

Clean Air News

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EVs Proposed for High-Level Government Officials

In a major move that is likely to encourage promotion of electric vehicles (EVs), the government has come up with a proposal that makes it mandatory for high-level government officials to use electric vehicles.

The Ministry of Physical Infrastructure and Transport has drafted a proposal that requires the public officials—joint secretaries and secretaries—must use only electric vehicles for their daily commute. According to Mani Ram Bhusal, a joint secretary at the Transport Ministry, the recommendation for government officials to only use EVs has come from an internal committee of the ministry. “The committee has proposed that at least top government officials should commute in the green vehicles,” Bhusal, who is also a member of the five-member committee, told the Post. “The proposal would soon be forwarded to the Transport Minister for approval.”

The move to introduce green vehicles for top government officials have been inspired by the annual expenses of transportation topics. According to Bhusal, the government spends around five to six billions on purchase of fossil fuel-run vehicles, their maintenance and over fuel. “The government is spending a huge budget over these vehicles every year,” said Bhusal. “Although the initial investment for buying EVs will be higher, expenses on fuel will be saved

and maintenance will be cheaper. Most importantly, the message for the promotion of EVs will go out loud and clear.” The proposal will have to be approved by the Cabinet before it goes into force next fiscal year. The proposal also makes it mandatory if those government officials cannot use EVs then they have to furnish a solid reason for not being able to commute in eco-friendly vehicles.

In 2017, the National Planning Commission (NPC) became the first government agency in the country to purchase an electric vehicle (EV), as a part of a bid to replace the diesel and petrol-powered cars currently used by government agencies. Last year, the President’s Office also bought an EV, in a symbolic gesture for promotion of green vehicles in the country.

Promoters of the green vehicles also have applauded the proposal for it would contribute to the greater promotion of EVs across the country.

Various policies and action plans of the government has prioritised the promotion of EVs in the country, however, progress has remained mostly stunted, mainly due to lack of infrastructure required to facilitate e-mobility in the country.

Source: kathmandupost.com, 2 February, 2020

Ghorahi Locals Warn of Agitation Against Factory Pollution

People of Ghorahi had been time and again urging the authorities concerned to check the air and sound pollution caused by the Ghorahi Cement Industry located in Ghorahi Municipality-4. But their concern have so far fallen on deaf ears and the locals are now starting a protest movement against the pollution caused by the dust, smoke and sound from the factory.

Troubled by the heavy dust, smoke and sound coming from the factory, the locals have launched an agitation by forming a Factory-affected Environment Protection and Concerned Committee. The committee has relentlessly calling for controlling pollution caused by the factory in their area for the last six years.

Dil Bahadur Gharti, a resident of Laxmipur, Ghorahi-4, lamented that the situation was such that it had become difficult to grow crops and vegetables due to the heavy dust cover in the area. "We cannot even consume the vegetables we grow in the kitchen garden. There is thick layer of dust on the vegetables and leaves. We used to grow a lot of fruits and vegetables in our village before, but these days fruits like litchi, lemon, mango and others wilt away and the fruits start dropping," he said, explaining the adverse situation caused by the heavy dust pollution. Govinda Acharya, member of the committee whose house is close to the factory, said they could not even sleep at night

due to the noise from the factory. "The factory operates 24 hours and the noise and dust pollution level is high at night," he added. "We have requested the factory management to stop the noise for at least six hours at night. But they have been neglecting our concerns. It is difficult to even breathe due to the dust and smoke pollution.

Ghorahi Cement Industries Pvt Ltd has, however, insisted that the factory has conformed with the standards set by the government. The cement factory that had produced 1,200 metric tonnes of cement every day during its establishment period has now started producing 2,000 metric tonnes of cement every day. The factory has now been producing and sending its products to the market in the name of 'Sagarmatha Cement'. Chairperson of Dandagaun Secondary School Management Committee, Tanka Sunar, said that different problems like body itching, cold and cough had become common among students after establishment of the factory. The school is near the factory.

Public Administration Chief of the cement factory, Bikas Sharma, mentioned that the factory was abiding by the criteria determined by the government. Sharma said the factory has not only been producing cement, but also providing employment to locals as per their skill and capacity. He also said efforts were being made to control environment pollution by planting sap-

lings.

