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## **City Report**

**(Draft)**

**< Kathmandu Metropolitan City, Nepal >**

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# **Kathmandu Metropolitan City Report**

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Kathmandu, the capital city of Nepal, is one among the most populated cities in the world. Due to centralized policy of government people from rural areas are migrating rapidly in search of employment, education and other opportunities for better life carrier. Not only the population but also the problems with increasing population are entering in the city. For traffic congestion due to rapid increase of private vehicles that has significant impact in people life. Similarly, the environment pollution of noise, fuel consumption, and dust particles is creating health hazards among city population. To cope with these problems and in order to achieve inclusive, safe, resilient, and resource efficient cities, which will have significant impact (socially, economically, and environmentally) on the future generations and their quality of life, transport sector is a critical area to be looked into. Unless concerted efforts are put by city and transport authorities to ensure that the people and environment friendly urban transport system and infrastructure are in place, it would be difficult to realize live able and sustainable cities in any sense.

With an objective to promote “environmentally sustainable transport (EST)” in cities, Asian cities had adopted a goodwill and voluntary *Kyoto Declaration*” at the “Asian Mayors’ Policy Dialogue for the Promotion of Environmentally Sustainable Transport (EST) in Cities” held in Kyoto, Japan in 2007 (Kyoto Declaration on EST). Further demonstrating the renewed interest and commitment of Asian countries towards realizing a promising decade of sustainable actions and measures for achieving safe, secure, affordable, efficient, and people and environment-friendly transport in rapidly urbanizing Asia, the member countries of the Regional EST Forum in Asia had agreed on a goodwill and voluntary “*Bangkok Declaration for 2020 – Sustainable Transport Goals for 2010-2020*” at the Fifth Regional EST Forum held in Bangkok, Thailand, in 2010. It was the first time that Asian governments and other transport stakeholders endorsed a joint declaration incorporating a comprehensive set of twenty EST goals under the three strategic approaches-*Avoid, Shift and Improve* - within the time frame of 2010-2020.

Subsequently, at the Seventh Regional EST Forum held in Bali in 2013, the participating countries adopted the “*Bali Declaration on Vision Three Zeros- Zero Congestion, Zero Pollution and Zero Accidents towards Next Generation Transport Systems in Asia*” reinforcing the Bangkok 2020 Declaration (2010-2020) and emphasizing zero tolerance towards congestion, pollution and road accidents in the transport policy, planning and development. The Vision Three Zeros calls for a paradigm shift in thinking on the role of motorization and mobility in realizing sustainable development in Asia over the next decade (2010-2020).

This report would help development agencies, donors, including development banks, in assessing the sustainable transport needs and challenges of cities to better devise their existing as well as future capacity building programs and operations in the field of sustainable transport. The main objective of the Kathmandu City Report is to share among international community the progress, achievements, major initiatives and best practices, including various challenges faced, in the areas of sustainable transport. For this the report is presented thematically under the following topic.

### **Major challenges and constraints faced by Kathmandu city in implementing sustainable transport policies and their measures.**

The management of the whole transport system in the valley is unsatisfactory and the transport system being vehicle centric rather than people centric is also environmentally unsustainable. The frustration of being stuck in never ending traffic jams – whether you are in Public or private transportation; the once considered walker’s paradise Kathmandu – now is walker’s hell because of the air pollution caused by vehicle emissions, the noise pollution due to the continuous and absolutely unnecessary honking; the very inappropriate and inefficient public transport system and badly publicized and financed private transport system and the contradictory policies regarding the promotion of electric vehicles – all these among many others are the major contributors to make valley’s transport system very unsustainable. The once strong public transport system under the banner of ‘Sajha Yatayat’ ; its sudden demise due to introduction of less efficient public transporters - three wheelers and Microbus - family transporter by default; the sudden and illogical closure of Trolley Bus (electric bus), the ever increasing ownership of private vehicles and never increasing length of road network; the lack of strong policies and weakest enforcement of existing laws and policies gives indication of the kind of short sightedness and mismanagement that Kathmandu’s transport system has gone through. However, the brighter side to this is that we all believe that it’s not too late and we can reverse this trend of unsustainable transport scenario.

### **Challenges/constraints and measures to sustainable transport system**

The major challenges and constraints related to transport system in Kathmandu that are responsible to make it unsustainable are listed below:

1. *Inappropriate Taxation policies for Electric Vehicles (EVs) and lack of awareness about the use and promotion on EVs:* The share of renewable energy (hydropower in the case of Kathmandu Nepal) is very negligible in transport system. Kathmandu is only the city in the world to have biggest number of electrified public transport (SAFA Tempos ). But the number of SAFA tempos has not increased significantly since 10 years as compared to other fossil fuel run vehicles. In addition to this, the trolley bus was suspended in very unfortunate manner.

