



**GOVERNMENT OF INDIA
MINISTRY OF ROAD TRANSPORT AND HIGHWAYS**

New Delhi, the 26th May, 2016.

Concept Note : Voluntary Vehicle Fleet Modernization Programme.

The Ministry of Road Transport and Highways proposes to introduce Voluntary Vehicle Fleet Modernization programme. A concept note in this regard has been prepared and is being placed in public domain for comments from Public and Stake holders.

2. Comments, if any, may be sent to the Joint Secretary (Transport), Ministry of Road Transport and Highways, Transport Bhawan, Parliament Street, New Delhi-110001 (e-mail: js-tpt@gov.in), within the specified period of 14 days.

(Abhay Damle)

Joint Secretary to the Govt. of India

[File No.11036/91/2015-MVL]



सत्यमेव जयते

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MINISTRY OF ROAD TRANSPORT & HIGHWAYS
भारत सरकार Government of India

**Concept Note: Voluntary Vehicle Fleet
Modernization Program (V-VMP)**

1 Background

Transport sector contributes ~14% of the total global emissions of greenhouse gases¹, of which the major release is that of CO₂. This is known to lead to global warming, and consequently melting of ice caps and severe effects on bio-diversity. As per India's Intended Nationally Determined Contribution (INDC) submission at COP21, India aims to reduce the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005 level². Air pollution is also emerging as a critical problem for India which is contributed significantly by vehicular emissions. The main forms of pollutants in vehicular emissions are CO, HC, NO_x and PM, which are known to cause several respiratory diseases and even cancer.

Increasing number of vehicles is the key cause of rising vehicular air pollution in our country. We have more than 180 million registered vehicles today – a surge of more than 8 times over last 25 years³. The figure below shows a breakup of vehicular population and contribution to pollution.

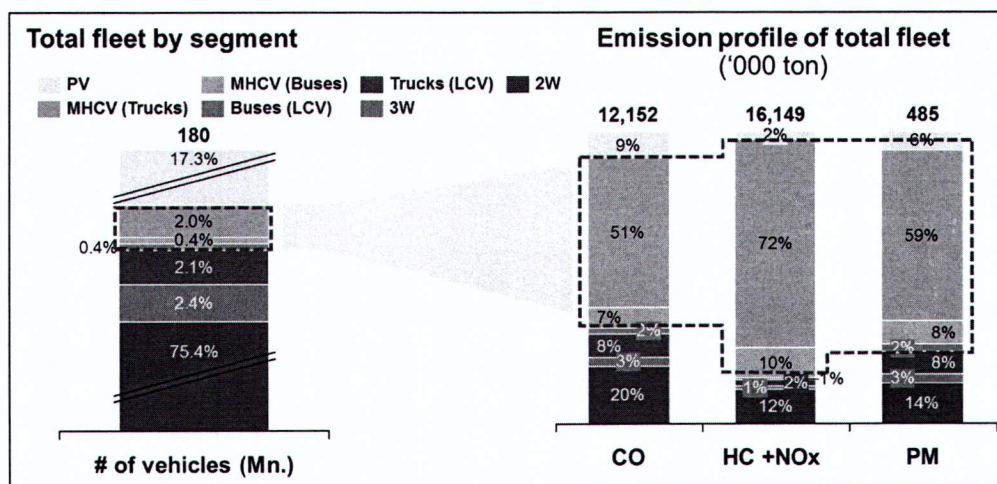


Figure 1: Vehicular population and contribution to pollution

Source: MoRTH VAHAN database, CPCB emission norms, A.T. Kearney analysis

¹ Status of Vehicular Pollution Control Programme in India, March 2010, Central Pollution Control Board