He said, "We have not been carrying out any activities that have negative impacts on anyone. A study can be carried out by bringing experts from the centre if you feel there is some problem regarding operation of the factory. The factory is in operation in the right way."

Ghorahi sub-metropolis Mayor Narulal Chaudhary said practical aspects should be taken into account while operating business even though all the legal procedures have been carried out. He was of the view that it was necessary to take the locals' concerns seriously. According to him, none desired to see the closure of the industry, but the voices were for making it citizen-friendly. It is essential to be sensitive towards the minimisation of negative consequences of the industry.

Chief District Officer Govinda Prasad Rijal said the factory had been instructed to find measures for the safe release and management of smoke, dust and sound pollution bearing in mind the people's complaints.

The factory claims that several efforts are being made to minimise environmental impacts and pollution-control equipment has been installed.

Source: thehimalayantimes.com, 6 February, 2020

Habre Eco Bike Designed to Ease Pollution in Kathmandu

Conceived by Nripal Adhikari and Lance Rake, the habre eco bike was designed in response to issues of urban congestion and pollution in the city of Kathmandu, Nepal. Made by local artisans using regional bamboo, the bike aims to provide a green alternative to gas-guzzling vehicles, reducing air pollutants and therefore improving the health of citizens.

In 2019, Lance Rake, professor of industrial design at the University of Kansas, was awarded a global Fulbright to develop an electric cargo bike that would be a viable alternative for food and package deliveries as well as carrying passengers around important world heritage sites in Kathmandu. The main concept behind the bike was to reduce or totally eliminate fossil fuel burning vehicles, particularly in fragile historic sites.

Professor Rake worked with the students and faculty at RMIT in Melbourne, Australia, to develop concepts and design and fabricate parts and fixtures. When he arrived in Nepal, he worked with Nripal Adhikari, architect and founder of Abari – an internationally recognized firm that has built many significant buildings in Nepal, primarily using rammed earth and bamboo. He also worked with students and faculty at Kathmandu University to design, prototype, and test



a cargo bike for these demanding conditions.

Through many iterations of design and build, habre (Nepali for red panda – mammal native to the eastern Himalayas) developed from a steel platform to a refined electric three-wheeled bamboo cargo bike. The final pre-production prototype was unveiled in Kathmandu to an appreciative audience of local business people, students, and city officials, and you can find out more about the bike at the Abari Foundation.

There are challenges building a bike in rural Nepal – the team rarely had ‘proper’ tools or a flat work surface, relying instead on the resourcefulness

of local artisans.

Later design versions were experiments in steel reduction – the goal was to use as little steel as possible to maximize the use of local resource. The pre-production prototype underwent final assembly – by changing thickness and the number of leaves, the suspension could be adjusted for local requirements.

The final pre-production prototype was fabricated in the Abari studios in Chitwan, Nepal, by highly skilled local craftspeople.

Source: [designboom.com](https://www.designboom.com), 12 February, 2020

Biomass Stoves Increase Indoor Air Pollution

Traditional stoves that burn biomass materials and are not properly ventilated have been shown to significantly increase indoor levels of harmful PM2.5 and carbon monoxide. The air pollutants stimulate biological processes that cause lung inflammation and may lead to COPD, according to new research published online in the *Annals of the American Thoracic Society*.

UK researchers led a study of the pulmonary effects of traditional cook stoves (TCS), in comparison with improved, ventilated stoves (ICS) and liquid petroleum gas (LPG) stoves in Nepal. "I have had links with Dhulikhel Hospital in Kathmandu for seven years," said Professor Ian P. Hall of the University of Nottingham, UK. "When on hospital rounds, I noticed a lot of admissions for COPD, both men and women. Nepalese men smoke, but women generally don't, while they are also traditionally the family cooks. I was interested in why women were getting COPD, and the most obvious question to explore was whether it was due to indoor biomass smoke, so we decided to study these exposures."

