\$1,970,520
Total Investment Costs	\$239,179
<b>BCR (through 2033)</b>	<b>8.24</b>
<b>SROR (through 2033)</b>	<b>102%</b>

Table 2 shows the benefit-cost ratio under a moderate scenario, in which each solution has a 50% chance of being successful. Figure 1 shows alternative scenarios. Scenario 1 is based on challenge participants’ subjective probabilities (each team was asked for their belief on the probability that their solution would be functional in Bhutan ten years from now). Scenario 3 is based on the finding in Kremer et al. (2021) that 33% of innovations in USAID’s Development Innovation Ventures portfolio had reached market 10 years after investment. Scenarios 4 and 5 project the return if only one innovation out of the five take hold. Scenario 2 reflects the probabilities in Table 2 (each solution has a 50-50 chance of succeeding).

Even in a scenario under which only one low return solution is viable, FBC still pays for itself twice over, because the expected benefits from that one solution are large. At the other end of the spectrum, it is possible that all five solutions pan out. In that case, the benefit-cost ratio rises to \$16 per dollar spent on FBC (not depicted in Figure 1).

## Benefit-Cost Analysis of the Fab Bhutan Challenge

While the challenge participants were optimistic, it is very unlikely that all five solutions will be operational in Bhutan a decade from now. But, as analyses of other innovation funds have shown (Kremer et al. 2021), a low success rate is common, with most innovations failing to ever reach market. In fact, it is to be expected. Innovation requires trial and error, and exploring uncharted territory. By design, innovation challenges address high-impact problems, so when a solution is successful, it often generates economic returns to cover not only its own costs, but the costs of failed solutions to other challenges.

In that sense, innovation challenges are like a diversified portfolio in which the funder is investing. Figure 1 confirms this for FBC. Under any reasonable scenario, the benefit-cost ratio of FBC exceeds 1 and the social rate of return far exceeds 10%.

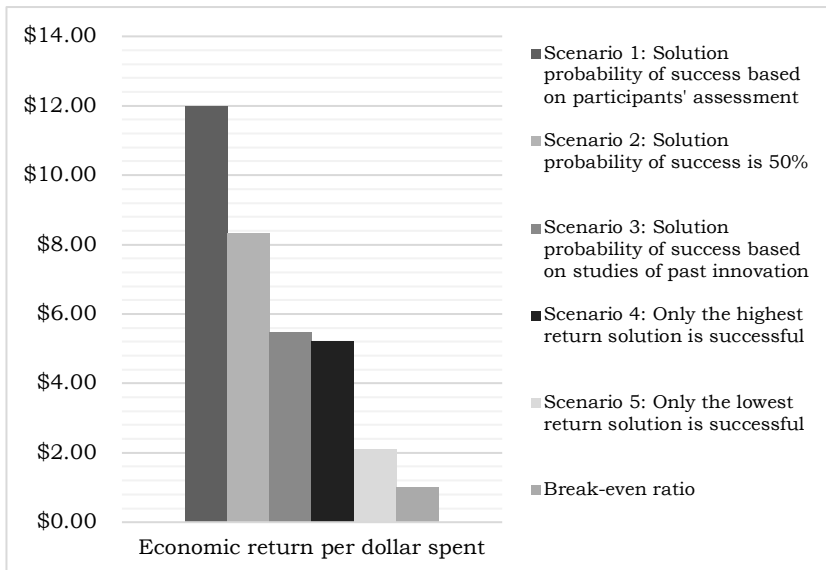


Figure 1. Benefit-cost ratio under different solution success scenarios

### **3. Discussion**

#### **3.1 Economic return on investment**

The estimates in this analysis are highly conservative. They take a low number of expected beneficiaries (limited to the Challenge site, village, or district) and do not factor in that the innovation could spread to other regions of Bhutan facing the same problem. Team 1's solution could benefit not only farmers in Sarpang, but others in the subtropical region of the country. Weavers all over the country could benefit from Team 5's solution – not just those in Thimphu.

In addition, they each focus on one or two main benefits of the solution. In reality, there will be many other benefits, some of which are already foreseen but difficult to value. For example, the Challenge 2 solution is likely to generate health benefits by increasing awareness of water quality issues. Those health benefits were not valued in the economic analysis. The cultural exchange value of FBC as a whole (and potential increases in future tourism revenue) is also not accounted for.

For all of these reasons, the projected range of benefit-cost ratios can be interpreted as a lower bound on the benefit-cost ratio that is ultimately realized. That the projected economic return is large even using this conservative approach is a reflection of the high-impact challenges selected for FBC.

#### **3.2 Scaling the challenge solutions**

Just as there is little evidence on the economic return on innovation challenges, there is little evidence on which types of innovations are most likely to scale. In one of the only studies of this topic, Kremer et al. (2021) find through their analysis of United States Agency for International Development's portfolio that innovations were more likely to reach one million users if they had low unit costs, leveraged existing distribution platforms, and were grounded in research.

This has clear implications and increasing the probability of success of FBC solutions. All of the proposed solutions were

developed in a cost-sensitive way, using open-source software and recycled and/or low-cost materials. This will make the solutions accessible and generate positive externalities in adoption.

Partnering with existing public platforms for delivering goods and services is also highly relevant to these challenge solutions. For instance, the solutions to Challenges 1 and 3 could be delivered through partnership with government extension services to make them more sustainable.

Finally, conducting impact evaluations of the solutions as they are piloted and scaled up in the field can ensure that the solutions deliver benefits in the long term. Evaluations provide user feedback on the performance of innovations. Acting on that feedback can then ensure that the solutions evolve as needed and become fixtures in the communities that they were designed to serve, rather than flashes in the pan.

### ***3.3 Contributing to Bhutan's economic aspirations***

To achieve its goal of becoming a high-income economy by 2034, Bhutan must grow at a double-digit rate every year for the next decade. In the past, most double-digit growth years in Bhutan were due to the commissioning of a new hydropower plant. The average growth rate declined from 9% in the 2000s to 6% in the 2010s (Figure 2).

Sustaining high growth will require revitalizing the agriculture sector (which has seen falling yields for the past decade), rejuvenating of the industrial sector (which has been sluggish since a strong manufacturing decade in the 2000s), propping up the services sector (which has struggled since the onset of the COVID-19 pandemic), and preparing Bhutan's young workforce for employment in the growing global digital economy. The FBC solutions touch all of these sectors, and there are many more pressing issues that can be investigated through future innovation initiatives.

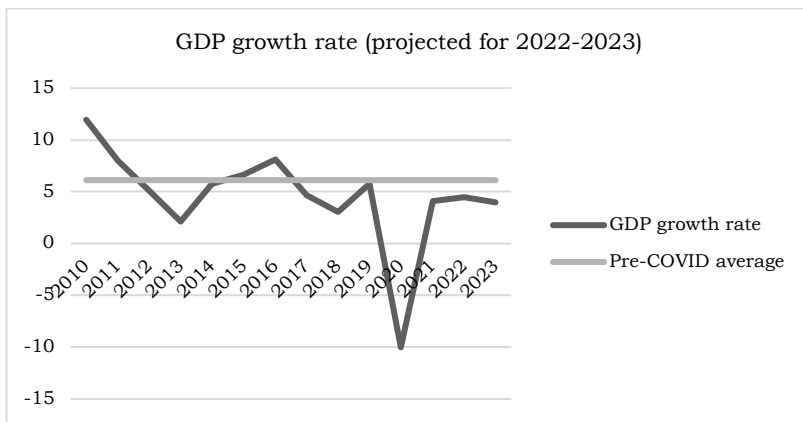


Figure 2. Bhutan’s economic growth rate in the 2010s

Source: Asian Development Outlook (2023).

Bhutan’s domestic market is limited and dispersed. With a falling total fertility rate and ongoing mass migration to Australia and other developed economies, Bhutan has a dwindling population. It also has more than half of its workforce still engaged in the low-productivity agricultural labour. Because of these challenging geographic and demographic circumstances, Bhutan’s economic aspirations can only be achieved through productivity-enhancing investments that yield large economic returns – including tailored innovations like the kind of which were produced by Fab Bhutan Challenge.

## Conclusion

The economic value of solutions from the Fab Bhutan Challenge cannot be known until many years down the line, after the challenge solutions have been implemented. But this prospective benefit-cost analysis based on literature review of impact studies, survey data on beneficiary populations, and interviews of challenge participant suggests that the economic return will be high, in the range of \$5-12 per dollar invested. That projected benefit range only accounts for the value of improved worker productivity due to the solutions, and

excludes other important benefits such as lives saved, health improvements, and cultural preservation. The high projected economic return suggests that innovation competitions can play a critical role in addressing socio-economic challenges unique to Bhutan, boosting labour productivity, and achieving Bhutan's economic growth aspirations for the coming decade.

