

THE UNITED REPUBLIC OF TANZANIA



PRIME MINISTER'S OFFICE  
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

DAR RAPID TRANSIT



**A RECORD OF PROCEEDINGS DURING THE MEDIA CAMPAIGN  
ON CLEANER BUSES AND FUELS HELD AT THE BLUE PEARL  
HOTEL UBUNGO PLAZA CRISTAL HALL (B) 12<sup>th</sup> AUGUST 2009**



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## ABBREVIATIONS AND ACRONYMS

BRT	Bus Rapid Transit
CBD	Central Business District
CE	Chief Executive
CTCP	Central Transport Corridor Project
DARCOBOA	Dar es Salaam Commuter Bus Owners' Association
DART	Dar Rapid Transit Agency
EWURA	Electricity Water Utility Regulatory Authority
GAP	Global Atmospheric Pollution
GoT	Government of Tanzania
GEF	Global Environment Facility
IDA	International Development Agency
MoID	Ministry of Infrastructure Development
MoU	Memorandum of Understanding
MoFEA	Ministry of Finance and Economic Affairs
NEMC	National Environmental Management Council
NMT	Non Motorized Transport
PMO-RALG	Prime Minister's Office Regional Administration and Local Government
pm	particulate matter
ppm	parts per million
PCFV	Partnership for Clean Fuels and Vehicles
RAP	Resettlement Action Plan
SADC	Southern Africa Development Cooperation
EI	Stockholm Environmental Institute
EU	European Union
SUMATRA	Surface and Marine Transport Regulatory Authority
UNEP	United Nations Environment Programme
WB	World Bank
WHO	World Health Organization

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## 1.0 INTRODUCTION

Dar Rapid Transit (DART) Agency was established by GN No.120 of 25th May, 2007 under the Executive Agencies Act No.30 of 1997 and its subsequent amendments. The Agency was officially launched on 16th June, 2008 and aims at achieving the following objectives; Establish and operate Bus Rapid Transit (BRT) system for Dar es Salaam; Ensure orderly flow of traffic on urban streets and roads; and Ensure effective Management of the Agency. The Agency operates under the guidance of the DART Agency Ministerial Advisory Board (MAB) and the Prime Minister's Office, Regional Administration and Local Government – (PMO-RALG).

The Dar Rapid Transit Agency (DART) is implementing a pilot project on Media Campaign on cleaner buses and fuels. The Media campaign on cleaner buses and fuels held at the Blue Pearl hotel Ubungo Plaza Crystal hall (b) 12th August 2009

The Workshop was officially opened and chaired by Mr. Cosmas P.M. Takule Chief Executive Dar Rapid Transit (DART) Agency. The maiden workshop for cleaner buses and fuels was organized by the Dar Rapid Transit Agency (DART) with the support by the United Nations Environment Programme (UNEP). The Media House representatives at the workshop deliberated on the overall progress made by key stakeholders in addressing air pollution challenges.

The paper presenters for the workshop were; Eng. Enoch Kitandu Director of Systems and Operations DART Agency presented a paper on **“DART Project”**; While a paper on the **“Cleaner Buses & Fuels”** was presented by. Sirili Massay, a Director of Petroleum from the Energy Water Utility Regulation Authority (EWURA); while Eng. Aron Kisaka, Technical Safety Manager from Surface and Marine Transportation Authority (SUMATRA) presented a paper on **“Regulatory measures to ensure clean and quality public transport buses”** and the last paper to be presented was **“ Cleaners Fuels Initiatives** by **Goddard James** ; Bp East Africa Corporate Affairs Manager.

It is worth to note that Annex I is a list of workshop participants. **Annex II** is the workshop programme; Annex III opening statement by the DART Agency Chief Executive, **Annex IV** papers presented, **Annex V** Media house Workshop pictures and cuttings on Cleaner Buses and Fuels Campaign and **Annex VI**. Schematic diagram showing the way forward.

## 2.0 OPENNING STATEMENT

**Mr. Cosmas P.M. Takule** the Chief Executive DART Agency started his opening statement by appreciating to all participants who joined in that important workshop on media campaign for cleaner buses and fuels. Chief Executive told the participants that the objective of the workshop which was to deliberate on the overall progress made by key stakeholders to address air pollution challenges and seek the media support in

**Campaigning for public support for cleaner buses and fuels.**

**Mr. Cosmas P.M. Takule**

In addressing the Air Pollution challenges, Chief Executive said the Nairobi Agreement of 2008 on Air Pollution, the Ministers in the East Africa Region agreed to the following actions:

As regards to vehicle standards CE explained to the participants that, it is well known how important clean air is to our health and the overall quality of life on our planet. And we know that there is a growing demand for governments, the private sector, non-governmental organizations and civil society to work together more effectively to reduce air pollutants and their effects on our environment. This workshop for cleaner buses and fuels organized by the Dar Rapid Transit Agency (DART) with a support by the United Nations Environment Programme (UNEP) carries all the signs that all the media and stakeholders participating in the workshop today are taking the issue to heart.



