

**THE  
AUTOMOTIVE  
INDUSTRY AT  
THE  
CROSSROADS**



## **2008 REGISTRATIONS**

- TOTAL COUNTRY FLEET ---- 5.9 MILLION**
- CARS & LIGHT TRUCKS ----- 2.556 MILLION**
- BUSES & HEAVY TRUCKS-- 353 THOUSAND**
- MOTORCYCLES ----- 2.98 MILLION**
- AVERAGE GROWTH = 5.13%**
- NEW REGISTRATION = 201,780**
- INDUSTRY SALES = 124,449 (62%)**
- USED CAR IMPORTS = 77331 (38%)**

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- **CONTRIBUTION TO GDP (\$317.5bn)= 12 %**
  - **CONTRIBUTION TO MANUFACTURING ACTIVITY =**
    - 256 PARTS MANUFACTURERS =**
    - 22 CAR & TRUCK ASSEMBLERS =**
    - = 16 MOTORCYCLE ASSEMBLERS =**
    - 240 DEALERSHIPS**
  - **CONTRIBUTION TO EXPORTS =**  
**US\$3.5 BILLION (2008)**
  - **CONTRIBUTION TO LABOR**  
**DIRECT = 70,000, ANCILLIARY = 350,000**

# CONTRIBUTION TO POLLUTION

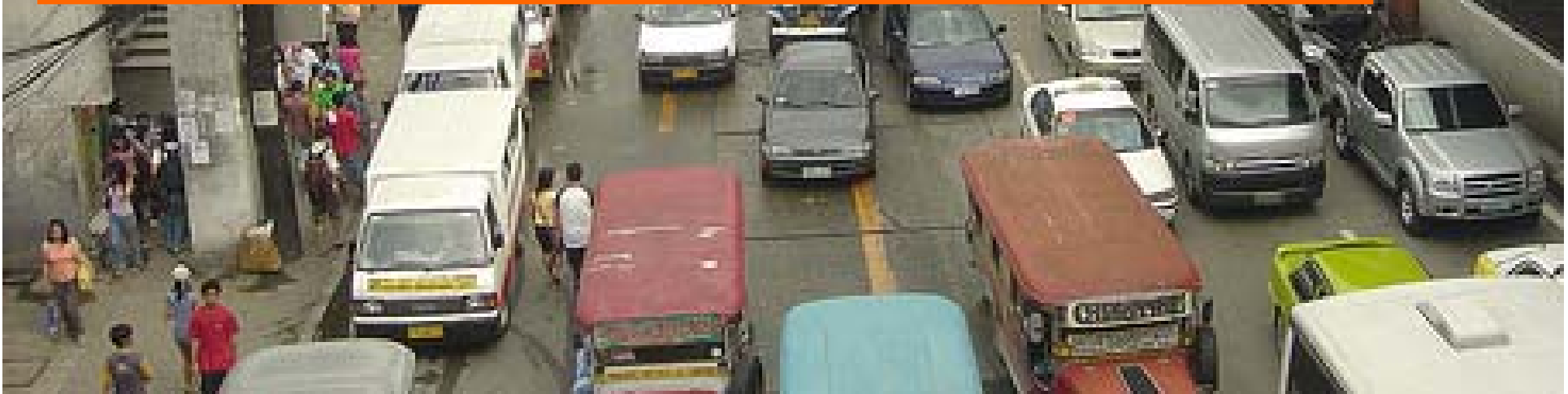


Cars, trucks & buses contribute over 32% of greenhouse gas (CO<sub>2</sub>) pollutants in the air

## **2010 NEW BUSINESS ENVIRONMENT**

- **POPULATION GROWTH (2.36%/yr. 87 million)**
- **DEMAND FOR TRANSPORTATION OF GOODS & PEOPLE GROWING**
- **JPEPA & OTHER FTAs (zero tariff regime)**
- **DEMAND FOR JOBS.**

**MUST BE BALANCED WITH  
ENVIRONMENTAL NEEDS OF OUR PLANET**



# CHOICES WE ALL HAVE TO MAKE

## CAR & TRUCK MANUFACTURERS

CBU

CKD

USED CBU

NEW CBU

OLDER VEHICLES =  
HIGHER POLLUTION

CBU = LOSS OF  
MANUFACTURING  
JOBS

DEVELOP BRAND  
DEALERS &  
SERVICE UNITS

DEVELOP  
PARTS  
MFG.

