

TRANSPORTATION IN INDIA



BULLOCK CART AND BULLET TRAIN



From Circular Economies during the barter
to
The World is a Global Village
to
Make in USA, Make in India, Make in My
Country

EASTER MORNING NEW YORK IN 1900 - 1913

Easter morning 1900: 5th Ave, New York City. Spot the automobile.



Source: US National Archives.

Easter morning 1913: 5th Ave, New York City. Spot the horse.



Source: George Grantham Bain Collection.

Its effect is well known as the advent of The **AUTOMOBILE INDUSTRY**

What Brought about THIS CHANGE,

EASTER MORNING NEW YORK IN 1900 – 1913- CAUSE & EFFECT

What was the **Need** – HORSE DUNG- **Pollution** a challenge in winters

Was there an **Alternative** – **An alternative was available, in Automobiles**

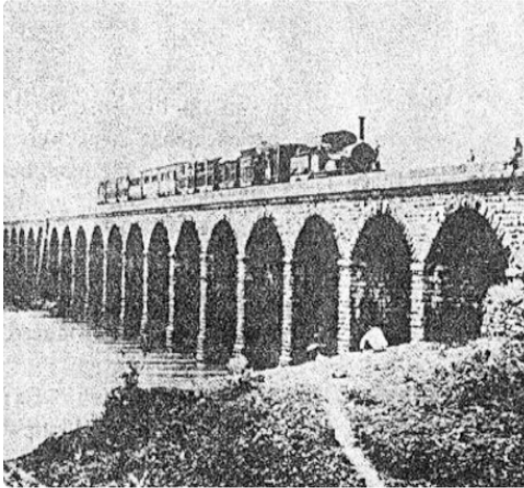
A Political WILL – **Yes, as the carriage drivers would be unemployed**

A **MASS acceptance** - **well documented as Birth of an Industry**

And a willingness to **Embrace Change- Home Economics**

Little did they realize, a century later, this infliction point will be revisited

INDIA'S 1ST RAILWAY TRAIN IN 1853- MUMBAI - THANE



India's first train ran from Mumbai to Thane in 1853

The first train on the Indian sub-continent ran from Bori Bunder in Mumbai to Thane at 3.30 pm on April 16, 1853. The 14-carriage train carried 400 guests and covered a distance of 34 km. The inaugural journey received a salute of 21 guns. Today, Indian Railways runs around 11,000 trains daily, of which 7,000 are passenger trains.

read more



Sheshnag / Super Vasuki-

The earlier assumption tested — To Embrace Change

- Availability of Alternate Solutions ;
- Political Will;
- Adoption by Masses;
- Economics

India's ROAD to mass transportation started with the first
STEAM ENGINE LOCOMOTIVE - 1853

James Watt invented the **Steam Engine** in **Glasgow** in 1765

Bullet Train



India has moved from **Mass transport** to **personalised**
i.e **Bullock Carts** to **Motor Cars**.....now **WFH**

THE JOURNEY FROM RIO TO GLASGOW

- 1992 Rio Convention Declaration - the only way to have **long term economic progress** is to link it with **environmental protection**- **Political Will was the need of the hour**
- **Kyoto, Paris** and now **Glasgow** were **building blocks** – **Heating the pot**
- **Al Gore's Nobel Prize** Video – **A change influencer** ; the **PRIZE** - the **direction the WORLD wanted**
- **TESLA's Conviction** that Electric Will Work -**Convergence of Key Solutions**; **A possible direction**
- **CNG** being **alternative to Fossil Fuel** – **Industry's Alternative Technology adoption**
- **Economic Independence, a driver to Energy Independence** – **A Political Will**
- **Electric Vehicle, Hydrogen Fuel Cell** – **Alternative Technology**

**The pot was heated, the direction was clear and the necessary ingredients were in place.
Let's see what happened in India**

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1. **Pollution Tracker – 2 Cities**
2. The **Roads of Change** as seen On Road, In Roads- Initiatives
3. **Railways-** Connecting India
4. Sea of Change In **Water ways-** Ganga, Sagar Mala
5. **Airways -** Wind of Change to hit the Wings
6. The **City** painted **RED-**

RIO declaration has great meaning “the only way to have **long term economic progress** is to link it with **environmental protection**”

POLLUTION TRACKER- TALE OF 2 CITIES BANGALORE & MUMBAI

1. Common sources – hence Shared Solution

Mitigating GHG emissions would therefore have a direct co-benefit of mitigating air pollutants.