He pointed out that, Poor air quality in Tanzania cities continues to be an important developmental problem which affects the lives of thousands. The World Health Organization states that each year hundreds of people die prematurely due to exposure to air pollution. Studies in air quality monitoring carried out in Dar es Salaam show that vehicles are a major source of air pollution. Lack of efficient public transport system contributes to increased personal vehicle use and air pollution.

CE advised that in addressing urban air pollution will require an integrated approach which addresses not only mobile sources of pollution but also includes activities to reduce pollution from stationary sources such as open burning which is still a common practice in many towns of Tanzania. However, minimizing the share of vehicular air pollution will remain the most important challenge.

He further pointed out that experience shows that, changing fuel specifications will be done through consented efforts of all stakeholders. Oil refiners need to modify their refineries and manufacturers of motor vehicles need to change engine specifications to ensure that air quality benefits materialize.

To guide the transformation, it is the responsibility of all stakeholders to regulate fuel quality in a phased and forward looking way Chief Executive stipulated the following **agreed actions and policy issues regarding management of air quality**; establish minimum regionally agreed emission standards by 2012 for the different categories of motor vehicles as stringent as available fuel quality will allow; establish programs on vehicle emission testing, inspection and maintenance by 2010 and develop the necessary capacity to enforce the maintenance programmes through public information and training campaigns thereafter; enact regulations to restrict the age of imported vehicles and to ensure that imported gasoline vehicles are equipped with functioning catalytic converters by 2011; ; explore and adopt modern technologies that promote vehicle fuel efficiency and reduce emissions including: catalytic converters, diesel retrofits and low emission vehicles; harmonize vehicle emission standards within the sub-region.

As regards Fuel standards CE stipulated the following agreed actions

- 
- Enact regulations to reduce sulphur in imported motor fuels to 500ppm by end of 2010 and commit necessary refinery investments to reduce sulphur in fuels to 50ppm from 2012 onwards;
  - Enforce regulations against the procurement, sale and use of fuels not meeting the set standards;
  - Undertake detailed economic, social, and environmental assessments to enable sustainable use of bio-fuels;
  - Harmonize fuel standards and practices in the sub-region.

Chief Executive ended his opening statement by once again, thanking participants of which majority were from the Media House for accepting the invitation he wished to them a discussion and deliberations. The meeting was chaired by the DART Agency Chief Executive.

### 3.0 PAPERS PRESENTED

Presenters presented a number of key issues regarding the campaign for public support marketing control on cleaner fuels for cleaner buses and fuels:

#### 3.1 DART PROJECT

**Eng.Enoch Kitandu** the Director of Systems and Operations DART Agency presented a detailed analysis of the DART Agency project by starting with Historical back ground of the City of Dar es Salaam which include the following parameters; Area: 1800 Sq. Kms. including off-shore islands (land area is **1350 Sq. Kms**) ;**Population: 2.5** Million (2002 Census) Growth rate **4.3% p.a.**; **7%** of Country Population ; 30% of population use Urban Transport; Dar es salaam is a One City, 4 Local Governments with a City Council ;3 Municipal Councils (Kinondoni, Ilala and Temeke) and it is a Commercial City which accounts for about 80%

of national GDP Paper presenter said the existing urban transport challenges include the following;High population Growth rates ;Rapid Urbanization;Traffic congestion (loss of time and resources) ;Increasing costs of parking ;Air pollution ; Road accidents ; Limited financial resources and absence of effective framework for meeting requirements. However, Urban areas are important dynamos of social and economic progress

The commonly known air pollutants are:

- Sulphur Oxides (SO<sub>x</sub>)
- Nitrogen Oxide (N<sub>2</sub>O<sub>x</sub>)
- Carbon Monoxide (CO)
- Volatile Organic Compounds (VOCs)
- Particulates matter
- Toxics (Eg, Lead)

Eng explained the Sources of Air Pollution in Dar es salaam which include ;Transport equipment ;Food processing industrial wastes ; Cement Factory and quarrying industries Unpaved roads ;Thermal power generation ; Rise of Small scale metal works and garages activities from Urban Agriculture ; Liquid waste management ;Solid waste management Construction Sites in the city and Indoor air pollution (burning wood and fossils)

