LEDS GLOBAL PARTNERSHIP

Country briefing

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Bhutan's National Transport Policy

Inclusive transport planning for a low carbon future

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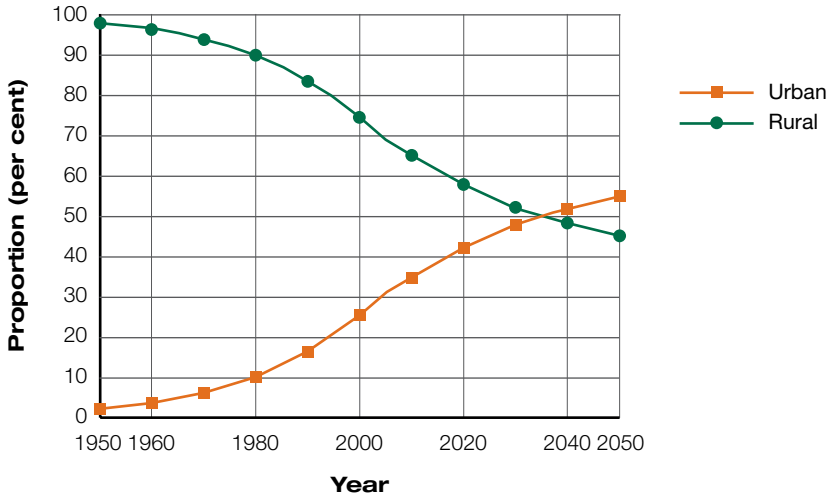
Bhutan's development context

The Kingdom of Bhutan is a landlocked country in the Eastern Himalayas, one of the most biodiverse regions in the world. Neighboring the People's Republic of China to the north and India to the south, it is one of the world's smallest nations, with a total area of 38,394 km^2.[1] It had a population of approximately 784,000 in 2016[2] and this is projected to reach around 950,000 by the year 2050 (Figure 1).

Figure 1. Change in rural and urban populations in Bhutan, 1950–2050 (projected)[5]



The Transport Working Group, in partnership with the Regional Platforms, is building a LEDS transport community, supporting champions and innovators, linking low emission transport expert networks, and exploring opportunities for collaboration at local and regional levels. The Group provided this country briefing at the request of the Government of Bhutan.
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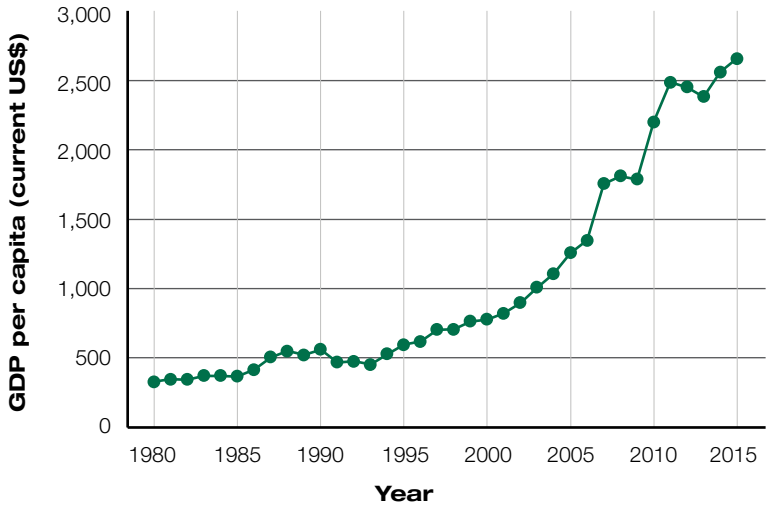
Bhutan's urban population is approximately 38.6% of the total. With a projected annual urban growth rate of 3.7%, the country's urban population will exceed the rural population by about 2035 (Figure 1). Thimphu, the capital city and economic center, has a population of 152,000, but few other cities have more than 50,000 inhabitants.[3] In 2014, the country's gross domestic product (GDP) was approximately US$2 billion (a GDP per capita of $2,569, see Figure 2). The country ranked 132 out of 188 in the Human Development

Figure 2. Bhutan's GDP per capita (1980–2015)[6]

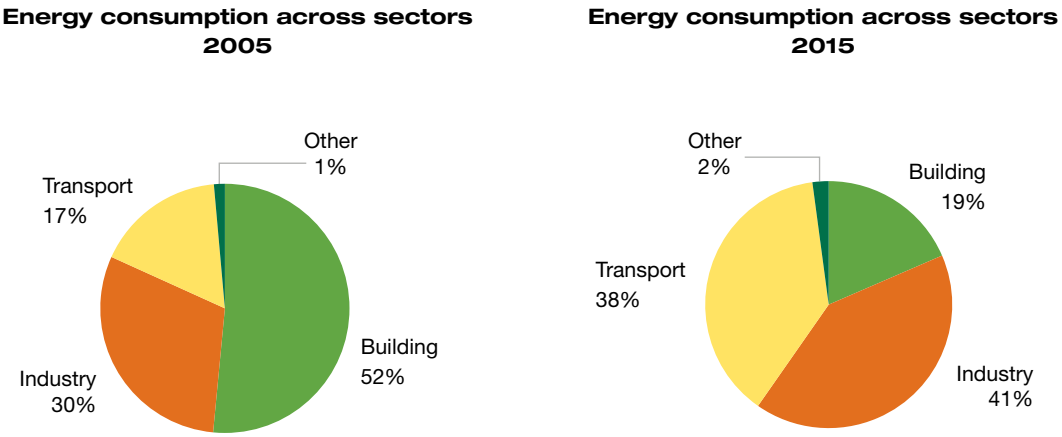


Index in 2015 (classed as medium human development), and quality of life is considered higher "than would be expected from traditional development indicators".[4]

Electricity generation contributes about 25% of Bhutan's GDP, with hydropower the dominant mode of power generation.[7] The high generation capacity enables Bhutan to export of 75% of its electricity and, over the past decade, almost all rural households have been connected to the electricity grid.[8 9] The country produces about 75 petajoules of energy annually, equivalent to 20,833 gigawatt hours.[10] However, rising fuel consumption contributes to increasing energy demands, and these are projected to increase further up to 2035.[11] Overall, energy consumption has grown rapidly over the past decade. While energy use in buildings decreased, the transport sector's demand has risen and it is the single largest contributor to this growth.[12]

This case study provides a situational analysis of the transport sector in Bhutan and provides background information on the development and implementation of the current National Transport Policy and other relevant plans, projects, and policies.