² India's Intended Nationally Determined Contribution

³ Road Transport Yearbook, 2012-13

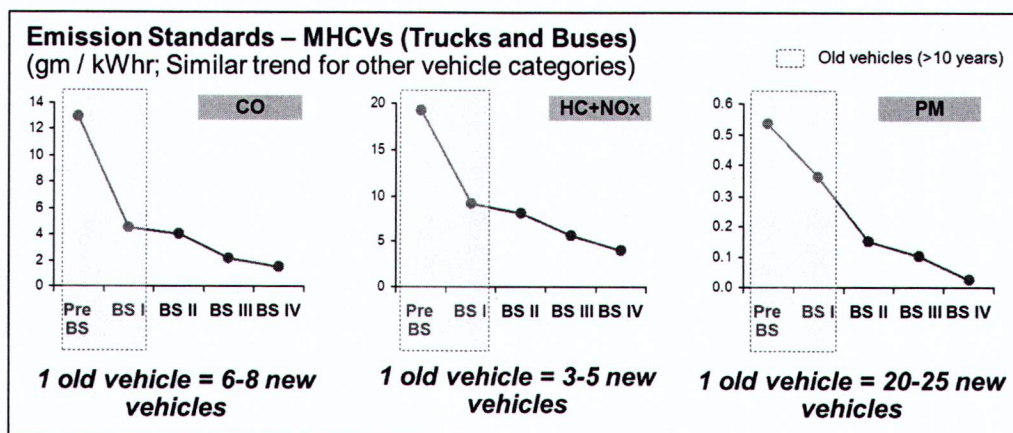


Figure 2: Emission standards of MHCVs

Source: CPCB emission norms, A.T. Kearney analysis

Analysis of segment and age of vehicles causing air pollution shows PM two distinct trends – 1) MHCVs (trucks and buses), while being just 2.5% of total fleet, contribute to ~60% of pollution, and 2) Older vehicles, typically >10 years of age and pre-BS/BS I compliant, contribute to only 15% of total fleet but pollute 10-12 times more than a new vehicle because of drastic change in pollution norms. Older vehicles also have lower mileage which leads to more fuel consumption per km travelled compared to new vehicles, leading to significant loss in energy efficiency (one of the key focus areas currently, being pushed through multiple initiatives like *Prakash Path*, the LED program of the government⁴). In light of these two trends, it's proposed to run a targeted vehicle modernization program to curb environmental pollution in the country.

2 Proposal

Voluntary Vehicle Fleet Modernization Plan (V-VMP) for vehicles bought on or before 31st March 2005 is proposed. The total potential vehicles to be replaced with this definition are ~28 million. To ensure that the resultant impact is beneficial to the environment, the replacement vehicle needs to be BS IV compliant, which is going to be rolled out nation-wide by April 2017. The vehicle owners shredding their old vehicle will get monetary incentives to buy a new vehicle in three forms to aid

⁴ National Programme for LED-based Home and Street Lighting, Jan 2015, Press Information Bureau, Prime Minister's Office

adoption of this program: (1) scrap value from old vehicle, (2) automobile manufacturers' special discount and (3) partial excise duty exemption.

2.1 Scrap value from old vehicle

The customers would realize scrap value of old vehicle based on vehicle weight and other characteristics. This would be driven by market forces, with clear transparent pricing mechanism to be decided by Recycling and Shredding Centers (RSCs).

2.2 Automobile manufacturers' special discounts

The policy is expected to boost sales of automobile manufacturers leading to higher production capacity utilization. It is expected the automobile manufacturers would support the government in this initiative financially by giving special discounts to customers buying vehicles under this scheme.

2.3 Partial excise duty exemption

Subject to approval from Ministry of Finance, it is proposed that vehicles bought under this scheme may get up to 50% excise duty relief based on old vehicle and replacement vehicle category. In addition, SRTU buses may be given complete excise exemption to ensure higher participation and modernize State's bus fleet. This will not only reduce environmental pollution of SRTU's buses, but will also promote usage of public bus transport, which will aid road decongestion, lower energy consumption & pollution compared to other means of transport, and safer travel.

In summary, we expect customers to receive three benefits amounting to 8-12% of total vehicle cost as illustrated in Figure 3 below.