2. *Heavy dependence of transport sector on Fossil fuels:* The GHGs and air pollutants emissions is very high per passenger km travelled or per freight km travelled due to the usage

of fossil fuel; Nepal does not have oil reserves so have to rely on oil exporting countries for fuel supply. This has positioned Nepal in difficult position in the context of energy security. We have experienced acute price hiking of the oil products in the recent days. Economists have predicted this will continue in the future as well. This means our economy is vulnerable to price hike as usage of fossil fuel is increasing in Nepal. The oil export is consuming major pie of the national income. At the moment, Nepal government is subsidizing price of fossil fuel in the name of poor people. But this subsidy is enjoyed by well-off urban people only who can afford to ride or own vehicles. This is a clear example of social injustice and disparity.

*3. Disproportionate increase in the number of private vehicles:* The number of vehicles, in particular private vehicles, is shooting out in alarming rate. The poor transport planning is responsible for traffic congestion, air pollution and over use of fossil fuel. The numbers of vehicles especially the two wheelers are increasing due to the lack of appropriate measures to tackle this unprecedented rise in the ownership of private vehicles.

*4. The stagnation of Road Network:* The existing road network of the valley simply cannot cope with the rising population and ownership of private vehicles. The lack of proper planning and implementation for increasing the road network and lack of proper maintenance of the existing roads is seriously contributing to valley's woes.

*5. Inefficient Public Transport system:* Around 56.5% of Kathmanduites uses one or other mode of public transport on a daily basis (KVMP Report, 2001). However, Public Transport is not encouraged and maintained as an appropriate mode of travel. Public Transport Operators are not correctly assigned to routes; the plying of inappropriate vehicles on many routes; vehicles competing on the same routes and many routes terminate in the centre causing congestion and increasing the ineffectiveness. The public transport system just fails to attract the commuters. The commuters have no option but to choose private system of transport.

*6. Weak Enforcement of Existing Policies:* The examples include the degradation and the state of ineffectiveness of vehicle emission testing facilities; the manpower to monitor and handle such responsibility is seriously undermanned. Besides this, the effectiveness of Green Sticker is questionable. The ease with which one can obtain the driving license is amazing. The state of enforcement of most basic traffic laws is in diabolical state. Furthermore, the air pollution in the valley is so bad that we already need to move on to stringent standards of Air Quality, fuel and fuel quality control. The lack of national fuel economy policy just enhances the already existing problems.

*7. Non-Integration of Land use planning with transport planning:* Land use planning and urban development planning have significant roles to play in abovementioned areas. But we are giving less consideration in this very important aspect. One example is construction of outer ring road in the valley. The government is implementing this project thinking that construction of more roads around the existing ring road may solve the problem of congestion. But we are promoting urban sprawl in the valley. There is already a trend of moving people out of core areas of city. The result is that many residential areas is growing in surrounding

semi urban areas. This would demand heavy investment to provide necessary services including transport. In addition to this, we are creating more travel demand. According to experts, Kathmandu is still less dense city.

*8. Haphazard State of Vehicle Parking System and street vendors:* The state of Vehicle parking especially in the core areas is extremely haphazard – beyond the level of comprehension for people who walk. Even where you have to pay nominal parking fee (of which there is no transparency and accountability), the vehicles can be seen being parked in the footpath or the parking stretches up to the middle of the main road. This problem is just magnified by the presence of unmanaged street vendors – which just gives you the feeling that you can just open the shop wherever you want.

*9. Negligence of Non-Motorized Transportation:* Another very important issue is negligence of non-motorized transportation such as walking and cycling. These modes are simply not explored as priority solutions for Kathmandu’s sustainable urban transport system. The irony being about 19% of Kathmanduities are regular walkers. Their safety and well being should be of utmost priority for any sustainable transport system. The Improvements on light signals, crossing facilities and linkages that affects vehicle transfers, and other variables that affect promotion of walking (zebra crossings, infrastructure for person with special abilities, etc.) is completely ignored in the current system.

### **Measures for developing environmentally sustainable transport system**

The transport system of Kathmandu is not environmentally sustainable at all. Air pollution is one of the major issues in Kathmandu and unsustainable and unmanaged transportation system with increasing number of private vehicles is one of the reason for aggravating air pollution scenario. The traffic situation in core areas of Kathmandu is very bad with lots of traffic jam. The re-suspension of road side dust due to traffic is also one of the reason for air pollution along with bad road condition.

