Air Quality Policies

This document is based on research that UNEP conducted in 2015, in response to Resolution 7 of the UNEA 1. It describes country-level policies that impact air quality. Triple question marks (???) indicate that information for the section couldn't be found.

Please review the information, and provide feedback. A Word version of the template can be provided upon request. Corrections and comments can be emailed to Vered.Ehsani@unep.org and George.Mwaniki@unep.org.

BHUTAN		
GOALS	**CURRENT STATUS**	**CURRENT / PLANNED POLICIES & PROGRAMMES**
GENERAL OVERVIEW	• **Overall situation with respect to air quality in the country, including key air quality challenges**: generally good, as the level of industrial activity and the number of vehicles are still low, although this is changing; The capital Thimphu City is the largest urban area (100,000 people) and has seen increased construction activities, which impacts air quality; in urban areas, vehicle emissions and smoke from wood-burning stoves used for heating (in winter) are key sources of pollution; forest fires caused by land clearing and brown haze from India are issues; 3 out of the 4 cement plants run without modern emission controls • Dust from unpaved roads, and burning of household and farm waste are also issues • Bhutan is primarily an agrarian society; its main export is hydropower; Government has prioritised conservation of natural resources / environment as one of the four pillars for Gross National Happiness, and restricts land conversion to maintain forest cover • **Air quality monitoring system**: Yes in some	• **National Ambient air quality standards**: PM10 meets WHO Interim Targets for residential areas, but not for industrial areas; SO2 meets WHO Interim Targets; NO2 doesn't meet WHO targets; no standards for PM2.5, Ozone • **National Air Quality Policy**: National Environment Commission's policy objectives include ensuring that adequate pollution abatement techniques and environmental management systems are in place; Government has requested NEC to develop all relevant policies and guidelines on air quality management, but needs finances and human resources to do so • **Air Quality legislation / programmes**: The Middle Path – the National Environment Strategy for Bhutan • **Other**:

	urban areas	
REDUCE EMISSIONS FROM INDUSTRIES	• **Industries that have the potential to impact air quality**: four cement factories (3 run without modern emission controls); chemicals – Calcium carbide and Ferro silica industries produce high amounts of dust, while activated carbon production generates coal dust; mining and quarrying • >70% industries are small scale • Low height of emission stacks doesn't allow for proper dispersing of emissions • **GDP of country**: $1.8 billion • **Industries' share of GDP**: 42% • **Electricity sources**: Hydro, 75% of which is exported to India	• **Emission regulations for industries**: Environmental Assessment Act (2000) requires new industries to use only new and state-of-the-art machinery and technology, and by limiting air pollution within the interim ambient air quality standards; however this is not applied retroactively to older facilities which are often using obsolete technology • **Small installation's emissions regulated**: (Yes/No) ??? • **Renewable energy investment promoted**: Renewable Energy Policy (2011) • **Energy efficiency incentives:** (ex: Subsidies, labelling, rebates etc) ??? • **Incentives for clean production and installation of pollution prevention technologies**: • **Actions to ensure compliance with regulations:** fines are seen as relatively small and don't change behaviour; enforcement viewed as lax in the media; Human resource constraints limit monitoring to periodic spot checks • **Other actions at national, sub-national and / or local level to reduce industry emissions**: Clean Air and Sustainable Environment Project (World Bank) launching 20 demonstration projects in cleaner, efficient brick kiln technology
REDUCE EMISSIONS FROM TRANSPORT	• **Key transport-related air quality challenges**: although still small, the number of vehicles is increasing; road transport is main mode; most vehicles are in urban areas of the two largest cities; 45% vehicles are 2-wheelers • Only 20% of vehicles are more than 10 years old	• **Vehicle emission limit**: Euro 1; In-use vehicle emission standards, although not enough resources to implement testing • **Fuel Sulphur content**: 500 ppm • **Restriction on used car importation**: Banned since 1996 • **Actions to expand, improve and promote public transport and mass transit**: some effort being made to improve bus stops • **Actions to promote non-motorized transport**: Clean Air and Sustainable Environment Project (World Bank) to rehabilitate 70kn sidewalk and construct 23 foot bridges • **Other transport-related actions**: Reduction of import tax on vehicle spare parts related to emission control; Electric vehicle project with Nissan/Japan; Two-stroke vehicles banned since 1996
REDUCE EMISSIONS FROM OPEN	• **Outdoor, open burning**: fire to clear agricultural land, which is done during the dry season, leading to forest fires; burning of	• **Legal framework**: (ex: is burning banned?) ??? • **Actions to prevent open burning of municipal waste and / or agricultural waste**: Department

BURNING OF AGRICULTURAL / MUNICIPAL WASTE (OUTDOOR)	household waste common in rural areas and smaller villages	of Forests carried out campaigns and training programs on how to prevent forest fires
REDUCE EMISSIONS FROM OPEN BURNING OF BIOMASS (INDOOR)	• **Dominant fuels used for cooking and space heating**: 67% households use wood; Solar energy also used for heating by some • **Impact**: 200 deaths/year from indoor pollution (unknown for outdoor)	• **Indoor air pollution regulated**: No • **Promotion of non-grid / grid electrification**: Electrification rate 75% • **Promotion of cleaner cooking fuels and clean cook stoves**: project to develop sawdust briquettes to reduce air pollution from use of firewood in domestic stoves • **Other actions to reduce indoor biomass burning, or to reduce its emissions**: ???

Secondary Sources used in the research: *Country Synthesis Report on Urban Air Quality Management: Bhutan. Asian Development Bank and the Clean Air Initiative for Asian Cities, 2006*, https://en.wikipedia.org/wiki/Environmental_issues_in_Bhutan#Air_pollution, http://www.gnhc.gov.bt/wp-content/uploads/2011/05/RE-Policy-65.pdf, https://energypedia.info/wiki/Bhutan_Energy_Situation, http://airlex.web.ua.pt/pm10, http://www.who.int/quantifying_ehimpacts/national/countryprofile/bhutan-rev.pdf?ua=1, http://www.unep.org/Transport/New/PCFV/pdf/Maps_Matrices/AP/matrix/AP_Matrix_June2015.pdf, https://energypedia.info/wiki/Bhutan_Energy_Situation, http://www.reegle.info/countries/bhutan-energy-profile/BT