



Premise: Doing What Matters

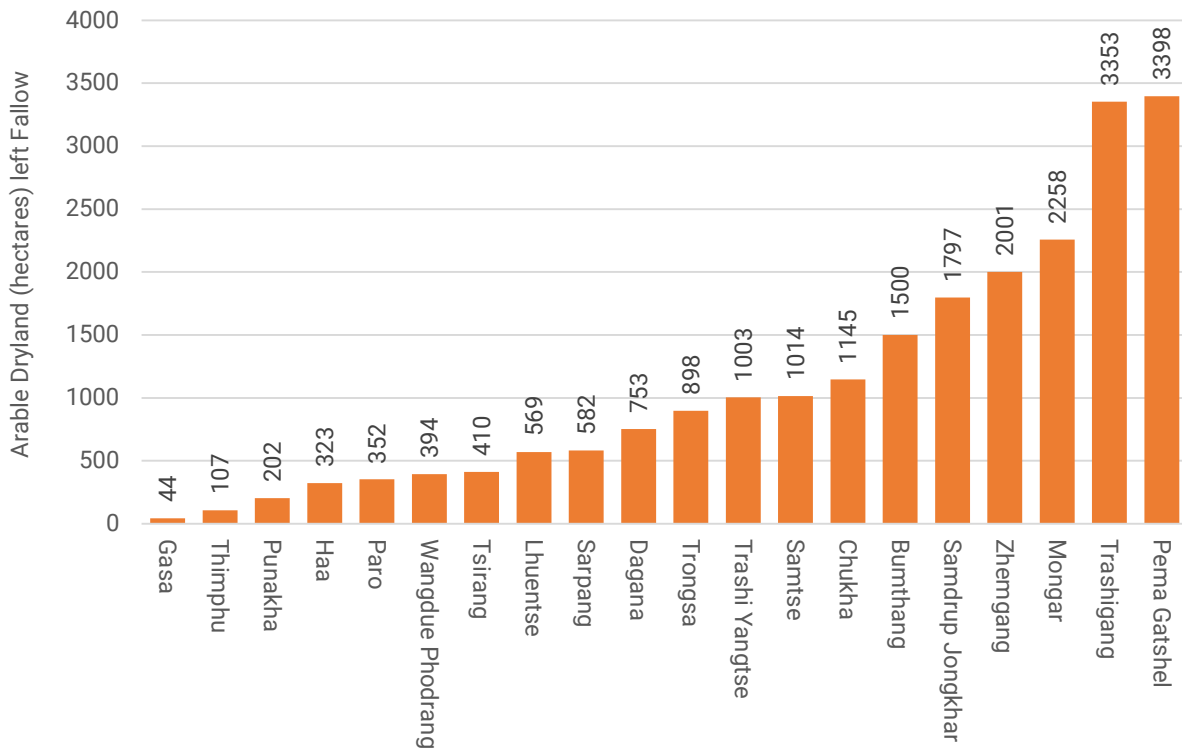
Bhutan Ecological Society
June 2020

We Will Put Land to Productive Use:

Bhutan's available arable land is a paltry 3.7% of its total land cover¹. Of this, due to human wildlife conflict, lack of adequate water supply and access to markets, an estimated 29% (~22000 hectares) currently remains fallow². Proper utilization is further compromised by climate change related events, such as untimely rainfall and increasing incidences of pests and diseases.

29% (about 22000 hectares) of Bhutan's arable dryland remains fallow

Working with communities, we will transform fallow arable land into ecologically fecund and economically productive landscapes.