Having said that presenter also pointed out measures taken by the City to address the whole issue of air pollution the initiatives started back in September 1992 where a consultation meeting of about 205 stakeholders was held. The following critical issues were discussed: -

- Solid Waste Management
- Upgrading Un-serviced Settlements
- Servicing City Expansion
- Managing Open Spaces, Recreational Areas, Hazard Lands, Green Belts and Urban Agricultural Potential
- Managing the Economy and Integrating Petty Trading
- Air Quality Management and Urban Transportation
- Managing Surface Waters and Liquid Waste
- Managing Coastal Resources
- Coordinating City Centre Renewal

Some of the measures that were taken are: -Joining the WHO/UNEP Global Environment Monitoring System on Air Pollution Programme (GEMS/Air Programme). The City Council was admitted to the global GEMS/Air Programme in 1994; Alleviation of Traffic Congestion in the City Centre

Resurfacing of Streets; Planting of Trees along City Roads/Streets

Better Management of Building Construction Sites; Creating Awareness to the Polluting Industries; ensuring vehicles' roadworthiness; designating Quarry Site far from Built up areas; Relocating of metal works sites/garages and Controlling dumpsite fire outbreaks.

Paper presenter said further that, public transport in Dar es Salaam lacks; Professionalism; Efficiency; Quality and Safety of the passengers and It is poor and unsafe. Therefore in lieu of that he advocated a need for a change by doing the following intervention measures: -

- In order to improve the quality of the public service in the city, a change in a positive direction was inevitable.
- A change that will bring an innovative mobility strategy, which apart from improving the service, it will also subsequently improve the quality of living of the city residents through improved mobility options.
- That needed CHANGE is the shifting from the present unorganized and unsatisfactory public transport system to the introduction of a more organized mass transit system - the Bus Rapid Transit (BRT) system which incorporates all modes of mobility in Dar es Salaam.

Presenter articulated the National Transport Policy Objectives:

- Improving the capacity and quality of the transport network in urban centres
- Improving the availability of safe and affordable transport services to the people in urban areas
- Establishing a transport system that aims at enhancing mobility and which is affordable to low income people
- Having the kind of urban transport that is sustainable and environmentally friendly.

Paper presenter also stipulated the DART VISION; "To have a modern public transport system at reasonable cost to the users, safe and yet profitable to the operators using quality high capacity buses which meet international service standards, environmentally friendly, operating on exclusive lanes, at less traveling time".

DART concept is state of the art BRT planning Segregated bus lanes Modern, articulated buses Closed stations Comfortable, modern terminals

Bus depot near the corridor

- Bike lanes on all BRT corridors
- Beautiful sidewalks

#### **A) Reduce air quality degradation**

The total emissions generated from any mode of transport can be calculated from three main variables: - Mode Share (Number of Vehicles) ; Distance travelled (Distance) ; Fuel Efficiency ( Emission per vehicle distance travelled) and Transport emission per mode= Number of vehicles x Distance travelled x Emissions per vehicle distance travelled

Total emission values per passenger-km served (emission factor) makes direct comparison between modes of transport.

Emission Factor = Emission for Mode [g] / (Number of passengers served x Distance travelled [km])

He explained that, some studies in Developing Countries have shown that while a typical petrol car has a mean CO<sub>2</sub> Equivalent emission of 150g/pax-km, the BRT diesel articulated Bus has only 15 g / pax-km (TransMilenio-Bogota). Minibuses range from 40 to 70 g / pax-km on diesel or petrol.

The DART system in Dar will utilize high quality articulated buses (Euro III Engine) with 140 pax capacity running on dedicated lanes.

The BRT system is environmentally friendly than many other modes in relation to the passengers served and distance travelled per vehicle.

**B) Reduce congestion** Traffic congestion affects work trips and personal trips with a dire consequent in people and goods movements thus slowing economic activities. To the traveler it means loss of time, missed opportunities, frustration and waste of personal resources. For the employer it means lost worker productivity, delivery delays and increased operation costs and to the Nation it affects economic growth and increased fuel consumption (imported). Since there is no sharing of routes with Daladadas, a single DART bus will displace about 10 minibuses, together with their usual terribly fuming exhausts, reducing congestion and pollution along the corridor.

DART system is designed incorporating NMT facilities along the corridor. The objective of which is to increase mobility and to attract motorists to change from NM to environmentally friendly NMT system, reducing congestion and pollution.