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# **Teacher Attrition: Why do Public Teachers Leave?**

*Yangchen C Rinzin\**

## **Abstract**

In last six years, more than 300 Bhutanese public teachers left the profession annually on average. Teacher attrition has often been assumed as leaving the profession for better opportunities. Teachers leaving jobs has been discussed several times but never tried to understand the factors leading to attrition. This study explores the possible factors leading to teacher attrition from former teachers' perspectives, who left the profession voluntarily. The study also aims to get views on what could be the ultimate solution to keep teachers in the field. A mix mode method of qualitative and quantitative research was adopted. A quantitative method was used with the objective to get the true perspectives from respondents regarding teacher attrition. The study was conducted in Bhutan in December 2021. The study determined heavy workload, unsatisfied with the job, lack of career mobility, poor leadership, and poor working conditions were major reasons for attrition. Contradicting what many assumed salaries as a major reason, respondents responded otherwise. The paper concludes that until there is job motivation or better working conditions along with the good incentives or remunerations, a mere increase in the salary is not going to make teaching profession attractive.

**Keywords:** teachers, attrition, profession, schools, education, former teachers

## **Introduction**

Teachers across the globe have the responsibility of preparing future generations, our youth, whom our nation's future lie. They are in the hands of teachers. This is why education plays

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a vital role where effective teachers and quality of education is important for that matter.

However, one of the biggest challenges for both developed and developing countries is teacher attrition where the attrition has increased every year globally. Considered as a concern, many researchers over the world have described the trend as worrying.

Teaching is, in its essence, about relationships - understanding students' needs, fostering their passions, and figuring out what makes them tick. "To give up that work, for many, would be a deep loss" (Education Week Organisation, 2021).

Developing country like Bhutan is not left behind on teacher attrition. Retaining and maintaining trained and experienced teachers has become a mammoth task for both the government and the ministry concerned, the education ministry.

Teacher attrition is frequently positioned as an indicator of the relatively poor quality of school life and teacher morale. A counter perspective is that teacher attrition is not necessarily a problem in those low levels of teacher attrition may lead to stagnation of the profession and schooling (Macdonald, 1999).

Bhutan has lost a total of 1,872 teachers from 2016-2021, of which, 1,374 were public school teachers alone (Ministry of Education , 2021). The Ministry of Education recorded that a total of 353 experienced teachers left the system in 2021, including those who were superannuated or whose contract terms expired.

However, 224 teachers of the total (353) had voluntarily resigned (Ministry of Education , 2021) meaning experienced teachers left the education system. There are no specific reasons mentioned for voluntary resignation (refer Table 1).

Table 1. *Teacher attrition*

Year	Voluntary Resignation	Compulsory Resignation	Super-annuation	Expiry of Contract	Others	Total
2016	200	6	42	31	11	290
2017	260	4	56	9	16	345
2018	263	7	60	10	15	355
2019	277	8	57	103	35	480
2020	112	3	27	6	15	163
2021	224	3	54	49	23	353

Source: Ministry of Education, 2021

Currently, Bhutan’s teacher attrition rate stands at 3.8 percent at the primary level while it stands at 3.4 percent at secondary level. This is despite seeing a slight dip in 2020 at 1.9 percent. Today, there are more than 500 schools (Pre-Primary to XII) with about 9,000 teachers in both primary and secondary schools in Bhutan (Ministry of Education, 2021).

Although the attrition rate of 3.8 percent might be considered normal across the civil service, there are lot of risk when we talk about losing teachers. This is because losing teacher means losing a trained teacher which is a loss to the education system.

This is a concern because replacing seasoned teachers will be challenging. The study discovered heavy workload, unsatisfied with the job, lack of career mobility, poor leadership, and poor working condition were major reasons for attrition. Contradicting what many assumed salaries as a major reason, respondents responded otherwise.

The study’s data vividly shows that Bhutan is losing more experienced teachers because a majority of teachers, who left the profession were between 31 and 40 years old indicating that these teachers, who left the profession, were in their mid-career level. The attrition from the profession in this study refers to the exit of teachers from teaching in primary and secondary education in Bhutan.

This trend is worrisome for Bhutan as recruiting and training involve time and resources such as infrastructure, human, and finance (Wangchuk & Dorji, 2020).

As of 2021, Bhutan has a total of 1,980 teachers who completed Master, 1,680 with Post Graduate Diplomas, 7,358 with Bachelor, and 617 teachers with Diploma Certificate across Primary and Secondary education.

Several factors have often contributed to teacher attrition in different context according to available literatures. However, in Bhutan, there are limited research conducted or studied to understand teacher attrition especially from former teachers who left the profession.

This is why this research has tried to delve into possible factors that influence teachers' attrition and explored various factors that led to teachers leaving the profession.

The paper concludes that comprehensive research on teacher attrition with detailed database of teaching professionals and well-designed research is required. Well-designed research would give a clear picture of how attrition is designed and investigated in the education ministry. The annual education statistics also need a reform, whereby, the ministry could focus on detailed information on the attrition. It must include teachers' performance and job satisfaction instead of only indicating the number of teachers leaving the profession.

### **Objective of the study**

1. To understand reasons for leaving the profession from former teachers' perspectives
2. To find out probable factors attributing to attrition
3. Is teacher attrition a concern compared to other professions leaving the job?

## **Literature Review**

Deciding to leave any profession can never be easy and for teachers, leaving the classroom could be heartbreaking. At the level of the profession, attrition refers to the departure of teachers from teaching altogether (Presley, 2007).

It is often argued that teachers leaving the profession will leave opportunities for new teachers to enter the system. However, there is a lot to be desired when the argument is argued on the teacher attrition rate as lower than other professions.

This is because globally, many research on teacher attrition have often suggested/concluded that salary levels, supportive leadership, better working facilities, including class size and availability of textbooks, and their relationship with principals are some of the factors that attributes to teachers' attrition.

This is exactly why it is vital to discuss teachers' attrition to change the system since there is not one factor responsible and discussion to look at the workload would be worth the while.

Extensive literatures have shown that there is a link between the conditions of teaching and teachers' continuation with their work in the occupation when it comes to teachers leaving the profession (Macdonald, 1999).

For some years now, and in most discussions of new teacher attrition, there has been a general belief that half of all new teachers flee the profession within five years. (Presley, 2007) Many teachers simply can't afford to lose their pay and benefits; some older teachers will decide they're close enough to a pension to hang on (Education Week Organisation, 2021).

Policymakers and practitioners are concerned about this apparent "crisis" in the teaching profession because they hear that teachers' skills improve during their first two to three years of practice, and it seems a waste to lose so many entrants early in their careers (Presley, 2007).

Many researchers have also opined that accurate information and a proper understanding of the attrition problem are vital to have any successful policies that would aim in lowering teacher attrition.

The literature also has it that the poorest and highest minority schools uniformly are more likely to have a high turnover of new teachers.<sup>1</sup> The production pipeline from teacher preparation programs is grossly inefficient in meeting the supply needs of schools. (Presley, 2007) At the school level, attrition includes not only the departure of teachers from the profession<sup>2</sup>, but also the departure of teachers for teaching positions in other schools within or outside of the district and for non-teaching positions (Presley, 2007).

Feeling comfortable in their teaching location is important to teachers' satisfaction. Teachers tend to leave positions where: living conditions are extremely poor, harsh or overly expensive, or they do not feel comfortable with local ethnicity, customs or language (Macdonald, 1999). The dissatisfaction over the rural/urban divides and teachers' ill health have also attributed to significant teacher attrition in developed and developing countries.

The rapid growth in education like increasing schools, student enrolment and the increasing number of staff has also added to the complex nature of educational organizations in general and the school system in particular. Wushishi, Fooi, Basri, & Baki (2014) said this requires effective and committed teaching staff who will handle the situation.

However, in some studies, it was concluded that declining enrolments have also been attributed to attrition because teachers compete for the same number of promotion positions. This has often caused frustration because of a lack of career advancement. Although teachers could have high expectations

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<sup>1</sup> Presley, 2007

<sup>2</sup> Ibid.

of their profession, there is poor recognition from communities and governments of teachers' work.

Socio-economic and political factors underpin the conditions which affect service and, in turn, the conditions of service. In most countries, there is a strong sense that conditions within schooling and those shaping schooling have deteriorated and consequently are causing increasing levels of teacher dissatisfaction and stress, if not attrition (Macdonald, 1999).

A major challenge in schools today is for all children to receive a quality education from "highly-qualified" teachers. However, over the past decade, education researchers and district leaders have increasingly called attention to the growing problem of a teacher shortage in schools since massive teachers leave education system to pursue other opportunities (Balow, 2021). With dire shortages and constant turnover, Balow (2021) opined that school systems across the country are grappling with the challenge of building and maintaining a high-quality teacher workforce to meet the needs of all their students.

