

## Annex – 4: Review of Legislation

### 1. Review of Environment Protection Act, 1997 and Environment Protection Rules, 1997

The EPA's focus is on minimizing the environmental degradation in order to protect human beings and ecosystem, proper use and management of natural resources, and integration of environment into economic development process.

This act has provisions on prevention and control of pollution. Nobody will be allowed to create pollution contrary to prescribed standards.

#### Specific Provisions

**Section 7** of the Act " Prevention and Control of Pollution" has following provisions related to prevention and control of pollution.

1. Nobody shall create pollution in such a manner as to cause significant adverse impacts on the environment or likely to be hazardous to public life and people's health, or dispose or cause to be disposed sound, heat radioactive rays and wastes from any mechanical devices, industrial enterprises, or other places contrary to the prescribed standards.

The Act define wastes and disposal as under:

**"Wastes"** means the liquid, solid, gas, slurry, smoke, dust, radiated element or substance or similar other materials disposed in a manner to degrade the environment.

**"Disposal"** means the act of emission, storage, or disposal of sound, heat or wastes

2. If it appears that anyone has carried out any act contrary to sub-section (1) and caused significant adverse impacts on the environment, the concerned agency may prescribed necessary terms in regard thereto or may prohibit the carrying out of such an act.
3. If it appears that the use of any types of substance, fuel tools or device has caused or is likely to cause significant adverse impacts on the environment, the Ministry may, by a notification in the Nepal Gazette, forbid the use of such substance, fuel, tools or device.

**Section 8** of the Act has made provision of the appointment of Environmental Inspector to carryout the acts of the mitigation, avoidance or control of pollution through inspection, examination, fines and prohibition of pollution actions.

**Section 15** of the Act has made provision to provide additional concessions and facilities to encourage any industry, enterprise, technology or process which causes positive impacts on environment protection, by publishing a notification in the Nepal Gazette.

**Section 23** of the Act has empowered HMG to frame and implement necessary guidelines under the act for environmental protection.

**Section 24** of the Act has empowered HMG to frame necessary rules related to Pollution standards including air and emissions for the prevention and control of pollution

**Chapter 3, rule 15** of EPR prohibits emission of noise, heat, radio-active material and waste from any mechanical means, industrial establishment or any other place in contravention of the standards prescribed by the Ministry by notification published in the Gazette.

## **2. Review of Vehicle and Transport Management Act 2049 and Regulation 2054**

The act is promulgated to prevent vehicle accidents, compensate the affected ones from accidents, establishment of insurance system, and make the transport service capable and effective ensuring the service is easily accessible to general public.

This is the prevailing legal system that governs the overall management aspects of the transport system in the country. This act classifies the vehicles in terms of weight and capacity, ownership basis and also the type of service intended to provide.

According to act every vehicles in the country have to be registered and the owners have to get the registration certificate.

### **Specific Provisions**

#### Roadworthiness Certificate ( Section 17 and 23)

This is made compulsory and it must be attached in the vehicles all the time. To get the certificate, the vehicles have to comply the prescribed standard comprising of the following areas:

- Mechanical conditions of the vehicle
- Vehicle length, width, height, construction, or look
- Exhaust emission
- Time limit for the running

#### Right to Refuse Registration of a Vehicle (Section 24 and 40)

If the vehicle applied for registration does not comply the standards prescribed under the roadworthiness certificate heading, the department or the concerned authority has the right to refuse the registration of the vehicle. However, the reasons must be made known to the applicant.

#### Need of Prior Permission to Change Specification (Section 39)

Without the prior approval of the authorized officers, the owners are not allowed to change the color, seating capacity, look, engine and chassis of the vehicle. However, the approval will not be granted if the change is intended to change the model/construction specifications of the manufacturer.

*This provision is significantly important here that if somebody wants to change a diesel or petrol vehicle to a CNG/LPG/Electric vehicle, it will not be possible if this provision is not changed.*

#### Right to Withheld the Vehicle Registration Certificate (Section 40):

If the vehicle condition is found unsuitable for public safety, department has the authority to withheld the certificate till the vehicle is repaired again to comply with the roadworthiness standard. *This also requires that the vehicles must comply with the prescribed vehicle emission standard.*

#### Provisions on Transport Management (Section 74, 75, 78 and 93)

- Department has the authority to fix the road for the running of the public transport system.
- Without having the road permission, no public transport can be run.
- Vehicle owner have to apply for the road permission to run the public transport and have to fulfill among others the roadworthiness test

#### Refusal for route permits on pollution ground (Section 82, and 118))

The officer in consultation with management committee has the authority to refuse the road permit on the ground of pollution on a particular area or road. This is significantly important that department can only allocate specific routes to zero emission vehicles or less polluting vehicles on this ground within this legal tool.

Work, Duty and Responsibility of the Department of Transport Management (Section 153)

- Formulation and implementation of Transport Policy
- Issue directives to the concerned for the Transport management
- Issue directives to the goods transporters based on the priority of goods
- Identification of Public Transport Routes and fixing of the transport fares
- Management of traffic signals at public places as per International practice
- Decide upon the vehicle speed, load, and number of passenger in a vehicle
- Formulate standards for the examination of mechanical, look and other specifications
- Decide upon the examination procedures and examination subjects for drivers
- Other actions related to the transport management strengthening.

Transport Management Committee (Section 154)

To ensure the systematic running of the public transport in every region/area, a transport management committee is formed, comprising of the following representatives:

- Chief District Officer (having office of department)- chairman
- Chief, District Police Office- member
- One representative of transport entrepreneurs- member
- One representative of transport labors- member
- Chief, Office of Transport Management- member secretary

This committee only has the supportive role. This committee only looks whether the public transport vehicles have all the required permits or not, whether they are providing the required service or not and can recommend department for necessary action. Regarding the route permits, this committee can only recommend to the department.