Presenter on the Eastern Africa Agreement on air pollution (Nairobi Agreement-2008) explicitly itemized the following key components of air pollution control

#### Vehicle Standards

- Establish minimum regionally agreed emission standards by 2012 for the different categories of motor vehicles as stringent as available fuel quality will allow;
- Establish programs on vehicle emission testing, inspection and maintenance by 2010 and develop the necessary capacity to enforce the maintenance programmes through public information and training campaigns thereafter;
- Enact regulations to restrict the age of imported vehicles and to ensure that imported gasoline vehicles are equipped with functioning catalytic converters by 2011;
- Explore and adopt modern technologies that promote vehicle fuel efficiency and reduce emissions including: catalytic converters, diesel retrofits and low emission vehicles;
- Harmonise vehicle emission standards within the sub-region.

While on the issue of fuel standards he pointed out measures to be taken as follows: -

- Enact regulations to reduce sulphur in imported motor fuels to 500ppm by end of 2010 and commit necessary refinery investments to reduce sulphur in fuels to 50ppm from 2012 onwards;
- Enforce regulations against the procurement, sale and use of fuels not meeting the set standards;
- Undertake detailed economic, social, and environmental assessments to enable sustainable use of bio-fuels;

- Harmonise fuel standards and practices in the sub-region.  
The high capacity buses that DART will deploy will be environmentally friendly, running on rigid pavement dedicated lanes, Safe, comfortable and considerate to all kinds of commuters even those who are physically challenged using clean fuel worth euro iii engines that have low emissions.
- Displacing 10 old dilapidated daladalas along DART corridors per an articulated bus means reducing gas emissions to a great extent, thus improving air quality and the human health.
- DART project is also promoting well managed recreational parks for all kinds of tourists. For Phase 1, 1500 Daladalas and 48 routes will be replaced by DART Integrated Trunk and Feeder System

### **3.2 PLENARY**

After of a DART Project Media Campaign participants on cleaner buses and fuels were given opportunity to contribute in a plenary discussion as follows a participant from Mtanzania news paper raised concern over DART Project on whether will be successful given existing fragmented and dilapidated infrastructure.

In responding to raised concern Director of Systems and Operations from DART Agency said DART project started with detailed The DART Agency considers it very important that the level of mobility of the majority of residents be increased so that they can participate in a wide range of economic activities and has therefore opted to provide a bus based mass transit system, to increase public transport capacity and mobility.

DART system envisions a high-quality, affordable public transportation system operating on specialized infrastructure with adequate incentives to offer affordable mobility, sustainable urban environmental management and better quality of life to urban population, especially the poor. The issue of existing fragmented infrastructure has been fully addressed.

A participant from CITIZEN News paper wanted to know the revised time frame for Development of DART Agency infrastructure. In respect to this participants were told that with the assistance of BRT Technical Assistants, DART Agency Chief Executive said the project was delayed due to the fact that when the tender for development of infrastructure was floated, 30 companies collected the documents but only three met the deadline, something which stalled the process. He said under the second tender bidding process

Agency in collaboration with TANROADS activities were grouped in eight packages to enable local contractors to bid.

Tenders advertisements are therefore expected in October 2009, award made in April 2010 so that the system could start operation in December 2010.

Participant from NIPASHE news paper raised a concern on whether DART Agency has already secured sufficient funds for infrastructure development. This was responded by the DART Agency Chief Executive explained that the Dar es Salaam BRT infrastructure project will be financed through the Second Central Transport Corridor (CTCP2) IDA Credit. Appraisal of the Project was successfully carried out. The Credit was approved by the Board of Directors of the World Bank on May 27, 2008, an amount equivalent to US\$190 million of which US\$ 122.1million will be for the BRT system.

The Civil Works will be done by Tanzania National Roads Agency (TANROADS) whereby a total sum of US\$ 103.5 will be expended for infrastructure development. Supervision will be done by TANROADS in collaboration with DART Agency.

Contribution from the Government of Tanzania is US\$ 10.0 million for Resettlement Action Plan for the financial year 2007/08 while the private sector is expected to spend a total amount of US\$ 38.2 million for procurement of buses, installation of Fare Collection System and Management of Funds. The Agency is expected to spend a total amount US\$ 3.0 million which will cover technical assistance, training, furniture and equipment.

News Editor from MAJIRA NEWS Paper wanted to know the reasons for which has resulted to delays in the implementation of DART Project It was reported that the delays was caused by none responsiveness of bidders due to high costs of bidding therefore in that pursuance bidding process had to be splinted to 8 packages instead of 10 packages and soon will be re-advertised. The Water and TTCL utilities will only be done effectively during the civil works construction.

Another participant from TBC1 raised concern over payments of compensations to Peoples Affected Properties (PAPs) if at all it has considered also the whole issue of providing them with alternative land after been compensated.