Bhutan is no different when it comes to shortage of teacher or attrition rate increasing annually. Today, the attrition rate stands at 3.8 percent at the primary level and 3.4 percent at secondary level. This study was able to distinguish between voluntary and involuntary attrition where Bhutan saw 1,872 teachers leave the system between 2016 to 2021. From the total, 1,336 teachers had resigned voluntarily.

When the first five-year plan was launched in 1961, Bhutan accorded education as the highest priority as the engine of growth to meet the country's social, cultural and economic goals. Six decades later, we are still complaining about a lack of quality education. We cannot expect quality education when students do not have access to basic education needs. Without trained and passionate teachers, children will never have a good foundation (Kuensel, 2021).

In every organisation there must be a leader who will pilot the affairs of that organisation towards the achievement of their goals. In secondary schools, it is the principal (Wangchuk & Dorji, 2020). Working with the principal as a team can achieve what an individual cannot achieve when he operates alone. This is an indication that the administration of the school can be affected when a principal forms his administrative team and, in the process, the team breaks as a result of attrition.<sup>3</sup>

Globally, it has become difficult to address or reduce overall teacher attrition despite several research and recommendations.

Many research points that from economics posit, usually, individuals make decisions about whether to enter, stay, or leave an occupation (or position) based on pecuniary and non-pecuniary advantages available to that person.

In Presley (2007), study says that pecuniary benefits include monetary-based rewards, such as salary, retirement and health benefits, opportunities for promotion, and job security, whereas non-pecuniary benefits include such things as working conditions, work schedule, and the availability of job-related resources.

Research has also found that higher academic qualifications are more likely to leave their first schools especially if one has served in remote schools and attrition is expected to increase until the working condition improves for these teachers.

Through the research, the Centre for Bhutan and GNH Studies has tried to analyse the factors that would have probably forced teachers to leave the profession. Bhutan does not have much research done on this specific issue of teacher attrition. So, my research was to first identify the factors that are leading to attrition. Poor working conditions and poor leadership stands out as a major reason for the attrition.

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<sup>3</sup> Wushishi, Fooi, Basri , & Baki (2014)



Teachers and researchers say educators want a bigger voice in school policies and plans (NPR, 2016). Many feel they are left out of the key discussions.

## **Methodology**

### ***Study Design***

The study adopted both qualitative and quantitative based on the secondary data obtained from education ministry. The primary data was collected using online survey through Google form. The secondary data was used in validating the attrition rate in the country and types categorised against teachers leaving. It was also to supplement the primary data on teachers leaving the profession.

Various works of literature were also referred to understand different factors that have attributed to teachers' attrition, globally. This study made use of various factors reflected in different literature to frame a survey questionnaire to put into the Bhutanese teachers' context.

### ***Data Collection***

Primary data were collected from 84 former teachers residing in Bhutan and abroad. The primary data was collected through multiple questions using five Linkert scale and open-ended questionnaire through Google Form. They were interviewed through open and close-ended questions to get the best result. Open-ended questions were asked to obtain insights that close-ended questions may not otherwise have provided.

Both structured and semi-structured questions were asked, in which, respondents were asked to rate through five Linkert scales against each factor they agree/disagree.

The questionnaire form was spread using the snowball method. The survey form was shared through a small former group of teachers through email and then the group shared among their peers, both inside and outside Bhutan.

Interviews were also done through written responses, including one in-depth face-face interview with a former teacher. The online survey was kept open for two weeks. The survey also kept open-ended questions to learn other factors that could probably be the reason for leaving and, not necessarily covered in the structured questions.

Statistics were analysed for the last five years from the annual education statistics to study the patterns of teachers' attrition. It also studied types of resignation mainly voluntary resignation, compulsory resignation, death and other reasons. Primary data was analysed/processed using Microsoft Excel through Pivot Table and cross-tabulation.

### ***Limitation***

With limited time, the paper could not carry out sample size method to represent the population size of 1,872 former teachers who left since 2016. Considering the number of respondents (n=84), the study's findings may not, necessarily be generalised. However, following an online sample size collection - Qualtric.com - given a 90 percent confidence level and a margin of error of 10 percent, the sample size required was 64.

## Results

### 1. Demographic Information

#### 1.1 Respondents

Table 2. Total respondents and age

Age	Female	Male	Grand Total
21 to 30	6	8	14
31 to 40	16	29	45
41 to 50	4	17	21
Above 50		4	4
Grand Total	26	58	84

Table 2 shows a total of 84 teachers who responded the survey questionnaire, distributed through various sources. Of the total respondents, 26 were female and 58 were male teachers. The figure above shows majority of teachers, who left the profession were between 31 to 40 years old. This, could possibly also indicate that these teachers, who left the profession, were in their mid-career level.

#### 1.2 Respondents and number of years served

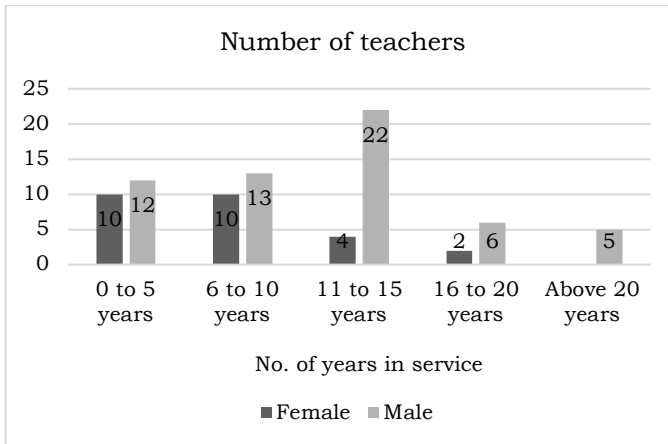


Figure 1. Numbers of years served in the teaching

The research, purposefully, asked the respondents to fill in the number of years served in the teaching profession, in the profile section of respondents. This was aimed to see, if those, who left the profession were experienced teachers. It showed that 31 percent teachers (n=26) of the total respondents had served between 11 to 15 years, clearly indicating that the education system lost mid-career professionals who had more than 10 years of preprofessional experience (a global definition).

However, it is also important to note that 53 percent of teachers (n=45) who left the profession had only served between zero to 10 years. Of these, 26 percent (n=22) were young and new in the profession that had barely served five years. This could, possibly, also mean many new teachers leave the job during their early career stage, which leaves a lot to desire.

### 1.3 Teaching profession a choice

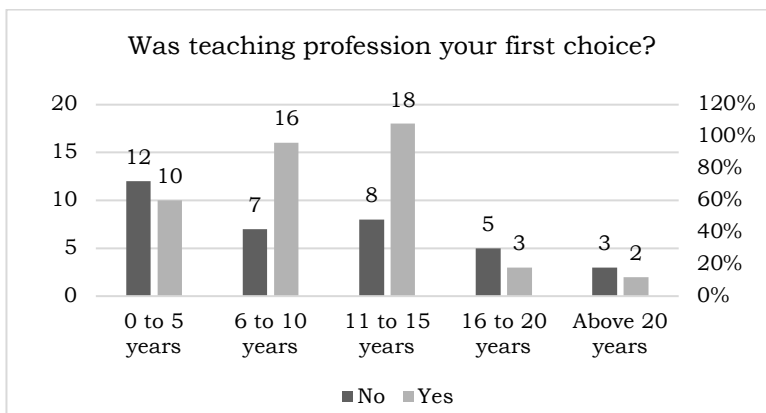


Figure 2. If teaching profession was their first choice

Figure 2 indicates if teaching was their first choice. From the data, a total of 49 teachers responded 'Yes' while rest of the 35 teachers said 'No.' A total of 34 teachers who said 'Yes' had served between six to 15 years in the teaching profession. This, could indicate that various factors, over the years, would have forced them to leave the profession despite they had preferred the profession while joining the service.

However, if we observe the data closely, it also revealed that a total of 12 teachers who had served between 0 to five years had never preferred the profession, including three teachers who had served more than 20 years also said 'No.'

This possibly means that they left the job when they got better prospects or the profession of their choice.

#### **1.4 Last place served before resigning**

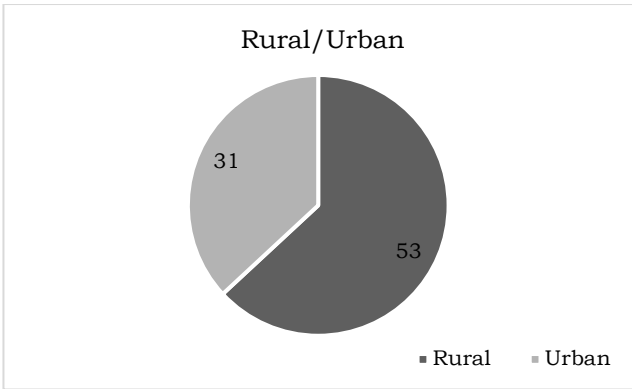


Figure 3. Place teachers last served

Respondents were asked to mention last two schools they served before resigning. Going by the response and data, it showed that 63 percent (n=53) teachers had served in rural before resigning. This is against 37 percent (n=31) teachers who served in urban. However, it must be noted that of the two schools that teachers mentioned, the survey considered the last school they served. This means those who served in the rural might have served in urban or semi-urban before being transferred to rural schools.