Appointment of a Transport Inspector

Government can appoint the transport inspector to monitor whether the public transport vehicles are complying with all the prescribed requirements as per the act. The responsibilities include to check the roadworthiness conditions including emission standard, seating capacity, having the certificates or not, check on speed limits etc

Permission Required to have Testing Center, Auto-Industry and Workshop

Prior to establish the training center for driving, automobile manufacturing industry or assembling industry, workshop, it is required to take the permission of the department. It is significantly important to develop criteria for having standard workshops and monitor them.

Transport Service on Competitive Basis

There is a restriction on running transport service on rotation basis (syndicate system not allowed). However, for public comfort, it can be done with permission from transport management committee.

**Rule 4 of the regulation** has made provisions for registration fees of the vehicles as under:

**Vehicle Registration Fees**

Vehicle Classification	Types of vehicle	Registration charge
Heavy Vehicle	Private	600
Medum Vehilce	Private	400
Light Vehicle (car/jeep/pickup/ Tempo/ power trailer	Private	300
Motorcylce/Scooter etc.	Private	300
Heavy Vehicle	Public	1200
Medum Vehilce	Public	800
Light Vehicle (car/jeep/pickup/ Tempo/ power trailer	Public	600
Motorcylce/Scooter etc.	Public	200

Note: For Tourist and corporation vehilce registration charge will be as per public vehicles

**Rule 8 of the Regulation** has made provisions of registration renewal charges as under:

SN	Vehicle Classification	Types of vehicle	Registration Renewal Charge
1.	Heavy Vehicle	Private	150
2.	Medum Vehilce	Private	100
3.	Light Vehicle (car/jeep/pickup/ Tempo/ power trailer	Private	75
4.	Motorcylce/Scooter etc.	Private	25
5.	Heavy Vehicle	Public	300
6.	Medum Vehilce	Public	200
7.	Light Vehicle (car/jeep/pickup/ Tempo/ power trailer	Public	150
8.	Motorcylce/Scooter etc.	Public	50

Note: For Tourist and corporation vehilce registration charge will be as per public vehicles

**Rule 15 of Regulation** has classified the Public Transport Vehicle as under:

1. Bus - Between 26 to 56 seat including driver
2. Mini - Bus - Between 15 to 25 seat including driver
3. Jeep/Van/Pickup/Micro-bus - Maximum 14 seat including driver
4. Car Taxi - Maximum 5 seat including driver
5. Tempo - maximum 12 seat including driver
6. Motorcycle/Scooter - maximum 2 seat including driver

**Rule 30 and 34 of the Regulation** has made a provision of fees for route permits and renewal fees of the route permits to the public transport as under:

- Heavy and medium Bus and Mini Bus - 1500.00 for four months
- Light Vehicles - 200 for four months

**Rule 39 of the Regulation** has made provisions for fees for exam pass of the vehicles as under:

- Heavy vehicle - 50.00 every 6 months
- Medium vehicle - 30.00 every 6 month
- Light vehicle - 20.00 every six months

## Vehicle Emission Standards for Green Stickers

*Since October 23, 2000*

### Petrol operated vehicles

S.No.	Types of vehicles	CO% by volume	HC (ppm)
1	Four Wheelers 1980 or older	4.5	1000
2	Four Wheelers 1981 onwards	3	1000
3	Two-wheelers (two-stroke)	4.5	7800
4	Two-wheelers (four-stroke)	4.5	7800
5	Three-wheelers	4.5	7800

### Gas Operated vehicles

S.No.	Types of vehicles	CO% by volume	HC (ppm)
1	Four-wheelers vehicles	3	1000
2	Three wheelers vehicles	3	7800

### Diesel Operated Vehicles

S.No.	Types of vehicles	HSU
1	Older than 1994 A.D	75
2	1995 A.D onwards	65

Source: MOPE

## **Nepal Vehicle Mass Emission Standard, 2056** (For Gasoline and Diesel Operated Vehicles)

### **A. Vehicles Fueled with Gasoline (Positive Ignition Engines)**

#### **1 For Passenger Cars with Up To Six Seats and Gross Vehicle Weight (GVW) less than 2.5 tons**

1.1 **Type I Test** - verifying exhaust emissions after a cold start.

	<i>grams per kilometer</i>	
	Carbon monoxide (CO)	hydrocarbons plus oxides of nitrogen (HC + NOx)
Type Approval*	2.72	0.97
Conformity of Production**	3.16	1.13

*Note: The test shall be as per the Driving Cycle adopted by different countries, with cold start on Chassis Dynamometer.*

1.2 **Type II Test** - carbon monoxide emission at idling speed.

*This test applies to vehicles fueled with leaded gasoline only.*

*The carbon monoxide content by volume of the exhaust gases emitted with engines idling must not exceed 3.5% at the settings used for the Type I test.*

1.3 **Type III Test** - verifying emissions of crankcase gases.

*The crankcase ventilation system must not permit the emission of any of the crankcase gases into the atmosphere.*

1.4 **Type IV Test** - determination of evaporative emission

*This test applies to all vehicles fueled with leaded and unleaded gasoline.*

*Evaporative emissions shall be less than 2 g/test.*

1.5 **Type V Test** - durability of pollution control devices.

*This test applies to vehicles fueled with unleaded gasoline only.*

*The test represents an endurance test of 80,000 kilometer driven on the road or on a chassis dynamometer.*

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\* Please see the explanatory note, page A4 – 10

\*\* Please see the explanatory note, page A4 – 10

## 2 For Light-Duty Commercial Vehicles and Vehicles with Gross Vehicle Weight (GVW) more than 2.5 tons

2.1 **Type 1 Test** - verifying exhaust emissions after a cold start.