Figure 3. Energy consumption in Bhutan, 2005 and 2015[13]



Measuring Bhutan's gross national happiness

To advance the country's development and to be able to measure it holistically, since the 1970s Bhutan has followed its celebrated philosophy of gross national happiness, which is enshrined and codified in Article 9 of the country's constitution.[14] Consequently, all the government's planning and implementation of policies – including the National Transport Policy – takes place in the context of gross national happiness and its four pillars: equitable socioeconomic development; conservation of the environment; preservation and promotion of culture; and promotion of good governance. An integrated, more sustainable transport policy will play a key role in ensuring sustainable, low carbon development and help Bhutan satisfy its stated Gross National Happiness policy goals.

Bhutan's current transport situation and its impacts

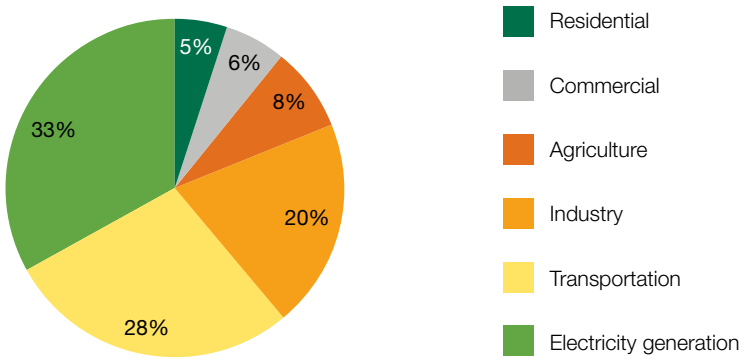
There are a variety of transport modes in Bhutan: road, air and alternative modes of transport such as walking, ponies, and bicycles. Road transport dominates in terms of passenger numbers. Most vehicles are privately owned and their number almost doubled from 40,532 in 2008 to 76,118 in 2015.[15] As of April 2016, there were 77,813 registered vehicles, of which light vehicles constitute almost 64%.[16] As most registered vehicles are in Thimphu and other cities, vehicle ownership has resulted in urban traffic congestion patterns.[17]

The increase in vehicle numbers, a lack of control over vehicle emissions and low quality fuels have all contributed to an increase in Bhutan's greenhouse gas emissions.[18] One way to address greenhouse gas emissions and air pollution is to promote the diffusion of electric vehicles, which Bhutan has done since 2013. Aligned with its national development policy and the Gross National Happiness Commission, the government aims to transform Thimphu into the first electric city in the world, and to reduce fuel imports by 70% by 2020.[19] To that end, it has incentivized international and domestic car manufacturers (e.g. through tax and import tariff exemptions) and is collaborating in the development of quick-charging infrastructure. The Bhutanese government estimates that "CO_2 emission[s] from passenger vehicles and taxis [are] expected to increase to 0.53 million tonne[s] CO_2 by 2040 which is 4.5 times the CO_2 emission[s] from [the] transport sector in 2000".[20] Transport currently accounts for 28% of CO_2 emissions (Figure 4) and it is expected that in the near future more than one-third of emissions will be transport-related.

While transport, urbanization, and rising industrial activity are all increasing CO_2 emissions, Bhutan still has a relatively small environmental footprint. In 2013, it emitted 884,000 tons of CO_2 (or 1.2 tons per capita).[21] The country restated its determination to remain carbon neutral in its Nationally Determined Contribution on 30 September, 2015. Among the key strategies to achieve this are the promotion of a low carbon transport system and the climate proofing of critical transport infrastructure.[22]

With rapid economic development in Bhutan over the past decade, there is a need to improve regional connectivity and manage the impacts of transport. For a landlocked country that is largely reliant on surface transport, a stable and well-connected road network are crucial for development. Bhutan's road network

Figure 4. CO_2 emissions in Bhutan by sector (2012)[23]



was 11,176 km in length as of June 2016, but only 30% of this is paved. Roads are classified into five main categories: highways; district (dzongkhag) roads; urban (thromde) roads; farm roads; and access/feeder roads. Farm roads constitute about half of the total and highways about a quarter.[24]

Public transport in Bhutan consists mostly of intercity bus and taxi services, with more than 71% of passengers travelling in the western and southern regions.[25] This demonstrates the prevalence of public transport services in urban centers, and highlights the lack of comprehensive connectivity across the country.[26] Bus services are inadequate for much of the rural population, both in terms of coverage and frequency, which forces people to either purchase private vehicles or pay the higher fares charged by the monopoly of taxi service providers.

Bhutan recognizes the need to develop its freight and logistics industry, but there is a lack of infrastructure and coordination between private operators. Most of the liberalized freight transport is dependent on the road network, and heavily concentrated in the south.[27]

Currently, there is no rail network within the country. However, Bhutan has explored railway links between southern border towns and India, Bhutan's largest trade partner, for a while. A Memorandum of Understanding has been in place since 2009,[28] and in 2012 India announced the construction of a first railway link to Bhutan.[29] In April 2017 Bhutan conducted a pre-feasibility study, which recommended three stages of railway development.[30]

Air travel within Bhutan and to its neighbors in the region is uncommon for both citizens and tourists. Part of the government's Transport 2040 Integrated Strategic Vision is to expand air services between Bhutan and important cities in Bangladesh, India and Nepal, for example by enlarging and modernizing Paro International Airport and other domestic airports.[31]

Other issues in Bhutan's transport sector include traffic congestion, caused by the increasing number of vehicles and urbanization; the lack of enforcement of vehicle standards; and poor road safety.[32] The need for a reliable road network and improved surface transport system is reinforced by Bhutan's dependence on regional trade and tourism. Larger development trends, such as industrial development in the south of the country, tourism, and further electric power projects generally, will also contribute to a higher transport volume in the future.[33]

Rationale for the National Transport Policy

Bhutan's transport vision is "to provide the entire population with a safe, reliable, affordable, convenient, cost effective and environment-friendly transport system in support of strategies for socioeconomic development".[34] Overall, Bhutan aims to achieve the goals of:

- increased accessibility to activities and supplies for people and enterprises
- efficient use of economic resources

- environmental sustainability
- transport safety, especially on roads.[35]

To help Bhutan realize this ambition, in August 2016 the United Nations Development Programme (UNDP) issued a request for proposals to update Bhutan's 2006 National Transport Policy, with the aims of addressing the policy gaps and other key issues that had surfaced since the adoption of the 2006 policy, and to develop a more inclusive and sustainable transport plan that integrated the guiding principle of gross national happiness.