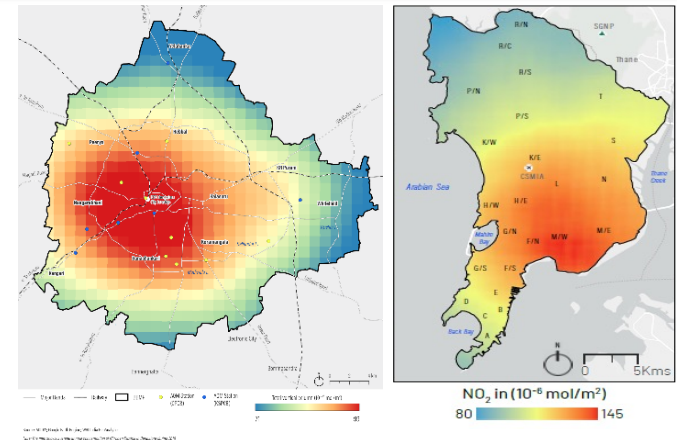
- **Motorized trips: Vehicle tailpipe emissions**
- Stack emissions (MSMEs)
- **DG set stack emissions**
- Solid cooking fuel usage
- Waste burning
- Landfills emissions
- Wastewater treatment

2. Mitigating Short-lived Climate Pollutants (SLCP) created by air pollutants

SLCPs have higher warming potential.

- **SLCPs: BC, CH₄, HFC, O₃**

Ground-level ozone is created by chemical reactions between oxides of nitrogen (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC) emitted by **vehicles**, powerplants, and other sources.



3. Action Prioritization in CAP

Prioritizing climate actions with greater co-benefit of air quality improvement

E.g.: **Bengaluru -Transport sector is the second largest contributor to GHG emissions and the highest contributor to air pollution.** Strategies for vehicular trip reduction, alternate fuel, EVs etc are getting in place

- **AIR pollution** a critical cog in the Wheel of the **Govt of India's budget- 2500Cr (\$300Mil)**
- Over **125 cities** names as **Non-Attainment Cities** and **CPCB - RITES** assisting Central and Hand holding State Govt – Hub- Spoke model

While addressing Transport related pollution and Climate Change, we are also addressing others like **SWM, Water waste management, Waste Burning** etc

On Roads

- **Bus and Trucks** – CNG in many States; Advent of **EVs and Fuel Cell** will further reduce reliance on Crude
- **Fuel** – BS VI from BS IV; **Ethanol Mixing** has worked in a few locations and promoting to increase the %
- **OEM- GoI's Production Linked Incentive Scheme** for EV, Battery, Chip Mfg – Many Non Auto Cos in Fray
- **2W / 3W** – EV -Low hanging fruits as **Cost of Ownership is lower than IC Engines**;

In Roads

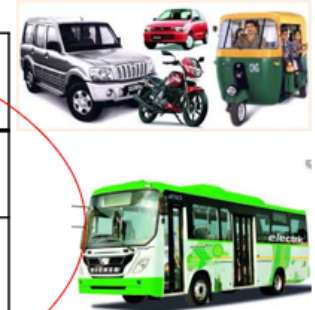
- **4-6 Lane Highways connecting key economic centres**– Improved Fuel Eff, Reduces time of travel of Perishables
- **Golden Corridor / Coast Roads/ Alternate routes** for West- South Corridors- Avoids the Mumbai- Pune jam
- Converting TOLL to Fastag – Reduce stoppages for Toll Use Satellite - Technology
- **Use of plastics in Bitumen** to improve quality of roads during rainy season- WhiteTop is not Rubber friendly
- **Road construction** in fast pace and **consumes solid waste**

Let's see the vehicle mfg in India.....

VEHICLES MFG & POLICIES IN INDIA- F-20

Automobile Production Trends (SIAM)						
Category	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
4W PV	3,221,419	3,465,045	3,801,670	4,020,267	4,028,471	3,434,013
Bus /Truck	698,298	786,692	810,253	895,448	1,112,405	752,022
3 W	949,019	934,104	783,721	1,022,181	1,268,833	1,133,858
2 W	18,489,311	18,830,227	19,933,739	23,154,838	24,499,777	21,036,294
Quadricycle *		531	1,584	1,713	5,388	6,095
Grand Total	23,358,047	24,016,599	25,330,967	29,094,447	30,914,874	26,362,282

2W (80%)	20-25 Mil (2-2.5 Cr)	Use - Personal
3W (4%)	1-1.25 Mil (10 -25L)	Use Commercial
4W (11%)	2.5-4.5Mil (25-40L)	Use - Personal / Commercial -
Bus Truck (3%)	700k -1.25M (7L -12.5L)	Commercial



New Biz - Generate Employment- **Circular Economy**

- MITES** working with **Central & State Govt.** on
- AIR -City Traffic Police , Transport Depts of States
 - Plastic Waste and ELVs
 - Single use plastics
 - Extended Producer Responsibility (EPR)

Policy-

2 Stroke – Banned for sales 2010 – Nat. Green Trib.

Promote Alternate Fuel /EV /H2- **Effect** Reduce Diesel- PM

End of Life of Vehicle – **Effect** - Eliminate polluting Vehicle- Reuse steel/ Plastics/Rubber/Elec

Carrot and Stick Approach- Subsidy & Deadline- POLICIES...