Reference Mass (kg)		grams per kilometer	
		Carbon monoxide (CO)	hydrocarbons plus oxides of nitrogen (HC + NOx)
RM < 1250	Type Approval	2.72	0.97
	Conformity of production	3.16	1.13
1250<RM<1700	Type Approval	5.17	1.4
	Conformity of production	6.0	1.6
RM>1700	Type Approval	6.9	1.7
	Conformity of Production	8.0	2.0

Note:

- The test shall be as per the Driving Cycle adopted by different countries, with cold start on Chassis Dynamometer.
- Reference mass means the "unladen mass" (mass of the vehicle in running order without crew, passengers or load, but with the fuel tank full and the usual set of tools and spare wheel on board, when applicable) of the vehicle increased by a uniform figure of 100 kg.
- Includes passenger vehicles with seating capacity more than six persons or reference mass more than 2,500 kg.

2.2 **Type II Test** - carbon monoxide emission at idling speed.

*This test applies to vehicles fueled with leaded gasoline only.*

*The carbon monoxide content by volume of the exhaust gases emitted with engines idling must not exceed 3.5% at the settings used for the Type I test.*

2.3 **Type III Test** - verifying emissions of crankcase gases.

*The crankcase ventilation system must not permit the emission of any of the crankcase gases into the atmosphere.*

2.4 **Type IV Test** - determination of evaporative emission.

*This test applies to all vehicles fueled with leaded and unleaded gasoline.*

*Evaporative emissions shall be less than 2 g/test.*

2.5 **Type V Test** -durability of pollution control devices.

*This test applies to vehicles fueled with both leaded and unleaded gasoline.*

*The test represents an endurance test of 80,000 kilometer driven on the road or on a chassis dynamometer.*

### 3 For Two Wheelers and Three Wheelers

3.1 **Type I Test** - verifying exhaust emissions after a cold start.

	CO (grams per kilometer)		HC + NOx (grams per kilometer)	
	2- Wheeler	3- Wheeler	2-Wheeler	3-Wheeler
Type Approval	2.0	4.0	2.0	2.0
Conformity of Production	2.4	4.8	2.4	2.4

Note: *The test shall be as per the Driving Cycle adopted by different countries, with cold start on Chassis Dynamometer.*

3.2 **Type II Test** - carbon monoxide emission at idling speed.

*This test applies to vehicles fueled with leaded gasoline only.*

*The carbon monoxide content by volume of the exhaust gases emitted with engines idling must not exceed 3.5% at the settings used for the Type I test.*

3.3 **Type III Test** - verifying emissions of crankcase gases.

*The crankcase ventilation system must not permit the emission of any of the crankcase gases into the atmosphere.*

3.4 **Type IV Test** -determination of evaporative emission.

*This test applies to vehicles fueled with leaded and unleaded gasoline.*

*Evaporative emissions shall be less than 2 g/test.*

3.5 **Type V Test** - durability of pollution control devices.

*This test applies to vehicles fueled with unleaded gasoline only.*

*The test represents an endurance test of 80,000 kilometer driven on the road or on a chassis dynamometer.*

## B. Vehicles Fueled with Diesel (Compression ignition engines)

### 1 For Passenger Cars With Up To Six Seats and Gross Vehicle Weight (GVW) less than 2.5 tons

1.1 **Type 1 Test** - verifying exhaust emissions after a cold start.

	grams per kilometer		
	CO	HC + NOx	PM (Particulate Matter)
Type Approval	2.72	0.97	0.14
Conformity of Production	3.16	1.13	0.18

Note: *The test shall be as per the Driving Cycle adopted by different countries, with cold start on Chassis Dynamometer.*

1.2 **Type II Test** - carbon monoxide emission at idling speed.

*Not applicable*

1.3 **Type III Test** - verifying emissions of crankcase gases.

*The crankcase ventilation system must not permit the emission of any of the crankcase gases into the atmosphere.*

1.4 **Type IV Test** - determination of evaporative emission.

*Not applicable*

1.5 **Type V Test** - durability of pollution control devices.

*The test represents an endurance test of 80,000 kilometer driven on the road or on a chassis dynamometer.*

## 2 For Light-Duty Commercial Vehicles and Vehicles with Gross Vehicle Weight (GVW) more than 2.5 tons

2.1 **Type 1 Test** - verifying exhaust emissions after a cold start.

Reference Mass (kg)		grams per kilometer		
		CO	HC + NOx	PM
RM < 1250	Type Approval	2.72	0.97	0.14
	Conformity of production	3.16	1.13	0.18
1250 < RM < 1700	Type Approval	5.17	1.4	0.19
	Conformity of production	6.0	1.6	0.22
RM > 1700	Type Approval	6.9	1.7	0.25
	Conformity of Production	8.0	2.0	0.29

*Note: The test shall be as per the Driving Cycle adopted by different countries, with cold start on Chassis Dynamometer.*

*Reference mass means the "unladen mass" (mass of the vehicle in running order without crew, passengers or load, but with the fuel tank full and the usual set of tools and spare wheel on board, when applicable) of the vehicle increased by a uniform figure of 100 kg.*

*Includes passenger vehicles with seating capacity more than six persons or reference mass more than 2500 kg.*

2.2 **Type II Test** - carbon monoxide emission at idling speed.

*Not applicable*

2.3 **Type III Test** - verifying emissions of crankcase gases.

*The crankcase ventilation system must not permit the emission of any of the crankcase gases into the atmosphere.*

2.4 **Type IV Test** - determination of evaporative emission

*Not applicable*

2.5 **Type V Test** - durability of pollution control devices.