The policy gaps identified were:

- **Inadequate coverage of transport modes.** Alternative modes of transport, such as cable cars, ropeways, railways, and waterways were not considered in the 2006 plan.
- **Inadequate coverage of sub-sector policies.** Most challenges faced by transport sub-sectors were not clearly listed or absent completely, for example road network development and addressing urban congestion.
- **Inadequate description of the institutional framework.** The key responsibilities and the coordination of the appropriate actors were not identified. More information on governance mechanisms and effective policy formulation were needed.
- **No links to other policy and strategy documents.** Connections with other sectors, such as energy, environment, tourism, and industry were missing from the 2006 policy – although attempts at better integration in the interim produced strategy documents such as the Bhutan Transport 2040: Integrated Strategic Vision.
- **No integration of international climate goals.** While environmental protection is important to Bhutan, the 2006 policy made no mention of strategies for emissions reduction. The commitments of Bhutan at the 15th and 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC), in Copenhagen and Paris respectively, were not subsequently integrated into the policy.
- **No integration of international development goals.** The 2006 plan did not sufficiently address sustainable development, as subsequently codified by the UN Sustainable Development Goals (SDGs). Transport-related targets are included in eight of the 17 proposed Goals (2, 3, 6, 7, 9, 11, 12, and 13).[36]

The consulting firm KPMG International was selected and prepared the documents for the Ministry of Information and Communications. In February 2017, the Government of Bhutan published the First Draft National Transport Policy of Bhutan to the UNDP. A Second Draft was published in June 2017, along with a detailed Policy Protocol, which elaborates on the background situation and the policy formulation process.

The 2017 National Transport Policy of Bhutan

The Second Draft (June 2017) of the National Transport Policy of Bhutan covers policy objectives (see Annex 1) and a framework for institutional arrangements, and introduces financing mechanisms and a framework for monitoring and evaluating the outcomes of this policy. As a result, it addresses many of the existing policy gaps for Bhutan's transport sector.

In particular, it provides the rationale and guiding principles for sub-sector policies. For example, it describes the existing landscape for important transport sub-sectors (roads and road transport; urban transport; civil aviation; regional connectivity) and details policy objectives, as well as providing policy statements as benchmarks for meeting the objectives. Annex 2 summarizes these sub-sectoral objectives, which constitute the main part of the National Transport Policy of Bhutan.[37]

Stakeholders and implementing partners

The National Transport Policy maps the various ministries and autonomous bodies that play a role in the implementation of transport policies and projects. It clearly identifies the responsibilities within government entities to reduce duplication of efforts and streamline the delivery of policies and services. It also recommends several changes to the governance of the transport sector.

Currently, the Ministry of Information and Communications directs most national transport policy and planning. Its responsibilities are split between transport on one side and communication and information on the other. According to the 2016 Midterm Review of the 11th Five-Year Plan, Bhutan plans to spend 11.5% of its budget on transport and communications, with most of the capital expenditure directed at the construction and maintenance of roads and bridges.[38]

Within the Ministry, the Road Safety and Transport Authority oversees the administration of surface and urban transport. It is currently organized into three divisions: transport development; regulatory and safety; and transport management. Meanwhile the Department of Air Transport manages all air travel.

Combining regulatory functions and service provision functions differs from best practices in other transport sector organizations, where these are the responsibility of separate departments.[39] The Second Draft of the National Transport Policy recommends splitting the regulatory authority from a newly created Department of Surface Transport. Pending implementation of this change, the regulatory authority will develop regulations and ensure service coverage and quality; in the future, the Department of Surface Transport will be responsible for the development and planning of transport services. It will also oversee alternative modes of transport, such as ropeways, cable cars, railways, and riverine transport. Further, urban areas will receive greater autonomy in planning public transport and road financing, areas that the Road Safety and Transport Authority previously managed centrally.[40]

In addition, the Second Draft recommends that the construction and maintenance of roads – currently housed in the Ministry of Works and Human Settlement under the Department of Roads – is reallocated to the Ministry of Information and Communications. It proposes renaming this as the Ministry of Transport and Communications, with the aim of creating a separate transport ministry in the long run. It also proposes that the mandate of the Ministry of Information and Communications should be extended to cover private freight and logistics planning, and to act as a representative to the industry.

As recommended by the Gross National Happiness Commission, a participatory approach guided the drafting process of the revised National Transport Policy. KPMG and UNDP closely consulted with 27 institutions relevant to the transport sector, and the consulting team held several workshops with stakeholders from governmental institutions and professional associations. Table 1 provides an overview of the key agencies involved; Annex 3 provides a complete list.

In addition to national institutions, several international and regional partners are involved in the implementation of Bhutan's transport development. The World Bank provides financial, analytical, and advisory support, with a focus on improving rural livelihoods and managing urbanization. Through projects operated by the International Development Association, it provides about US$15–20 million per year, with a current net commitment of US$82 million.[41] The World Bank also collaborates with Bhutan in the Pilot Program for Climate Resilience.[42]

The Asian Development Bank (ADB) and the Australian Agency for International Development supported the drafting of the Bhutan Transport 2040: Integrated Strategic Vision in 2013. This plan aligned the fundamental features of Bhutan's development with transport issues and set the stage for the 2017 National Transport Policy. ADB has operated mainly in the areas of energy finance, transport, water, and urban infrastructure, and has rated its country operations in Bhutan as "successful", seeing the alignment of the country's needs and its public policy priorities.[43] ADB is one of the most active partners in Bhutan, providing funding through a mixture of loans and grants. For the period 2016–2018, it indicated a cumulative allocation of US$327.87 million.[44] Other partners over the past decade include the Swedish International Development Cooperation Agency and the Japan International Cooperation Agency, mainly in the areas of aviation and energy.