### Current Profession and Location

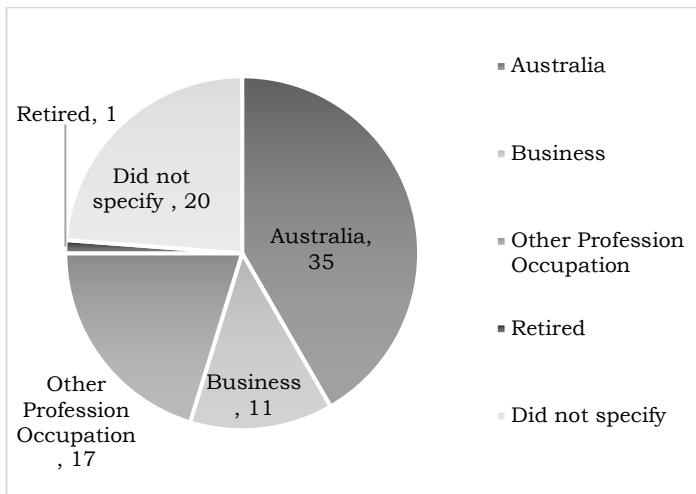


Figure 4. Current profession they opted after resigning

The questionnaire also required them to specify their current location and profession. This question was to mainly identify and see if former teachers left for better opportunities or abroad especially Australia, a cliché. Going by the data reflected in the Figure 4, it shows that 42 percent (n=35) of teachers are currently in Australia working or either studying followed by 20 percent (n=17) teachers who left for other professionals working in various ministries or agencies. A total of 11 respondents responded they were into business. However, a total of 20 teachers did not specify their location or profession.

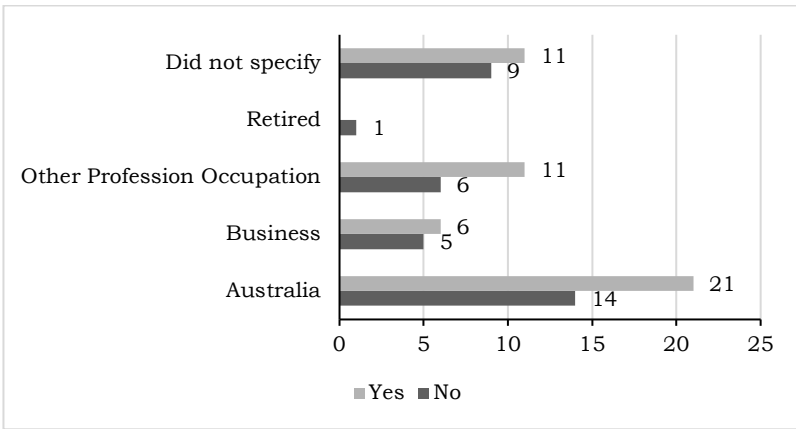


Figure 5. Was teaching your first choice?

In Figure 5, the data reveals 21 teachers who left for Australia had preferred teaching profession as a first choice, yet they left the profession. But significantly, 40 percent (n=14) said teaching was never their first choice. However, surprisingly, teaching was never a first choice for one retiree.

## 2. Factors that influence teacher attrition

Table 3. Teachers asked to rate against the factors for resigning

Factors	A	D	N	SA	SD
Heavy Workload	20	13	14	25	12
Unsatisfied job without motivation	25	9	11	29	10
Lack of career mobility	28	12	7	31	6
Lack of professional development	28	16	18	19	3
Inadequate salary/remuneration	10	25	26	12	11
Better opportunity over teaching	33	11	10	24	6
Poor working conditions/facilities	23	11	12	33	5
Monotony of job (teaching the same curriculum)	24	19	17	14	10
Transfer issue (Rural to Urban)	30	9	10	23	12

Note: A-Agree, D-Disagree, N-Neutral, SA-Strongly Agree, SD-Strongly Disagree

Table 3 shows that more than 50 percent (n=45) either strongly agreed or agreed that they left the profession because of a heavy workload followed by an unsatisfied job without

motivation, lack of career mobility, and poor working conditions/facilities (n=56). However, 14 teachers (17%) remained neutral which could indicate that heavy workload was not solely the reason for their resignation.

More than 50 teachers also indicated they left the system because of the transfer issue (especially from rural to urban), although, 21 teachers disagreed with the transfer issue. Better opportunity over teaching also saw 57 teachers who agreed was the factor to leave teaching.

A total of 47 teachers (56%) agreed with the lack of professional development as a reason for leaving the profession. While 18 teachers decided to neither agree nor disagree, the rest of the 19 teachers disagreed with the statement.

However, surprisingly, 43% (n=36) of teachers strongly disagreed/disagreed that inadequate salary or remuneration was a factor in leaving the job. While 26 percent (n=22) of the teachers agreed with the statement, 26 teachers decided to neither disagree nor agree.

The monotony of the job (teaching over the same curriculum) was also agreed as one of the factors for leaving the job (refer Table 3).

## **Discussion**

Heavy workload, lack of professional development, poor working conditions, and lack of career mobility are some of the reasons that prompt our teachers to leave. In doing so, Bhutan education system is also losing experienced teachers who are in their mid-career profession. Majority of teachers who left were between the age of 31 to 40 years old and those who have served more than 11 years. Globally, according to many researchers, a mid-career professional often develops expertise in one or more areas. These professionals often look for promotional opportunities or a new career alternative, including work-life balance.



It is a concern that although more than 50 percent of teachers agreed teaching profession was their first choice, they left the profession. This strongly depicts those other factors that forced them to leave, including better prospects/alternatives they availed over teaching.

Going to Australia or joining other agencies topped the reasons. More than 50 teachers agreed to have left the profession because of unsatisfactory jobs. Losing experienced teachers has its own cost implication where the education ministry invests to recruit and train teachers to replace those who left the education system. Recruiting or training would also mean getting less qualified teachers.

One of the respondents wrote: “I didn’t quit teaching but the system that was rigid and uncompromising where teachers are only expected to bear the burden of providing quality education without even providing a proper textbook.” Other respondents added teaching was becoming an ordeal because of the intense work pressure without any recognition or incentives to forget about getting any ex-country tours and trips.

The results, which were analysed based on themes that emerged from the data collected through an open-ended survey, revealed three major gaps that could be attributed to teachers’ attrition, as indicated below.

### ***Working Conditions***

It is often said that a teacher’s job is rewarding. Rewarding does not necessarily mean economic advantages but job satisfaction (Sugino, 2010).

Workloads, not only in teaching profession but in many other professions have only obligated professionals to do more but achieve less. Many schools looked aimless with teachers involved in other non-academic activity besides normal teaching workload and planning everyday lessons. Teachers in remote are faced with challenges of poor infrastructures. These could have substantially influenced teachers to leave teaching.

The teacher shortage has aggravated the working conditions of teachers especially in rural schools (Yezer, 2020). The rural teachers are overburdened and felt neglected. They felt that incentives and training opportunities go to urban teachers (Yezer, 2020).

As one of the respondents wrote; “We are expected to give good education to students, but we’re often pulled in a committee meeting, teachers meetings, class meetings, parents meetings, implement policy decision that we were never part of it, endless meetings that could have been an email, including administration works. But when we want to teach students out of box, everyone has a problem that teachers are not doing their job.”

Others’ research has often pointed out that working conditions often influence teachers’ decisions to continue the profession or not. The working condition includes class size, facilities, availability of textbooks, relationship with principals, and teacher support. Today, teachers work in over-populated classrooms with 1:40 and in some cases, more than 40 students.

Although Individual Work Plan (IWP) started with good intentions, this has often resulted in overburden for teachers than before, as (Kuensel, 2018) reported teachers have to keep records of other activities besides the daily lesson planning, book correction and preparation of teaching learning materials.

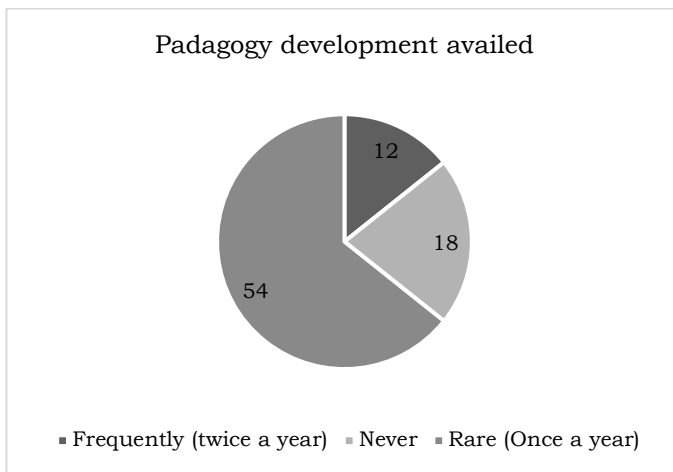
To reduce teacher workload, (Wangchuk & Dorji, 2020) in their study also recommended that the education ministry may develop a policy that delegates non-academic work to non-teaching staff so that teachers could focus only on teaching.