POLICIES, SCHEMES AND ADOPTION MOVING AWAY FROM IC ENGINE

- **Supreme Court** directive in Delhi **not allowing vehicles older than 10 years-** This was **an infliction point** in Discouraging Diesel vehicles and Governments gained courage to bring policies
- **End of Life of Vehicle** (ELVs) – New biz, circular economy, generated employment, ownership by OEM (White Goods
- Converting **Intra- City Buses to EVs** across many cities- Under **Central Government** Tenders
- Increased **Ethanol dosing in fuel** – Sugar Cane farmers will benefit- Circular Economy
- Govt initiative to **Building Eco Systems** like Charging station on Govt Land; Promoting Battery Swapping
- **FAME-II Scheme** for a faster adoption of EVs with **Make in India-** Filled with **Start-ups, Young CEO**
- E-Commerce, Food Delivery, Courier, Taxi and many more demonstrate **Corporate Initiative to Net ZERO**
- **Common Man** finds **economics** in **2W** and **3W EVs**
- **CAFÉ norm** demands Auto OEMs to dive deep in **BEV and FC Evs-** OEMs pledge to do away with Fossil Fuel
- **Govt of India** allocates **2500Cr** (\$300Mil) to tackle **AIR pollution**; - **RITES** assisting Central State Govt
Railways.....

- History and the 62,000 km(approx.) connects **people and commerce economically**- fabric of Sustainability- Commerce
- On-going project Exercise of **gauge conversion**, benefiting **common rolling stock and reducing travel time.**
- **Electrifying about 82%**, North-Central Railway Div achieved 100%- reduced dependence on Crude & its impact on inflation
- **High speed trains** (Vande Bharath) and **Ultra High speed** (Shinkansen) can **dissuade Short Distance Fliers**
- **Dedicated goods Corridor** to eliminate disturbances to passenger travel - extra long trains(Sheshnag / Vasuki 2 /3.5km)
- Transporting trucks by Konkan Railways- To eliminate traffic jams and also save fuel
- Many Stations are becoming power generators- Solar
- It's **time to have a Sustainable Energy Generation- to go towards Net Zero**
- **RITES** at work with Railway Ministry – Next time I will present more detailed on the steps



SEA OF CHANGE WATER WAYS

- **Water ways** was a challenge due to Eco-System, Centres of Economy, non Perineal etc
- **Railways** of 1853 did **set the mind** to a particular way
- Developing Ganga for river transport of goods - **Arth-Ganga**
- Developing Ports to be new gates of commerce – **Sagar Mala**
 - 7500 km of coastal line
 - 800+ projects worth 5.5 Lakh Crores (\$70B) by 2035 ;
170-200 projects completed; rest in various stages of completion
- Hyundai has transported cars from East to West of India by Sea



Airways.....

WIND OF CHANGE HIT THE WINGS AIRWAYS

- **Growth** in Airports under **UDAN scheme**
- Now there are about **140 airports** and **expect this to be 225 soon**
- While commerce and economic progress is critical, how will this be seen needs to be seen from the eyes of Sustainability.
- What might be missed is the carbon foot print travelling to & from Airport

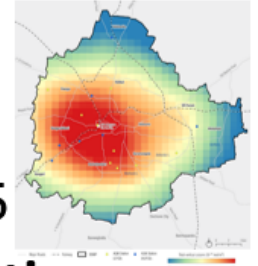
Hope Hydrogen as Fuel will grow faster



Our Cities are already painted RED.....

REMOVING THE RED FROM THE CITY

- AQI Measurement
- Promote Alternate Fuel, EVs , Fuel CellEV to **reduce of PM -10 & 2.5**
- Effective traffic management to **addressing traffic congestion real-time**
- Promote Mass transport to **reduce traffic density-** Metro, Bus, Locals
- ELVs to **Elimination polluters** and promote circular economy
- **Encourage awareness** thru programs (Corporation, Corporate, Citizen, Children)
- **Mandate pollution certificate** for fuel (Like the ration card)
- **MITES ASSOCIATED** with Govt to push programs in these areas and other action points to improve the AIR that we breath and address Climate Change



A CLEAN WORLD FOR OUR CHILDREN

- Focus on The Change - continuously monitoring and adapting
- Creating awareness in all towards the need for Change
- Creating an ECO-System for enabling Change

BE THE CHANGE YOU WANT TO SEE IN THE WORLD- MAHATMA GANDHI



Let's DO IT FOR OUR CHILDREN.....NAMASTE