An early draft of the National Transport Policy made general recommendations to finance the development of transport infrastructure through measures including increased public–private partnerships, bond financing, value capture financing, accessing international funds (e.g. the Green Climate Fund and the Climate Investment Fund), user charges for infrastructure, and congestion taxes.[45]

Table 1. Key agencies involved in transport policy

State agencies	Role
Gross National Happiness Commission	Coordinates all major strategic (transport) planning decisions
Local governments	Establish local transport plans and maintain local roads
Ministry of Finance	Administers and allocates funding, including international financial assistance and public–private partnerships
Ministry of Works and Human Settlement – Department of Roads	Plans, implements and maintains the national road network
National Environment Commission	Independent agency responsible for environmental regulation and specifying emissions and development standards
New regulatory authority (to be created with the final policy; name to be decided)	Proposed to regulate all surface transport
Road Safety and Transport Authority and the new Department of Surface Transport	Formulate transport policies and guarantee efficiency and effectiveness for all modes of surface transport and passenger facilities
Royal Bhutan Police – Traffic Division	Enforces road transport laws and regulations, and maintains the Motor Vehicle Accident Information System
Bhutan Post	Provides bus services in and between urban areas

Conclusions

The outlook for the development of Bhutan's transport sector is positive. Despite the challenges on the horizon, the government has shown its commitment to improving road transport and urban transport, as well as increasing regional connectivity through air and rail links.

The recent work on the new National Transport Policy shows the progress the government and its international partners have made. The policy aims to be much more inclusive of all transport modes and priorities than previous planning documents. More importantly, it streamlines the organization of policy and planning within the appropriate agencies, and integrates important cornerstones of Bhutan's development philosophy and the SDGs into transport operations.

Given the government's proactive stance, the sub-sector priorities, and governance reorganization, the policy can be expected to bear fruit within a relatively short time frame. Advances in the road network coverage and improved transport services should be coupled with greater efforts towards low emission strategies, however. Here, stricter enforcement, innovative solutions (e.g. electric cars in urban areas), and intensified cross-border collaboration deserve attention.

While the approach outlined in the National Transport Policy 2017 is focused more on development than on climate goals, looking at increased efficiency in development can help to reduce CO_2 emissions and air pollution in the long term. The new National Transport Policy therefore has the potential to modernize the transport sector and take Bhutan further along its path to inclusive prosperity.

Annex 1. Objectives of the 2017 National Transport Policy of Bhutan[46]

- Establish an ecosystem in which **access** to transport system is safe, efficient, and affordable for all
- Address **gender disparity** and promote social equity
- Promote **sustainable road transport** with a focus on energy efficiency, environmental conservation, and social impact
- Improve **regional connectivity** through both road and aviation services, leading to balanced regional growth
- Ensure safety, security and sustainability of surface, as well as air, transport through the **use of technology** and effective monitoring
- **Resilience** to disaster situations
- Promote the development of **alternate modes** for both passenger and freight transport
- Promote energy-efficient urban transport to address **urban congestion**
- Promote **research** in transport development
- Develop **institutional capacity**
- Promote **private sector** participation
- Strengthen the **legal and institutional** framework
- Contribute to economic development and overall **poverty reduction**
- Remain **carbon neutral** at all times by ensuring that greenhouse gas emissions do not exceed the sink capacity of forests.

Annex 2. Policy objectives and statements of the 2017 National Transport Policy of Bhutan, Second Draft

Policy objective	Policy statement
4.1 Roads and road transport	
4.1.1 Network consolidation and building a robust road asset management system to ensure sustainability	4.1.1.1 The Royal Government of Bhutan (RGOB), through the concerned line ministry, will continue to develop medium- and long-term road network development master plans. These will be used as the basis for the ongoing development/improvement of the strategic highway network, *dzongkhag* and *gewog* connectivity roads and to guide decision-making on, and determine priorities for, future road maintenance, rehabilitation and construction programs, together with the bridge/tunnel rehabilitation and maintenance programs. 4.1.1.2 The RGOB supports the development of Dzongkhag Transport Master Plan for each *dzongkhag* and progressive upgradation of all *dzongkhag* roads to all-weather roads based on traffic demand. 4.1.1.3 Every institution involved in road network development will be required to develop a road network asset management system and an asset management plan. This will involve specifying asset performance indicators for each road class, undertaking scientific condition assessment and the determination of priorities for maintenance interventions on a rational basis. 4.1.1.4 Sustained financial and technical efforts will be made to reduce the maintenance backlog and adequately maintain the road network to acceptable standards. 4.1.1.5 The RGOB will harness private sector efficiencies in the maintenance and management of roads, based on a value-for-money analysis. Wherever feasible, Bhutan will explore suitable public–private partnership structures for its operational or planned network of national highways. 4.1.1.6 The RGOB will create a dedicated Central Road Fund, which shall be used for construction and maintenance purposes. Appropriate rules and regulations will be framed to institutionalize the creation of such a fund.
4.1.2 Enhance public transport service delivery standards to make it reliable and affordable	4.1.2.1 RGOB will offer support to provide safe, affordable, accessible, and sustainable transport services to connect all gewogs with the nearest urban centers, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities, and older persons. 4.1.2.2 Minimum service-level standards will be defined and RGOB agencies will regulate and monitor the performance of service providers against the established standards. 4.1.2.3 Schemes will be developed for improving connectivity from the airports to the nearest urban centers using private sector participation. 4.1.2.4 Consistent with the Economic Development Policy, the RGOB will provide targeted subsidies to operators in remote areas where public transport is uneconomical due to low volumes of passengers. 4.1.2.5 The RGOB will develop a cross-subsidization model for the sustainability of bus operations across all routes, with a view to making services more reliable and affordable. Route dispersal guidelines will be introduced after appropriate consultations, based on which the bundling of profitable and unprofitable routes can be finalized. 4.1.2.6 The RGOB recognizes the distinct advantages of having smaller vehicles and will prepare the necessary schemes to promote rural connectivity. To facilitate this, it will waive any permit condition for a stage carriage or contract carriage operating under a government scheme in a rural area to promote low cost, last-mile connectivity solutions. Adequate efforts will be made to facilitate the empowerment of marginalized and vulnerable groups through preference in the issuance of permits.