There may be a big debate and argument on what is the measuring rod to define sustainability. Generally, the sustainable transport system is that system which doesn’t harm environment, economy and society while providing services to all segments of society including poor and disadvantaged groups. The sustainable transport system fulfills the demand of present generation without comprising need of future generation. The discussion conducted by government and non-government agencies (for Clean Energy Nepal and Clean Air Network Nepal) clear the concept and developed the vision for Environmentally Sustainable transport as: *“By 2020 and beyond, a safe, secure, affordable, efficient, and people and environment friendly transport system will be achieved to significantly reduce our greenhouse gas emissions and air pollutants from transport sector and to reduce the dependency \on fossil fuel”*

The following strategies are useful to achieve the above vision shaping the course of action for environmentally sustainable transport system in Kathmandu Valley.:

- Arrange necessary institutional mechanism at local, regional and national level to integrate land use and transport planning processes.
- Redefine public transport system and infrastructures to address travel demand, to provide local access and to avoid unnecessary travel and to reduce trip distances.
- Enhance use of Information and Communication Technologies as a means to reduce travel. Such as telecommuting, teleconferencing and Internet based communication and work.
- Invest more in Non Motorized Transport components such as improvements in pedestrian and bicycle facilities, easy intermodal connectivity ( eg promoting bicycle friendly public transport system)
- Reduce the number of private motorized vehicles through transport demand management measures; pricing measures (congestion and pollutant costs), incentive mechanism for people and environment friendly transport mode.
- Promote environment friendly transport fuels and technologies. Such as use of hydropower in transport system (electric vehicles, electric trolley bus and tram), blending of gasoline and diesel with biofuel that is not cultivated in the agriculture land.
- Set and Review standards for fuel quality, fuel efficiency and vehicle emissions for new and in use vehicles.
- Establish effective, efficient and equitable vehicle testing/ maintenance and compliance system involving private sector.
- Strengthen traffic management system using modern technology and equipments, ensuring sufficient human resource and financial resources. The current system of traffic enforcement in Kathmandu is manual, and offences are written down on preprinted forms. The violators are punished randomly. In the absence of any central database, tracking habitual offenders becomes extremely difficult, resulting in poor deterrence
- Establish air quality and noise standards for progressive implementation and compliance.
- Enhance awareness and understanding level on EST to all levels of stakeholders (governments, public and private sector) through outreach, promotional campaigns and school and college curriculum.
- Increase good governance and coordination among the key players and actors.

The above mentioned strategies are broader strategies only and it is recommended that we should have short term, medium term and long term action points for concerned agencies along with time line.

It was recommended that the following agencies should act in coordinated way to achieve the EST vision for Kathmandu :

1. Ministry of Physical Planning and Works ( Department of Roads, Department of Urban Planning)
2. Ministry of Environment
3. Ministry of Transport and labor Management ( Department of Transport)
4. Kathmandu Metropolitan City
5. Civil society organizations

Following action points were recommended to realize the EST vision for Kathmandu City:

- Settlement planning, industrial and business area development must be done in such a way that unnecessary travel is avoided and reduced. Kathmandu still needs densification and haphazard urban sprawl should be restricted. The proposed outer ring road will encourage uncontrolled urban sprawl jeopardizing the present situation so this proposal should be reconsidered prior to implementation.
  - The route of the public transport system should be redefined in scientific manner to meet the travel demand and cater service to public in effective, efficient and reliable manner. The route can be franchised to capable private sectors.
  - There should be strict provision and policy to promote mass transit public transport such as Bus Rapid Transit System, Metro and Trolley Bus. The lower capacity vehicles running on fossil fuel such as micro van, minivan and three wheelers should be discouraged to be used as public transport.
  - Vendor shop on footpaths and roadside should be strictly prohibited. The strict rules are needed to stop encroachment of footpaths and barriers for pedestrians.
  - More infrastructures need to be constructed for pedestrian and bicycle users. The existing infrastructures need to be improved and maintained on regular basis. The vehicle free zones should be declared in certain areas such as Thamel tourist area, Patan, Kathmandu and Bhaktapur Palace areas, Pashupati, Swoyambhu and Boudha Heritage Areas.
  - Revive trolley bus system and explore opportunities to expand trolley bus in ring road areas.
  - Battery operated (two wheelers, three wheelers and four wheelers) vehicles should get priority over fossil fuel run vehicles to be used as private or commercial vehicles through incentive mechanism. Battery operated three wheelers can serve specific dedicated routes such as airport and inner core areas of the city.
  - There is urgent need to commission a study to assess various viable models for effective Vehicle Inspection and maintenance system for Kathmandu.
  - The condition of road and other infrastructures need to improved, maintained and expanded.
  - Kathmandu needs a comprehensive communication and outreach plan on EST to raise general awareness and understanding among policy makers.
- The following important role of civil society has been identified in order to formulate and implement EST strategy in Kathmandu.
- It can sensitize and lobby with government agencies to integrate elements of EST in their plan and policies.
  - It can work with government agencies as partner to generate and share knowledge and skills on EST elements.
  - It can work as watch dog to review government's initiatives with an aim to provide constructive suggestions.
  - It can ensure public support and participation for formulation and successful implementation of EST strategy through awareness and capacity building activities and programs

**Action that require to promote public transport system**

Currently, about 444,759 vehicles are registered in Kathmandu valley and this number is increasing each year. From this number, almost 10% are over 20 years old affecting the valley's air quality. There are only 615 electric vehicles with zero emission which accounts for 0.14% of the total number of vehicles. Apart from that, trolley buses ceased operations. These are some of the reasons why Kathmandu's transport system is not environmentally sustainable.