HIGHER DEMAND  
FOR SKILLED  
WORKERS &  
ENGINEERS

# THE PHILIPPINE AUTOMOTIVE CLUSTER

STEEL

PLASTIC

RUBBER/TIRES

ELECTRONICS

AUTO GLASS

LEATHER/FABRIC

MACHINERY

DIES & MOLDS

TOOLS

JIGS & FIXTURES

MOTOR-CYCLES

CARS & LIGHT TRUCKS

BUS

ASSEMBLERS

FIRST TIER MANUFACTURERS  
 ENGINE, TRANSMISSION, WHEELS  
 SUSPENSION, BRAKE SYSTEM,  
 ELECTRONIC & ELECTRICAL

SECOND TIER MANUFACTURERS  
 STAMPING, PLASTICS, RUBBER,  
 CASTINGS, FORGING, TRIMMING &  
 FUNCTION-ELECTRICAL

GOVERNMENT

EDUCATION & TECHNICAL INSTITUTIONS

INDUSTRY ASSOC.

DISTRIBUTION

FINANCE

SERVICES

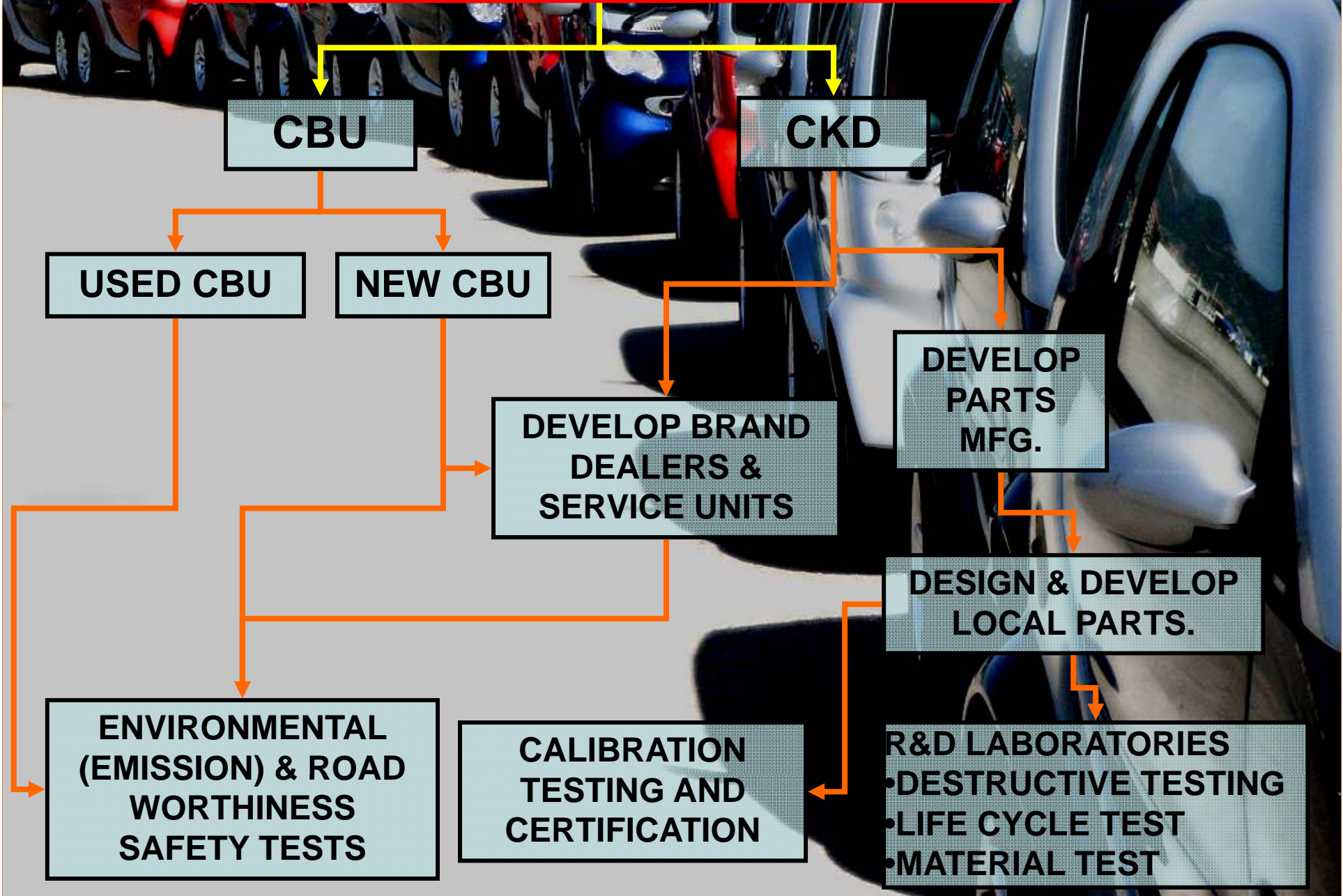
TESTING & LABORATORIES

SPECIALIZED CONSULTANTS

**LEGEND**

- COMPETITIVE GLOBAL
- COMPETITIVE REGIONAL
- NATIONALLY SIGNIFICANT
- ONLY DOMESTIC MARKET
- NATIONALLY INSIGNIFICANT

# CHOICES WE ALL HAVE TO MAKE



# TESTING FACILITIES

- TESTING FACILITIES OF GOVERNMENT: DOST, MIRDIC, DOE, DENR, DOTC, ETC..
- PRIVATE SECTOR FACILITIES, IN-HOUSE LABS, SGS, ETC..
- ACADEME
- WE HAVE INSUFFICIENT LABORATORY OR TEST FACILITIES THAT SERVE THE NEEDS OF THE AUTOMOTIVE SECTOR AND LAND TRANSPORTATION.

# TESTING FACILITIES

**SAFETY HELMET TEST GROUP**

**SAFETY GLASS TEST GROUP**

**SAFETY BELT TEST GROUP**

**TIRE TEST GROUP**

**SPRING TEST GROUP**

**CAR SEAT TEST GROUP**

**ELECTRICAL FOR AUTOMOBILE TEST GROUP**

# TESTING FACILITIES

**MECHANICAL TEST FOR LIGHT MATERIAL GROUP**

**MECHANICAL TEST FOR HEAVY MATERIAL GROUP**

**NON-DESTRUCTIVE TEST GROUP**

**CORROSION TEST GROUP**

**PRECISION MEASUREMENT**

**ENVIRONMENT TEST GROUP**

**EMISSION TEST & ROADWORTHINESS GROUP**

# SAFETY HELMET TEST GROUP

No.	Test Item	Equipment	
