Bhutan

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Introduction

A relatively small, undeveloped country in the Himalayas, Bhutan is best known for its natural beauty and creation of the Gross National Happiness index - the country's way of measuring growth. Landlocked, between the Tibetan plateau of China in the north and east and by India on the west and south, Bhutan has a diverse topography and several different climate zones. The greatest impact from climate change can be seen through increases in landslides due to heavier rains and Glacial Lake Outburst Floods (GLOFs) as glaciers retreat due to higher temperatures. The country also faces disruption to water supplies, extreme weather, and impacts on ecosystems as a result of changes to the climate.[1]

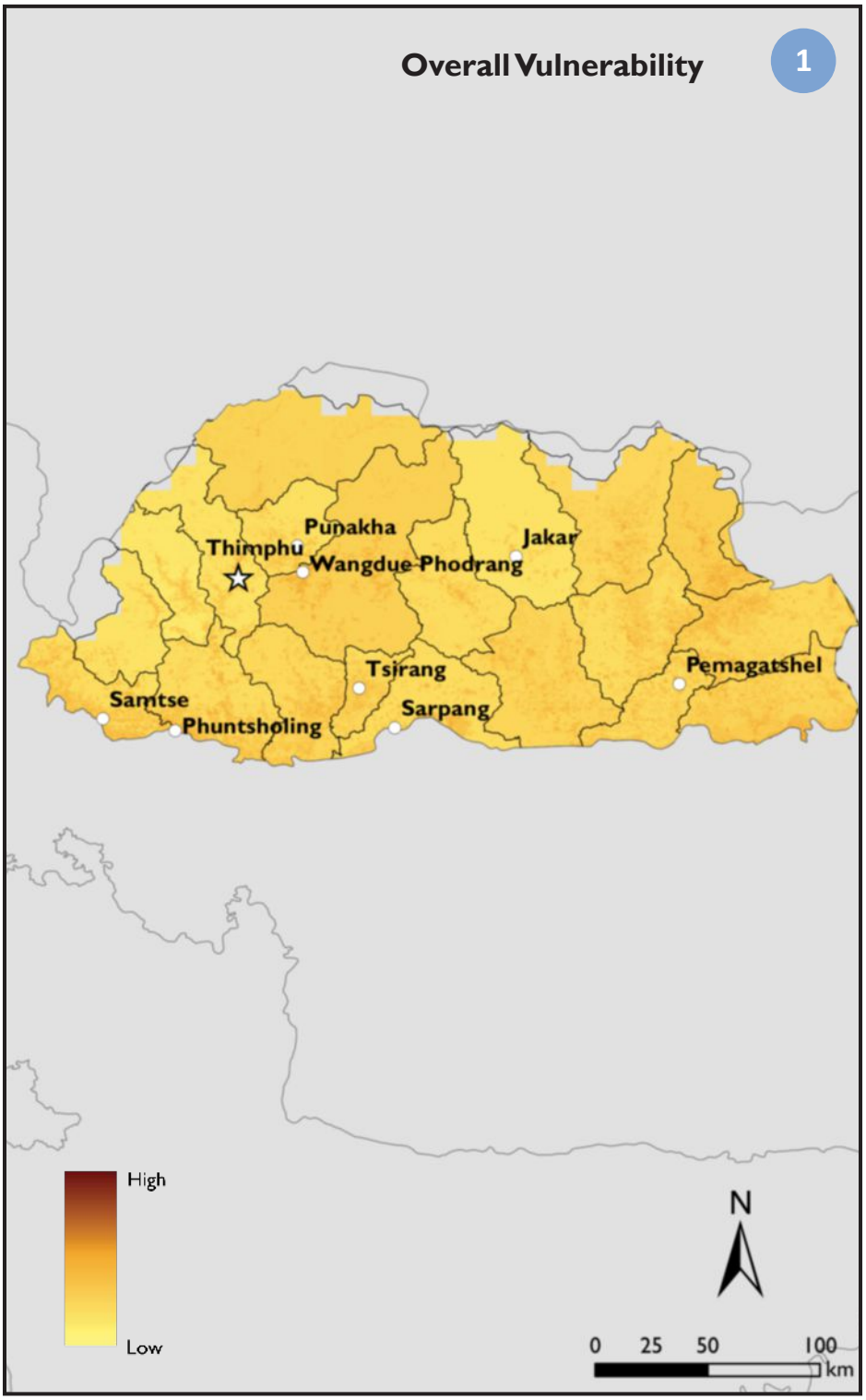
Since the creation of its first development plan in 1960, Bhutan has made enormous strides towards achieving human development indicators that put it above most of South Asia. Life expectancy has nearly doubled, infant mortality has fallen, and real GDP has increased from $200 in 1980 to $2500 in 2015.[2] However, much of its development is tied to highly climate-sensitive sectors such as agriculture, hydropower, and forestry. Since 80% of the population still depends on agriculture for their livelihood, the population of Bhutan has low household and community resilience as seen in Figure 4.[3,4]