DART Agency reported that the process is going on well. About 87% of PAPs had been paid. About 76% of demolitions have been done in Kinondoni while only 3% had been demolished for Ilala (apparently due to court injunction at Gerezani).

The compensated PAPs according to compensation rules are responsible themselves to find alternative place of residence or business development.

After plenary the Chairman of the meeting sum up by appealing to Media house representatives to address critically the whole issue of air pollution and intensify a campaign on clear buses and fuels.

### 3.3 CLEANER BUSES & FUELS

**Mr. Sirili Massay** Director of Petroleum **EWURA** presented a paper on “Cleaner Buses & Fuels”. In his presentation, he gave an overview of current and future heavy duty diesel vehicle emission limit (g/kWh) and efforts made by different countries in improvement of petrol fuel. He also indicated the efforts made by different countries in the world on minimizing sulphur contents in diesel for the past four years 2004 to 2008.

For the case of Tanzania, he noted that petroleum products account for about 90% of commercial energy. The bulk of this is used as fuel for vehicle transportation which is a major means of transport. On the other hand, he stipulated functions of EWURA in petroleum sector which are to perform the technical and economic regulation, licensing authority, sets terms and conditions of license and it can revoke a license. *Mr. Sirili Massav.*

Paper presenter said Petroleum specifications and standards is adopted from international standards by standards setting bodies: adopted and suited to Tanzanian standards by TBS in collaboration with other stakeholders such as NEMC, Weights and Measures, EWURA and OMCs .While EWURA is charged with responsibility to adhere the Compliance Inspections, Monitor Quality of Petroleum Products: Sampling and testing to determine level of compliance to TBS specifications:

- Deter defaulters: ongoing monitoring, license revocation Process for acquisition of mobile laboratory
- Introducing petroleum (kerosene) marking EWURAs Compliance Inspections; enforcing compliance including Fines and penalties to defaulters; Closure of facilities; Forfeiture of licenses of habitual defaulters

- Results: Level of compliance increasing and adulteration seems to be decreasing  
Presenter said the Existing Specifications includes; Unleaded Petrol (Gasoline); Automotive Diesel Fuel and Low sulphur diesel (500ppm) TBS finalizing the requirements, soon 5000ppm will not be allowed

While the Fuel composition (e.g. Sulphur content) and engine combustion products that pass through a tail-pipe emission filter affect air quality

Cleaner burning fuels enhance air quality because they do not harm catalytic diesel particulate filters that control particulate emission to the atmosphere.

Mr. Goddard explained that additives used in Bio-fuels which used worldwide but especially in Brazil, USA, China and Europe. He emphasized that in Africa and particularly Tanzania they are preparing a policy which are going to include; Bio-diesel from vegetable oil (jatropha, soybean, coconuts sunflower) or animal fats and added to dieses Bio-ethanol: ethanol mainly from sugarcane (corn, cassava) added to gasoline which in essence reduces minimize air pollution, emissions of CO<sub>2</sub>, global warming as well improving fuel quality. The Compressed Natural Gas is also widely used as automotive fuel in many countries especially in city mass transportation. It has less harmful emissions and greenhouse gases than other fuels such as diesel or petrol. While Other sources includes Synthetic diesel from natural gas in Gas-to-Liquid (GTL) process or out of coal (Coal-to-Liquid (CTL) or synthetic gas conversion through Fischer-Tropsch process has 30% less particulate emission than conventional diesel

It is worth to note that factors affecting clean air emission include; fuel quality; engine design; engine maintenance and vehicle use traffic management

EWURA is legally mandated to monitor and enforces standards of petroleum which includes standards of petroleum products, installations of petroleum dispensers and health, safety and environmental impact in respect of the petroleum sector.

He noted, since Tanzania is 100% importer of petroleum products, imports need to be inspected and certified by TBS to ensure conformity, otherwise not allowed entry. Petroleum specifications and standards were adopted from international standards by standards setting bodies. ASTM adopted and suited to Tanzanian standards by TBS in collaboration with other stakeholders such as NEMC, Weights and Measures, EWURA and Oil Marketing Companies (OMCs).

Compliance monitoring includes random sampling and testing of petroleum products to ensure that they conform to specific limits of defined properties such as sulphur content that affects the emission control system performance, which in turn can increase particulate emission. Low sulphur diesel has low aromaticity. Aromaticity: to reduce particulate matter and oxides of nitrogen. Cetane number improves the ignition quality of fuel.