1	Shock Absorption Test	Shock Absorption Test Equipment for Helmet	
2	Penetration Test	Penetration Test Equipment	
3	Rigidity	Universal Tensile Testing Machine 5 tons	
4	Chin Strap Test	Chin Strap Strength Test Equipment	
5	Windshield Peak Strength Test	Peak Strength Test Equipment of Windshield	

# SAFETY GLASS TEST GROUP

No.	Test Item	Equipment	
1	Visible Light Transmission Test	Digital Haze Computer Model HGM-3DP	
2	Secondary Image Separation Test	Light Box	
3	Optical Distortion Test	Light Projection Test Apparatus Optical Deviation Test Equipment	
4	Identification of Color Test	Colours Test Apparatus	
5	Abrasion Resistance Test	Rotary Abrasion Test:Taber type	
6	High Temperature Resistance	Scalding Tank	
7	UV Light Resistance Test	UV Light Tester	
8	Humidity Resistance Test	Humidity Chamber	
9	Head-Form Drop Impact Test	Head-Form Drop Impact Tester	
10	Impact Resistance Test	Drop Impact Tester	
11	Penetration Resistance Test	Drop Tester	

# SAFETY BELT TEST GROUP

No.	Test Item	Equipment	
1	Webbing test		
	Tensile Strength, Width, Elongation, Energy absorbability, Abrasion Resistance Test, Heat Resistance Test, Waterproof	Universal Tensile, Testing Machine 5 tons, Abrasion Resistance Test for webbing, Temperature / Humidity Chamber	
2	Buckle Test Durability Test Dissociation Force	Buckle Durability Tester Compression Tester	
3	Length Adjuster Length Adjustment Force		
4	Corrosion Test: Buckle, Length Adjuster, Fitting	Salt Spray Tester	
5	Heat resistance Test for Plastic Material Buckle Length Adjuster, Fitting	Temperature Humidity Chamber	