Natural Disasters and Climate Change Vulnerability

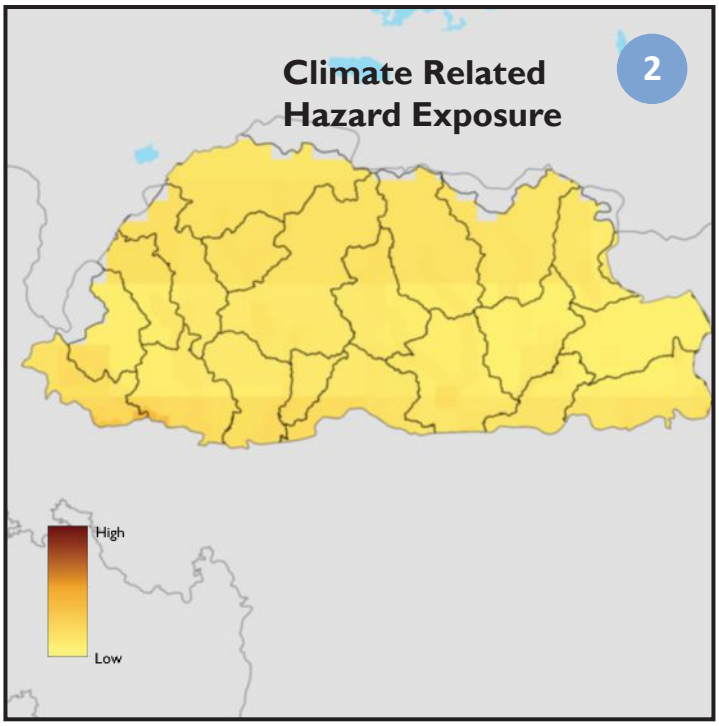
While Bhutan has not faced significant casualties due to climate change related disasters, the growing likelihood of floods, landslides, and severe storms pose a severe threat.

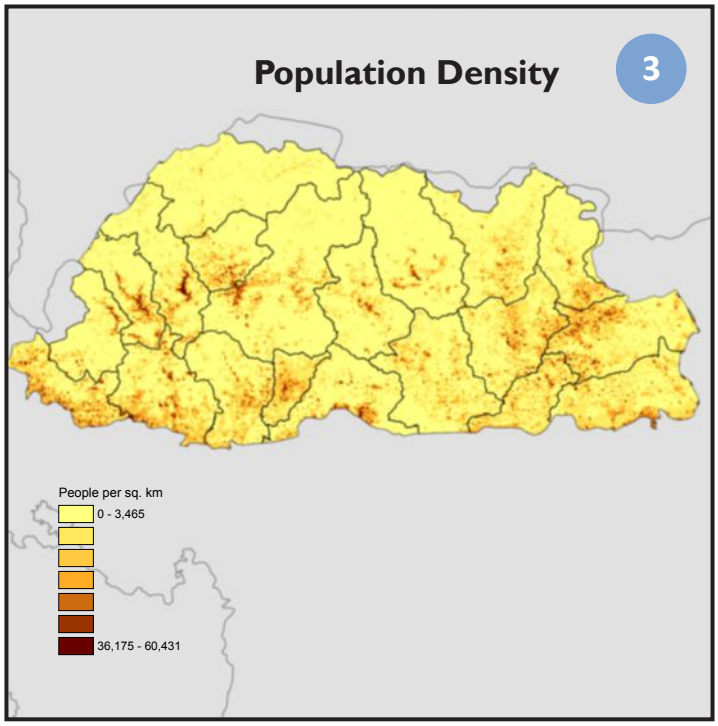
When the Dhuti Kola River flooded in 2000, a massive mudslide in Pashaka, a village in Bhutan close to the Indian border killed 200 people.[5] A flash flood during June 2013 caused several acres of land to be filled with debris and sand and even washed away. Climate change has also caused the seasonal strong winds to become major hazards in Bhutan. The 2011 and 2013 windstorms caused huge damage to rural homes in Bhutan. Other hazards such as landslides, flash floods, and forest/structural fires also sweep across the country causing significant losses to the properties and lives of people.[6]

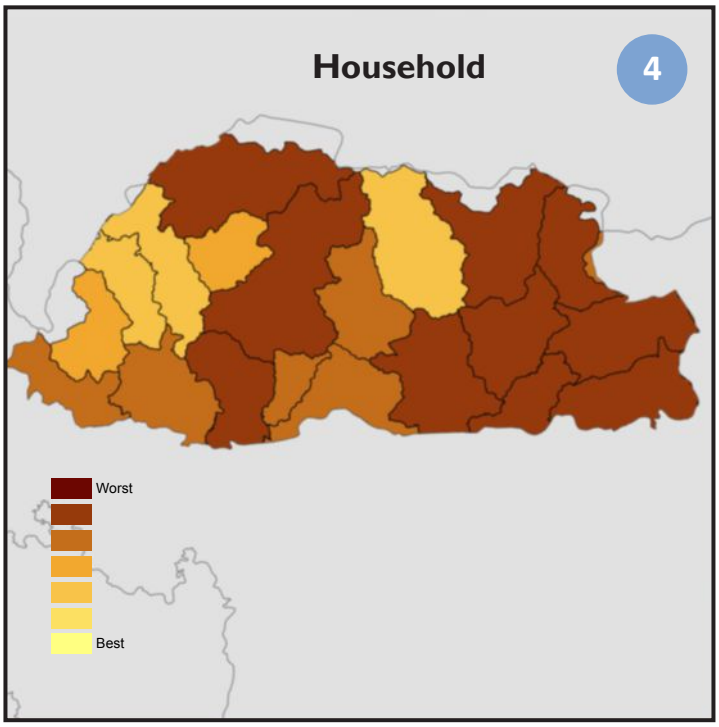
Glaciers in the Himalaya are receding faster than any other part of the world. At present rates, it is highly likely that they will disappear by the year 2035 or sooner. With an estimated 2,674 glacial lakes in Bhutan, and 24 considered potentially dangerous, GLOF's represent a major climate change concern in the country. Major incidents of glacial lake outbursts have been documented 1957, 1960, and 1994.[7]