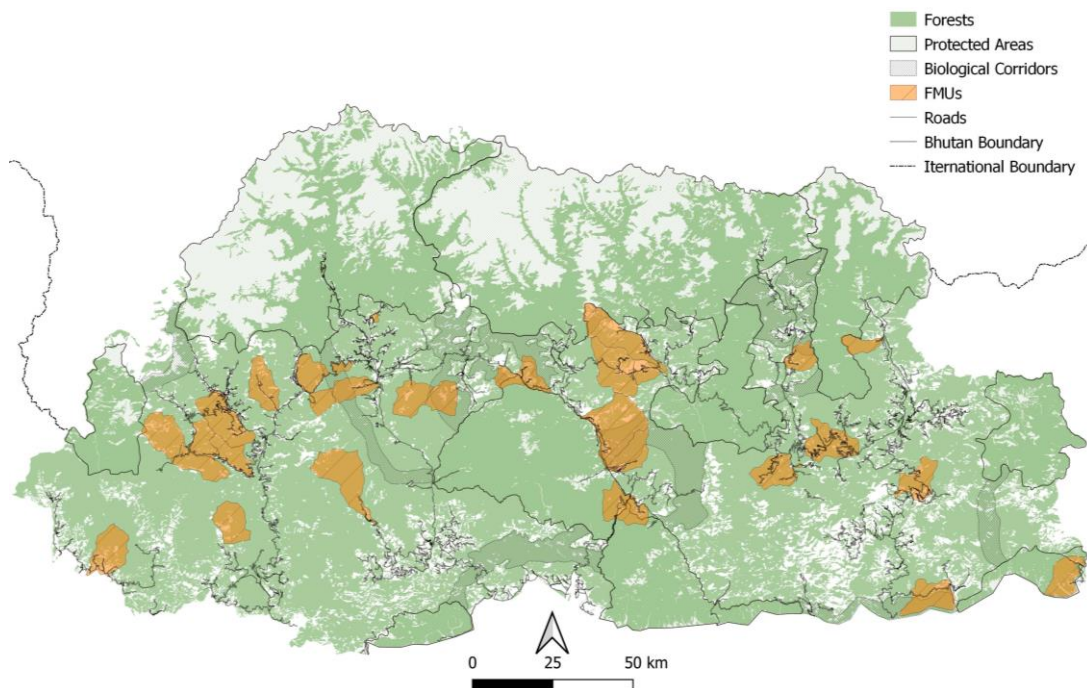
¹ Landuse and Land Cover Assessment of Bhutan 2016, Technical Report, Department of Forests & Park Services, Ministry of Agriculture & Forests, Royal Government of Bhutan
² Gewog Agricultural Statistics 2018, Ministry of Agriculture & Forests, Royal Government of Bhutan

Over the next decade, we will promote and cultivate high value trees and associated crops in at least 10%, about 2200 hectares, of fallow land. Planting an average of about 500 trees per hectare in partnership with local communities, we will nurture over a million high value tree crops across Bhutan. This will generate annual and long term incomes for rural farmers and serve as community carbon banks. Ecologically fecund landscapes will also significantly add to biodiversity and help mitigate climate change.

We Will Help Ensure Functional Integrity of Large Forest Landscapes:

***5%**, about 198400 hectares, of Bhutan's total land area are managed for commercial harvesting of timber.*

Forests cover about 71% of Bhutan's total land area, with Protected Areas and Biological Corridors covering an estimated 51%. **About 5%, 198400 hectares**, are managed for commercial harvesting of timber within Forest Management Units (FMUs). As of 2020, there are 21 FMUs³ spread across Bhutan with a total annual harvest potential of 126000 cubic meters of wood. The ecological integrity, and the management capacities to ensure functionality, of these landscapes are yet to be tested and monitored independently.



