

INDIAN ETHANOL SCENARIO

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Flow of presentation

- Some important facts
- Where are we now in India ?
- Plans for 20% blending
- The challenges to move to 20% blending level
- Some suggestions

Some facts

- Brazil and US produce around 80-85% of world's ethanol
- US, the largest producer, produces 56 billion litres of ethanol
- Brazil, on an average, produces around 32 billion litres and consumes around 30 billion litres of fuel ethanol
 - Brazil exports around 2 bn and imports ½ bn litres of fuel ethanol
- EU is currently 3rd largest ethanol producer: at only 5 billion litres
 - India is expected to take the 3rd position next year

Some more facts about Brazil

- Ethanol : Petrol consumption ratio of Brazil is 48 : 52
 - For the State of Sao Paulo its 67% ethanol to only 33% petrol
- 337 sugarcane distilleries with a combined capacity of 52 bn litres
 - 18 dual feed cane + corn with capacity of 5 bn litres and
 - 2 cellulosic ethanol plants with capacity of 0.75 bn litres
- Using 350 mn tons of sugarcane, 11 mn tons of corn and 0.3 mn tons of bagasse
- It is said that 1 litre of Brazilian ethanol still produces more than 30 times as many jobs as an equivalent litre of oil, coal or hydroelectricity
- And that thanks to ethanol, Sao Paulo's air is amongst the cleanest in the world

What is our status ?

- We have reached 10% all-India average blending in ESY 21-22
 - Around 4.5 billion litres of ethanol supplied
- OMCs will be blending ethanol at 12% with petrol in ESY 22-23
 - Projected requirement for 12% is 6 billion litres of ethanol
 - Against which 4.71 billion litres of ethanol contracted for by Dec. 2022
- Massive interest shown by investors in creation of ethanol production capacities
 - Several projects under construction, but several others yet to take off

The 5 important stakeholders

Farmers producing
cane, rice, corn etc.

Distilleries
producing ethanol

Government
making policies

OMCs buying
blending & selling/
distributing ethanol

Automobile
companies
producing vehicles

Stakeholders should provide

Enough feedstock

Ethanol production
capacity

Stable Government
policies with
appropriate incentives

Right pricing,
offtake and
distribution

Roll out vehicles
consuming higher
blends of ethanol

Niti Ayog's demand projections for 20% blending in 2025-26

Source: Niti Ayog

(In billion litres)

	Sugarcane/ molasses	Grain-based	Total
Fuel Ethanol requirement for 20% blending	5.50	4.66	10.16
Alcohol requirement for other Uses	1.34	2.00	3.34
Total ethanol/alcohol required, incl. for all uses	6.84	6.66	13.50

1. Above requirement projects an approx. 50:50 share between sugarcane and grain based ethanol
2. Whereas, sugarcane ethanol contributes for almost 80% of current supplies

Adequacy of feedstock

- Sugarcane based ethanol, with estimated sugar equivalent of 41 million tons:
 - With sugar production of 28-30 million tons for domestic consumption over next 3 years, 2.75 billion litres of alcohol/ethanol is expected from molasses
 - Diversion of another 10 million tons of sugar equivalent will give another 6 billion litres of ethanol
- So the balance (13.5 – 8.75) almost 5 billion litres of ethanol will have to be sourced from grain based distilleries
 - For which, 12-14 million tons of combined total of rice and corn will be required
 - 28 million tons of corn is currently produced @ 3 tons/ hectare yield
 - World average yield is 6 tons/hectare, and even if we achieve 5 tons/hectare, we should be able to produce an additional 18 million tons of corn

Capacity addition required by 2025 for 20% blending

(In billion litres)

Total ethanol/alcohol required (incl. for all uses)	6.84	6.66	13.50
Current & required capacities	Cane/ molasses	Grain-based	Total
Ethanol/alcohol capacity required in 2025	7.60	7.40	15.00
Ethanol/alcohol capacity (2021)	4.45	2.58	7.03
Capacity to be added (2021-2025)	3.15	4.82	7.97

Source: Niti Ayog

Capacity creation by ethanol producers

- Sugar companies successfully investing: new & expansions
 - Adequate sugarcane based ethanol capacities will be developed
- On realising that there is not enough sugarcane for 20% blending
 - GOI decided in 2021, to develop grain based ethanol
 - And also broad base ethanol production and reduce transportation
- OMCs invited EOIs from DEPs in Sept 2021 for signing 10 year LTOAs/BPAs
 - Selected 131 DEPs (120 are grain based)
 - Two deadlines: Jan 2023 and Jan 2024
 - Many grain based DEPs are new investors and banks reluctant to extend loans

Grain based ethanol lagging behind

- Bank loans are difficult to get
- Price of rice and corn have increased steeply
- Price of fuel, like rice husk, jumped 3 times,
- Making the business of grain based ethanol unviable
- **What is the solution:**
 - OMCs should sign more LTOAs/BPAs, esp. with those having DFPD approvals
 - Ethanol price fixation for grain based needs to be made more realistic
 - Big gap of over Rs.10 per litre between broken rice and cane juice ethanol prices
 - Need to account for fuel (rice husk basically) price in calculation of ethanol price

The most important hurdle in achieving 20% blending target

- There is adequate feedstock
- Capacity creation is good: with a little more push, grain based will also take off
- OMCs are willing and keen with all positive policies and are investing in required infrastructure
- Government policies and incentives are very positive and proactive
- **But are we on track with the consumption growth of ethanol ??**
 - **i.e. are we manufacturing enough and the right vehicles to use the 10.16 billion litres of ethanol in 2025 ??**