### **3.4 REGULATORY MEASURES TO ENSURE CLEAN AND QUALITY PUBLIC TRANSPORT BUSES**

**Eng. Aron Kisaka** Technical Safety Manager from **SUMATRA** presented a paper on “Regulatory measures to ensure clean and quality public transport buses”. He started by enumerating responsibilities of SUMATRA in relation to Transport in General, including Road Transport as provided under section 5 of SUMATRA Act. He cited with an emphasis on section 5 (f) of the Act which provides that, “taking into account the need to protect and preserve the environment in collaboration with other institutions such as NEMC, TBS etc.”

As for issues of pollution by buses, he said SUMATRA regulates pollutants that are in emitted gases from Automobiles are: Hydro Carbons (HC), Nitrogen Oxides (NO<sub>x</sub>), Carbon Monoxide (CO) and Particulate Materials.

These gases may increase through the exhaust pipe due to the age of the vehicle, poor maintenance of the vehicle, incomplete combustion, use of substandard fuel and parts, leaded fuel, higher sulphur fuel, leakage of oils from lubrication system and noise pollution.

Road Traffic Congestion and bad behavior also contributes in increasing amount of emitted gasses. Regulatory measures taken by SUMATRA to ensure clean and quality public transport buses is by making rules like The SUMATRA (Technical Safety and Quality of Service Standard) (Passenger Vehicles) Rules, 2008 which was issued through GN.No.14 of 2008. Issuing orders as in 2007, The Authority directed all service providers to ensure that public passenger vehicles are equipped with containers where litters and fold left over can be deposited by passengers and collected by crew for safe disposal at the end of journey. Limiting age of buses to be licensed, through The Transport Licensing Regulations, has limited issuance of new licenses to an owner whose vehicle is not more than 5 years from the date of manufacture and which meets technical

Standard specifications. He cited (section 6 of SUMATRA Act) which gives power to the Authority to suspend or cancel licenses of anyone who violate stipulated rules.

Major challenges in ensuring that buses providing public transport services are clean and meets safety standards are lack of coordination, working tools and financial capability of people in purchasing new and modern buses.

Safety and environmental issues are being dealt with many government institutions which include TBS (standards of buses), Police (vehicle inspection and law enforcement), NEMC (environmental protection), SUMATRA (regulation of surface and marine transport services) and TRA (for registration of vehicles).

The presenter ended presentation by saying In order to reduce pollution on environment, the Authority has made the following recommendations:

- To establish coordination among stakeholders dealing with safety and environmental issues.
- to establish an independent and mandatory vehicle inspection system.
- Imported Motor vehicle and parts should be properly tested and certified to meet standards
- Monitoring should be done to ensure that only qualified mechanics are allowed to make routine maintenance and repair of motor vehicles.
- The government should upgrade the existing road infrastructure to reduce road traffic congestion as one of the ways of reducing pollution from emissions.
- Drivers should be trained on the effect of driving behavior on environment.
- Alternative energy, preferably natural gas should be used to propel public transport vehicles.

### 3.5 CLEANERS FUELS INITIATIVES

Mr. **Goddard James**-. Corporate Affairs Manager for BP East Africa Presented a paper on "Cleaner Buses & Fuels". In his presentation, he gave an overview paper presenter said Bp - Tanzania works in collaboration with UNEP, WHO, EU, SADC, EPA, NGOs.

Many Disciplines Health, environmental, urban planning, transport, automotive & oil Diverse government Ministries and Department With a wide range of interest and Abilities Representing different disciplines Multi partners: All focusing on Air Quality Standards & Monitoring BP and Cleaner Fuels Initiatives (CFI).

The presenter was quite impressive in his presentation whereas he said vividly that BP Tanzania is the first Oil Marketing Company to introduce Cleaner Fuels in Tanzania (Product Stewardship); Unleaded Petrol RON 93 (Environmentally Friendly); **Cleaner Diesel 500ppm (Ten Times less Sulphur than Standard Diesel) The Company has also a Coherent HSSE Policy**; No Accidents (Zero Accident Tolerance) No Harm to People; No Damage to the Environment. BP Group also has a clear Fuels Policy Framework that helps to:-

He said, articulate Fuel Pathways/trends to appropriate authorities in the Government provide Tools to develop and Monitor trends in global Fuels development of Cleaner Fuels Initiatives and therefore he said BP is committed to provide motorists with Cleaner Fuels that have less emissions hence less damage to the Environment Cleaner Air Initiative – ULP.

Furthermore said added to petrol as a metal-organic additive known as tetra-ethyl lead (TEL) improves the Octane rating (measure of petrol performance) of petrol by about six to twelve octane numbers which is perceived to act as a cushion between the valve and the cylinder head for older vehicles Cleaner Air Initiatives ULP.

