

Challenges and Initiatives of air pollution in Ethiopia



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1

CONTENT

- OVERVIEW OF ETHIOPIA
- INTRODUCTION
- CHALLENGES OF AIR POLLUTION IN ETHIOPIA
- THE INITIATIVES OF AIR POLLUTION IN ETHIOPIA
 - LEGAL & INSTITUTIONAL FRAMEWORK
 - INTERNATIONAL COMMITMENTS
 - INITIATIVES REGARDING VEHICLES AIR POLLUTION AND CLEAN FUEL





ETHIOPIA IS IN
EAST AFRICA



ETHIOPIA IN AFRICA

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PEOPLE

Population - 93,815,992 Million

Size - 1,104,300 Km²

Growth rate – 3.18%

GOVERNMENT

Federal Republic

Capital city – Addis Ababa

2,863.000 sq m

ECONOMY

Agriculture

Coffee – BP in Ethiopia and gift of Ethiopia to the world

chat, flower, leather products, gold oilseeds and wax bees

Mining – Gold

GDP = 44.10 USD

GDP growth = 41%

MONETARY UNIT

Birr



NATURAL RESOURCE

1 WATER RESOURCE

- SOURCE -BLUE NILE
- OTHER - RIVERS FLOW IN TO KENYA AND SOMALIA FROM BALE MOUNTAIN COMPLEX

2. MINERAL RESOURCE

- GOLD, TANTALUM, PHOSPHORUS, IRON, SALT, POTASH, SODA ASH, GEMSTONES, COAL, GEOTHERMAL AND NATURAL GAS
- 90% OF ETHIOPIA'S ENERGY NEEDS BEING MET FROM BIOMASS FUELS
- HYDROPOWER GENERATION HAVE BEEN DEVELOPED.



NATURAL RESOURCE ...

3. Forest Resources

- one of the **largest forest resources in the horn of Africa**
- Over 50% of African highlands
- The forest resources of the country are
 - **Natural high land forest COVERS 3.56%**
 - **Woodland 25% and**
 - **Shrub land 25%**

4. Biodiversity

- high plant and animal biodiversity
- The vegetation system **Afro – alpine ecosystem to Desert and Semi-desert ecosystems**



NATURAL RESOURCE ...

- **284 WILD MAMMALS 10% ARE ENDEMIC**
- **861 BIRD SPECIES THAT HAVE BEEN RECORDED SO FAR 14 ENDEMIC TO ETHIOPIA AND ERITREA**
- **6500 TO 7000 SPECIES OF HIGHER PLANTS OF WHICH ABOUT 12% ARE ENDEMIC**
- **210 SPECIES OF REPTILES AND 63 SPECIES OF AMPHIBIANS (34 ENDEMIC)**
- **ETHIOPIA IS THE ORIGINAL HOME OF THE COFFEE-PLAN (COFFEE ARABICA)**



INTRODUCTION



- AIR POLLUTION IS ONE OF THE MAJOR ENVIRONMENTAL PROBLEMS IN ETHIOPIA SPECIALLY URBAN AREA
- IN ETHIOPIA 75% OF THE EMISSIONS COME FROM ROAD TRANSPORT, PARTICULARLY FREIGHT AND CONSTRUCTION VEHICLES
- MOST VEHICLES ARE OLDER THAN **15 YEARS**(65%). AS A RESULT, HIGH FUEL CONSUMPTION, EMISSION OF POLLUTANTS AND ROAD ACCIDENT PREVAIL.
- IN ETHIOPIA RAPID MOTORIZATION TAKING PLACE THAT IS MAINLY DRIVEN BY **ECONOMIC GROWTH, URBANIZATION AND INCREASED POPULATION** ESPECIALLY IN ADDIS ABABA
- THIS RAPID MOTORIZATION WITH **UNCONTROLLED AND AGED VEHICLES, POOR MAINTENANCE PRACTICE, POOR FUEL QUALITY, INEFFICIENT PUBLIC TRANSPORT** ARE AFFECTING THE PUBLIC HEALTH AND THE ENVIRONMENT.
- JUST LAST YEAR, A TOTAL OF 30,128 CARS WERE IMPORTED INTO THE NATION, SHOWING AN INCREMENT OF MORE THAN 7,000 CARS COMPARED TO THE PREVIOUS YEAR. IN JUNE 2014 THE TOTAL STOCK OF REGISTERED CARS IN THE NATION WAS 519,816.