*The test represents an endurance test of 80,000 kilometer driven on the road or on a chassis dynamometer.*

### **3 For Heavy-Duty Vehicles and Vehicles with Gross Vehicle Weight (GVW) more than 3.5 tons**

3.1 **Type I Test** - verifying exhaust emissions after a cold start.

Pollutants	Type Approval	Conformity of Production
CO (grams per kilo-watt hour)	4.5	4.9
HC (grams per kilo-watt hour)	1.10	1.23
NOx (grams per kilo-watt hour)	8.0	9.0
PM (grams per kilo-watt hour) for engines with power less than 85 KW	0.61	0.68
PM (grams per kilo-watt hour) for engines with power more than 85 KW	0.36	0.40

*Note: The test shall be as per the Test Driving Cycle adopted by different countries with 13 Mode Emissions Engines Dynamometer Test.*

3.2 **Type II Test** - carbon monoxide emission at idling speed.

*Not applicable*

3.3 **Type III Test** - verifying emissions of crankcase gases.

*The crankcase ventilation system must not permit the emission of any of the crankcase gases into the atmosphere.*

3.4 **Type IV Test** - determination of evaporative emission.

*Not applicable*

3.5 **Type V Test** - durability of pollution control devices.

*The test represents an endurance test of 80,000 kilometer driven on the road or on a chassis dynamometer.*

## **Explanatory Notes**

### **Type Approval**

Most countries require some form of certification or type approval by vehicle manufacturer to demonstrate that each new vehicle sold is capable of meeting applicable emission standards. Usually, type approval requires emission testing of prototype vehicles representative of planned production vehicles. Under ECE and Japanese regulations, such compliance is required only for new vehicles. U.S regulations require that vehicles comply with emission standards throughout their useful lives when maintained according to the manufacturing specifications.

The advantage of a certification or type approval program is that it can influence vehicle design prior to mass production. It is more cost effective because the manufacturers identify and correct the problems before production actually begins.

### **Approval of a Vehicle**

Vehicle manufacturers apply for approval of a vehicle type with regard to exhaust emissions, evaporative emissions and durability of pollution control devices to the authority responsible for conducting the tests. The application for approval also includes details like description of engines type comprising all the particulars, drawings of the combustion chamber and of the piston, description of evaporative control system, particulars concerning the vehicles, descriptions of pollution control devices etc. If the vehicle type submitted for approval meets the requirements of various types of tests mentioned, only then the approval of that vehicle is granted.

### **Conformity of Production**

The conformity of production is a assembly line testing system. The objectives of assembly line testing are to enable regulatory authorities to identify certified production vehicles that do not comply with applicable emission standards, to take remedial actions (such as revoking certification and recalling vehicles) to correct the problem, and to discourage the manufacture of non-complying vehicles. This test provides an additional check on mass-produced vehicles to assure that the designs found adequate in certification are satisfactorily translated into production, and that quality control on the assembly line is sufficient to provide reasonable assurance that vehicles in use meet standards. The basic difference between TA and COP is that TA is based on prototype vehicle or design of the vehicle while COP measures emissions from real production vehicles.

As per the requirements set forth by the European Union, a sufficient number of random checks are made of serially-manufactured vehicles bearing the type approval mark of vehicles bearing all the types of tests mentioned above. The tolerance limits are provided for conformity of production in Type I tests.

**Nepal Vehicle Mass Emission Standard, 2056, 19-June-2000**  
**(For Gas Operated Vehicles)**

**A. Vehicles Fueled with Liquefied Petroleum Gas (LPG) or Natural Gas (NG)**

**1. For Passenger Cars with Up To Six Seats and Gross Vehicle Weight (GVW) less than 2.5 tons**

**Type 1 Test** - verifying exhaust emissions after a cold start.

	<i>grams per kilometer</i>	
	Carbon monoxide (CO)	hydrocarbons plus oxides of nitrogen (HC + NOx)
Type Approval*	2.72	0.97
Conformity of Production**	3.16	1.13

Note:

- *The test shall be as per the Driving Cycle adopted by different countries, with cold start on Chassis Dynamometer.*
- *Vehicles that are fueled with LPG or NG shall be tested in this type I test for variations in the composition of LPG or NG as set out in the testing procedures approved in the vehicle manufacturing countries.*
- *Vehicles that can be fuelled with both petrol and a gaseous fuel, but where petrol system is fitted for emergency purposes or starting only and of which the petrol tank cannot contain more than 15 litres of petrol will be regarded for type I test as vehicles that can only run on a gaseous fuel.*

**Type II Test** - carbon monoxide emission at idling speed.

*Not applicable*

**Type III Test** - verifying emissions of crankcase gases.

*The crankcase ventilation system must not permit the emission of any of the crankcase gases into the atmosphere.*

**Type IV Test** - determination of evaporative emission

*Not applicable*

**Type V Test** - durability of pollution control devices.

*The test represents an endurance test of 80,000 kilometer driven on the road or on a chassis dynamometer.*

Notwithstanding the above requirements, a manufacturer may choose to use the deterioration factors from the following table.