Though there is no authentic data related to public that use public transport system, the number of vehicles, in particular private vehicles, is shooting out in alarming rate. There is no proper transport planning in relation to changing transport system. The poor transport planning is responsible for traffic congestion, air pollution and over use of fossil fuel. The numbers of vehicles especially the two wheelers are increasing due to the lack of appropriate measures to tackle this unprecedented rise in the ownership of private vehicles. The following points will be useful for proper action to promote public transport system:

Clean Energy Nepal and UN-Habitat in collaboration with Department of Urban Development and Building Construction, Ministry of Urban Development organized various programs on 6th and 7th October to commemorate World Habitat (WHD) 2013. This year's WHD theme is 'Urban Mobility' and various programs were organized to have policy discussions and sensitize public on sustainable urban mobility issues.

### **Press Briefing and Media Workshop on Sustainable Urban Mobility**

A press briefing was organized on 6th October to inform media persons about WHD 2013 events and messages. The message of Dr. Joan Clos, Executive Director of UN-Habitat was distributed along with the press brief of Government of Nepal. The press briefing was followed by "Media Workshop on Sustainable Urban Mobility". The objective of the workshop was to raise awareness on key issues related to urban mobility and mobilize support from media in promoting sustainable urban mobility in Nepal. The program included presentations from government officials, experts and senior journalists as well as interaction among key stakeholders and media.

Mr. Bhushan Tuladhar from UN-Habitat said that when we built roads we are focusing on moving vehicles not people. "It should have been other way round", he said. "Pedestrians and cyclists are the most vulnerable to road accidents and air pollution even though they are not emitting any pollution", he said. He also highlighted some of the projects of government on people-centric transport system. He also praised the media for promoting sustainable mobility in the cities and asked to continue to do so.

Mr. Kanak Mani Dixit, senior journalist said that Bus Rapid Transit System is the best mode of mass transit for Kathmandu Valley. "We can't afford to build metro at least for now", he said. He also highlighted the difficulties that disable people are facing, and informed media about the campaign to build disable friendly road in Jorpati. "Even though Nepali media are good at news reporting but analyzing the issues and presenting them are lacking", he said. Mr. Rishi Dhakal from Spinal Injury Rehabilitation Center and Jorpati Disable-friendly Road Campaign presented on the barriers and mobility challenges that disable people are facing. Mr. Bijay Swar, Senior Vice President from Federation of Nepalese National Transport

Entrepreneur Association presented the situation of public transport system in Nepal. He asked government to formulate policies and plans to improve public transport system.

### **Non-motorized Transport System in Kathmandu City**

Another very important issue is negligence of non-motorized transportation such as walking and cycling. These modes are simply not explored as priority solutions for Kathmandu's sustainable urban transport system. The irony being about 19% of Kathmanduites are regular walkers. Their safety and well being should be of utmost priority for any sustainable transport system. The improvements on light signals, crossing facilities and linkages that affects vehicle transfers, and other variables that affect promotion of walking (zebra crossings, infrastructure for person with special abilities, etc.) is completely ignored in the current system.

As stated in MayA Factsheet, Urban core areas are traditionally designed for walking and communal space for people to meet. But the streets are now largely occupied by motor vehicles, which has not only made the city less walkable but also contribute to traffic congestion, air pollution, noise pollution, road accidents etc. making the city more unsafe and less livable.

“Ktm Walks” or “*Hindau Kathmandu*” is a campaign to reclaim the streets occupied by vehicles and promote walking and cycling. The goal is to build more livable and humane city. During this campaign, motor vehicles will be restricted entering the certain stretch, and the space will be exclusively provided for the people to walk, cycle, meet, play etc.

The objectives of the campaign are:

- To reclaim the streets occupied by motor vehicles and provide streets for people
- Promote sustainable mode of urban transport such as walking, cycling and riding public transport
- Aware public about the importance of walking and cycling
- Contribute to making the city safer and livable

Ministry of Physical Infrastructure and Transport (MoPIT), Clean Energy Nepal (CEN) and Clean Air Network Nepal (CANN) in collaboration with FK-Norway, Clean Air Asia and UN-Habitat organized third ‘*Kathmandu Sustainable Urban Mobility Forum*’ on 21st February 2014. This is in tandem with the “Kathmandu Sustainable Urban Mobility Forum” organized in December 2011 and 2012. The objectives of the forum were to bring stakeholders together to initiate policy dialogues, enhance partnership and collaboration, and share initiatives and best practices on sustainable urban mobility and air quality management.