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E CHALLENGES



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CHALLENGES

❖ **INADEQUACY OF INSTITUTIONAL FRAMEWORK**

- DETAIL REGULATORY FRAMEWORK AND GUIDELINES

❖ **LESS SECTORAL INTEGRATION AMONG STAKEHOLDERS**

- LACK RESTRICTION ON IMPORTATION OF SECOND HAND VEHICLES
- LACK VEHICULAR AIR POLLUTION CONTROL PROGRAMS
- LACK VEHICLE MAINTENANCE
- LACK FUEL QUALITY IMPROVEMENT

❖ **ABSENCE OF CONTINUOUS AIR QUALITY MONITORING SYSTEM**

- ABSENCE OF EQUIPMENT AND CAPACITY TO MONITOR AND ANALYZE MAJOR AIR
POLLUTANTS,



CHALLENGES

- ❖ **NOT WELL ORGANIZED OF HEALTH IMPACT ASSESSMENTS (HIA) OF AIR POLLUTION**
- ❖ **LESS PUBLIC PARTICIPATION AND AWARENESS**
 - LESS IMPACTS OF AUTOMOBILE POLLUTION
 - ECO- DRIVING
 - LESS USAGE PUBLIC TRANSPORT
 - LESS PRIVATE INTEREST TO PARTICIPATE IN PUBLIC TRANSPORT
- ❖ **LACK OF FINANCIAL INSTRUMENTS**
- ❖ **WEAK DATA RECORDING AND KEEPING**





THE INITIATIVE



LEGAL FRAMEWORK

- CONSTITUTION OF THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA 1996
- **ARTICLE 44**
ENVIRONMENTAL RIGHTS
 - ALL PERSONS HAVE THE RIGHT TO LIVE A CLEAN AND HEALTHY ENVIRONMENT.
- **ARTICLE 92**
ENVIRONMENTAL OBJECTIVES
- GOVERNMENT SHALL ENDEAVOR TO ENSURE THAT ALL ETHIOPIANS LIVE IN A CLEAN AND HEALTHY ENVIRONMENT.
- *ART 42 SET THE RIGHT TO SUSTAINABLE DEVELOPMENT*
- ENVIRONMENTAL POLICY OF ETHIOPIA AND CONSERVATION STRATEGY OF ETHIOPIA
- PROC. NO 300/2002 ENVIRONMENTAL POLLUTION CONTROL



INSTITUTIONAL FRAMEWORK

THE RE-ESTABLISHMENT LEGISLATION OF THE FEDERAL TRANSPORT AUTHORITY (PROCLAMATION NO. 468/2005).

- IT PROVIDES AS FOLLOWS: THE TRANSPORT AUTHORITY, *IN COOPERATION WITH THE CONCERNED ORGAN, PREPARE AND SUBMIT AND, UPON APPROVAL, IMPLEMENT STANDARDS RELATING TO SMOKE, GAS, VAPOR, AND THE LIKE EMITTED FROM THE EXHAUST PIPES OF VEHICLES AND TRAINS WITH THE VIEW TO PREVENTING POLLUTION TAKING INTO ACCOUNT INTERNATIONAL CRITERIA AND CAPACITY OF THE COUNTRY.*
- **REESTABLISHMENT OF THE FORMER EPA AS MINISTRY OF ENVIRONMENT AND FOREST WITH TWO STATE MINISTERS**
- **THE ADDIS ABABA ADMINISTRATION ENVIRONMENTAL PROTECTION AUTHORITY HAS BEEN ESTABLISHED BY LAW WITH MANDATES OF PROTECTING AND PRESERVING ECOSYSTEM RESOURCES OF ADDIS ABABA.**
- **PROC NO 681 (VEHICLE IDENTIFICATION , INSPECTION AND REGISTRATION LAW)**