This study, also suggests there is a need to conduct a working conditions survey that could gather teachers’ views on the school environment. Fixing working conditions are less expensive than the costs of teachers’ dissatisfaction, loss, and retention.

Research has also found that teachers are likely to leave their first schools especially if one has served in the remote schools. Attrition is expected to increase until the working condition improves for these teachers. This could be true in the Bhutanese attrition rate where 63 percent of respondents in this study, indicated they were stationed in rural for more than 10 years in some cases, while some also confirmed teachers left the profession following rural-to-urban transfer issues. Inadequate teachers in rural also force teachers in service to leave when an increased workload falls on them.

One of the female respondents said, “It’s not because I hate teaching but I decided to leave since I did not get a transfer despite requesting several times. I was in remote schools for years and leaving separately from my husband who was serving in an urban area.

Lack of professional development as one of the factors for attrition should be a concern. This is because when too much is expected from teachers to meet education quality, we are also talking about the quality of teachers that could be enhanced through pedagogy development, among many. It includes workshops and long/short term training. A total of 64 percent (n=54) of respondents clearly responded that they rarely (once a year) got an opportunity to attend pedagogy development to enhance their career or be part of other important education consultations. Another 18 teachers claimed never to have got the opportunity (Figure 6).



*Figure 6.* How often teacher attended padagogy development?

One respondent stated that every activity is trickled down to schools and teachers when it comes to large scale implementation of any policy decision. For instance, waste management initiatives are initiated by others, education ministry’s programme officers attend the training and then teachers are asked to implement in the school. The respondent also shared that teacher were made to implement new normal curriculum at ad-hoc without any training or letting teachers involved in the formulation of curriculum.

Such differences have often left teachers unsatisfied with their job where they have to teach same curriculum over the years without any clear goals. Feeling demotivated was also confirmed as a factor for leaving the profession in this study and not because they were unhappy with their job. A demotivated person can be identified as someone who was initially motivated but because of negative external influences, has lost it (Sugino, 2010).

This forced teachers to look for better working conditions that includes greener pastures and better opportunities abroad or in the private school. This must change.

### **Leadership**

It is often said that good leaders will not only influence the dynamics of the school functions, but their leadership will also inspire and motivate teachers. What happens when a leader or the leadership style fails? It leads to frustration, disappointment and demotivation among teachers and despite good relationship with subordinates, it leaves teachers with no choice, but to leave teaching job for other job.

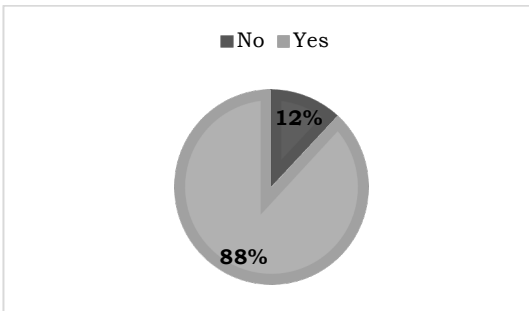


Figure 7. Leadership contributes to teacher attrition

Leaders have the potential to stagnate, corrupt, or transform the spirit of professionalism among its staff (Wangchuk & Dorji, 2020). Confirming leadership contributes to attrition in this study, 88 percent of respondents, who were adversely affected by the leadership style during their tenure in teaching profession, said 'Yes' when asked if the leadership is also one of the factors. This means poor leadership also forced them to leave the profession in one way or the other way. Majority of teachers in the open-ended questions cited "biased, fixed mindset and unappreciative" leaders as the reasons.

Given the data that indicated leadership is one major factor, it is important that there is a requirement for radical change in the leadership selection procedures. Many researches have also proven that there is a requirement to have a competent, motivating, visionary, diligent person as principal or for that matter, vice principal too if attrition is to be taken seriously.

As one respondent is quoted, “The leader should be the main source of support and encourage enthusiastic and experienced teachers to return but this is not happening. This is why there is a need to look into how a leader which could be a principal or education officer is appointed.”

A respondent from an in-depth interview stated, you try to be creative in your teaching, the leader questions if that will work and bars you from exploring your own idea. “How can one grow under a leader with a rigid rule and system? After several tries when I failed, I decided to leave the system sacrificing my teaching passion.”

### **Salary - not always the factor**

When teachers continued to leave in scores, the government decided to increase the salary of teaching profession in 2019. It was to make teaching profession attractive, as government claimed. The teaching profession became the highest-paid civil servant. Yet, the education system continued to see teachers leaving the profession. In last three years (2019 to 2021), a total of 613 voluntarily resigned from the system. This indicates that salary raise had not much of an impact.

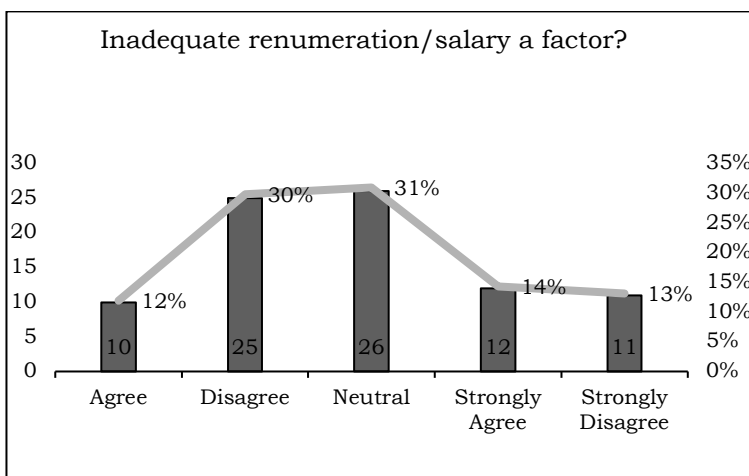


Figure 8. Inadequate remuneration/salary a factor?

In this study, Figure 8 shows that only 12 percent and 14 percent agreed that inadequate remuneration/salary was the factor for leaving the profession. But 30 percent disagreed and 13 percent strongly disagreed. However, 31 percent of teachers chose neutral meaning neither they agreed nor disagreed when asked if inadequate salary/remuneration was the reason.

There are also little evidences where researches prove that salary raise and other monetary incentives alone can have long-term impact on attrition. For instance, despite the increase in teaching allowance almost 55 percent of teachers continued to leave, especially, teachers serving in remote, as we saw in this study.

One of the respondents was quoted as: “I resigned and joined a non-profit organisation because I wanted to continue working with youth. But I wanted to be involved and help youth outside the education system. I am happy today even if I am earning almost 20 percent less”.

Chapman & Johson (1994) in their study has also said that it is difficult to effectively define the behaviours which are being rewarded so, increase in the salary could also have less impact.

As much as remuneration/salary increase can be a factor, it may not be everything for teachers because what teachers also look for is recognition and acknowledgement for their hard work. Instead, it is important that apart from increasing salary, certain strategies should be adopted that could reward teachers above their salary. Teacher support, reducing class size, increased participation in educational decisions, recognition and teacher support could be possible strategies.

Until there is job motivation or better working conditions along with good incentives or remuneration, a mere increase in the salary is not going to make the teaching profession attractive.

## **Conclusion**

Teachers are leaving the profession every year but not because they are unhappy with their job. It is often said that teachers are leaving to avail better opportunities be it in Bhutan or abroad, and in some cases, to join private schools. This is what needs to change because no one factor is responsible for the attrition. We must look beyond salary and it would be a worthwhile to understand the workload and morale of teachers.

Heavy workload, lack of professional development, poor working conditions, and lack of career mobility are some of the reasons that prompt our teachers to leave. Poor leadership is also attributed to teacher attrition. These are important factors we ought to be concerned about given the number of teachers leaving every year. It is a concern that although more than 50 percent of teachers agreed teaching profession was their first choice, they left the profession. This strongly depicts that other factors forced them to leave, including better perspectives/alternatives they availed over teaching.

Salary, however, did not stand as a major gap according to this study.

Teachers must be given equal opportunities for professional growth. The study concludes that high proportions of teachers are poorly motivated because of either low morale, being overburdened with ad-hoc plans and activities, or a rigid education system that does not allow teachers to grow individually. The majority were remote teachers who left the profession and they explained the workload was further added with large class sizes and lack of facilities. They also expressed getting fewer opportunities for professional development, which added to the transfer issue.