The forum was focused on non-motorized vehicles (NMVs), and sharing best practices from Asian cities on urban transportation and vehicular emission control. Around 70 participants

from governmental, and non-governmental, agencies, transport and urban planners, academia, private sectors and media were participated in the program.

The participants stressed on the promotion of non-motorized transport (NMT) system to solve the urban transport problems in Kathmandu Valley. Highlighted the issues, challenges and opportunities of NMT in Nepal. “Simply expanding the roads as the opportunities for more sidewalks and cycle lanes”.



Mr. Bhushan Tuladhar, Regional Technical Advisor-South Asia, UN-HABITAT presenting on “Issues and Challenges of Urban Mobility and Non-motorized Transport System in Kathmandu Valley”

Mr. Navadeep Asija, Founder of Dial-a-rickshaw Scheme (Ecocabs) gave a presentation on the dial-a-rickshaw or eco-cabs initiative in Indian Cities, and shared experiences, challenges, success story and lessons for Nepal. He said that there are almost 10 million population directly depends upon passenger cycle rickshaw for their daily livelihoods in India, and rickshaw is the largest sector to offer employment. He referred the dial-a-rickshaw scheme as a digital empowerment of the rickshaw drivers. “There are estimated 25,000 rickshaws operational in Chandigarh providing services to 5 lakhs passengers daily and save 75,000

liters of fossil fuel”, he said. Apart from the benefits from the increasing ridership, he said that the rickshaw drivers are provided additional benefits such as free medical check-up, free school admission of their children, low interest rate loan from banks etc. He said that dial-a-rickshaw scheme can be introduced in Nepal.

Giving keynote remarks, Mr. Tulasi Prasad Sitaula, Secretary of MoPIT highlighted the work of ministry in sustainable mobility initiatives and promotion of NMVs. “Since 2 years, we are in progress of road expansion but widened roads are used for parking and no proper implementation of lane policy has taken place”, he said. He said that current development on road expansion and improvement will ease the traffic congestion. He further said that government has low investment in urban transport sector, but there are plans to construct several footpaths and cycle lanes, and operation of electric vehicles in core cities area of Kathmandu Valley.

The panel discussion was organized on the existing situation and challenges of NMVs, and way ahead for its promotion. During the panel discussion, Mr. Indu Sharma Dhakal, Joint Secretary of MoPIT said that nothing much has been done to promote rickshaws and NMVs. He acknowledged the role and importance of NMVs in urban mobility and need for their promotion.

“KMC’s aim is to promote environment friendly and non motorized transportation, and improve pedestrian zone, cycle and rickshaw”, said Mr. Ravindra Poudel from Kathmandu Metropolitan City (KMC). He was positive in promoting non motorized vehicle, and pledged to provide identity cards to individual rickshaw drivers to manage rickshaw services.

Mr. Rajesh Manandhar, Vice Chairman of Rickshaw Owner’s Association said that there are 472 rickshaws registered in KMC and registration of rickshaws has been stopped since 2032. He highlighted the existing problems and challenges faced by the rickshaw drivers and associations. “We don’t have proper parking places for the rickshaws and the governmental agencies have discriminatory policies and behavior towards rickshaws”, he said. He said that the government should support and promote rickshaw services, and provide equal rights and facilities as of motor vehicles. The association demanded KMC to provide identity card for rickshaw drivers.

“There are estimated 40,000 wheelchair users in Kathmandu valley, but newly constructed roads are not accessible to the people with disabilities”, said activist Mr. Sagar Prasain. He appreciated efforts of the government to build disable-friendly roads and buildings. He asked

government to follow the principle of universality in road and building infrastructure planning.

“NMVs not just provide the mobility options, but also help in making the city dwellers’ life easier and keeping the city clean and livable”, said Mr. Prashanta Khanal, Program Coordinator of CEN. He further added that the transport planning and investment are often focused principally on road infrastructures, largely for facilitating the movement of motorized vehicles. NMVs are forced to move in mixed traffic and often have to compete with other transport modes. He highlighted the lack of transport policy vision to acknowledge the role and importance of NMVs in urban mobility. He also presented the existing scenario of NMVs in Kathmandu Valley.

Mr. Sudarshan Dhakal, Director General of Department of Transport Management (DoTM) said that the registration and management of rickshaws have been transferred from DoTM to KMC. Mr. Suman Kumar Timilisian, DSP of Metropolitan Traffic Police Division (MTPD) has committed to provide trainings on rickshaw drivers on road safety, and traffic rules and regulations.