The researchers measured personal exposures to PM2.5 and CO during cooking on a range of stoves in 103 households in four different Nepalese villages, each village at a different elevation (from 200 to 4,000 meters above sea level), and took measurements outdoors as well as indoors when cooking

was not being done. They also exposed surgically removed lung tissue to soluble smoke samples collected during cooking, and then applied the samples to the tissue and tested it for 17 different inflammatory substances. There would not be any CO in these extracts, so the researchers only looked at other components of the extracts.

Increased levels of 7 of 17 inflammatory substances occurred in the lung tissue following TCS biomass smoke exposure. Cooking with the improved cook stove still caused an inflammatory response related to six of these substances. LPG cooking activated two inflammatory substances. Study authors believe these elevated levels during ICS and LPG cooking may be due to inflammation-causing substances not tested for.

"Little was previously known about the mechanisms underlying the lung's response to biomass smoke," said Hall. "Now, we have shown, for the first time, that biomass smoke samples collected in a real-life environment from rural Nepal have pro-inflammatory effects on human lung tissue. These exposures, which induce lung inflammation, may partially explain the increased risk of COPD in these communities." Lung inflammation is a major cause of COPD. More than 90% of deaths from COPD are in low and middle-income countries, and COPD has a high incidence rate in the regions of Nepal studied.

The researchers found that the overall average PM2.5 exposure was reduced by 51% in homes that used ICS and by 80% in households using LPG stoves, in comparison with traditional stoves. Exposures to particulates in different locations while cooking with traditional stoves were 5-29 fold higher than 24-hour World Health Organization (WHO) exposure standards. Even the reduced exposures to PM2.5 using either ICS or LPG were higher than WHO recommended levels. Higher particulate levels were also found in higher elevations. The indoor CO concentration was reduced by 72% and 86%, respectively, in households using ICS and LPG. All cooks who used TCS exhaled higher levels of CO while they were cooking than when they were not.

The traditional biomass stoves, which are used by 80% of the Nepalese population and widely used in low and middle-income nations throughout the developing world, burn wood, crop residues or dried dung. Cooking is done on open fires in rooms without a chimney or proper ventilation. Improved biomass stoves, which have improved compression systems and/or vent fumes through a chimney, have been tried in some villages.

Source: rtmagazine.com, 21 February, 2020

Kathmandu Slightly Up in Global Air Quality Ranking

Kathmandu has shown a slight improvement in average air quality, with its position sliding to 137th most polluted city in the world in 2019 from 100th position in 2018.

According to IQAir Airvisuals's 2019 World Air Quality Report, released early this week, the average PM2.5 in 2019 was 48 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) in Kathmandu which was 54.4 $\mu\text{g}/\text{m}^3$ in 2018. This is an improvement of 11 percent.

However, environmentalists cautioned not to celebrate the news as 2019 pollution level is still higher than in 2017, when the PM2.5 was recorded at 45.9 $\mu\text{g}/\text{m}^3$. Also, Kathmandu is still one of the most polluted cities in the world. "It is not a big achievement to be celebrated, however, the good news is that the pollution level has remained stable," said Bhusan Tuladhar, an environmentalist.

Among the countries, Nepal is ranked as the 8th most polluted country with the average PM 2.5 concentration at 44.5 $\mu\text{g}/\text{m}^3$, according to the same report. Bangladesh was ranked as the most polluted country in 2019 with an average PM 2.5 concentration of 83 $\mu\text{g}/\text{m}^3$. Pakistan came next with 65 $\mu\text{g}/\text{m}^3$ and India recorded an average of 58.1 $\mu\text{g}/\text{m}^3$.

"A lot needs to be done to improve the air quality of Kathmandu Valley and

Nepal, our response is not up to the mark," said Bhusan Tuladhar, an environmentalist. To curb the air pollution in Kathmandu Valley, the ministry of Forest and Environment (MoFE) had forwarded an Air Quality Management Action Plan for the Valley to the Council of Ministers for its endorsement in December last year. The cabinet endorsed the action plan only this week. The plan proposes a comprehensive framework to curb Valley's air pollution, which is caused mainly by vehicular emissions, open trash-burning, industrial pollution, forest fires, dust resuspension, and emissions released during road construction.

"There is no justification for the government to just sit on such an important action plan for three months," retorted Amrit Man Nakarmi, a professor at the Institute of Engineering, Tribhuvan University, who specializes on energy sector and climate change. "Also, the implementation status of various legal measures to curb pollution is pathetic."