Deterioration factors	
CO	HC+ NOx
1.2	1.2

**2. For Light-Duty Commercial Vehicles with Gross Vehicle Weight (GVW) Less than or equal to 3.5 tons**

**Type 1 Test** - verifying exhaust emissions after a cold start.

Reference Mass (kg)		grams per kilometer	
		Carbon monoxide (CO)	hydrocarbons plus oxides of nitrogen (HC + NOx)
RM < 1250	Type Approval	2.72	0.97
	Conformity of production	3.16	1.13
1250 < RM < 1700	Type Approval	5.17	1.4
	Conformity of production	6.0	1.6
RM > 1700	Type Approval	6.9	1.7
	Conformity of Production	8.0	2.0

Note:

- The test shall be as per the Driving Cycle adopted by different countries, with cold start on Chassis Dynamometer.
- Reference mass means the "unladen mass" (mass of the vehicle in running order without crew, passengers or load, but with the fuel tank full and the usual set of tools and spare wheel on board, when applicable) of the vehicle increased by a uniform figure of 100 kg.
- Includes passenger vehicles with seating capacity more than six persons or reference mass more than 2,500 kg.
- Vehicles that are fueled with LPG or NG shall be tested in this type I test for variations in the composition of LPG or NG as set out in the testing procedures approved in the vehicle manufacturing countries.
- Vehicles that can be fuelled with both petrol and a gaseous fuel, but where petrol system is fitted for emergency purposes or starting only and of which the petrol tank cannot contain more than 15 litres of petrol will be regarded for type I test as vehicles that can only run on a gaseous fuel

**Type II Test** - carbon monoxide emission at idling speed.

Not applicable

**Type III Test** - verifying emissions of crankcase gases.

The crankcase ventilation system must not permit the emission of any of the crankcase gases into the atmosphere.

**Type IV Test** - determination of evaporative emission.

*Not applicable*

**Type V Test** -durability of pollution control devices.

*The test represents an endurance test of 80,000 kilometer driven on the road or on a chassis dynamometer.*

*Notwithstanding the above requirements, a manufacturer may choose to use the deterioration factors from the following table.*

<b>Deterioration factors</b>	
CO	HC+ NO <sub>x</sub>
1.2	1.2

### **3. For Three Wheelers**

**Type I Test** - verifying exhaust emissions after a cold start.

	<i>grams per kilometer</i>	
	Carbon monoxide (CO)	hydrocarbons plus oxides of nitrogen (HC + NO <sub>x</sub> )
Type Approval*	4.0	2.0
Conformity of Production**	4.8	2.4

*Note:*

- The test shall be as per the Driving Cycle adopted by different countries, with cold start on Chassis Dynamometer.*
- Vehicles that are fueled with LPG or NG shall be tested in this type I test for variations in the composition of LPG or NG as set out in the testing procedures approved in the vehicle manufacturing countries.*
- Vehicles that can be fuelled with both petrol and a gaseous fuel, but where petrol system is fitted for emergency purposes or starting only and of which the petrol tank cannot contain more than 15 liters of petrol will be regarded for type I test as vehicles that can only run on a gaseous fuel.*

**Type II Test** - carbon monoxide emission at idling speed.

*Not applicable*

**Type III Test** - verifying emissions of crankcase gases.

*The crankcase ventilation system must not permit the emission of any of the crankcase gases into the atmosphere.*

**Type IV Test** - determination of evaporative emission

*Not applicable*

**Type V Test** - durability of pollution control devices.

*The test represents an endurance test of 80,000 kilometer driven on the road or on a chassis dynamometer.*

*Notwithstanding the above requirements, a manufacturer may choose to use the deterioration factors from the following table.*

<b>Deterioration factors</b>	
CO	HC+ NOx
1.2	1.2

#### **4. For Two Wheelers**

**Type I Test** - verifying exhaust emissions after a cold start.

	<i>grams per kilometer</i>	
	Carbon monoxide (CO)	hydrocarbons plus oxides of nitrogen (HC + NOx)
Type Approval*	2.0	2.0
Conformity of Production**	2.4	2.4

*Note:*

- The test shall be as per the Driving Cycle adopted by different countries, with cold start on Chassis Dynamometer.*
- Vehicles that are fueled with LPG or NG shall be tested in this type I test for variations in the composition of LPG or NG as set out in the testing procedures approved in the vehicle manufacturing countries.*
- Vehicles that can be fuelled with both petrol and a gaseous fuel, but where petrol system is fitted for emergency purposes or starting only and of which the petrol tank cannot contain more than 2 litres of petrol will be regarded for type I test as vehicles that can only run on a gaseous fuel.*

**Type II Test** - carbon monoxide emission at idling speed.

*Not applicable*

**Type III Test** - verifying emissions of crankcase gases.

*Not applicable*

**Type IV Test** - determination of evaporative emission

*Not applicable*

**Type V Test** - durability of pollution control devices.

*The test represents an endurance test of 80,000 kilometer driven on the road or on a chassis dynamometer.*

*Notwithstanding the above requirements, a manufacturer may choose to use the deterioration factors from the following table*

Deterioration factors	
CO	HC+ NOx
1.2	1.2

**Note:**

- *only applicable if fitted with anti pollution devices*

## **B. Vehicles Fueled with unleaded petrol or with either unleaded petrol and LPG or NG**

### **1. For Passenger Cars with Up To Six Seats and Gross Vehicle Weight (GVW) less than 2.5 tons**

**Type 1 Test** - verifying exhaust emissions after a cold start.

	<i>grams per kilometer</i>	
	Carbon monoxide (CO)	hydrocarbons plus oxides of nitrogen (HC + NOx)
Type Approval*	2.72	0.97
Conformity of Production**	3.16	1.13

**Note:**

- *The test shall be as per the Driving Cycle adopted by different countries, with cold start on Chassis Dynamometer.*
- *Vehicles which can be fueled with either unleaded petrol or LPG or NG should be tested in this type I test on both fuels, of which the fuelling on LPG or NG has to be performed for variation in the composition of LPG or NG as set out in the testing procedure approved in the vehicle manufacturing country.*

**Type II Test** - carbon monoxide emission at idling speed.

*Not applicable*

**Type III Test** - verifying emissions of crankcase gases.

*The crankcase ventilation system must not permit the emission of any of the crankcase gases into the atmosphere.*

