

considerable investment. Because of the limited national budget, it is unlikely that this measure can be realised in the near future, in particular, when the abatement of greenhouse gases through vehicle emission control is not a high priority. This gap could partially be filled by private sector investments.

Law enforcement – Mandatory inspection and maintenance would increase the number of inspected vehicles and lead to the achievements of emission standards for GHG emission reduction and other benefits such as reducing traffic accidents and improving local air quality. As stipulated in the Sub-decree on Air Quality and Noise Disturbance, individuals whose vehicles emit above emission standards are subject to fines or imprisonment. The increase of taxes and import duties of old and second hand vehicles could be an effective way to reduce the number of used vehicles in Cambodia.

2.3.3 Possible Solutions for Energy Efficiency in the Transport Sector

Urban mass transportation – The first step is to review existing legal tools and their implementation in the transport sector. Restrictions on individual driving could be enforced providing there are alternative means of transport for the public. Setting up a transport authority with actual decision and management powers should be considered to coordinate urban development and public transport. It is also important to carry out demonstration projects in major urban areas where large volumes of vehicles and traffic congestion are common place.

Vehicle emission standards – To put into action vehicle standards, capacity development and institutional strengthening are key. Both emission control and inspection & maintenance training programs for concerning agencies are necessary to achieve the goal of regulating emission standards. Service should be expanded to other provinces where there is currently a total lack of regulation. Private sector involvement in inspection and maintenance is an option because of limited national budget.

2.4 Technology Action Plans, Project Ideas, and Other Issues in the Transport Sector

2.4.1 Technology Action Plan for the Transfer and Diffusion of Urban Mass Transportation

Upgrading the physical infrastructure – Rehabilitation and construction of road infrastructure are included in the subsector priorities of the Royal Government of Cambodia as stated in NSDP Update 2009-2013. However, as of to date limited national budget together with the lack of sustainable urban planning to promote public transport have put the public bus transportation in doubt. It is important that this kind of project be implemented by 2020 in order to keep pace with the current economic development and to ensure the low carbon development society. By nature, the infrastructure development must be led by the Ministry of Public Works and Transport, while Ministry of Economy and Finance also has a key role to play. Due to the lack of sufficient national budget, therefore, promoting public-private partnerships is one of viable options that must be looked into besides seeking for the donor support from both bilateral and multilateral sources in the form of either grant or loan. Road maintenance could also expand the lifespan of the infrastructure, hence, the maintenance program must be developed and implemented regularly and timely rather than focusing on repairing work after damages happened.

Refinement of policies and guidelines for the promotion of public transportation – Due to the failure of the first attempt in operating the public transportation in Phnom Penh, it is important to develop a more thorough plan based on the previous lessons to ensure a successful implementation. Development or refinement of existing policies and guidelines must be considered to serve as a basic tool to promote the public transport. One of those should be considered is the restriction of unregistered motor-taxi, taxi, or remorque (tuk-tuk) service providers because they could block the public transportation. These tasks shall be led by Ministry of Public Works and Transport with contribution from Ministry of Environment and other key stakeholders, the timeframe for these tasks should be done by 2015. A clear roadmap for promoting urban mass transportation needs to be developed and mainstreamed into the development plans. To smoothen the coordination between the urban development and public transport, an establishment of a transport authority should be considered, in which Ministry of Public Works and Transport should be a leader and cooperate with other key agencies such as Ministry of Land Management, Urban Planning and Construction; Ministry of Environment. Since budget remains a problem for the Government, international support from and cooperation with bilateral and multilateral development partners need to be looked into.

Enhancement of users' behavior toward public transportation – Statistics indicate that the number of private vehicles keeps increasing annually due to the lack of effective and reliable public transportation service and increase of people well-being. Cost-benefit research/study on the mass transportation shall be carried out and its results should be disseminated to the general public to improve their understanding about its benefits and to build up trust in using public transport in anticipation of its implementation in the future. This task should be jointly conducted by Ministry of Public Works and Transport, and universities or research institutes with the final support from either the Government or potential donors. When the fundamental tools are in place, a demonstration project with subsidy scheme shall be implemented to promote public participation. The demonstration project shall be carried out by 2017 and Ministry of Public Works and Transport shall be the lead agency with close cooperation with key agencies such as MOE and MOI.

2.4.2 Technology Action Plan for the Transfer and Diffusion of Vehicle Emission Standards

Capacity development of government officials – Cambodia appears to be facing a growing air pollution problem due to the emissions from vehicles. The Environmental Strategic Plan for Cambodia (2004-2008) stated that emissions from movable sources need to be controlled and monitored. However, lack of skilled technical staff remains an issue, and thus capacity building of responsible staff is crucial in order for them to perform this particular task. For vehicle emission control and monitoring, both Ministry of Public Works and Transport, and Ministry of Environment are the key players. Ministry of Public Works and Transport shall mainly focus on vehicle inspection while Ministry of Environment will take part in the emission control and monitoring. The capacity development should be in the form of trainings, on-the-job training, pilot projects, exchange visits or participating in research activities. The key concerned agencies should have a clear capacity development plan according to their respective mandates. By 2017, at least 100 technical staff must have enough capacity to conduct emission control and monitoring. To be able to carry out capacity development activities, financial support is vital, thus, both local support (from the Government) and international support (bilateral and multilateral) need to be explored.