According to World Air Quality Report 2019, 21 of the world's 30 cities with worst air pollution are in India, with Ghaziabad near New Delhi, ranked as the world's most polluted city. Ghaziabad recorded average PM2.5 concentration of 110 $\mu\text{g}/\text{m}^3$ in 2019. The majority of the most polluted cities and countries included in the World Air Quality Report are located

in South Asia. This region includes 30 of the top 40 most polluted cities and four of the five most polluted countries.

Though there is a lack of updated and comprehensive studies on the impact of air pollution on public health in Nepal, the World Health Organization (WHO) in 2016 reported that 9,943 people die every year due to ambient air pollution in Kathmandu Valley. Another report compiled by Breathlife, a partnership campaign of WHO, UN Environment, World Bank and Climate and Clean Air Coalition, estimated that a total of 37,399 deaths occur per year in Nepal, due to air pollution -- including both outdoor and household air pollution. "It is a public health disaster, yet the government's response has been very disappointing," added Tuladhar. On a brighter side, the World Air Quality Report has listed Pokhara as the 13th cleanest city in South and Central Asia, with its PM2.5 level at 17.1 $\mu\text{g}/\text{m}^3$.

According to Department of Environment, MoFE there are seven pollution monitoring stations in Kathmandu and other 13 stations are operational in urban areas across the country. These stations provide real-time levels, offering rich information to study potential health effects of air pollution.

Source: myrepublica.nagariknetwork.com, 28 February, 2020

How Citizens Spurred Policymakers Towards the Change

The air in Skopje, North Macedonia, is one of the most polluted in the world because of the city's natural position and people's reliance on fossil fuels. However, over recent years, many citizens have started demonstrating against this plague, pushing policymakers to follow their new will.

North Macedonia is one of the countries most affected by air pollution in the world and the rate of premature deaths is higher than in most EU States. Every year 2,574 people die prematurely as a direct result of air pollution, reports BreatheLife, a joint campaign by the World Health Organization, UN Environment and the Climate and Clean Air Coalition (CCAC).

Among the pollutants is the combustion particle PM2.5. In Skopje, its con-

centration is 4.5 times higher than the WHO recommendations of below 10 micrograms of particles per cubic metre of air ($\mu\text{g}/\text{m}^3$). And in Tetovo it is even 8.1 times higher than the healthy threshold. Moreover, the current low temperatures are making the situation worse, because of the emissions resulting from the use of fossil fuels for heating buildings.

The mayor of Skopje, Petre Shilegov confirmed that around 60,000 households use low-quality wood and coal for heating, reported the local news agency Makfax. Citizens use even textiles, plastics and waste to heat their homes because of the lack of a reliable gas supply and the high cost of electricity.

The average low income (minimum salary is 260 euros), and energy poverty are just two of the issues making Skopje such a polluted city. Another reason is its natural position, as the capital of North Macedonia is located in a valley surrounded by mountains that trap the fog. The situation is further complicated by a temperature inversion, a natural phenomenon which causes warm air to remain above cool air and which contributes to the greenhouse effect.

Source: cordis.europa.eu, 25 February, 2020

Good Reads

1. [Assessing Kathmandu's pollution](#), Bikash Gupta/Sinichi Tanaka, www.myrepublica.nagariknetwork.com, 3 February, 2020
2. [Air pollution solutions can also save the climate](#), Sneha Pandey, www.kathmandupost.com, 12 February, 2020
3. [They threaten to burn us alive: Nakkhu locals](#), Subhash Ghimire www.myrepublica.nagariknetwork.com, 10 February, 2020
4. [21 of the world's 30 cities with the worst air pollution are in India](#), www.edition.cnn.com, 25 February, 2020

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Clean Air Network Nepal (CANN) is a network of organizations and professionals involved in air quality management in Nepal. The goal of CANN is to increase the ability of professionals and other interested stakeholders to effectively address the problems of air pollution in Nepal. We encourage you to join hands with us to expand our campaign for clean and better Air. CANN is a country network of Clean Air Asia and hosted by Clean Energy Nepal. For more information: www.cen.org.np; www.cleanairinitiative.org

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