**Note:**

- *Vehicles which can be fueled either with unleaded petrol or LPG or NG should be tested in this type test on unleaded petrol only*
- *Vehicles that can be fuelled with both petrol and a gaseous fuel, but where the petrol system is fitted for emergency purposes or starting only and of which the petrol tank cannot contain more than 15 litres of petrol will be regarded for this test as vehicles that can only run on a gaseous fuel.*

**Type IV Test** - determination of evaporative emission

*Evaporative emissions shall be less than 2 g/test*

**Note:**

- *Vehicles which can be fueled either with unleaded petrol or LPG or NG should be tested in this type test on unleaded petrol only*
- *Vehicles that can be fuelled with both petrol and a gaseous fuel, but where the petrol system is fitted for emergency purposes or starting only and of which the petrol tank cannot contain more than 15 litres of petrol will be regarded for this test as vehicles that can only run on a gaseous fuel.*

**Type V Test** - durability of pollution control devices.

*The test represents an endurance test of 80,000 kilometer driven on the road or on a chassis dynamometer.*

*Notwithstanding the above requirements, a manufacturer may choose to use the deterioration factors from the following table.*

<b>Deterioration factors</b>	
CO	HC+ NOx
1.2	1.2

**Note:**

- *Vehicles which can be fueled either with unleaded petrol or LPG or NG should be tested in this test on unleaded petrol only.*
- *Vehicles that can be fuelled with both petrol and a gaseous fuel, but where the petrol system is fitted for emergency purposes or starting only and of which the petrol tank cannot contain more than 15 litres of petrol will be regarded for this test as vehicles that can only run on a gaseous fuel.*

**2. For Light-Duty Commercial Vehicles and Vehicles with Gross Vehicle Weight (GVW) Less than or equal to 3.5 tons**

**Type 1 Test** - verifying exhaust emissions after a cold start.

Reference Mass (kg)		grams per kilometer	
		Carbon monoxide (CO)	hydrocarbons plus oxides of nitrogen (HC + NOx)
RM < 1250	Type Approval	2.72	0.97
	Conformity of production	3.16	1.13
1250 < RM < 1700	Type Approval	5.17	1.4
	Conformity of production	6.0	1.6
RM > 1700	Type Approval	6.9	1.7
	Conformity of Production	8.0	2.0

Note:

- The test shall be as per the Driving Cycle adopted by different countries, with cold start on Chassis Dynamometer.
- Reference mass means the "unladen mass" (mass of the vehicle in running order without crew, passengers or load, but with the fuel tank full and the usual set of tools and spare wheel on board, when applicable) of the vehicle increased by a uniform figure of 100 kg.
- Includes passenger vehicles with seating capacity more than six persons or reference mass more than 2,500 kg.
- Vehicles which can be fueled with either unleaded petrol or LPG or NG should be tested in this type I test on both fuels, of which the fuelling on LPG or NG has to be performed for variation in the composition of LPG or NG as set out in the testing procedure approved in the vehicle manufacturing country.

**Type II Test** - carbon monoxide emission at idling speed.

*Not applicable*

**Type III Test** - verifying emissions of crankcase gases.

*The crankcase ventilation system must not permit the emission of any of the crankcase gases into the atmosphere.*

Note:

- Vehicles which can be fueled either with unleaded petrol or LPG or NG should be tested in this type test on unleaded petrol only
- Vehicles that can be fuelled with both petrol and a gaseous fuel, but where the petrol system is fitted for emergency purposes or starting only and of which the petrol tank cannot contain more than 15 litres of petrol will be regarded for this test as vehicles that can only run on a gaseous fuel. (i.e. not applicable)

**Type IV Test** - determination of evaporative emission

*Evaporative emissions shall be less than 2 g/test*

Note:

- Vehicles which can be fueled either with unleaded petrol or LPG or NG shall be tested in this type test on unleaded petrol only
- Vehicles that can be fuelled with both petrol and a gaseous fuel, but where the petrol system is fitted for emergency purposes or starting only and of which the petrol tank cannot contain more than 15 litres of petrol will be regarded for this test as vehicles that can only run on a gaseous fuel.

**Type V Test** - durability of pollution control devices.

*The test represents an endurance test of 80,000 kilometer driven on the road or on a chassis dynamometer.*

*Notwithstanding the above requirements, a manufacturer may choose to use the deterioration factors from the following table.*

Deterioration factors	
CO	HC+ NOx
1.2	1.2

Note:

- Vehicles which can be fueled either with unleaded petrol or LPG or NG should be tested in this test on unleaded petrol only.
- Vehicles that can be fuelled with both petrol and a gaseous fuel, but where the petrol system is fitted for emergency purposes or starting only and of which the petrol tank cannot contain more than 15 litres of petrol will be regarded for this test as vehicles that can only run on a gaseous fuel.

### 3. For Three Wheelers

**Type I Test** - verifying exhaust emissions after a cold start.

	grams per kilometer	
	Carbon monoxide (CO)	hydrocarbons plus oxides of nitrogen (HC + NOx)
Type Approval*	4.0	2.0
Conformity of Production**	4.8	2.4

Note:

- The test shall be as per the Driving Cycle adopted by different countries, with cold start on chassis Dynamometer.
- Vehicles which can be fueled with either unleaded petrol or LPG or NG should be tested in this type I test on both fuels, of which the fuelling on LPG or NG has to be performed for variation in the composition of LPG or NG as set out in the testing procedure approved in the vehicle manufacturing country.

