

Part III. National Reporting Guidelines for CDS-14/15 Thematic Areas

A. Atmosphere/Air Pollution

Government Focal point(s):

Responding ministry/office(s): Ministry of Environment

Air pollution originated mainly from the burning of fuels such as petroleum products, ignite and coal, which are collectively classified as modern or commercial energy whereas those from the burning of fuel wood, paddy husk, and charcoal are called traditional energy. Most of commercial fuel was used in the transport, household sectors and industrial sectors. In the form of traditional energy continues to be a very significant energy sources for households, which commonly are charcoal and wood. The burning of these fuels will be released of air pollutants into the atmosphere. The adverse impacts might occur both human health and the quality of environment from such pollutants. The dispersion of air pollutants will largely determine the rout of pollution and its degree of severity. Furthermore, biomass burning for cooking purpose has caused immense indoor air pollution.

In Cambodia , as in other countries, economic development is certainly leading to increase the level of air pollution . The concentration of SO_x, NO_x, CO, leads, TSP and other substances are emitted from various sources such as vehicle, motorbike, factories, generators, etc.

Industrial air pollution

Cambodia is not heavily industrialized country. Most of them are garment factory. The other are light industry such as food and beverages , textile, non-metallic mineral products, wood products, rubber manufacturing, etc. In general, most of factories are located in the Capital City of Phnom Penh. In 1999, it was about 170 factories are operated in Phnom Penh City.

The number of factory is a little and mostly in small scale comparing with other countries, but the manufacturing process in Cambodia has contributed to environment concern. As most of the factories still use old technology and not paid attention on the environmental pollution as well as air pollution and never conducted environmental impact assessment. Therefore, air pollution from industrial sector are considered as one of the major problems in Phnom Penh.

Air pollution by generator

Electric supply in Cambodia is not yet adequate as the result of the long civil war from 1970 to 1993. In general, the electric power supply in Cambodia is inadequate for supporting services, so all of service sectors still widely use their own generator for supporting their businesses. As the location of such services are not appropriate they used to put the generator along the road or next to their services. Therefore, the generators create many problems to the resident and people who are traveling on the roads by introducing exhaust gases into the air. As the result, we have been received many complaints concerning the generators pollution and noise disturbance.

Air pollution from transportation

Transportation have a greatest impact on air pollution due to their dominant role in the fuel consumption and the number of vehicles are continued increase day by day, especially in the Phnom Penh . Phnom Penh is the Capital City with highest population in the country . The more population the more transportation means and fuel used; therefore, air pollution can be concentrated in Phnom Penh is, of course, can not be avoided as most of vehicles and motorcycles are second hand imported. At present, there is a concern with the rapidly increasing number of vehicles and motorcycles in the city and the frequently traffic jam. In this

concentration, second hand vehicles and motorcycles generally produce more pollutants than the new one.

In addition, some illicit traffickers continue to import low quality gasoline contains highly sulfur, lead and other substances which banned by the government and restrict by national standards.

Air pollution by dust

Dust has been identified the more air pollution concerns in the Kingdom of Cambodia. Dust is generated from poor management of construction material due to improper transportation of sand, soil, cement, etc lead to these material spillage and leakage on the way from sources of material to the construction site. In addition, the storage of construction material is also one of air pollution problems due to poor management of material or in some case material is store on the roads which make the road fully of dust. Moreover, dust also generate from unpaved roads which most of the small streets in Phnom Penh City are unpaved, therefore, dust also generated from that street.

Air Pollution from Biomass Fuel

Biomass fuel particularly firewood and charcoal were the main source of energy for cooking for 96.7 % of the households in 1999 in the country; they are the cheapest and easily accessible sources of energy used for cooking. Beside, households use charcoal, kerosene and fuel gas. Firewood burning products a large quantity of CO₂ and CO in addition to CH₄, N₂O, SO₂, HC and TSP.

1. Concrete action taken and progress made in implementation

In order to improve the air pollution management and human health protection, based on sustainable development, Ministry of Environment and line-institutions should be paid more attention to consider and try to solve problem as possible with appeal for advisory/financial assistance from International Organizations. Following ideas are key solution get in touch with the concepts of air pollution management and human health protection:

- To upgrade the capacity building and institutional strengthening for of ficials of Ministry of Environment and line-ministries.

- To set up the environmental legal instrument such as law enforcement , guideline ..etc.

- To pay attention to check all imported raw material/fuel coals and oils/consumption equipment for good quality avoiding environmental pollution.

- To determine industrial zone that should be located far away from urban/town areas

- The transparency principle of the importation of second hand vehicles, generators, engines/machines into urban areas, where population grow is quite concerned. In this case, how many per cent of quality of second hand vehicles, generators, and engines/ machines that should be allowed to import.

- The control of imported fuel oils quality should be conducted with strictly measurement. With this regard, the Government and line-institutions should be emphasized what kind of fuel oils can permit to import and what kind can not import.

- The smoke emission control on chimney of ve hicles and generators should be

conducted for recognizing whether it fits to smoke emission standard or not. It means that the concentration of NO_x and SO_x must be lower than the standard. Otherwise, the enforcement laws should be regularly implemented.

-Some part of streets/roads in Phnom Penh City are narrowly with hole/groove. This is why vehicle drivers concentrate in moving on the same or one road/street, although they are crowded. There are the reason of traffic jam and accident. In order to reduce or cutting down the traffic jam and air pollution, the Royal Government and local authority are considered and found our key solutions to solve this problem like road repairing, determining the roads for small and size of vehicles, and for trucks or lorries.