# Safety Belt Test Group

No.	Test Item	Equipment	
6	<b>Automatically Locking Retractor Test</b> Position of Automatic Lock Wind Round Force Durability Dust Resistance Tensile Strength	<b>Emergency Lock Tester Wind Round Force Tester Winder Durability Tester Dust Resistance Tester Tensile Testing Machine</b>	
7	<b>Tensile Strength of Bolt</b>	<b>Universal Testing Machine</b>	
8	<b>Static Load Testing</b> Two-point Type Three-point Type	<b>Universal Testing Machine</b>	

# TIRE TEST GROUP

No.	Test Item	Equipment
1	Balance Test	Balance Tester
2	Tire Strength Test	Tire Strength Tester
3	Bead Unseating Test	Bead Unseating Testing Machine
4	Tire Endurance Test	Endurance Tester for Tire and Wheel
5	Endurance Test at High Speed	Endurance Tester for tire and Wheel

# Environment Test Group

No.	Test Item	Equipment	
1	Environmental Testing: Temperature Resistance	Temperature Oven	
2	Environmental Testing: Temperature and Humidity Resistance	High-Low Temperature and Humidity Chamber	
3	Environmental Testing: Light Test, Light and Spray Test, Humidity Test and Cycle Test	Xenon Weather Meter	
4	Environmental Testing:UV Light Effect on Laminated Glass	UV.Light Stability Tester	
5	Environmental Testing:UV Light Effect on Laminated GlasS	UV.Light Stability tester	
6	Environmental Testing: Temperature Test Humidity Test Cycle Test and Vibration Test	Big Chamber	

## Mechanical Test for Heavy Material Group

No.	Test Item	Equipment
1	Tensile Test Compression test Bending Test	Universal Testing Machine
2	Impact Test	Pendulum Impact Tester
3	Hardness Test	Vickers Hardness Tester
4		Brinell Hardness Tester
5		Rockwell Hardness Tester
6	Shock Absorber Test	Damping Force Tester
7	Brake and Clutch Lining Test	Friction Testing Machine
8	Vibration test	Vibra Measuring Tester
9	Gas Tank Hydrostatic Proof Pressure Test Stretch Test	High Pressure Water Pump
10	Leak Test for Exhaust Manifold	Air Leak Tester for Exhaust Pipe
11	Chemical Composition of Ferrous Material	Emission Spectrometer
12	Sample Preparation for Chemical Test in Item 11	Induction Melting

## Mechanical Test for Light Material Group

No.	Test Item	Equipment
1	Tensile Test Compression Test Bending Test	Universal Tensile Testing Machine (Autograph)
2	Impact Test	Pendulum Impact Tester
3	Rubber Hardness Test	Hardness Tester for Rubber
4	Thermostatic Test	Thermostatic Chamber Autograph
5	Creep Test for V.belt	Creep Testing Machine for V Belt
6	V-Belt Length Test	V-Belt Length Measurement
7	Ozone Aging Test	Ozone Aging Tester
8	Micro Hardness Test	Micro Hardness Tester

# Precision Measurement

No.	Test Item	Equipment
1	Dimension Check for Small Sample	Profile Projector
2	Dimension Check for Very Small Sample	Toolmakers Microscope
3	Microstructure Check	Metallurgical Microscope
4	Roughness Test	Digital Roughness Tester
5	Three Dimension Check	CNC Coordinate Measuring Machine

# Corrosion Test Group

No.	Test Item	Equipment	Capacity
1	Water Spray Test	Water Spraying Chamber	Test temperature 25 ° C Test pressure 0 ~ 25 kg.f./ cm <sup>2</sup>
2	Corrosion Test	Salt Spray Test	Test Temperature 35 + 1 ° C Test pressure 0 ~ 25 kg.f/ cm 2
3	Coating Thickness Test	Multilayer Coating Thickness Analyzer	Measuring range: Up to approx.100 um
4	Color Intensity	Colorimeter	

# Spring Test Group

No.	Test Item	Equipment	Capacity
1	Leaf Spring Test	Leaf Spring Testing Machine	Max capacity 10 ton.f. Ram stroke 300 mm.
2	Coil Spring Constant Test	Automobile Spring Testing Machine	Max. capacity 5 ton.f. Ram stroke 250 mm
3	Tension Compression Spring Constant Test	Digital System Coil Spring Testing Machine	Max. load 200 kg.f.
4	Tension Compression Spring Constant Test	Digital System Coil Spring Testing Machine	Max. load 10 kg.f.