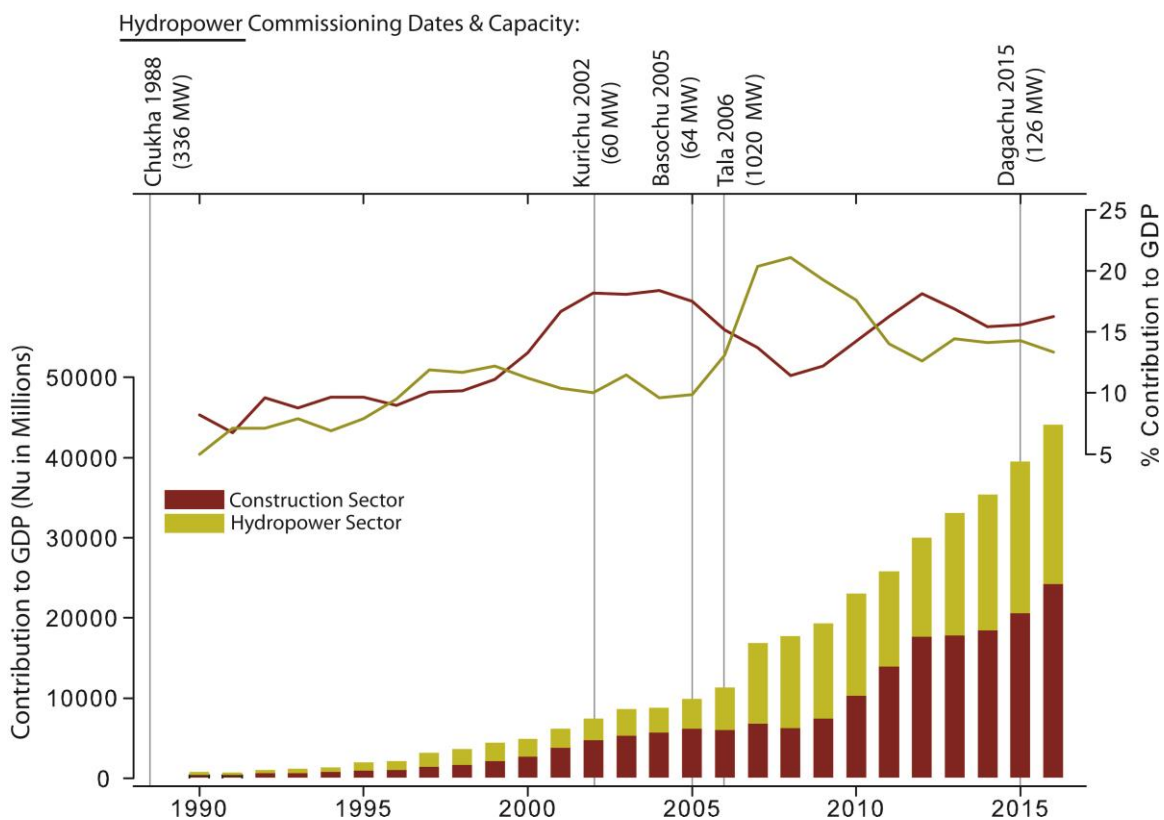
³Forest Facts & Figures, 2019, Department of Forests & Park Services (www.dofps.gov.bt)

We will in collaboration with relevant Government agencies, civil society actors and multi-lateral agencies help ensure that these large forest landscapes are effectively managed by instituting and performing independent ecological and performance reviews on a regular basis. Such mechanisms will guarantee that the social, economic and environmental benefits from these landscapes flow into perpetuity. Ensuring the functional integrity of these large forest landscapes is a significant climate change mitigation strategy.

We Will Help Build Smarter:

*Buildings gut more than **40%** of total energy consumed in Bhutan*

Construction in Bhutan has witnessed rapid growth in the last two decades, resulting in the building sector gutting more than a third of total energy consumed in Bhutan (estimated at 41.58% for 2014). In 2018, for the first time after the formation of the Druk Green Power Corporation (DGPC), Bhutan imported a net energy of 29.32 MU from India, during the months of February and March⁴.



⁴ Annual Report, 2018, Druk Green Power Corporation (www.drukgreen.bt)

We will work with the Government, key stakeholders, financiers, and private builders to spur a new generation of energy efficient buildings, leading to significant savings in energy consumption and reduction in carbon emissions. We will promote innovative designs, encourage use of wood and integration of renewables.