INTERNATIONAL COMMITMENTS

INTERNATIONAL COMMITMENTS TO REDUCE GREENHOUSE GASES

- IN 1992 ETHIOPIA SIGNED **UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC).**
- KYOTO PROTOCOL AND THE DOHA AMENDMENT
- IN 2011 LAUNCHED THE **CLIMATE RESILIENT GREEN ECONOMY (CRGE)**
- **ETHIOPIA IS WORKING TO CONTRIBUTE TO THE EFFORT IN REDUCTION OF GLOBAL GREEN HOUSE GAS EMISSION BY PROMOTING CLIMATE RESILIENCE GREEN ECONOMY STRATEGY.(CRGE)**

ETHIOPIAN CLIMATE RESILIENT GREEN ECONOMY STRATEGY



“ACHIEVE MIDDLE-INCOME STATUS BY 2025 IN A CLIMATE-RESILIENT GREEN ECONOMY.

- FOLLOWING THE CONVENTIONAL DEVELOPMENT PATH WOULD RESULT IN A SHARP INCREASE IN GREENHOUSE GAS EMISSIONS AND UNSUSTAINABLE USE OF NATURAL RESOURCES. IF BUSINESS GOES AS USUAL ,EMISSIONS FROM THE MOTOR VEHICLES WILL INCREASE FROM 5 – MILLION TON CO2 IN 2010 TO 41 MILLION TON CO2 IN 2030.
- THUS THE CRGE STRATEGY AIMS TO MEET THE FOLLOWING PLANS:
 - REDUCING DEMAND OF PASSENGER CARS IN ADDIS ABABA BY A LIGHT-RAIL TRANSIT SYSTEM AND A BUS RAPID TRANSIT SYSTEM;
 - **IMPROVING VEHICLE FUEL EFFICIENCY BY SETTING FUEL EFFICIENCY STANDARDS,**
 - PROMOTING CLEAN FUELS BY BLENDING ETHANOL WITH GASOLINE AND GASOIL WITH BIODIESEL
 - ADOPTING HYBRID AND PLUG-IN ELECTRIC VEHICLES,
 - SHIFTING FREIGHT TRANSPORT FROM ROAD TO AN ELECTRIC RAIL NETWORK.



GLOBAL FUEL ECONOMY INITIATIVE

- **THE MAIN OBJECTIVE OF GFEI IS TO SUPPORT THE GOVERNMENT OF ETHIOPIA IN THE DEVELOPMENT OF A CLEAN, MORE EFFICIENT VEHICLE STRATEGY POLICY PACKAGE AND TIMELINES FOR IMPLEMENTATION.**

SEES THAT THERE IS AN OPPORTUNITY TO IMPROVE NEW CAR FUEL EFFICIENCY BY 30% BY 2020 AND 50% BY 2030 IN A COST EFFECTIVE WAY.

- IMPROVEMENT OF CONVENTIONAL VEHICLE TECHNOLOGIES
- DISSEMINATION NEW VEHICLE TECHNOLOGIES BY CREATING CONDUCIVE ENVIRONMENT
- HYBRID ELECTRIC VEHICLES.
- ELECTRIC VEHICLE
- CREATING AWARENESS TO CHANGE DRIVING HABIT
- REDUCING TRAFFIC CONGESTION