During the technical session, Mr. Suman Udas, Program Coordinator of CEN and FK exchange participants shared the best practices of Chinese cities in improving the urban transportation and promoting NMT. He presented bicycle sharing system in different Chinese cities and its integration with public transport system. “Chinese cities which had adopted the unsustainable path of expanding roads earlier have realized and now they are aggressively promoting NMT and public transport especially Bus rapid transit (BRT)... however we are following the same mistake done by Chinese cities earlier by expanding roads”, he said. “Urban road standard assuring the integration of NMT infrastructures and BRT system as key public transport mode are the major learning we can get from Chinese cities,” he said.

Mr. Damodar Dhital, a FK exchange participants from CANN/Kathmandu University presented on the vehicle emission testing (VET) system in Nepal and shared best practices on VET in Vietnam and Sri Lanka. “VET has not been implemented properly in Nepal and government has failed to prioritize VET system”, he said. “Given the rapid increase in motorization, VET is an effective system to improve the deteriorating air quality”, he added. He also stressed the needs of implementation/enforcement of existing regulation and standards, and development of more stringent standards in the future.

Mr. Sudarshan Dhakal presented the government’s perspectives and plans on and vehicle emission control in Nepal. He said that one more VET infrastructure in Bagmati zone and four

in other cities are in planning phase. He highlighted the need of proper policy for VET, to promote electric vehicles and phase out 20 years old vehicle to improve air quality of the city. He said that the NMVs should be promoted as transport mode, and favorable policies developed soon for its promotion.

### **Current parking policies and traffic restraint measures**

The state of Vehicle parking especially in the core areas is extremely haphazard – beyond the level of comprehension for people who walk. Even where we have to pay nominal parking fee (of which there is no transparency and accountability), the vehicles can be seen being parked in the footpath or the parking stretches up to the middle of the main road. This problem is just magnified by the presence of unmanaged street vendors – which just gives the feeling that we can just open the shop wherever we want. This situation clearly depicts the lack of certain parking policy. However, the newly constructed wider roads in the city are parking friendly.

Clean Energy Nepal and Cycle City Network Nepal have installed a first bicycle parking facility in Durbarmarga. The main purpose is to provide safer dedicated parking space for cycle users, promote cycling and provide message of efficient use of scarce urban space by bicycle. This is part of MaYA-Manav-kendrit Yatayat Abhiyan supported by UN-Habitat.



First bicycle parking facilities in Kathmandu (installed at Durbarmarga) (Photo by: Prashanta Khanal)

### **A stand to promote cycling**

REPUBLICA

KATHMANDU, April 30: As part of their campaign to promote cycling in Kathmandu, a group of cyclists set up a bicycle stand in Durbarmarg on Wednesday. The cycle stand, which has been set up next to the main entrance of Annurpana Hotel, can accommodate ten cycles at a time.

Kathmandu Cycle City Network (KCCN) in collaboration with Clean Energy Nepal has established the cycle stand as part of their campaign entitled Manab Kendrith Yatayath Abhiyan (MAYA). KCCN has been organizing campaigns to mount pressure on the government to develop cycle lanes in the capital.

“After long protests, the government has developed cycle track in some of the expanded roads. But what the authority failed to realize is that we need a cycle stand, too. So, we have set up the stand to symbolically urge the government to develop the infrastructures in the city,” said Sailendra Dangol, vice-president of KCCN. He said cyclists in the capital have been facing parking problems as the parking areas in the capital usually remain occupied with motorbikes and four-wheelers vehicles.



The first public cycle stand installed at Durbar Marg in Kathmandu on Wednesday the initiation of Cycle City Network Nepal can accommodate ten bicycles at a time. (Bijay Gajmer/Republica)

“We have parking spaces allotted for motorcycles and cars. But there is not a single bicycle stand,” complained he. He said KCCN is likely to set up similar cycle stands in other parts of the capital including Basantapur area and Patan Durbar Square Area.

“Our initiative is to maximize use of cycles in the capital and protect environment. We believe that if we have the required infrastructures, many city dwellers will take to cycling in the future,” said he.

The cycle stand designed in the shape of car reads 1 car equals to 10 cycles.

“Symbolically, we want to convey message that cars are not eco-friendly and, on top of that, it occupies more space, causing traffic jams,” said he.