**Type II Test** - carbon monoxide emission at idling speed.

*Not applicable*

**Type III Test** - verifying emissions of crankcase gases.

*The crankcase ventilation system must not permit the emission of any of the crankcase gases into the atmosphere.*

*Note:*

- *Vehicles which can be fueled either with unleaded petrol or LPG or NG should be tested in this type test on unleaded petrol only*
- *Vehicles that can be fuelled with both petrol and a gaseous fuel, but where the petrol system is fitted for emergency purposes or starting only and of which the petrol tank cannot contain more than 5 litres of petrol will be regarded for this test as vehicles that can only run on a gaseous fuel.*

**Type IV Test** - determination of evaporative emission

*Evaporative emissions shall be less than 2 g/test*

*Note:*

- *Vehicles which can be fueled either with unleaded petrol or LPG or NG should be tested in this type test on unleaded petrol only*
- *Vehicles that can be fuelled with both petrol and a gaseous fuel, but where the petrol system is fitted for emergency purposes or starting only and of which the petrol tank cannot contain more than 15 litres of petrol will be regarded for this test as vehicles that can only run on a gaseous fuel.*

**Type V Test** - durability of pollution control devices.

*The test represents an endurance test of 80,000 kilometer driven on the road or on a chassis dynamometer.*

*Notwithstanding the above requirements, a manufacturer may choose to use the deterioration factors from the following table.*

<b>Deterioration factors</b>	
CO	HC+ NOx
1.2	1.2

**Note:**

- *Vehicles, which can be, fueled either with unleaded petrol or LPG or NG should be tested in this test on unleaded petrol only.*
- *Vehicles that can be fuelled with both petrol and a gaseous fuel, but where the petrol system is fitted for emergency purposes or starting only and of which the petrol tank cannot contain more than 5 litres of petrol will be regarded for this test as vehicles that can only run on a gaseous fuel.*

#### 4. For Two Wheelers

**Type I Test** - verifying exhaust emissions after a cold start.

	<i>grams per kilometer</i>	
	Carbon monoxide (CO)	hydrocarbons plus oxides of nitrogen (HC + NOx)
Type Approval*	2.0	2.0
Conformity of Production**	2.4	2.4

Note:

- *The test shall be as per the Driving Cycle adopted by different countries, with cold start on Chassis Dynamometer.*
- *Vehicles which can be fueled with either unleaded petrol or LPG or NG should be tested in this type I test on both fuels, of which the fuelling on LPG or NG has to be performed for variation in the composition of LPG or NG as set out in the testing procedure approved in the vehicle manufacturing country.*

**Type II Test** - carbon monoxide emission at idling speed.

*Not applicable*

**Type III Test** - verifying emissions of crankcase gases.

*Not applicable*

**Type IV Test** - determination of evaporative emission

*Not applicable*

**Type V Test** - durability of pollution control devices.

*The test represents an endurance test of 80,000 kilometer driven on the road or on a chassis dynamometer.*

*Notwithstanding the above requirements, a manufacturer may choose to use the deterioration factors from the following table.*

<b>Deterioration factors</b>	
CO	HC+ NOx
1.2	1.2

Note:

- *Only applicable if fitted with anti pollution devices.*
- *Vehicles which can be fueled either with unleaded petrol or LPG or NG should be tested in this test on unleaded petrol only.*
- *Vehicles that can be fuelled with both petrol and a gaseous fuel, but where the petrol system is fitted for emergency purposes or starting only and of which the petrol tank cannot contain more than 2 litres of petrol will be regarded for this test as vehicles that can only run on a gaseous fuel.*

### **3. Review of Industrial Enterprises Act 2049**

The manufacturing industries dealing with energy efficiency and conservation, and pollution abatement have been declared 'nationally prioritized' industries. EV manufacturing as a rule comes under the priority industries. According to Industrial Enterprises Act, 2049 BS, Article 15 (e), EV manufacturing industries are entitled up to 50% discount from taxable income for a period of 7 years beginning from the date of production. Moreover, sub-article (j) has made a provision for additional benefit to the prioritized industries. It states that if a prioritized industry diversifies itself through reinvestment on the same industry, or expands the installed capacity by 25 % or more, modernizes its technology, or develops any aspect of the industry as ancillary industry, it shall be entitled to 40% deduction of the cost of the new additional fixed asset from its taxable income.

### **4. Review of Local Governance Act 2055**

This act provides more autonomy to District Development Committees, Municipalities and Village Development Committees. Section 25 of the Act provides the functions, rights and duties of the local governments including environmental protection. The term environmental protection is broadly used which can also be used for the restriction of polluting vehicles in the context of environmental protection.

### **5. Review of Financial Acts**

In order to evaluate the economic incentives provided through the financial acts in the promotion of clean vehicles in Nepal, the financial acts from 2051/52 to the recent one 2059/2060 are reviewed.

Section 23 of the Finance Act 2051 (1994) has established precedent for granting income tax deductions for expenditures to reduce air pollution. It states that "In case any industry installs any pollution control system certified by technicians, it may deduct the expense in equal installments in two years with the approval of the Department of Industry". This provision is applicable to conversion of diesel engine into an electric engine. These provisions provide economic incentives and attract the private sector to come forward and invest on EV industries.

As Nepal is primarily a vehicle importing country and vehicles being the major source of revenue generation for the country, the incentives are provided in terms of customs, sales taxes/VAT, waive in special taxes, waive in local taxes, reduced rate on vehicle taxes.

#### Financial Act 2053

Special Provision on Electrical, Gas or Battery Operated Three Wheelers: These vehicles all are categorized as Safa Tempo.