While the number of teachers leaving is increasing, there is a low rate of teachers being replaced. Teachers leaving also leads to high-cost implications, apart from losing a seasoned teacher because the education ministry needs to recruit and train new



teachers. This adds burden to teachers in service with over workload and ultimately forces them to also quit one day.

Therefore, it has become all the more important to give importance to remote teachers, recognise and acknowledge teachers' work to motivate them, improve working conditions, and increase the responsibility of being involved in the policy decision related to education.

Above all, teachers have to be motivated by making their working conditions conducive and providing equal short/long-term training or professional growth. Since salary is not the only way to upgrade their status or make teaching an attractive job for young teachers.

### **Recommendations**

Teachers will continue to leave if teaching is not made an attractive profession and teachers' morale will continue to agonise. This is why we must focus on teachers first for our education to succeed.

Education reform must also include building teachers' morale and answering factors that are forcing teachers to leave the profession.

This study recommends the government improve working conditions of teachers which will reduce the workload. It must also include providing equal training/workshop opportunities to teachers both in remote and urban.

A fundamental change in the leadership selection process is important to have a competent leader so that the leader could motivate teachers through his/her leadership.

Teaching materials could be updated because teachers strongly indicated they left because of monotonous jobs requiring them to teach the same curriculum over years.

Overhaul recruitment and deployment are also recommended.

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# **The 21st Century Global Crisis: Laying out the Foundations for a New World Civilization**

*Jorge Armand\**

## **Abstract**

The article focuses on principal traits of modern culture, i.e., on what we term *the foundational cultural myths of Modernity*, and to examine the role these myths have played in the contemporary crisis. A set of new epistemological insights is outlined that would be needed to understand and to act upon the root causes of this crisis, such as the oneness of Reality, the diversity within the oneness of Reality, the impermanency of all phenomena and the relativity of time and space. In this context, the actual functionability of modernity's myth is questioned (*the Myth of Eternal Progress*) and its concrete manifestation as a model of social development based on the perennial increase of economic growth, i.e., industrial production and consumerism, in detriment of fundamental values, which we believe are the origin of both that existential system and the current global crisis. As a substitution, a model of development, *Optimizing Homeostatic Paradigm*, is proposed. This implies dismantling all policies of unrestricted economic growth and the replacement of Gross Domestic Production (GDP) as the standard measure of social development and human progress. The criticism that limitation of economic growth would reduce economic activity and would foster loss of employment, therefore more poverty, is refuted. In this theoretical framework, the concepts of human freedom, development and technology are revised, and new ones are proposed. Finally, Bhutan's Gross National Happiness (GNH) index is shown as an example of alternative model of development, and inspiration for a new kind of world civilization.

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## **1. Introduction**

We have long claimed, that if the world is to avoid the predicted catastrophes that may arise as a consequence of our contemporary global crisis - in particular as a consequence of global climate change, and more recently of new pandemics and the social, economic and political calamities associated to these event - the modern world would have to get free from the old cultural myths upon which modernity is founded, and generate a new set of cultural foundational concepts.

From an anthropological point of view, the paper focuses on the principal traits of modern culture, i.e. on *the foundational cultural myths of modernity*, and to examine the role these myths have played in the contemporary global crisis. In this short article, the paper will not repeat the theoretical arguments that support what will be exposed, as this has already been done in a previous publication (Armand, 1998).

What follows is a very rough and straight forward outline of the new epistemological insights that would be needed to understand and to act upon the root causes of what can be labeled as the worse existential crisis encountered by humankind since Pleistocene times.

## **2. From Dualistic Science to Holistic Science**

In the fundamental sphere of Philosophy of Science, it would be necessary to revise the *Cartesian* conception of reality, which for 250 years has been the dominant general theory and replace it with a *holistic* conception of reality based on (or inspired by) insights derived from the so-called New Physics or Quantic and Relativity theories. This replacement would have to be based equally on an anthropological theory that envisages humanity not as a separated phenomenon, as is conventionally the case, but as an element of a larger reality that comprehends Nature and the totality of Cosmos (Bateson, 1972).

For the purpose of this article, a holistic conception of Reality implies, among other premises:

- a) The essential Oneness of Reality.
- b) The Diversity within the Oneness of Reality
- c) The Interconnectivity of all Phenomena.
- d) The Impermanency of all Phenomena
- e) The Relativity of Time and Space

### **3. From Maximizing Growth to Optimizing Homeostasis**

The aforementioned new epistemological conception of reality must be adopted - first, by main world academic milieu and particularly by philosophers of science; and second, by scientists in general, whose new ideas should eventually permeate all institutions, particularly political, financial and educational institutions. If this is not done, it would be very difficult, if not impossible for humankind, to undertake the other essential changes discussed below, to survive present global crisis.

In the first place, these academic milieu and institutions would have to abandon modernity's foundational myth, which was named the *Myth of Eternal Progress* (Armand, 2014), and the modern practice of *over-emphasizing the economic and technological variables of human existence* to the detriment of fundamental values, which is the origin of both the disruption of that existential system and the current global crisis.

Modern approaches to social evolution would have to be replaced by a more appropriate approach, the *Myth of Eternal Return*. This "new" cultural myth leads to the replacement of the dominant *Ever increasing Economic Growth Development* paradigm, by an opposite development paradigm, the *Optimizing Homeostatic Development Paradigm*.

The changes that have been mentioned, as well as the other changes will be elaborated below, represent a mutation in the same improbable sense of a biological mutation; hence the chances for them to occur are extremely few. However, mutations, both in the biological and cultural realms, have occurred many times in the history of life and in the history of humankind (Morin, 1980). In both cases, mutations appeared

because of the imperious need felt by a particular biological or social group of avoiding extinction, having arrived at a certain ecological and - or social dead-end.

Now, due to an unprecedented global climate crisis of predictable serious consequences, human civilization in general is facing a threat of collapse for a relatively long time. Hence, if it is going to survive, present world civilization would have to mutate, in this case culturally. This mutation has a name: the emergence of the *Optimizing Homeostatic Development Paradigm*.

A Homeostatic Economy, and in general a Homeostatic Society, does not necessarily imply a stagnant system, as it can optimize itself permanently. Instead of *maximizing* its variables, this type of economy and society tends to the harmonic development of *all* the variables that compose the socio-ecological system. A *homeostatic social system* is the opposite of a modern social system in the sense that this last tends to *maximize* a set of selected variables, particularly industrial production and consumption, in detriment to other variables. Hence the propensity of modern society to permanently generate crisis; a tendency that has been named as *cysmogenesis* (Bateson, 1974).

To implement the novel economic paradigm here described means dismantling all policies of unrestricted economic growth, and the replacement of Gross Domestic Production (GDP) as the standard measure of human development and progress. As suggested, the peculiar cultural trait of modernity in over-emphasizing some particular variables of the socio-ecological system represents the root- cause of our contemporary global crisis.

The expression “social and ecological global crisis” means that our global crisis has both an ecological face (as manifested in climate change); and a social face, as reflected - to mention one example - by the massive human migrations from rural to urban areas during last 250 years, which have resulted in the

hypertrophied and highly polluting modern cities. After our systemic approach, these two faces of our global crisis are connected to each other through a feedback relationship<sup>1</sup>.

Now, in the Biosphere - as in any other system, no cell, individual, or group of individuals, can increase indefinitely in size or intensity, without the system becoming hypertrophic, maladjusted or affected by disruption, which ultimately may destroy the system. Therefore, the modern pursuit of economic growth conceived as a process unlimited by time and space, is to be regarded as an aberration. The new development paradigm is founded on a holistic vision of reality and is the only perspective that is compatible with the historical imperative of survive the current ecological and social global crisis.

Notwithstanding, critics of the concept of economic homeostasis, and of *de-growth economy* (Martinez-Allier et.al 2010), including especially those adhering the neoliberal theory, argue that any limitation to economic growth would reduce world business activity, and would foster loss of employments, therefore in more poverty. This is false. In fact, we should instead be rejoicing, for in a world of homeostatic economy there would be greater opportunities for businesses and jobs, although of a different nature. These new jobs and business can be created by developing, for instance, public mega- projects aimed at restoring the hundreds of millions of acres of forests destroyed during last 250 years; this is something that would lead to relocating today's overcrowded urban populations to smaller and less polluting cities. These

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<sup>1</sup> A team of scientists from Sun Yet-sen University, China, undertook an inventory of the amount of greenhouse effect gas emitted by 157 cities distributed around the world in 53 countries. The study shows that just 25 megacities are producing 52% of all world greenhouse effect emissions. According with the results, the three major sources of emission are: generation of energy, industry and transport. The main conclusion of this study is that though the investigated cities cover just 2% of Earth surface, they are the main contributors to climate change. <https://www.elconfidencial.com/medioambiente/ciudad/2021-09/2021/megaciudades-gases-efectoinvernadero-52-3193100/>



mega-projects would require millions of jobs and businesses over several decades, which would compensate for the loss of employment resulting from the introduction of the new economic paradigm. And what is more important: these projects would significantly halt the CO<sub>2</sub> emissions causing climate change, as forests are the main natural absorbers of CO<sub>2</sub>.