Policy objective	Policy statement
4.1.3 Providing alternative modes of transport to improve access to remote locations	4.1.3.1 Consistent with the Economic Development Policy, the RGOB will explore the establishment of ropeways or cable car networks in ecologically sensitive and remote locations to improve access and minimize the impacts of road construction. 4.1.3.2 Appropriate institutional mechanisms will be developed to facilitate the development and operation of such alternative transport modes.
4.1.4 Improvements in the transport system to be supplemented with appropriate supporting infrastructure	4.1.4.1 Bus terminals will be planned and constructed as per national standards with adequate provisions for parking spaces, seating areas, public conveniences, banking facilities, eateries, and other modern passenger amenities (e.g. electronic timetables, public address systems, passenger information systems, electronic signs).
4.1.5 Zero tolerance on road safety matters	4.1.5.1 The RGOB recognizes that ensuring road safety is the responsibility of all stakeholders, including road users. 4.1.5.2 The RGOB will ensure that during the planning, designing, construction, and maintenance of roads, sufficient consideration is given to protecting the safety of all road users. It will develop a national road safety strategy with final and immediate targets based on action areas derived from the Decade of Action for Road Safety 2011–2020. The action points will be based on the principles of promoting zero tolerance for road safety violations. 4.1.5.3 A National Road Safety Board will be established and shall act as a lead agency for road safety activities. 4.1.5.4 A dedicated Road Safety Unit will be established under the Department of Roads in the Ministry of Works and Human Settlement, which will be adequately equipped to handle all road infrastructure-specific safety matters. 4.1.5.5 Guidelines will be formulated for the electronic recording of data related to road safety and establishing a mechanism for setting up a modern crash data management system. It will record and publish the annual socio-economic costs of road crash fatalities and injuries. 4.1.5.6 Technology will be inducted for the monitoring and enforcement of traffic rules. There will be a phased induction of automatic speed cameras, vehicle number plate detection, system enforced fines, and Intelligent Transport Systems in traffic management, including command and control centers for traffic police. 4.1.5.7 A Road Safety Fund will be established and appropriate funding procedures to fund road safety activities in a sustainable way will be prepared. This may include mechanisms to allocate a portion of general tax revenues or to allocate a portion of road funds, and may additionally be supplemented by allocations from levies, such as on insurance fees. 4.1.5.8 A post-crash response system under the Department of Disaster Management in the Ministry of Home and Cultural Affairs will be established. The Ministry of Home and Cultural Affairs, in consultation with the Ministry of Information and Communications and the Ministry of Works and Human Settlement, will prepare guidelines to operationalize the same. 4.1.5.9 The Road Safety and Transport Act will be suitably amended to incorporate various provisions to improve road safety such as a driver licensing system, vehicle fitness, a national register for vehicles, and a ‘Good Samaritan’ law. 4.1.5.10 A properly coordinated approach will be developed to ensure non-motorized transport of all types can safely use the country’s roads. This will involve education and training, improved road designs, good traffic management techniques, and better enforcement.

Policy objective	Policy statement
4.1.6 Systematically reduce pollution from vehicles	4.1.6.1 In line with its commitment under its Intended Nationally Defined Contribution, the RGOB through the National Environment Commission will develop and establish regulatory standards relating to vehicle emissions for both imported and in-use vehicles. Vehicle emissions standards will also be supplemented with appropriate standards on fuel quality. These standards shall be updated from time to time, as and when the need arises. 4.1.6.2 The RGOB will develop guidelines to improve the enforcement of vehicle inspection programs. This will include improving facilities for the testing of motor vehicle emissions and fitness to meet stipulated standards. Production of vehicle emissions test certificates will be made mandatory during annual vehicle roadworthiness inspections. 4.1.6.3 The RGOB will not permit any vehicle older than 15 years to be on the road after 1 January 2020. It will come out with incentives and schemes to encourage their replacement with environmentally friendly vehicles. 4.1.6.4 Differential taxes on vehicles and subsidies for electric vehicles will be continued to promote the use of fuel-efficient vehicles. Measures such as high 'feebates' or fuel surcharges will be explored to disincentivize private users from buying diesel vehicles. 4.1.6.5 It is the RGOB's endeavor to improve the supporting infrastructure for electric vehicles, such as the development of charging stations to create an enabling environment for their effective use. 4.1.6.6 The RGOB will implement use of ICTs/Intelligent Transport Systems for efficient surveillance on highways and maintaining a relatively smooth traffic flow. This will be supplemented with transport demand-management programs. 4.1.6.7 Regular public awareness campaigns will be undertaken to communicate to users the need for adherence to regulations, and on the benefits of shifting to fuel-efficient technologies.
4.1.7 Create an enabling environment for freight transport	4.1.7.1 The RGOB recognizes the importance of an efficient freight transport and logistics industry. As a step to improve the sector, it shall establish a Logistics Cell within the Ministry of Information and Communications for coordinated logistics planning that moves Bhutan onto the path of multi-modalism. To strengthen the technical capabilities of such a cell, a consultative committee may be created to provide interface with the public and private sectors. 4.1.7.2 For modernization of the trucking industry, the RGOB shall lay an emphasis on higher energy efficiency and lower emissions levels, with a suitable incentive structure for multi-axle vehicles. 4.1.7.3 The RGOB will ensure that roads are used by the correct types of vehicle, and the loadings for which they are designed. The Road Safety and Transport Act shall be strengthened with provisions to offload overweight vehicles and to increase fines for non-compliance. 4.1.7.4 The RGOB will ensure that procedures are in place for monitoring and regulating trucks to ensure that they conform to specified weight-carrying limits. This will be done by roadside checks, weigh stations, and the signposting of load limits at locations with restrictions.