### **Road safety policies and measures since Kyoto Declaration-2007**

The Mayors and governmental representatives of Asian cities at the Asian Mayors’ Policy Dialogue for Promotion of Environmentally Sustainable Transport (EST) in Cities, held in Kyoto, Japan (23-24 April 2007) to discuss and address key policy issues on environment and transport from city perspectives under the overall framework of the Regional EST Forum, declared to:

1. resolve to demonstrate leadership and ownership in promoting EST and setting the vision in Asian cities in motion in close collaboration with the national government, the private sector, civil society, and regional and international communities,

2. commit to implementing integrated policies, strategies, and programmes addressing key elements of EST such as public health; land-use planning; environment-and people-friendly urban transport infrastructure; public transport planning and transport demand management(TDM); non-motorized transport (NMT); social equity and gender perspectives; road safety and maintenance; strengthening road side air quality monitoring and assessment; traffic noise management; reduction of pollutants and greenhouse gas emission; and strengthening the knowledge base, awareness, and public participation,
3. dedicate ourselves to specifically addressing priorities that are often under-emphasized but are nevertheless vital and central to EST, such as the provision of exclusive pedestrian and bicycle lanes, and ensuring safe and comfortable movement of women, children, the elderly, and the physically impaired,
4. dedicate ourselves to specifically address the adverse impact of the growing number of motorcycles in most Asian cities,
5. ensure sustainable financing and equitable pricing structures for implementing EST,
6. resolve to actively collaborate and cooperate through the Regional EST Forum in order to share information and promote the incorporation of EST elements in city master plans and programmes,
7. urge the international and donor community to acknowledge the importance of city-based actions and programmes concerning EST, and strongly appeal to them to actively support the implementation of these actions and programmes by providing financial assistance, and facilitating technology transfer and capacity-building through pilot and demonstration projects,
8. call for city-to-city cooperation to address issues of common concern and to bridge knowledge, policy, and technology gaps in the environment and transport sector, and
9. explore possible opportunities for organizing similar policy dialogues on a regular basis in collaboration with the international and donor community.

After Kyoto Declaration many governmental and non-governmental organizations in Kathmandu has put effort on sustainable development, though not sufficient, through pollution control and urban transportation. Discussion through various organizations and action on conclusions are taken. The respective ministries introduced short term policies regarding the reduction of pollution control, public transportation system, etc. Kathmandu maintaining urban air quality and protecting their sustainable urban commuting practices are some of the toughest challenges. We still have a chance to plan differently. Its strength remains in its huge base of zero-emission non-motorized and sustainable public transport. All it has to do is to recognize and act upon this immense advantage and strength.

The profile of air pollution is changing rapidly in South Asian cities, with serious public health implications. Particulate matter (PM) concentrations are alarmingly high in Kathmandu, Delhi

and many other South Asian cities. "A recent Environmental Performance Index (EPI) study of the Yale Centre for Environmental Law and Policy has ranked both Nepal and India's performance in this area as very poor. A 2006 CAI-Asia report put both Delhi and Kathmandu amongst the most polluted of 22 Asian cities it surveyed. This pollution comes from motor vehicles, brick kilns and road dust. The high concentrations of particulate matters -- PM10 and PM2.5 -- in particular are known to cause serious health problems and excess mortality."

### **Some gains, but a lot more needs to be done**

The first generation action has reduced the overall PM10 average concentration in Kathmandu by 12 per cent from 2003 to 2007. The reduction is observed in spite of an increasing number of vehicles registered in the valley, and is attributed to the actions taken by the government during 2000-07, especially the implementation of the Euro I standard in 2003 and the ban on moving chimney bull's trench kiln.

But Kathmandu needs to do more: available evidence shows that the health cost saving of the city's air pollution control measures is close to 1 per cent of Nepal's GDP. Air pollution in the valley has been taking a toll on the public health. A study conducted during February 2008 to January 2009 in Kathmandu and published recently in Atmospheric Pollution Research found high density traffic areas and road intersections of the valley severely polluted by PM10.

The Ministry of Environment, Science and Technology (MoEST) estimated in 2005 that the valley's air pollution results in approximately 1,600 premature deaths per year. According to an estimate by the Clean Energy Nepal/Environment and Public Health Organization (CEN/ENPHO), the total benefit of reducing the valley's PM10 levels to 50 µg/m<sup>3</sup> would amount to US \$1.86 billion per year.

Using the WHO unit risks for benzene and PAH, the number of people expected to suffer from leukaemia due to benzene exposure amounts to 1-8 persons per 100,000; for PAH, the number is 16-32 persons per 100,000. Benefits of reducing benzene and PAH concentrations to half their current values would amount to US \$30-70 million per year.

In Kathmandu, vehicle emissions contribute 38 per cent of the PM10 levels. Vehicular emissions and emissions of re-suspended dust from poorly maintained and uncleaned roads together are responsible for 63 per cent of the PM10 emissions in the valley. Agriculture and brick kilns are the third and fourth-highest contributors of PM10.

The Bagmati zone had 0.19 million registered vehicles in 2001-02. This number is increasing at 16 per cent per year. Nearly 59 per cent of the total registered vehicles in Kathmandu comprise of two-wheelers and cars and taxis. The public transport and bicycle share is 19 per cent and 22 per cent, respectively.