Target of 20% blending by 2025 seems difficult

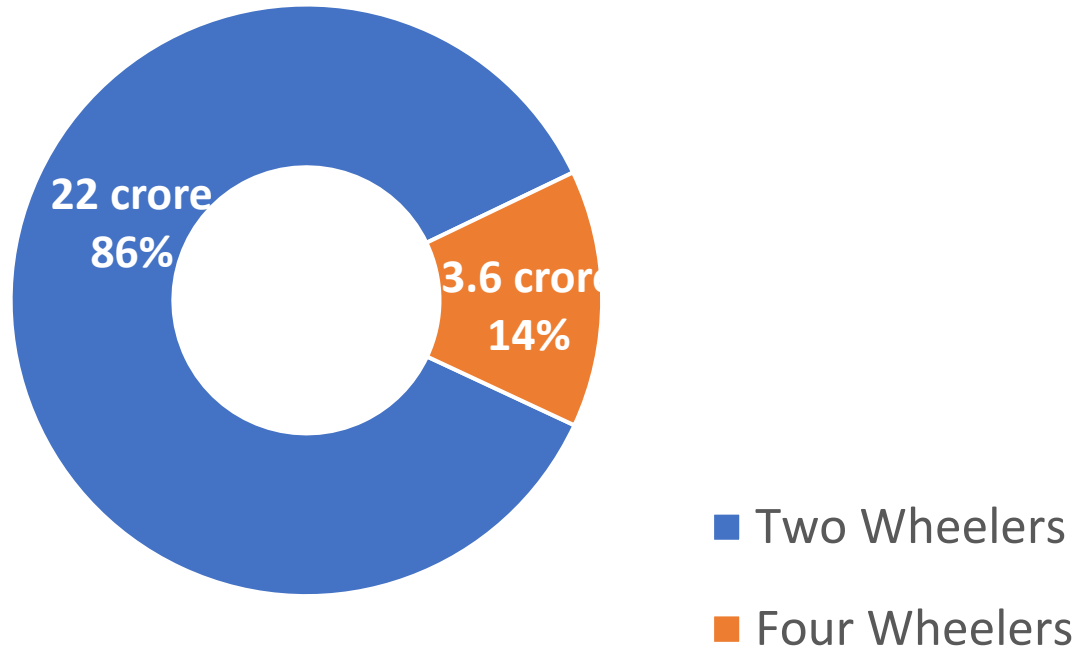
- All new vehicles from April 2023 will be E-20 compatible
- As per statistics, 8% of vehicles get replaced every year
 - So, in 3 years i.e. by March 2026, a quarter of the vehicles on road will be E-20 fuel compatible
 - But rest 75% of vehicles will still take E-10
- **Need to seriously and quickly bring in FFVs**

Flex fuel vehicles

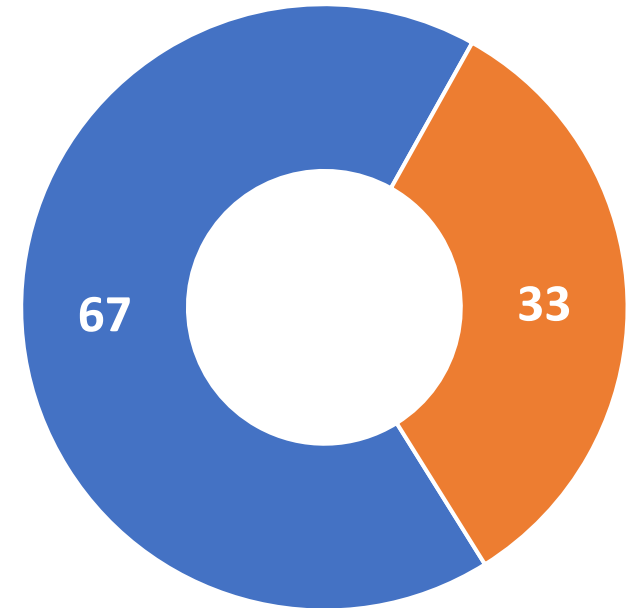
- All the auto-makers in India do manufacture FFVs in several other countries
- So what's the problem here ?
 1. Time and cost required to modify assembly lines and auto parts
 2. The need to maintain BS-6 emission standards (unlike BS-4 standards abroad)
- Maruti Suzuki has announced roll out of Wagon-R FFV BS-6 by 2025
- TVS to roll out 2-wheeler FFVs by 2024
- FFVs with BS-6 will be costlier and therefore Users may not accept
 - PLI for FFVs
 - Lower GST rate for FFVs
 - FFV hybrids with batteries

Vehicle fleet in the country

Number of Vehicles, in Crore



Petrol Consumption, %



Concluding

- 0.38 bn litres in 2014 to 4.50 bn litres in 2022 (10% blending) was not as difficult as it will be to produce 10.16 billion litres and reach 20% blending in 2025
- India has abundant feedstock to produce, as also on track to create enough production capacity to produce 10 billion litres in 2025
- Grain based ethanol plants needs some more support to get bank loans and better ethanol pricing to keep grain based ethanol making viable
- It is essential to quickly roll out FFVs. Incentives/subsidies/tax concessions needed to make FFVs with BS-6 acceptable to Users
- Public awareness and consumer education about ethanol and FFVs essential.