INITIATIVES REGARDING VEHICLES AIR POLLUTION AND CLEAN FUEL

- ESTABLISHMENT OF AIR QUALITY MONITORING STATIONS
 - **ETHIOPIAN** METEOROLOGICAL AGENCY (EMA)
- THE ETHIOPIAN METEOROLOGICAL AGENCY (EMA) IS HAS ESTABLISHED AN AIR POLLUTION MONITORING STATION TO MEASURE THE AIR QUALITY OF ADDIS ABABA AT A COST OF FIVE MILLION BR.
- THE STATION, WHICH IS CONSTRUCTED AT THE EMA'S COMPOUND NEXT TO BLACK LION HOSPITAL, PROVIDING DATA THAT WILL HELP FORECASTERS ESTABLISH TRENDS IN THE CITY'S POLLUTION. THE DATA WILL ALSO SERVE AS A VITAL INPUT FOR POLICYMAKERS AND STAKEHOLDERS WHO WORK ON AIR POLLUTION AND RELATED ISSUES.



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MASS PUBLIC TRANSPORT INVESTMENT

- COMMITMENT BY PRIVATE & GOVERNMENT SECTOR
 - ALLIANCE PUBLIC BUS
 - AMBESSA CITY BUS SERVICES
 - CIVIL SERVANTS PUBLIC TRANSPORT
- **ASSEMBLING FACTORY**
 - RECENTLY ESTABLISHED FACTORY FOR ASSEMBLING BUSES FOR MASS PUBLIC TRANSPORT
 - SO FAR 500 BUSES SINCE SEPTEMBER 2014



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INTRODUCTION OF CLEAN MEANS OF TRANSPORT

- E-TAXI
 - MINISTRY OF ENVIRONMENT AND FOREST



- LIGHT RAIL TRANSPORT
- ETHIOPIAN RAILWAY CORPORATION

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DEVELOPING DRAFT VEHICULAR EMISSION STANDARDS

THIS STANDARD AIMS TO ADDRESS THE FOLLOWING AREAS IN DETAIL

- **FUEL QUALITY** (FUELS AND VEHICLES WORK TOGETHER AS A SYSTEM. SULPHUR CONTENT , LEAD, BLEND ETHANOL AMOUNT...)
- **MAKE –UP OF VEHICLE FLEET** (COMPOSITION AND SIZE OF FLEET) ENGINE TYPE (SPARK IGNITION OR COMPRESSION IGNITION DIESEL AND PETROL, HYBRID)
- **CLASSIFICATION OF VEHICLES** ON BASED ON GVW (GROSS VEHICLE WEIGHT OR ENGINE CAPACITY FOR EMISSION LIMIT PURPOSE
- **AGE OF THE VEHICLE FLEET** (TECHNOLOGICAL CHANGES, MALFUNCTION OF CONTROLLING SYSTEMS)



FUEL QUALITY

- THE PETROL WHICH MOST OF LIGHT DUTY VEHICLES USE AS ENERGY SOURCE HAS BEEN UNLEADED SINCE SEVERAL YEARS BACK. ALSO SULPHUR CONTENT IN DIESEL FUEL IS BEING LOWERED FORM TIME TO TIME.
- ETHANOL BLENDING
 - ETHIOPIA HAS SAVED AROUND 38.9 MILLION DOLLARS OVER THE PAST SIX YEARS BECAUSE OF SUPPLYING ETHANOL BLENDED WITH BENZENE. THE COUNTRY HAS BLENDED UP TO 50.3 MILLION LITERS OF ETHANOL WITH 46.8 MILLION LITERS OF BENZENE DURING THAT PARTICULAR PERIOD.





INFRASTRUCTURE MODIFICATION TO MINIMIZE CONGESTION OF VEHICLES

- **DECONGESTING ROADS CAN ALSO REDUCE EMISSION TO SOME EXTENT.**
- **EXPRESS WAY (ADDIS ABABA – ADAMA)**
- **DECONGESTING ROADS BY INTRODUCING TRAFFIC MANAGEMENT TOOLS I.E. PARKING, BUS AND TAXI BAYS, RESTRAINING TRAFFIC, SPECIFICALLY HEAVY DUTY FREIGHT VEHICLES DURING PEAK HOUR TIME ETC**



With out clean air, we have
nothing



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THANK YOU