# Car Seat Test Group

No.	Test Item	Equipment	Capacity
1	Seat Frame Endurance Test	Seat Frame Testing Equipment	Test load 30/50 kg.f Stroke 20 to 200 mm.
2	Head Rest Endurance Test	Endurance Tester for Head Rest	Max. speed 24 km/hr Long. Movement 600 mm.

# Electrical for Automobile Test Group

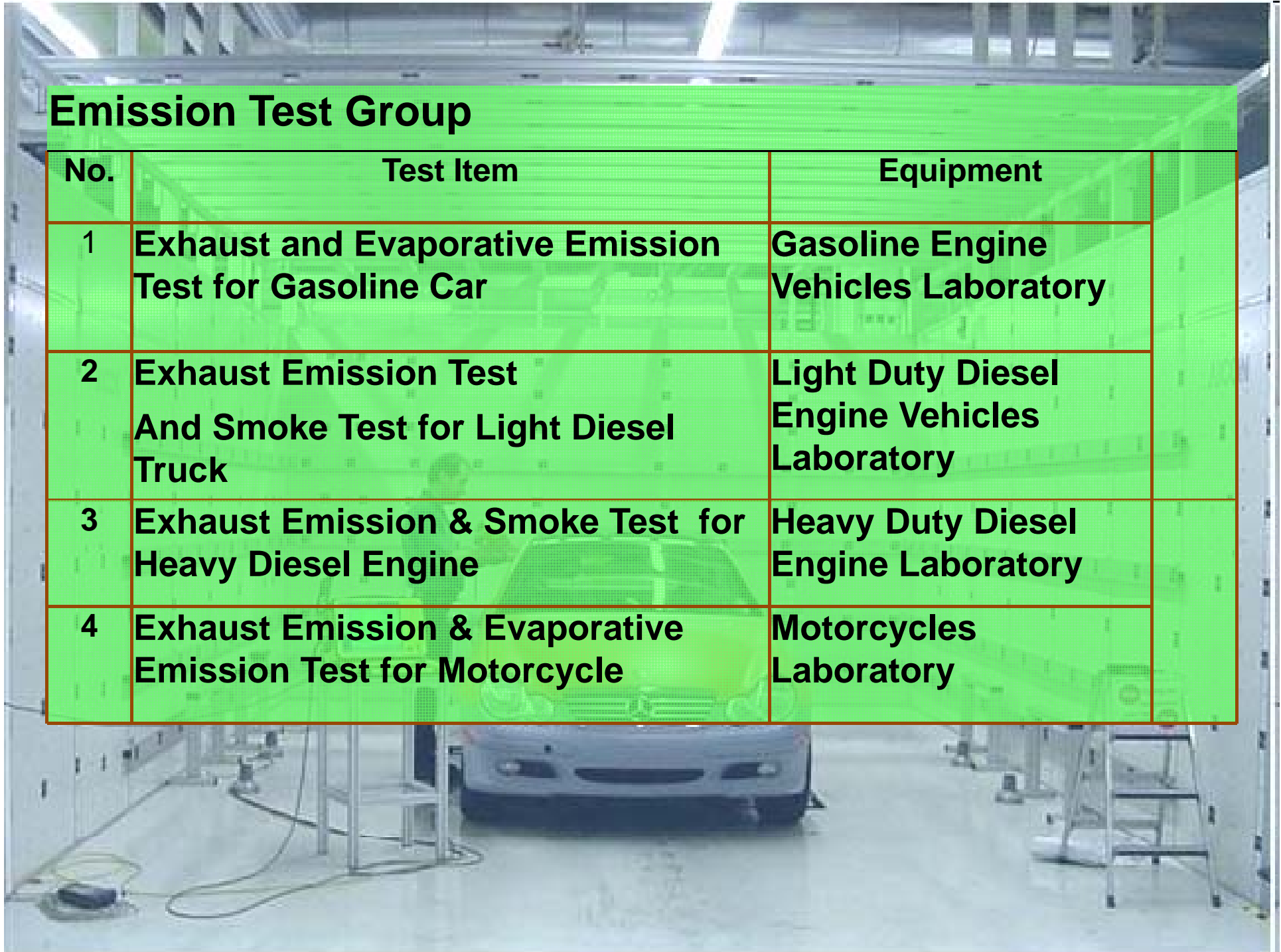
No.	Test Item	Equipment	Capacity
1	Battery Test	Battery Tester	
2	Separator	Porosity Meter	
3	Spark Plug Air Leak Test	Air Leakage Test Equipment for Spark Plug	
4	Alternator Endurance test	Alternator tester	
5	Starter Endurance test	Performance Test Equipment for Starting Motor	
6	Magnetic Switch Endurance Test	Endurance Tester for Magnetic Switch	
7	Motor Wiper Endurance Test	Speed Tester and Endurance Tester for Motor Wiper	
8	Ignition coil Endurance Test	Endurance Test Equipment for Ignition Coil	