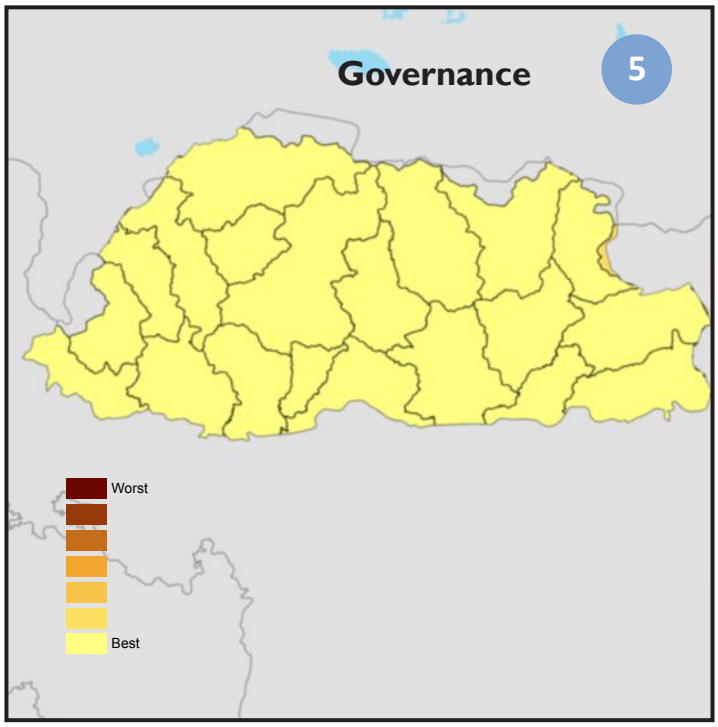


Data Sources: KOF Index of Globalization; World Bank World Governance Indicators; Political Instability Task Force (PITF); Polity IV Project; World Bank World Development Indicators; USAID Demographic and Health Surveys; UNICEF Multiple Indicator Cluster Surveys; Center for International Earth Science Information Network; UNEP\Grid-Europe; Viewfinder Panoramas; LandScan; Princeton University Terrestrial Hydrology Research Group


Climate Related
Hazard Exposure
2
High
Low


Population Density
3
People per sq. km
0 - 3,465
36,175 - 60,431


Household
4
Worst
Best


Governance
5
Worst
Best

External Assistance

Between 2000-2013, Bhutan received $2.5 billion in foreign aid with $21.5 million going towards climate change adaptation and disaster risk reduction projects. With a population of only 757,000 people, the majority of which live in rural areas, Bhutan depends on aid from organizations to fund its development and recovery projects.[8] Official Development Assistance (ODA) accounts for 5.2 percent of the country's total Gross National Income.[9] Many bilateral and multilateral agencies such as the World Bank and World Health Organization (WHO) have worked with the Bhutanese government to recover and reconstruct after major flooding and earthquake events.

In 2014, UN Development Programme (UNDP) provided $11.49 million to Bhutan's National Adaptation Programme of Actions (NAPA). The NAPA agenda includes developing a disaster management strategy, weather forecasting systems, landslide management, and flood prevention as well as community-based forest fire management and prevention.[10] In addition, the Bhutan Climate Change and Human Health project conducted by the WHO aims to improve data collection which will allow the country to monitor and receive early warnings and thus the opportunity to prepare and respond to potential health risks.[11]

Governance

In 2008, Bhutan transitioned from a monarchy to democracy with a constitution that directs the leaders to consult the four pillars of Gross National Happiness.[12] The concept of Gross National Happiness is a home-grown development philosophy, derived from Buddhist values, that stresses equitable social development, cultural preservation, environmental conservation, and good governance adapted to local conditions and values. However, Bhutan lacks both government and private funds to invest in mitigation and adaptation efforts to reduce vulnerabilities to climate change.[13]

Endnotes

[1] United Nations Development Program. Bhutan. Available at: http://adaptation-undp.org/explore/bhutan

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[4] Further explanation of our approach can be found in Busby et al. (2016)'s Climate Security Vulnerability in Asia v1.0. Available at: https://www.strausscenter.org/cepsa-research-briefs?download=627:climate-security-vulnerability-in-asia-1-0

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