He further more cited out that Lead is highly toxic to the brain, kidneys, reproductive system and cardiovascular system that results in lower productivity. Exposure to lead can cause impairments in intellectual functioning, kidney damage, infertility and hypertension Lead is a special hazard for young malnourished children who are almost vulnerable Health care and remedial education costs

The presenter out technological & International Trends towards lead removal initiatives which include the following:-

- International trend – global removal of lead from petrol in the last ten years
- International Agreements: -
- Kyoto Protocol 1997
- Worldwide Fuel Charter 1998
- Dakar Declaration June 2001
- National Programme in Sub Sahara Africa (SSA) to phase out Lead 2005
- World Summit on Sustainable Development 2002 (Partnership on Cleaner Fuels and Vehicles)
- New and modern vehicle technologies (Europe, America and Japan) – Lead impairs effective use of catalytic converters
- Environmental concerns to improve air quality and reduce Urban air pollution.

He insisted Unleaded Petrol is good since it reduces Health Hazards and Lower Servicing Costs for your vehicle. It ensures longer engine life and better engine performance Good for the Environment all above has less damaging emissions

Cleaner Diesel 500

The Presenter also explained to participants What is BP Cleaner Diesel 500?

- BP Cleaner Diesel is a low sulphur diesel grade for all types of diesel vehicles including modern technology vehicles
- 500 parts per million (ppm) Sulphur content specification (0.05%)
- 10 x Less than Standard Diesel (5000 ppm)
- BP is the first company to introduce this lower sulphur Fuel in Tanzania

- BP Tanzania sources fuels products on world markets as there is no local refining infrastructure
- High sulphur content diesel is becoming increasingly difficult to source on world markets
- Move towards regional standardization with neighboring countries
- Increasing demand for lower sulphur product
- Modern diesel vehicles require LSD for optimal performance
- Motor manufacturers & other OEMs recommend LSD with– 500 ppm & below
- Customers sophistication -consistently seeking superior products for optimal vehicle performance
- Climate challenge and other environmental factors. Effect of sulphur compound on the environment results in green houses gases.
- BP Leadership position in providing cleaner fuels to the market

In concluding his presentation Mr. Goddard James articulated benefits of lowering sulphur which in essence results to:-

- Less Soot
  - Lower sulphur = lower soot volume
  - Less smoke emissions
  - Use of Exhaust Gas Recirculation (EGR) to reduce NOx emissions is helped by less soot and less acid corrosion
  - Oil drain intervals determined by soot levels in oil

Effect of soot on health

To amplify his argument presenter goes further referring to extract from local Newspaper on diesel fumes can affect the brain, warn experts”

*“Inhaling diesel exhaust triggers a stress response in the brain that may have damaging long-term effects on brain function, Dutch researchers said yesterday.*

*Previous studies have found very small particles of soot, or Non-particles, are able to travel from the nose and lodge in the brain. But this is the first time that researchers have demonstrated a change in brain activity”.*

*“We can only speculate what these effects may mean for the chronic exposure to air pollution encountered in busy cities where the levels of soot particles can be very high”, said lead researcher Paul Borm from Zuyd University Daily Nation (Dar es Salaam) p20, Tuesday March 11, 2008.*

He ended his eloquent presentation by saying Low Sulphur Diesel: Performance Benefits your Vehicle deserves it Your Vehicle knows.

#### **4.0 DISCUSSION**

After presentations the Chair called upon the participants to contribute and seek clarification in any grey area that require more explanations.

The media house representatives raised the following concerns as regards to paper presented:-

The first raised concern went to BP- Tanzania whereas TBC1 representation wanted to know why Bp Tanzania has failed to provide mass education on the use of cleaner fuel.

Mr. Godad James from BP- Tanzania said the Bp Tanzania will take up the challenge to come up with **mass education with collaboration with DART Agency**.

Another raised concern was why people do not use unleaded fuel with sulphur content of 500ppm (lower sulphur). Paper presenter said this could be attributed by either unawareness of the product or sometimes the additional price difference of Tshs 12 as compared to leaded fuels (diesel).

Guardian News Editor asked a paper presenter from EWURA on regulation measures deployed by EWURA to ensure adherence of standards and enforcement of rules and regulations to violators of law. Mr. Sirili Massay of EWURA said EWURA stated in September 2006 and to date they have played a great role by performing a number of regular checkups and inspections to petrol stations to regulate the required quality standards and price of petroleum products throughout the Country.