## Non-Destructive Test Group

No.	Test Item	Equipment	Capacity
1	Ultrasonic Test	Ultrasonic Flaw Detector	Testing range 10 mm. ~ 2,000 mm.
2	Coating Thickness Test	Coating Thickness Measurement	Measuring : up to approx. 1500 mm.
3	Magnetic Particle Examination	Magnetic Particles Examination	Minimum distance 50 mm. Maximum distance 660 mm.
4	Eddy Current Inspection	Eddy Current Inspection Equipment	Test frequency 16 range from 3 KHz-512 KHz
5	Dye Penetrant Test	Liquid Penetrant Testing	
6	Radiographic Examination	Radiographic Examination	X-ray tube current 5 mA Voltage 110-250 kv

## Emission Test Group

No.	Test Item	Equipment
1	Exhaust and Evaporative Emission Test for Gasoline Car	Gasoline Engine Vehicles Laboratory
2	Exhaust Emission Test And Smoke Test for Light Diesel Truck	Light Duty Diesel Engine Vehicles Laboratory
3	Exhaust Emission & Smoke Test for Heavy Diesel Engine	Heavy Duty Diesel Engine Laboratory
4	Exhaust Emission & Evaporative Emission Test for Motorcycle	Motorcycles Laboratory



# ROAD WORTHINESS INSPECTION

No.	Test Item
1	<b>ON ARRIVAL: SMOKE TEST, EXHAUST EMISSION, UNDER BONNET INSPECTION</b>
2	<b>LAMPS &amp; LIGHTS:</b> Headlamps, Directional lamps, Stop lamps, Rear reflectors, Seat belts, Seats, Windows and windscreen, Windscreen washers and wipers, Horn, Mirrors, Front and rear position lamps, registration plate lamps,
3	<b>BRAKE TEST, INTERIOR INSPECTION</b> (Parking brake lever mechanism, Service brake control, ABS (Anti-lock braking system) warning light, Speedometer).
4	<b>UNDERBODY INSPECTION</b> Electrical wiring, body condition, tires & wheels, suspension, wheel bearings & drive shafts, shocks, oil leaks, engine and trans. mounts, transmission, exhaust system, brake parts, brake hydraulic, air and vacuum systems, fuel system, etc .

## A TYPICAL CAR HAS MORE THAN 30,000 SMALL PARTS



**WE NEED TO SET UP AN AUTOMOTIVE INDUSTRY LABORATORY**

- TO SET STANDARDS AND TEST SAFETY PARTS
- TO TEST FOR DESIGN AND DEVELOPMENT OF COMPONENT PARTS
- TO SET STANDARDS AND TEST EMISSION OF VEHICLES (USED & NEW)
- TO TEST, CERTIFY AND ARBITRATE WHEN NECESSARY.

# CONCEPT

Automotive  
Manufacturers

Automotive Parts  
Manufacturers &  
Exporters

Philippine  
Government

Equipment Suppliers  
Donations

Foreign Government  
Grants

PHILIPPINE  
AUTOMOTIVE  
RESEARCH  
CENTER

Philippine Automotive  
Standards for Safety  
Parts, Materials &  
Emission

Automotive Parts  
Life Testing

Material Testing

Emission Testing

Research &  
Development Fuels  
& materials

Testing &  
Certification



THE END