Other examples of opportunities for private corporations and governments in the context of a homeostatic economy are the following projects: removing the plastic contamination of the seas, restoring the depleted planet's aquifers, developing massive organic urban agricultural farms and cottage industries, manufacturing eco-technological devices, sustainable tourism, and many other types of green enterprise.

Given this broad understanding of the concept of homeostatic economy, one can realistically expect that the new paradigm can be undertaken and funded by an ample spectrum of political and economic interests.

Some readers may think that this scenario can be easily misunderstood or dismissed by vested interests, in order to keep the world economy growing as usual. This possibility does exist. In fact, authors have been proposing a so-called "modernization of ecology", which in reality means nothing but making money from taking advantage of the increasing concern for climate change crisis (examples of this trend are Gouldson 1996, Redcliff and Woodgate, 1996; Moll, 1996).

What it is being proposed in this article is a *Recuperating and Preserving Type of Economy*, which is qualitatively different from the modern economic model; in the new economic paradigm economic growth, production and consumption are kept at the level of the actual needs of people, and at the level of tolerance of natural environment. On the other hand, it goes without saying that in a homeostatic world the size of the planet's population should be too kept in homeostatic condition.

#### **4. From Freedom to Have to Freedom from Need**

All the foregoing discussions lead to rethinking the notion of freedom as assumed by modern Western societies. In practice, most persons sharing the culture of modernity understand freedom as *freedom to have* (goods, money and power). This materialistic conception of freedom has become the psychological substrate from which arises the typical consumerism of modern world.

The eagerness to reach freedom by means of increasing possessions incessantly whetted by commercial advertising is, by its very nature, insatiable. The ordinary modern individual comes to live in a permanent vicious cycle of frustration-satisfaction-frustration, and in conspicuous chronic state of anxiety, which is however considered normal in this culture.

To better understand the social behavior of individuals sharing the culture of modernity, we make a distinction between the *needs that are natural or innate* to all human beings, irrespectively of their culture; and the *needs that are artificially created or induced*.

Human beings' natural or innate needs are usually divided arbitrarily into *material and non-material needs*. However, both groups of needs are connected. The most important material needs are of course food and protection from the elements (shelter and clothing). How these needs are satisfied depends basically on the climate. These needs, called *primary needs*, are oriented towards guaranteeing the physical survival of the individual and his social group.

It is generally assumed that human's principal non-material needs are security and group membership. The need of love, or of appreciation, is implied in the latter. However, Ethnological and Paleo-Ethnological evidence show that humans in general need a socially established set of beliefs concerning the transcendence of their physical existence. In other words, people need some kind of religion. In fact, designs to eradicate

religion in largely constitutionally atheistic states such as in Marxist Russia, Cuba, China, etc. have failed.

Freedom is not a need in itself, but rather the result of needs being satisfied, or more precisely the absence of needs. This implies that the more we satisfy our needs the freer we shall be. In the same line of thinking, one might say that the richest person is not the one who owns most, but that one who needs less (Thoreau, 1854). This idea points out at an actual opposition between accumulation of wealth and freedom, since wealth creates new needs, like the need to preserve wealth, to guard it, and usually the desire to increase it. This is why the Chinese mystic and philosopher Lao Tzu (550 B.C) said: “He who accumulates much loses much...”

However, freedom is relative, and never absolute since needs are part of the human condition. Absolute freedom could only be possible if psychological factors underlying human needs are transcended, which is an idealistic state of being known in Buddhist philosophy as *Nirvana*. Thus, one might say that true freedom is freedom from need, or simply freedom *from*. Freedom *to* is exactly opposite of freedom *from*, since the *to* implies a desire and thus that something is missing, that there is a need to be satisfied. Modern culture conceives freedom as freedom *to have*, and its corresponding economic system, capitalism, is based on the exponential production of ever greater variety of goods, whose sale depends on people’s desires. Hence the constant creation of artificial needs and desires typical of modern civilization. This is made possible through the manipulation of human impulses by advertising techniques. In fact, the conception of freedom as *freedom to have* and the capitalistic socioeconomic model are two sides of the same social *gestalt*. This is one of the main reasons why in the West the ideal of freedom has in practice resulted in its antithesis.

If the permanent creation of ever greater variety of needs leads to a chronic feeling of emptiness and anxiety in the majority of modern individuals, especially in the comfortable and well-to-

do classes, among economically and socially marginalized individuals, the same leads to frustration and violence, one of the causes of the steadily increasing crime rates over the last decades in the world.

In relation to the actual human needs, meaning those that are not created by advertising, to feed the world population does not require new technological innovations or more economic growth. Indeed, experts consider that current food production is sufficient to feed all the inhabitants of Earth. However, hundreds of millions of human beings continue to suffer from hunger (UN, 2017, 1994).

The fact that roughly 86% of world's goods is consumed by scarcely a fifth of the world's population, and the well-known fact that a large part of these goods is produced using raw materials and labor from the poorest nations of the world (Credit Suisse, 2012), proves that the origin of world hunger and poverty are not to be found in the population explosion. Nor they are due to lack of efficient technologies, much less to lack of economic growth. They are the result of a rather unfair and grossly non-equitable distribution of the fruits of labor between the Western rich countries and the non-Western poor countries, and between the rich and poor in each nation.

To overcome the chronic hunger in the so-called Third World, and poverty in general, including the large pockets of poverty existing in countries like the United States of America, and in some European countries, international financial organizations like IMF and World Bank have proposed more economic growth and increasing international trade. However, this strategy has not worked. Its most obvious consequence has been a worsening of the environmental crisis, with little or no improvement in the misery of the people in the way of compensation. What has finally resulted is an economic expansion growing at the same rates as the world unemployment and the global climate crisis. This is another example of modernity intrinsic tendency to maximize selected variables instead of optimizing the whole system. It destabilizes

other variables and invariably creates new crisis (*cysmogogenesis*).

The current strategy of international financial institutions like IMF and World Bank, of encouraging economic growth and international trade, does not consider the medium and long-range global effects of their policies. This too represents an example of the modern Cartesian-originated mode of thinking, which tends to divide reality into a series of unrelated compartments. One more example of the same is the process whereby industrialized nations relocate polluting factories in ecologically permissive countries like Mexico and Bangladesh. They should know, however, that nothing is gained by this, since sooner or later they may also suffer the effects of pollution, as in the Biosphere phenomena are all interconnected.

A homeostatic society's way of life is the antithesis of modern way of life. The best prototype of the latter is known as the "American way of life", which is regarded as a model in most Latin-American, Asian and African societies, particularly by westernized middle and upper social classes. But it is to expect that different social values would spontaneously emerge from a homeostatic society and economy. In the first place, as opposite to the American way of life, frugality, simplicity and leisure as a way of life would tend to be socially regarded as virtues, contrary to the current modern mentality. Besides, the development of new sources of psychological wellbeing, corresponding to a new set of social values and ideals, would reduce the consumption of hard drugs, tranquilizers and alcohol abuse, stress and other mental and physical disorders associated with the modern way of life. These new sources of psychological wellbeing would be, for instance, working and living close to nature, spending more time with friends and family, participating in communal activities, sporting in Nature, having time for self-education and artistic activities, and for aesthetic and spiritual practices.

## **5. From Alienated Development to Self-Development**

Semantically, the word *development* means simply *unfolding*. In fact, the meaning of development is the unfolding of the potential characteristics of an individual, species or group. It follows, that in the case of a nation, true development means the unfolding or deployment of one's own culture. Hence, the kind of development adopted by a given nation is relative to that nation only. Therefore, for development to be socially functional and satisfying to the members of a nation, it could not be the imitation of other nation's model of development. This commonsense notion was distorted by 19th century social evolutionist theory, and it is unfortunate that it still prevails in the modern social and economic sciences.

Development conceived as the imitation of the Western model has proven to be a goal that the majority of nations have not achieved. Throughout the last century, and particularly after World War II, when the idea of development started to be a world concern, humanity has become increasingly divided into opposite camps: on the one side, a few so-called "First World" or "developed" nations, which grew richer as time went on. On the other side, the overwhelming majority of humanity, composed of non-Western or so-called "developing" nations, and previously known as the "Third World", grew poorer and more dependent on the Western nations. This negative balance, for which the extinct Soviet socialist model and today's neo-liberal model bear equal responsibility, has created in the poorest nations of the world a frustrated feeling and a skeptical attitude towards the idea of development.