- Only 1% custom on the import of Chassis or Chassis with engine and parts for tempo and exemption of sales tax (imported by industries to manufacture the tempo).
- Other than the tempo, the custom will be 5% and no sales tax on the import of chassis or chassis with engine, motor, accumulator, battery, battery charger and other parts (imported by industries to manufacture)
- Whole Vehicles (transport and goods) powered by only electricity, battery and gas : the custom is only 10% and on sales tax
- Tempos (petrol and diesel) registered in Transport Management Offices, if wanted to convert to battery, the owners are allowed to import equipments only on 1% custom and no sales tax.
- This act also introduces the pollution tax of 50 paise on a liter of petrol and diesel to be sold in Kathmandu Valley

#### Financial Act 2054

- Continued the same provisions of Financial Act 2053

#### Financial Act 2055

- Continued the same provisions of Financial Act 2054

### Financial Act 2056

- Continued the same provisions on the import of chassis and parts for the production of tempo, and also the provisions on conversion continued
- In the import of whole vehicle, the facilities continued only for the vehicles operated by only electricity
- Vehicles to be operated by Gas will have only 50% reduction in the custom

### Incentives to Replacement of Diesel and Petrol Tempos

- Fiscal Act 2056 introduced special provision for the replacement of diesel and petrol operated vehicles from Kathmandu Valley
- If the owner of the diesel and petrol tempos cancel the registration of such vehicles or transfer registration from Kathmandu Valley to operated in other places and imports public transport vehicles from 10 to 15 seat capacities to be run only in Kathmandu Valley will get 75% custom duty reduction in the import of such vehicles. If such vehicles are of EURO-I standard, then such vehicles will get additional 10% custom reduction. There will be no custom on the import of catalytic converter.

### Additional Incentives by MOPE in the Provisions of Financial Act 2056

- Ministry of Population and Environment on 2056-5-14 ban the running of diesel operated tempos in Kathmandu Valley effective by the Ashwin 2056 (cabinet level decision) and provided 99% custom reduction and no VAT on the import of EURO-I petrol only operated microbuses of 10-15 seats.
- The incentives provided by Fiscal Act 2056 remained the same for diesel microbuses.
- MOPE again in 2056-11-8 added that microbuses to be converted to LPG, a very low polluting fuels, will enjoy the 99% custom reduction and no VAT even if they do not comply with EURO-I standard. If the owner had only one diesel tempo, he was allowed to import one, if such owner had more than one diesel tempos then he was allowed to import one for two vehicles.
- MOPE also banned the import of second hand and reconditioned vehicles, two stroke engine vehicles

### Financial Act 2057

- Incentives provided to electrical vehicles remained the same
- Incentives to gas operated vehicles were removed in this fiscal act
- Provisions of Nepal Vehicle Mass Emission Standard, 2056 were made compulsory to import vehicles in Nepal
- Ban on import of second hand and reconditioned vehicles and two-stroke engine vehicles continued (special provisions were made to import second hand vehicles by diplomats only)
- Pollution tax on diesel and petrol to be sold in Kathmandu Valley continued since 2053

### Financial Act 2058

- Continued incentives of Fiscal Act 2057
- In the process of implementation of Fiscal Act 2058 on the import of whole vehicles on electricity run only vehicles surfaced in the import of four RIVA cars, Department of Custom questioned that battery operated vehicles does not fall within the provisions of electricity operated only vehicles. DOC asked MOPE for clarification and MOPE took almost six months to clarify the issue- at last defining the battery operated vehicles as electricity operated vehicles

- Because of the ban on the import of second hand vehicles and parts, two chassis imported by Himalayan Light Foundation are still lying in customs. As per the provisions of Fiscal Act, MOPE has been given the authority to recommend on the import of second hand or used equipments and parts.
- Continued pollution tax on petrol and diesel

Financial Act 2059

- Continued the incentives for electric vehicles parts to be imported by manufacturers
- Changed the incentives for whole vehicles import: three wheelers enjoyed the same provisions while other vehicles only enjoyed 33% reduction in the custom
- Provisions of electricity or battery operated vehicles introduced
- Provisions on pollution tax on petrol and diesel fuel continued

The details of taxes on various types of vehicles and incentives provided in this act are summed up in the following table.

### Tax and Duties for Public Transports in Fiscal Act 2059

Particulars	Bus	Mini Bus	Car/Jeep/Van	Mini/Mico	Tempo	Tempo	Evs 3 wheeler	Evs other
	Petrol/diesel	Petrol/diesel	Petrol/diesel	LPG	Petrol	LPG	Battery	Battery
Custom Duty	25%	40%	130%	80%	80%	80%	10%	less 33%
<i>Spare parts engine and chesis</i>	25%	40%	130%	80%	80%	80%	1%	5%
<i>Body parts</i>	15%	15%	15%	15%	15%	15%	1%	5%
Special Duty	3%	10%	10%	10%	10%	10%		3%
Local Development Tax	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	0%	1.50%
VAT*	10%	10%	10%	10%	10%	10%	0%	0%
Yearly income Tax	1500	1500	1200	1200	850	850	850	850
Yearly Vehicle Tax	11500/12700	7400/8700	3400/4700	3400/4700	1600	1600	Exmpted	Exempted
Pollution Tax	Additional 10% for each year for vehicle older than 15 years						x	x
Registration	1200	800		600	600	600	600	600
Yearly Registration Renewal	300	200		150	150	150	150	150
Registration in Municipality	500	300		200	200	200	200	200
Yearly Registration Renewal in Municipality	500	300		200	200	200	200	200
Vehicular inspection fee paid every six month	100	60		40	40	40	40	40
Road permit paid every four months	290	290		200	200	200	200	200
Insurance**	1% vehicle cost	1% vehicle cost		1% vehicle cost	1% vehicle cost	1% vehicle cost	1% vehicle cost	1% vehicle cost

\* VAT is applied after adding custom, special duty and local development tax

\*\* insurance of the passenger @ 100/person depending upon the seat