-The utilization of fuel coals instead of fuel gas/fuel wood consumption as the Government Policy should be complied with the environmental sound technology in order to ensuring the existing of better environmental quality.

-Ministry of Environment should be asked for assistance from international organizations and NGOs such as technical assistance including capacity building, financial and analytical equipment.

- To assess the air pollution based on data collection and try to find various measures to curb, mitigate and phase out air pollution activities.

-To formulate medium and long term national strategies plan for air pollution management.

2. Lesson learned and good practice

Ministry of Environment has never got any programmes or case studies related Atmosphere/Air Pollution. On the other hand, It has lack many monitoring equipments concerned this matter. Therefore, Ministry of Environment has not lesson learned and good practice for Atmosphere /Air Pollution.

3. Trends and emerging issues

According to the result of analysis of ambient air samples took from various sampling points in the Phnom Penh City emphasize that air quality in Phnom Penh City in general is still good. But except total suspended particulate (TSP) concentration in Phnom Penh city were higher than standard as well as other cities, despite of the low concentrations of NO_2 , CO and SO_2 . Therefore, it suggested that the most TSP contained the particle derived from Soil because there are a number of unpaved roads and roads under construction in Phnom Penh city now. In Phnom Penh city, the mineral particle crystalline silica should be high, therefore, the health effect were concerned residents in this city, especially for residents and working people higher TSP concentration. To assess the health risk by TSP for residents in Phnom Penh and to reduce TSP concentration, it is necessary to determine the origin of TSP, for example, the elemental composition in TSP. By the ways, we still have a concern of air pollution in the future due to the importation of second hand vehicles and generators from abroad for domestic consumption without checking their present existing quality. Most of second hand vehicles and generators are consisted its quality below 50%. Of course, the crisis of health risk and hazard will be occurred in the future due to the emission of smokes combined with pollution into the air.

4. Constraint and challenges

There are many difficulties faced during conducting air pollution control and prevention. These difficulties are the following :

- Lack of experienced staffs in this field for effective working,
- Lack of technical assistance and air quality management experts.
- Lack of equipment for analyzing the pollutants in atmosphere as well as from the sources of pollution,
- Lack of fund for operating works,
- Overlap or unclear responsibility between organization, concerned ministries and other institutions,
- Inadequacy of cooperation between line-ministries in contributing sharing the information and data in order to create the national strategy to manage and maintain our atmosphere.
- Master or people who responsible for factory is sometime seem to be less cooperation with MoE officials.
- The factories owners are not take care on air pollution as the Sub-decree just signed .

Decision-Making: Strategies, policies, programmes and plans, legislation, policy instruments and the regulatory framework; involvement of Major Groups

- Assessing ambient air quality and the level of air pollution : N/A
- Control of air pollution (e.g. for stationary, mobile, area and other pollution sources).
 - Analysis of costs and benefits
 - Institutional change made.

Ministry of Environment is only able to monitoring ambient air in few parameters like CO, NO₂, SO₂ by using Passive Tubes.

- Plan(s) to deal with severe air pollution incidents : N/A
- Programmes designed to reduce indoor air pollution : N/A
- Policy measures taken to improve the quality of fuels : N/A
- Specific Policy measures designed to reduce the level of lead in gasoline :

Ministry of Environment will amendment lead in gasoline in Sub-degree on Air Pollution Control and Noise Disturbance in near future.

- Policies promoting cleaner transportation measures and technology (e.g. vehicular technology, mass transit systems, reduced demand in vehicle-miles-traveled, modal shifts) : N/A

- Emission limits on vehicular exhaust : Gas Emission Standard for mobile sources

No.	Kind of Vehicles	Kind of Fuels	Level of Emission				
			CO(%)		HC (%)		Black fume (%)
1	Motorcycle contain 2 stroke combustion	Petrol	4.5	4	10 000	3 000	-
2	Motorcycle contain 4 stroke combustion	Petrol	4.5	4	10 000	2 400	-
3	All kind of vehicles	Petrol	4.5	4	10 000	800	-
4	All kind of vehicles	Diesel	4.5	-	-	-	50

Remark : These standards applied to control of emission of mobile sources into atmosphere.

A: Refer to all kind of vehicles used over 5 years as from year produced.

B: Refer to all kind of vehicles are new importation in first 5 years as from year produced.

- Role played by air pollution in urban planning, especially related to transportation : N/A
- Economic and market-based incentives to meet national air quality goals : N/A
- Nature and impacts of transboundary air pollution (including pollutants emitted within your country as well as those received from nearby countries) : N/A
- Programmes designed to reduce ozone-depleting substances and promote alternatives under the Montreal Protocol:
 - Country programme
 - Development of ODS licensing system
 - R & R and incentive programme for the MAC
 - R & AC technician training
 - Customs training project
 - Project implementation and monitoring

Capacity-Building, Information, Research and Development

- Availability of data concerning: a) the impacts of air pollution on human health and ecosystems; and b) the level of pollution in different industries : N/A
- Capacity to carry out air dispersion modeling : N/A
- Programmes designed to increase citizen's awareness about the impact of indoor air pollution : N/A
- Internet websites related specifically to the issues contained in these Atmosphere/Air Pollution Guidelines, providing homepage addresses (URL) : N/A
- R & D Programmes in the areas of : atmospheric conditions; air quality management; air pollution technology; clean fuels technology; environmental economics; environmental impact assessment; and remote sensing : N/A

Financing

- Financing for related programmes from bilateral or multilateral sources : N/A

Cooperation

- Effort to establish or participate in regional, multilateral or bilateral agreement to address transboundary air pollution concerns : Asean Agreement on Haze Pollution.