Policy objective	Policy statement
4.2 Urban transport	
4.2.1 Decongesting urban centers	4.2.1.1 The construction and upgrading of urban roads will be undertaken in accordance with the structure plans of urban centers. 4.2.1.2 Transport demand-management measures will be used to a tool to address congestion problems in urban centers. 4.2.1.3 Traffic management plans will be prepared for all major urban centers, based on studies of traffic flow, land use, and development plans. 4.2.1.4 ICT/Intelligent Transport Systems for efficient surveillance on urban roads and maintaining a relatively smooth traffic flow will be implemented.
4.2.2 Integration of land use planning along with transport	4.2.2.1 The RGOB encourages urban centers to prepare a Comprehensive Mobility Plan, update existing structure plans, and prioritize projects for implementation. The plans developed or updated will promote Transit Oriented Development along the transit corridors with high densities of population and mixed-use planning as part of urban planning. The priority of mode of transport in planning for modes will be as follows: 1. Walking and non-motorized transport 2. Public transport (bus and taxi) 3. Other motorized transport
4.2.3 Create an environmentally friendly and equitable urban transport system responding to the needs of the expanding population	4.2.3.1 The RGOB supports the development of a safe, affordable, accessible, and sustainable electric/hybrid public bus transport system that provides an alternative to other motorized transport in major urban centers. The public transport system should improve road safety, and should be designed with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities, and older persons. 4.2.3.2 Transport planning agencies will develop minimum service-level standards to ensure that the public transport system is of high quality. 4.2.3.3 The RGOB supports the development and implementation of Bus Rapid Transit in major urban centers, combined with the non-motorized transport elements. 4.2.3.4 The public transport system and Bus Rapid Transit should be well integrated with efficient interchange infrastructure, and should offer a seamless journey to the users including 'first and last mile' connectivity. The support infrastructure should be designed in a manner that provides equal access opportunities to the less able. 4.2.3.5 The Green Climate Fund will be channelized for Bus Rapid Transit civil works, along with non-motorized transport elements such as pedestrianization, cycle tracks, and procurement for trunk-route buses. 4.2.3.6 Public awareness programs will be carried out on a periodic basis to communicate the benefits of the public transport system.
4.2.4 Parking management	4.2.4.1 The RGOB encourages *Thromdes* to use parking management as a tool for transport demand management that discourages the use of private vehicles and encourages them the shift to public transport and non-motorized modes. 4.2.4.2 Modern methods of parking control and parking revenue collection will be implemented. 4.2.4.3 *Thromdes* will be required to amend building by-laws to make adequate parking space mandatory for all residents/users of buildings. The RGOB supports the use of geographic information system technology to strengthen the enforcement of parking provisions.

Policy objective	Policy statement
4.2.5 Develop technical capacities of *Thromdes*	4.2.5.1 The RGOB recognizes the need to develop the capacities of *Thromdes* in the planning and management of urban transport and asset management, and will thus maintain and allocate sufficient funds on an ongoing basis towards capacity-building programs.
4.2.6 Improve financial sustainability of the public institutions involved in urban transport	4.2.6.1 The provisions of Thromde Finance Policy will be modified to allow *Thromdes* to generate innovative sources of finance based on the principles of sound financial management. 4.2.6.2 Funds allocated by multilateral and bilateral institutions to finance physical infrastructure, operating assets, technical assistance, and institutional development will be utilized efficiently.
4.3 Civil aviation	
4.3.1 Promote tourism by enhancing the international aviation markets	4.3.1.1 The Ministry of Information and Communications and the Tourism Council of Bhutan will undertake adequate consultations with Bhutan-registered air operators to identify the international markets for tourism and aviation growth. 4.3.1.2 International code-share arrangements with foreign carriers will be liberalized as per the provisions relating to code-share arrangements in the Air Service Agreement, and no prior approval will be required. However, if it is found at any point of time that the code-share agreement violates the Air Service Agreement, the same shall be disallowed. 4.3.1.3 A review will be carried out as and when required on a needs basis, and at least once in five years, to consider the requirement of further liberalization in code-share agreements. 4.3.1.4 Air Service Agreements with any country will be entered only after due consultation with Bhutan-registered air operators.
4.3.2 Enhance domestic connectivity through infrastructure development and aviation services augmentation	4.3.2.1 The RGOB will provide performance-linked incentives to the national carrier to ensure sustainable domestic operations. 4.3.2.2 The RGOB will facilitate the development of helipads across the country to promote regional connectivity. This includes the development of appropriate fueling facilities. 4.3.2.3 The Royal Bhutan Helicopter Services Limited will be encouraged to undertake commercial operations with the objective of promoting regional tourism. Private sector participation in helicopter services will be explored after 31 December 2020, after undertaking adequate consultations. 4.3.2.4 Separate regulations for helicopters will be notified by the Bhutan Civil Aviation Authority, after due stakeholder consultation.
4.3.3 Development of an alternative aviation gateway to Bhutan	4.3.3.1 The RGOB recognizes the challenges of Paro International Airport. It will take up the development of a second international airport with the objective of developing an alternative gateway to Bhutan.

Policy objective	Policy statement
4.3.4 Ensure the safety, security, and sustainability of the aviation sector through the use of technology and effective monitoring	4.3.4.1 The RGOB places topmost priority on aviation safety. The focus will be on pre-empting and preventing accidents/incidents. Safety violations will be treated with zero tolerance. The Bhutan Civil Aviation Authority will be given administrative and financial autonomy for an effective aviation safety oversight system. 4.3.4.2 The Bhutan Civil Aviation Authority will implement a State Safety Program and develop a State Safety Plan periodically, to address the aggregate safety risks at the national level. Under the State Safety Program, it will be ensured that relevant service providers implement the Safety Management Systems, proactively identify operational hazards, and apply risk management principles for the mitigation of these hazards. A state safety database will be developed to act as a basis for the identification of safety risks. 4.3.4.3 The Bhutan Civil Aviation Authority will ensure real-time safety tracking and prompt incident reporting. 4.3.4.4 The Ministry of Information and Communications will develop non-legal and indicative service delivery modules for aviation security, immigration, customs, and quarantine officers. 4.3.4.5 Global best practices in IT, passenger check-in, baggage handling, mobile phone-based boarding passes, security checking procedures, immigration, and customs, etc. will be introduced after consultation with the agencies concerned and due security vetting, keeping Bhutan's interests in mind. 4.3.4.6 A fully harmonized air navigation system considering the International Civil Aviation Organization's Global Air Navigation Plan, aviation system block upgrades, and modern performance-based technologies and procedures, will be provided. 4.3.4.7 The feasibility of GPS-Aided GEO Augmented Navigation in conjunction with Automatic Dependent Surveillance – Broadcast in aircrafts will be explored.
4.3.5 Providing access during emergency situations	4.3.5.1 The Royal Bhutan Helicopter Services Limited will facilitate Helicopter Emergency Medical Services. The Bhutan Civil Aviation Authority will bring out regulations for Helicopter Emergency Medical Services, which will stipulate that helicopters under such operations will not require any operational clearance, including landing at accident and emergency sites, from any agency, except defense clearance because of the very nature of their operations. No landing charges will be levied for Helicopter Emergency Medical Services operations. 4.3.5.2 Similarly, regulations will be drafted by the Bhutan Civil Aviation Authority for drones that are used for emergency medical services and for disaster relief.
4.3.6 Ensure sustainability in aviation transport	4.3.6.1 The Ministry of Information and Communications will strive to develop a sustainable aviation industry in Bhutan. It will work with the Bhutan Civil Aviation Authority, the National Environment Commission, Ministry of Agriculture and Forests, and industry stakeholders to develop an appropriate action plan. 4.3.6.2 The Ministry of Information and Communications will pursue the limitation of CO_2 emissions from Bhutan's aviation in coordination with the International Civil Aviation Organization, under the principles and provisions of the UNFCCC and its Paris Agreement. 4.3.6.3 All equipment operating within the airport environment will be in compliance with the latest emission norms. Ground-handling vehicles will use alternative fuels that can provide significant local air quality emission benefits compared with petrol and diesel equipment. Options include low emissions vehicles and electric vehicles.