From our point of view, this failure has its roots in the innate incapability of peoples in general to internalize the cultural myths and social values of other nations (in this case, the myths underlying Western conception of development), since to assimilate other nations' cultural myths and models of development implies losing their own cultural identity and sovereignty. From this arises the persistent resistance in the majority of nations (excepting their westernized social elites) to follow the Western model of development.

Self-development, on the other hand, implies - apart from building the material structures for the satisfaction of the actual material needs of the people - preserving the national culture and the natural environment. Moreover, self-development means preserving humankind's rich cultural variety and heritage, which is as important for the future of humankind as it is to preserve biological richness and diversity.

## **6. From Raping Nature to Seducing Nature**

According to Morris Berman (1987):

...when a member of an indigenous group does the rain dance, for example, he does not expect an automatic response. This is not failed technology; rather he is inviting the clouds to join him, to respond to his invocation. In effect, he is asking them to make love to him; as with any normal lover, they may or may not be disposed to do so.

This is the way nature works. With this approach, the native learns about reality of the situation, the moods of the earth and the sky. He surrenders himself: Nemesis, orgiastic participation. Western technology, on the other hand, sows the clouds from airplanes. It takes nature by storm and dominates it. It has no time for moods or subtleties, and so, together with rain, we get noise, pollution and the possible destruction of the ozone layer. Instead of putting ourselves into harmony with nature, we seek to conquer it and the result is ecological destruction...

Of course, there is a tremendous difference between the way of producing rain by "seducing" the clouds and the modern rain inducing techniques. Or say, between the blowing empoisoned darts of Amazonian tribes and the missile recently dropped by Americans in Kabul.

The myriads examples in fields like communication, medicine, food production, civil engineering, computing technologies, astronomy, etc. show the amazing advances of modern science and technology. Yet, does technological advance really mean human progress? Humans are not machines, but creatures that also require psychological wellbeing and spiritual fulfillment, which modern technological civilization has failed to provide. This failure has become more evident after the horrors of World Wars I and II, such as the Hiroshima and Nagasaki bombardment, the never- ending chronic hunger of millions, the current climate crisis, the new pandemic, etc. All this despite the so-called “progress” of humankind.

To go to the root of the problem, technology does not exist in the real world in isolation, for it is a variable within a complex social and environmental system. These interact multi-directionally with the remaining variables composing the system. Thus, going back to the example of the empoisoned darts of the Amazonians compared to the Americans missiles, if these two types of weapons are isolated from their respective contexts, their real meaning and function will be difficult to grasp, since they are not mere technological devices, but parts of a system that includes elements from a variety of spheres such as economics, cultural values, social myths, religious beliefs, and the natural environment.

It follows that to divide human societies into primitive and advanced societies based on their different technological development, apart from being simplistic and ethnocentric, is not a scientific way to approach the study of human societies. Moreover, technology is not neutral or innocent as many people believe. Each civilization or culture develops a particular kind of technology, in accordance with its specific foundational myths and cultural values. Hence, technology is also culturally relative. As an example of this relativity there may emerge in future a new type of technology emerging from a post-modernity civilization.



A holistic conception of reality leads to an approach to nature that differs radically from that of the Cartesian dualistic conception of reality that identifies modernity. If a given human culture conceives human beings as part of nature it will spontaneously tend to develop a kind of technology respectful to nature. The opposite is also true: if a given society conceives human beings as inherently separated from nature, it would generate a kind of technology that will tend to abuse nature or at least to ignore it.

At the practical level, a holistic conception of reality leads to the development of technologies of little ecological impact, like for instance the so-called *soft technologies* and *intermediate technologies* (Schumacher, 1973). The expression “intermediate technologies” means man-powered equipment and machines that require no large capital investments or highly sophisticated manufacturing or repairing procedures.

In addition to the obligation of all true ecological governments to promote low ecological impact technologies, anti-ethical practices such as “built-in obsolescence”, non-repairable, non-reusable, or non-biodegradable articles, as well as products that represent a direct damage to the environment, are to be legally banned or discouraged through heavy taxes.

Besides soft and intermediate technologies are particularly good at generating jobs. To solve the social and political problems derived from increasing unemployment due to the current robot industry and so-called artificial intelligence, technologies in a sustainable civilization should be evaluated according to their potential to provide jobs for the greatest number of people. Therefore, handicrafts and small-scale industries must be revived, which also would bring about a spontaneous movement from overcrowded cities back to the rural areas. Additionally, this would bring about decentralization at the political level, and thus a more democratic global society (Gandhi, 1927).<sup>2</sup>

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<sup>2</sup> According to Daniel Susskind, a professor of Economics at Oxford University, new breakthroughs in artificial intelligence mean that all kinds

Nuclear energy is the opposite of soft ecological impact technology, and the paramount example of an ecological hard impact technology. Nevertheless, if CO<sub>2</sub> sources of energy, like oil, gas and carbon, are discontinued as it seems will be the case during next decade, nuclear energy will be the only source of energy left for satisfying the unbelievable power demand of a world conceived to remain in perpetual economic growth. However, it is generally accepted that the planned massive construction of nuclear plants all over the Earth represents a serious threat to the natural environment, people's health, and world peace. This is so because so far no one has been able to guarantee the full safety of nuclear plants and of their radioactive waste disposal systems.

### **7. The Crucial Lesson of the Corona Virus Pandemic and Bhutan's Revolutionary Social Experiment**

The Corona virus pandemic has driven the reduction of the GDP index, thus a decrease in general economic growth. Correlatively, as shown by satellite images, there has been a considerable, though temporary, decrease of CO<sub>2</sub> and other greenhouse gases in the atmosphere. The photos taken by NASA has demonstrated empirically that the present abnormal amount of CO<sub>2</sub> gas in the atmosphere, which are the main cause for current global climate crisis, has been a result of human economic activity. This is a fact of tremendous importance, for it shows us the actual causes of current climate change. More importantly, it is also pointing out at its remedy. In other words, Corona virus has given us a crucial lesson. And the lesson is that to stop the ongoing process of global warming, a new economic development paradigm must be developed, which will have to be well away from present sort of

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of jobs are increasingly at risk. Machines no longer need to think like humans in order to outperform them as once widely believed. As a result, more and more tasks that need to be far beyond the capability of computers - from diagnosing illness to drafting legal contracts, from writing news reports to composing music - are coming within reach. The threat of technological unemployment is now real (Susskind, 2020).

“GDP Cult”, and far from the cultural premises that underlies the conventional measure of human progress.<sup>3</sup>

The case of Bhutan serves as an example of a nation whose new constitutional desideratum goes beyond modernity’s development paradigms, meaning that for the first time in recent history a nation has put into practice, politically and as a fundamental constitutional premise, that human progress and development does not consist in the accumulation of material wealth, but in achieving happiness through the harmonious fulfillment of both material and non-material needs, and by safeguarding world cultures and the natural environment (Armand, 2019). This is the meaning of the Bhutanese concept of Gross National Happiness or GNH Index of Development (Ura, 2015).

The impact of this revolutionary idea has been so great, that governments of countries like Holland and New Zealand did not wait long to implement in their nations a kind of Happiness Index to measure their own development. Various adaptation of the Bhutanese index of happiness has been elaborated in these countries to help counteract the effects of Gross Domestic Product (Sellsmoor, 2019).

In addition, as early as 2012, a group of 62 countries at the UN approved the Bhutanese Gross National Happiness Index (GNH), as a valid path for their own development (Ura, 2015.) It is therefore to be expected that with the current worsening of world climate conditions, particularly in Western Europe and in Northern America (unexpected floods, fires, heat waves and stronger hurricanes), more countries will be soon

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<sup>3</sup> According to a BBC News report (May 11, 2020), in last 100 years several crises have meant a decrease of greenhouse effect gas emissions, as result of a decreased consumption of oil, gas and carbon. That occurred during Spanish Flu Pandemic, the Great Depression and the end of World War II. However, the greatest fall has been caused by the Corona virus pandemic in just a few months; a fact that NASA has detected from the space. On the other hand, the International Agency of Energy EIA estimated that the consumption of energy fell by 6% during 2020, which led to a further decrease of CO2 emissions.

implementing such progressive changes in their economic and social policies.

## **8. Conclusion**

In the present article, the epistemological basis of modern science and the fundamental concepts of Human Needs, Development, Technology, and Freedom was revised, upon which modern civilization has been built. The author's theory of modernity (Armand, 1998) was used as a framework to approach the root causes of the 21st century global crisis. Some aspects of the Coronavirus pandemic, as well as of the implementation in Bhutan of the Gross National Happiness Index (and of similar development index in an increasing number of nations), are used as an illustration of a socio-economic and political new world trend which support our main conclusion that humankind could eradicate the root causes of the current global crisis, and this implies a deep cultural mutation leading to a new World Civilization.

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