We Will Champion Solar & Renewables:

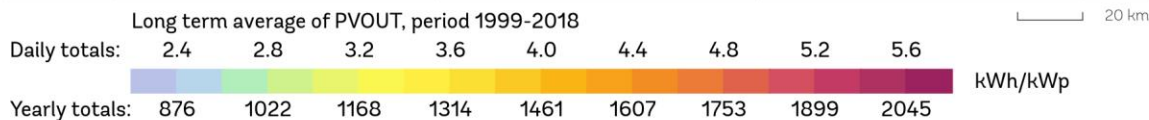
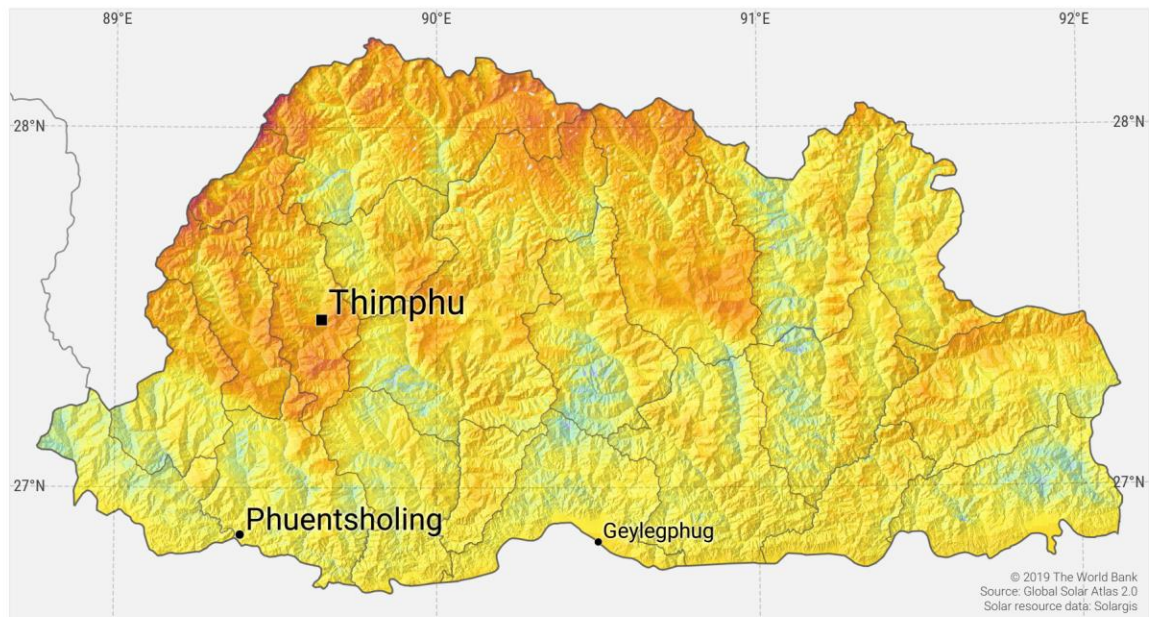
Hydropower is Bhutan’s dominant export and primary producer of electricity. However, given hydropower’s reliance on river flows, which is becoming increasingly erratic and unpredictable due to climate change, it is imperative and urgent that Bhutan’s energy mix be diversified. In 2018, the DGPC recorded the lowest generation of electricity due to poor hydrology⁵.

Despite the potential of renewables⁶, the dominance of hydropower has stymied growth, interest and investment in solar, wind and biomass based energy solutions.

SOLAR RESOURCE MAP

PHOTOVOLTAIC POWER POTENTIAL

BHUTAN



This map is published by the World Bank Group, funded by ESMAP, and prepared by Solargis. For more information and terms of use, please visit <http://globalsolaratlas.info>.

⁵ Annual Report, 2018, Druk Green Power Corporation (www.drukgreen.bt)