The increase in vehicle numbers is leading to traffic congestion and choked roads in the city. According to a study by Department of Transport Management (DoTM), the number of vehicles in Kathmandu had already exceeded the valley's carrying capacity by about 30,000

in 1999/2000 fiscal year. More than 50,000 vehicles have been added since then, while the road infrastructure has remained more or less the same.

### **Kathmandu's strengths**

CSE's review of available information brings out the strength of Kathmandu. "More than 63 per cent of the daily travel trips in Kathmandu are still carried by buses. Cars and two-wheelers are as much 42 per cent of the vehicle fleet but they carry a miniscule 10 and 5 per cent of the daily trips, respectively. Thus, cars occupy more road space, carry less number of people but use more fuel, and pollute more per person. It is also very significant that walkers and cyclists together meet close to a quarter of the daily travel demand in Kathmandu. This is the low polluting and low carbon mobility paradigm that the world is trying to achieve today to be more sustainable. Kathmandu must sustain this strength."

Kathmandu must not repeat the same mistake that Delhi and many other cities have made – of focusing on road widening, building flyovers and facilitating personal mobility through cars. Both Kathmandu need urgent policies to protect and build their strength. The second generation reforms will need tough action.

### **The way ahead**

If South Asian cities do not want to wheeze, choke and sneeze then they have to act now. Kathmandu's work with CNG shows that they can make a difference. It is time to set new terms of action.

Soft options have all been exhausted. Reducing personal vehicle usage, upgrading public transport, walking and cycling, and leapfrogging vehicle technology are the key options left for us. Plan your cities for people, not vehicles. Design roads for public transport, cycling and walking, not cars. This is the option for the city to cut killer pollution, crippling congestion, expensive oil guzzling and global warming impacts of vehicles.

### **Some of the priority measures to combat pollution, congestion and energy guzzling include:**

- Set a timeline to meet ambient air quality standards.
- Link import policy with the technology and fuel quality leapfrog to cleaner fuel and vehicle technology: Introduce Euro IV fuels nation-wide. Prevent fuel adulteration as one survey has shown that adulteration in petrol is about 35 per cent and in diesel as much as 75 per cent.
- Scale up and accelerate bus transport reforms.
- Integrate public transport, and non-motorised transport. Cities need to integrate bus, cycling, walking and para-transit systems.
- Build pedestrian infrastructure: Design pedestrian guidelines for approval of road projects and enhancement of the existing ones. Without proper walking facilities public transport usage cannot increase.
- Introduce a parking policy as a car restraint measures and to reduce congestion.

- Strengthen emissions checks on in-use vehicles.
- Use tax measures to discourage personal vehicle usage and inefficient use of fuels

CSE, one of India's leading environmental think-tanks, has been in the forefront in combating air pollution and mobility crisis in Delhi. In the mid 1990s, its 'Right to Clean Air' campaign had kicked off a sequence of events which resulted in India's capital getting one of the largest CNG-run public transport service and other important measures. Air quality registered a visible improvement following this.

### **The number of traffic accidents and fatalities for last 7 years (2007-2014)**

The number of traffic accidents and fatalities for last seven years are increasing slowly but the rate of increase is reducing slightly. The number of death, fatalities and deaths for different fiscal years could be seen clearly from following table.

Table: Traffic accidents and fatalities for last seven years

S.N.	F.Y.	Accidents	Increase( %)	Deaths	Fatalities	Simple Injuries	Rem
1	2007-08	2097	5(43)	93	491	2179	
2	2008-09	2211	25(05)	120	611	2163	
3	2009-10	2765	48(42)	137	720	2448	
4	2010-11	4104	19(73)	146	748	3116	
5	2011-12	4914	3(70)	171	553	3632	
6	2012-13	5096	-6(39)	148	396	3317	
7	2013-14	4770	53(35)	148	246	3431	

Source: Traffic police report

Similarly, the numbers of accidents are increasing slightly for last five years. But the casualties caused by large vehicles such as by Bus and Truck are decreased for past two years. In overall record the effort of accident control are seemed to be fruitful for last fiscal year. The table below clearly shows the number of accidents caused by different vehicles for last five years.

Table: Number of accidents caused by different vehicles for last

Accidents by	2008-09	2009-10	2010-11	2011-12	2012-13	Total
Truck/Tanker	1111	1381	1413	1441	1236	6582
Bus	1287	1781	1959	1863	1536	8426
Car/Van	1929	2975	3798	4141	3581	16424
Tractor	399	440	512	581	470	2352
Tempo	69	202	158	229	227	885
Bike	3096	4363	5544	5442	4799	23244
Simple Vehicles	404	528	550	449	480	2457
Others	58	77	79	141	35	390
<b>Total</b>	<b>8353</b>	<b>11747</b>	<b>14013</b>	<b>14287</b>	<b>12364</b>	<b>60764</b>

Source: Traffic police report

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