Policy objective	Policy statement
4.3.7 Establish an ecosystem that will lead to capacity-building in aviation	4.3.7.1 The RGOB will create the necessary ecosystem and architecture for ensuring full utilization of the skill development capacities of the Department of Air Transport, the Bhutan Civil Aviation Authority and the Royal Bhutan Helicopter Services Limited. 4.3.7.2 The RGOB will explore the establishment of an association with Rajiv Gandhi National Aviation University, established by India, for capacity-building in aviation and identify courses for participation after due consultation with stakeholders.
4.4 Regional connectivity	
4.4.1 Strengthen additional border crossing points to promote trade and equitable socio-economic development	4.4.1.1 Bhutan will upgrade border roads in addition to the road connectivity enhancement under the South Asia Sub-Regional Economic Cooperation program, the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), and other regional initiatives, consistent with the existing and projected volumes of traffic expected to use that border connection, thus helping to promote trade and socio-economic development along borders. 4.4.1.2 Bottlenecks, if any, near border entry points would be eliminated by a combination of construction of bypasses and the implementation of enhanced traffic management measures, as these would reduce the transaction costs associated with trade.
4.4.2 Development of critical physical infrastructure at land customs stations	4.4.2.1 The RGOB supports the augmentation of physical infrastructure at Phuentsholing land customs station, with the seamless integration of ICT/digital infrastructure and the development of automated customs processing systems. 4.4.2.2 The RGOB also recognizes the need for the development of Inland Container Depots at other land customs stations to facilitate clearances and prevent congestion.
4.4.3 Simplification and harmonization of import–export documentation	4.4.3.1 The RGOB recognizes the need for the simplification and harmonization of the regional trade facilitation environment in order to promote intra-BIMSTEC/ Bangladesh, Bhutan, India, Nepal Initiative trade, and the resulting economic development.
4.4.4 Development of alternate modes of freight and passenger transport	4.4.4.1 To enhance the quality of transport services, connectivity to seaports in Bangladesh and India, and connection to the Asian road network, will be included as a strategic part of the country's transport network. 4.4.4.2 Rail connectivity up to border crossing points is important for Bhutan, for both trade and social development, and will be pursued with the Government of India. 4.4.4.3 The RGOB will also coordinate with Bangladesh and India to explore the feasibility of developing waterways as an alternate for freight transport. This will include the long-term possibility of linking Bhutan through the Manas/Sunkosh rivers via Dhubri and Daikhawa to Mongla/Chittagong.

Annex 3. Stakeholder workshops

First workshop, November 2016

Safety and regulation	Environment and sustainability	Inclusiveness	Innovation
Mr Prem Adhikari, Road Safety and Transport Authority	**Mr Karma Pemba**, Road Safety and Transport Authority	**Mr Deki Zam**, Draksho	**Ms Lemo**, Association of Bhutanese Tour Operators
Mr Chador Wangdi, State Trading Corporation of Bhutan Limited	**Mr Sangay Wangdi**, Insurance	**Ms Dorji Wangmo**, Ministry of Work and Human Settlement	**Mr Namkha Norbu**, Guide Association
Mr Thinley Norbu, Ministry of Foreign Affairs	**Mr Tshering Dorji**, Freight	**Dr Sanga Dorji**, Doctors Association of Bhutan	**Mr Nim Dorji**, Bhutan Power Corporation
Mr Wangdo Gyeltshen, Bhutan Civil Aviation Authority	**Mr Nidup**, Taxi Association	**Deki Yangzom**, National Commission for Women and Children	**Mr Sangay Tenzin**, Tourism Council
Mr Lungten Jamtsho, Department of Roads	**Ms Kholo**, Transport	**Ms Tashi Wangmo**, Ministry of Work and Human Settlement	**Mr Tshering Nidup**, Freight
Mr Dorji Wangchuk, Freight	**Mr Sonam Tobgay**, Road Safety and Transport Authority	**Mr BB Tamang**, Freight	**Mr Karma**, Taxi Association
Mr Karsang, Taxi Association	**Mr Sangay Tenzin**, Ministry of Work and Human Settlement	**Mr Tezin Wangda**, Freight	**Ms Bumpa**, Transport
Mr Kesang Namgyel, Taxi Association	**Tshewang Zangmo**, National Environment Commission	**Ngawang Gyeltshen**, Road Safety and Transport Authority	**Mr Chandra Chhetri**, Bhutan Chamber of Commerce & Industry
Ms Meto, Transport	**Mr Jochu Thinley**, Association of Bhutanese Industries	**Mr Ugyen Thinley**, Ministry of Environment	
Mr Yeshey Phuntsho, Traffic Police	**Bholanath Bhattarai**, Gross National Happiness Commission	**Ms Kunzang Wangmo**, Gross National Happiness Commission	
Mr Bhimlal Suberi, Ministry of Information and Communications	**Mr Ugyen Tshering**, Ministry of Finance		