⁶ <https://globalsolaratlas.info/>

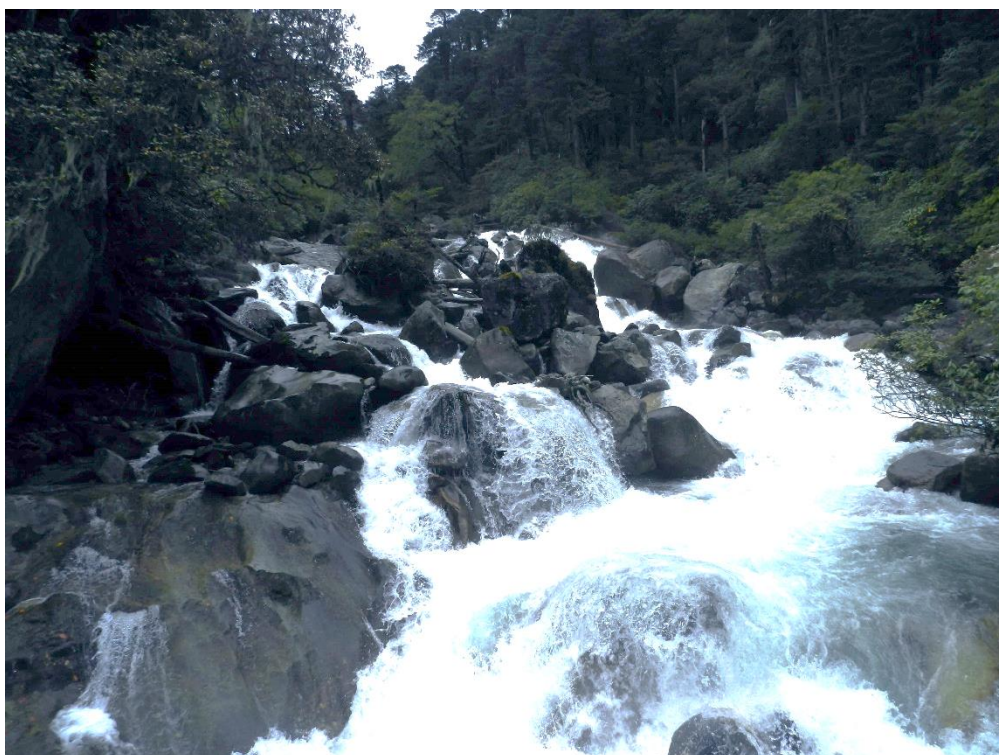
We will champion renewables and help unleash the potential of solar, wind and biomass based energy. The timing is opportune given technological breakthroughs and cost competitiveness of solar, wind and biomass in relation to hydropower⁷.

Working with the Government, multi-lateral partners and local communities, we will pilot and upscale renewables across Bhutan to create and build community energy banks which will help buffer reliance on hydropower and add to Bhutan's energy endowment. Doing so, we will light and bring the benefits of energy to the last unconnected communities in Bhutan.

Why is Water in Short Supply?

Bhutan has one of the highest per capita availability of water⁸ in the world.

Yet, across both urban and rural Bhutan, individual households and communities suffer from acute shortage of drinking water, and water for agriculture^{9,10,11}. The availability and abundance of this critical resource is being further compromised by climate change.



We will, in partnership with the Government, local authorities and communities, innovate and pilot scalable and climate resilient water solutions across water scarce rural Bhutan. Within urban landscapes, we will research, support policy formulation and pilot technology to ramp up efficient delivery and use.

⁷ <https://www.irena.org/publications/2019/Dec/Renewables-Readiness-Assessment-Kingdom-of-Bhutan>

⁸ Dorji, Yeshey. "Water: securing Bhutan's future." (2016). Asian Development Bank/ National Environment Commission, Bhutan

⁹ <https://www.thethirdpole.net/2019/11/21/thirsty-thimphu-in-water-rich-bhutan/>

¹⁰ <https://www.thegef.org/news/coming-grips-water-how-bhutan-overcoming-water-challenges-magnified-onset-climate-change>

¹¹ <https://www.thethirdpole.net/2016/04/21/bhutan-struggles-with-local-water-shortages/>

We Will Deliver Environmental Education, Promote Science & Discourse:

Education is the single most important intervention that can help ensure a more verdant and just world.



We will partner with the Government, the Royal University, national institutions and international collaborators to deliver innovative environmental education programs for national and international students. Through our Center for Himalayan Environment & Development Studies, we will address key policy, applied and basic science research needs.

We will continue to promote science and discourse and strive towards building a community of environmentally conscious and engaged citizens.