Adherence the Compliance Inspections, Monitor Quality of Petroleum Products: Sampling and testing to determine level of compliance to TBS specifications:

Deter defaulters: ongoing monitoring, license revocation

Process for acquisition of mobile laboratory Introducing petroleum (kerosene) marking EWURAs Compliance Inspections; enforcing compliance including Fines and penalties to defaulters; Closure of facilities; Forfeiture of licenses of habitual defaulters

News Reporter from Mtanzania news paper bitterly explained her concerns over SUMATRA regarding poor services of existing public Transport system in the City of Dar es Salaam. She pointed out poor service provided to school children's with increased magnitude and abuse from the existing service providers.

Eng. Kisaka, from SUMATRA cited (section 6 of SUMATRA Act) which gives power to the Authority to suspend or cancel licenses of anyone who violate stipulated rules.

Major challenges in ensuring that buses providing public transport services are clean and meets safety standards are lack of coordination, working tools and financial capability of people in purchasing new and modern buses.

While the issue of employment Eng. Kisaka said the contract is responsibility of a private sector employers and not SUMATRA.

As regards to school students the issue was resolved by advising parents to enroll their children within catchment area to avoid long distance travel time for pupils.

Eng. Kisaka informed the participants that the Road safety Board is finalizing the recommendations regarding school buses. All school buses will be painted in a yellow color by December, 2009. Also he appealed to the community at large to appreciate the contribution made by SUMATRA since its inception in the year 2006.

While Mr. Godad from BP-Tanzania said that unleaded gasoline means removal of lead material which had to be replaced by another additive the Manganese (MMT) based additive. However he pointed out that researchers are still researching on the impact of new additive to the human health and environment.

Bp- Tanzania expressed interest to start up special partnership programme with DART Agency on cleaner buses and fuels.

Another raised concern to EWURA on the number of mushrooming petrol station in Dar es salaam and coast regions and whether if there is regulatory management measures to control the situations. Mr. Sirili Massay of EWURA said categorically that EWURA regulates the standards of fuels and infrastructure. The increased number of petrol stations is for convenience of users in an open market environment.

While the DART CE responded to the question raised by Star TV news editor regarding DART phase I Infrastructure which in essence he said The DART System is a full scale BRT system; it will be a high quality, low-cost public transportation system operating on specialized infrastructure and offering affordable mobility, urban environmental improvements, and a better quality of life to the residents of Dar es Salaam.

The DART Project will be implemented in six phases along different corridors of the City. Phase 1 of the system consists of 20.9 km of **segregated median bus ways**, 29 Stations, 6 feeder stations, 5 terminals, 2 depots and a network of feeder routes operating in a mixed traffic. Chief also said it is our expectation the Government will provide a subsidy to school children bus fare tariff.

Media House representative suggested that both print and electronic media are quite important for the effective Media Campaign for cleaner buses and fuels therefore it is worth to reckon the idea by giving it due weight. The use of politicians was also noted with concern by conveying the right message during implementation process other ways could be detrimental if it is used otherwise.

## 5.0 THE WAY FORWARD:

At the end of the workshop participants came out with the following recommendations as the way forward / next agreed actions: -

In concluding the way forward Mrs. Asteria Leon Mlambo the Director of Transportation and Development (DTD) DART Agency, she said that print media articles, interactive TV interviews programmes, documentaries, advertisements , and radio programmes will be deployed during the media campaign on cleaner buses and fuels.

The identified planned activities to be implemented includes: Television and radio Programmes, promotional materials like posters, billboard, T-Shirts, caps and stickers and conducting workshops to share progress on media campaign.

She also stressed use of DART Agency communication strategy and close collaboration with development partners, key actors, and International organization like (**UNEP, WHO, EU, SADC**), Private Sector and NGOS.

She illustrated that using schematic diagram shown on **Annex VII** of this document.

The news editor from TBC1 was impressed by the Way forward and he invited the Chief Executive DART Agency Mr. Cosmas Takule to participate during the **JAMBO TANZANIA TV** programme on 17 Th August, 2009 to talk about cleaner buses and fuels.

## 6.0 CLOSING REMARKS

In his closing remarks, the chairperson Mr. Cosmas Takule praised all presenters for their eloquent presentation.

The Chief Executive said we have to go for cleaner buses and fuel; He insisted that, **“the World is moving and Tanzania doesn’t have a choice ”** to cement his statement he said further that in Dar es salaam we are carrying 480,000 empty seats from our homes to offices. We spent about 3 hours from work stations to our residences.

Therefore in that pursuance he insisted to the implementers to show a sence of commitment and ownership and dedication to physically implementing the desired actions for media campaign on cleaner buses and fuels.