Second workshop, February 2017

Name	Organization	Designation
Mr Karma Pemba	Road Safety and Transport Authority	Officiating Director General
Mr Sithar Dorji	Ministry of Information and Communications	Senior Planning Officer
Ms Sonam Y. Rabgye	UNDP	Program Analyst
Mr Nar Bahadur Khatiwara	UNDP	Program Analyst
Mr Sangay Tenzin	Ministry of Works and Human Settlements	Specialist, Perspective Planning Division
Mr Phuntsho Wangyel	Gross National Happiness Commission	Chief Research Officer, Research and Evaluation Division
Mr Sonam Dagay	National Environment Commission	Assistant Environment Office
Mr Pema Dema	Road Safety and Transport Authority	Assistant Transport Officer
Mr Prem P. Adhikari	Road Safety and Transport Authority	Chief Regional Transport Officer
Mr Yeshi Dorji	Bhutan Chamber of Commerce and Industry	Senior Research Officer
Mr Pema Tashi	Bhutan Civil Aviation Authority	Superintendent, Air Navigation Services
Ms Dawa Dema	Department of Air Transport	Assistant Airport Manager
Ms Ugyen Unano	Thimphu Thromde	Assistant Engineer
Mr Ugyen Tshering	Ministry of Finance	Deputy Chief Planning Officer, Perspective Planning Division
Mr Tashi Penjor	Ministry of Economic Affairs	Senior Legal Officer
Mr Karma K. Zangpo	DLG, Ministry of Home and Cultural Affairs	Program Officer
Capt. Nangay Wanhchuk	Royal Bhutan Police	Commanding Officer
Major Yashing Phuntsho	Royal Bhutan Police	Superintendent of Police, Traffic Division

Notes

1. UNSD (2016) *'Bhutan'*. World Statistics Pocketbook. New York: United Nations Statistics Division.
2. Ibid.
3. UN (2014) 'Country profile: Uganda'. World Urbanization Prospects: The 2014 Revision. United Nations, Department of Economic and Social Affairs, Population Division. New York: United Nations.
4. Royal Government of Bhutan (1999) *Bhutan 2020: A Vision for Peace, Prosperity and Happiness*. Planning Commission. Thimphu: Royal Government of Bhutan. Page 17.
5. UN (2014) Op. cit.
6. World Bank (2016) 'GDP per capita (current US$)'. World Bank Open Data. Washington, DC: World Bank.
7. ADB (2010) *Bhutan: Energy Sector. Evaluation Study*. Mandaluyong: Asian Development Bank.
8. Royal Government of Bhutan (2015a) 'Bhutan - national statistical programme'. Presentation by Mr Mewang Gyeltshen, Mr Satchi and Mr Karma Tshewang, Ministry of Economic Affairs, Thimphu, 17-19 November 2015. Thimphu: Royal Government of Bhutan.
9. Climate Action Tracker (2015) 'Bhutan'. Climate Action Tracker; ADB (2014) *Bhutan Sector Assessment: Energy Country Partnership Strategy: Bhutan, 2014–2018*. Mandaluyong: Asian Development Bank; Ernst & Young (2012) 'Bhutan Energy Efficiency Baseline Study. Final Report', prepared for the Department of Renewable Energy, Bhutan and United Nations Development Programme (UNDP), Bhutan.
10. UNSD (2016) Op. cit.
11. Royal Government of Bhutan (2015a) Op. cit
12. Ibid.
13. Ibid.
14. Royal Government of Bhutan (2008) *The Constitution of The Kingdom of Bhutan*. Thimphu: Royal Government of Bhutan.
15. Royal Government of Bhutan (2016) *Bhutan State of the Environment Report 2016*. Thimphu: National Environment Commission. Page 39.
16. Ibid. Page 39.
17. Ibid.
18. Royal Government of Bhutan (2017a) *National Transport Policy of Bhutan 2017 – Policy Protocol Report (Final Draft)*. Thimphu: Royal Government of Bhutan.
19. https://takingnote.blogs.nytimes.com/2013/11/22/bhutan-goes-electric
20. Royal Government of Bhutan (2017b) *National Transport Policy of Bhutan 2017 – Second Draft*. Amstelveen: KPMG International. Page 14.
21. UNSD (2016) Op. cit.
22. Royal Government of Bhutan (2015b) *Kingdom of Bhutan: Intended Nationally Determined Contribution*. Thimphu: Royal Government of Bhutan.
23. Royal Government of Bhutan (2014) *Presentation on Measurement of Inland Transport CO2 Emission and Mitigation Policies*. Presentation by Dorji Wangdi, Department of Roads. 30 January 2014. Thimphu: Royal Government of Bhutan.
24. Royal Government of Bhutan (2017a) Op. cit. Page 29.
25. Ibid. Page 38.
26. Royal Government of Bhutan (2016) Op. cit.
27. Royal Government of Bhutan (2017a) Op. cit. Page 39.
28. Chaudhury, D.R. (2009) 'Train to Bhutan in pipeline'. India Today, New Delhi, December 29.
29. Government of India (n.d.) *India–Bhutan Relations*. New Delhi: Government of India.
30. Royal Government of Bhutan (2017a) Op. cit. Page 142.
31. ADB (2013) *Bhutan Transport 2040: Integrated Strategic Vision*. Mandaluyong: Asian Development Bank
32. Royal Government of Bhutan (2017a) Op. cit.
33. ADB (2013) Op. cit.
34. Ibid. Page 6.
35. Ibid.
36. Royal Government of Bhutan (2017a) Op. cit.
37. Interestingly, the section 'Cross-cutting Issues', covering equal access, environment, public–private partnership development, capacity-building, and ICT usage, was dropped between the first and second drafts, and only partially integrated.
38. Royal Government of Bhutan (2013) *Eleventh Five Year Plan – 2013-2018*. Thimphu: Gross National Happiness Commission.
39. World Bank (2015) *On the Move : A Look on the Transport Sector's Management in Chile, Finland, Morocco, South Africa, and South Korea*. Washington, DC: World Bank.
40. Royal Government of Bhutan (2017b) Op. cit.

41. World Bank (2013) *Bhutan Partnership Country Program Snapshot*. September 12. Washington, DC: World Bank.
42. World Bank (2017) 'Project signing: Royal Government of Bhutan and World Bank sign US$1.5 million grant to prepare program to improve Bhutan's climate resilience'. Press release, March 2. Washington, DC: World Bank.
43. IMF (2016) *IMF Country Report No. 16/206*. Washington, DC: International Monetary Fund. Page 8 of informational annex.
44. Ibid.
45. Royal Government of Bhutan (2017c) *National Transport Policy of Bhutan 2017 – First Draft.* Thimphu: Royal Government of Bhutan.
46. Royal Government of Bhutan (2017b) Op. cit.

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Contact: transport@ledsgp.org

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