



Urban Pathways

Kathmandu NEPAL Country Profile



The Kathmandu Valley

Kathmandu is the country's capital and the largest city (population of 1 million), followed by Pokhara, Lalitpur, Bharatpur and Birgunj metropolitan cities (population above 200,000). The Kathmandu valley includes 3 cities – Kathmandu, Lalitpur and Bhaktapur with total area of 570 sq. km. The population of the valley is 2.5 million with annual growth rate of 4.63% (3.5 million unofficial). This represents 9.32% of entire population of country. Some of the initiatives on energy generation/conservation, sustainable transport and waste management in the valley are discussed below.

Energy

Nepal's energy consumption is less, but it is growing (grew 27% from 2000 to 2013) with increased urbanisation and economic production (e.g. in industry and transport). Nepal does not have major oil, gas, or coal reserves and the reliance on imported fossil fuel makes it vulnerable. Although Nepal has huge technical potential to generate electricity from hydropower (estimated 83,000MW), currently only 1% of this potential is harnessed (and imports deficit electricity from India). With the completion of new Upper Tamakochi Hydropower project (UTHEP), 456MW of electricity expected to be added by the end of 2018 (Lama, 2017). Nepal has a good potential for photovoltaic solar power and its use has been initiated on the roofs of the Kathmandu valley. Most of solar photovoltaics (PVs) are installed privately on rooftops and are used mainly for lighting the building and operating some appliances. The excess energy generated from solar power are stored in batteries, but are not yet connected to national grid. A policy that allows net metering from any solar power above 500 Watts exist in Nepal but it has not yet been applied in the city (Chalise, 2017).

Transport

Road transport dominates transport infrastructure in Nepal (cars, bus, motorcycle and marginal non-motorised transport). In the Kathmandu Valley, the number of vehicles registered tremendously rose - an increase of over 12-fold from 45,871 in 1990/1991 to 570,145 in 2010/2011. The highest number of vehicles type in the valley was motorised two-wheelers. Air pollution was the second leading cause of death in one of the main hospitals of the Kathmandu Valley in 2011. To reduce air pollution in the Kathmandu Valley, these 3 measures are urgently required: improving vehicle speed, promoting public transportation, and introducing electric vehicles that could reduce public transportation energy demand by more than 60% (Shrestha, Shrestha, & Shrestha, 2017). Some electric cars and scooters have been introduced in cities. Electrically powered 3 wheeler e-Tuk-Tuk/e-rickshaw (Safa Tempo) is a successful example of public EV in Nepal (e.g. in Kathmandu and in southern part of Nepal), in operation since 1996. Currently,

1,200 e-rickshaws (Safa Tempos) run in Kathmandu (Shahi, 2017). Less than 100 electric cars are in the valley, mainly imported from India, China and South Korea (which is negligible compared to fossil-fueled cars). A few small electric cars are produced in Nepal by Hulas Motor Company as an experiment. Charging infrastructure is in very nascent state in Kathmandu (also in Nepal). Nepal Electrical Authority opened a demo charging station at its office in order to boost public interest in EVs. E-scooters are a solution to replace the growing and highly used fossil fueled scooters in the valley. Public transportation services, currently run by the private sector through individual operators, are still not adequate in the city. The addition of e-bus can improve accessibility and environment.

Waste management

Nepal's urban basic services such as water supply, wastewater treatment and solid waste management (SWM) are not well developed, technically and financially. Nepal's municipal solid waste (MSW) is composed of 56% organic waste, 16% plastics, and 16% paper and paper products in aggregate (ADB, 2013). The Kathmandu valley generates around 1,000 tonnes of solid waste per day. 70% of the trash is dumped in nearby land-fill site, without proper waste segregation. The Government of Nepal adopted a Public Private Partnership approach in 2018, Nepwaste Pvt Ltd, a joint venture of Investment Board Nepal (IBN) and Finnish organisations in order to develop and implement an Integrated Solid Waste Management Program for Kathmandu. It will transform informal sector of waste collection into a formal one and assure regular service of household waste collection. It aims to convert organic waste to energy. It is estimated that it will generate 5-7 MWs of electricity, organic fertiliser and fuels. Alternative Energy Promotion Centre (AEPC) has also initiated large scale biogas projects in urban and semi-urban areas of Nepal with the financial support from World Bank under Scaling up Renewable Energy Programme (The Himalayan Times, 2017). Nepal government has imposed a ban on import, storage, sale, distribution and use of plastic bags below 40 microns (The Himalayan Times, 2018), but due to the lack of enforcement it is not fully implemented.