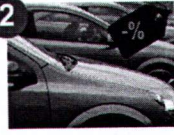
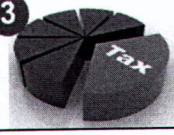
<i>Incentive Levers</i>		<i>Proposed Scheme</i>
1	 Scrap value	• Part of scrap value from old vehicle to be given as payback
2	 OEM Discounts	• Special discounts to be given as incentive
3	 Excise duty	• Up to 50% of excise duty to be passed on as incentive

Figure 3: Expected customer benefit from V-VMP scheme

3 Implementation Process

V-VMP will follow a structured implementation and execution process, coordinated between vehicle owner, recycling and shredding center (including collection centers), automobile manufacturers, dealers and govt. representatives as detailed in Figure 4 below.

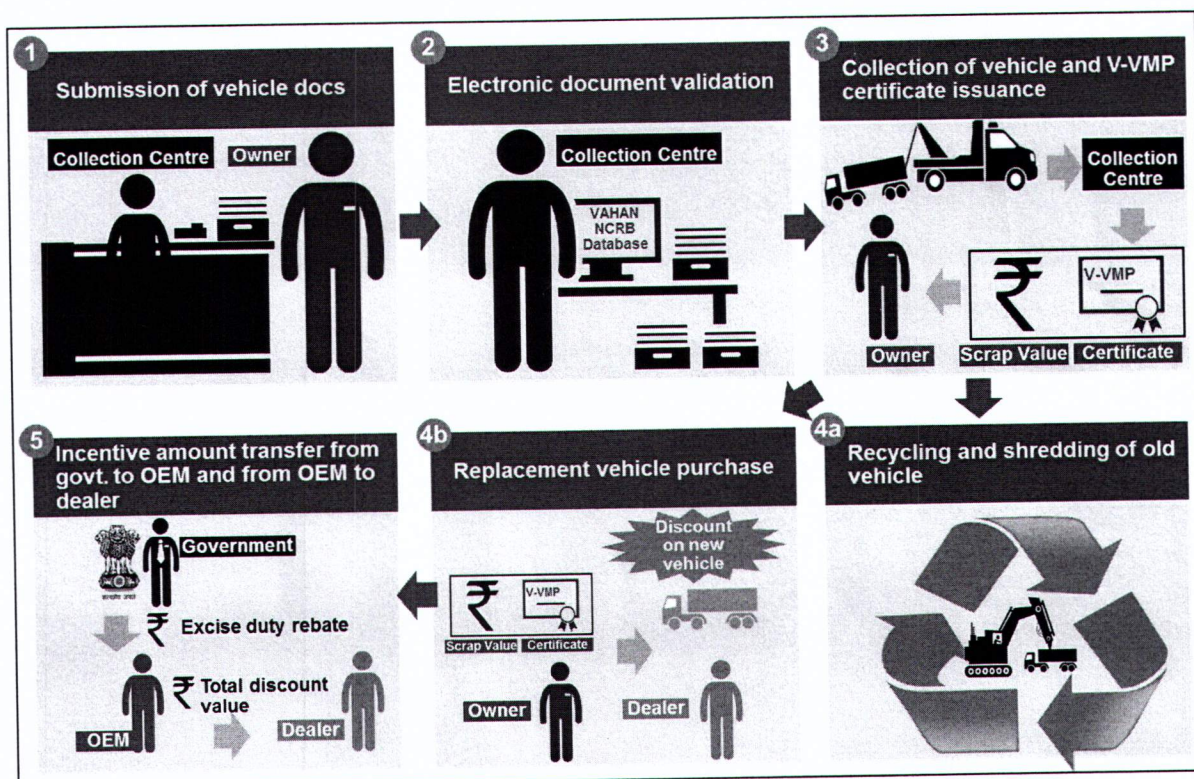


Figure 4: Implementation process of V-VMP scheme

The process is detailed in the steps below:

- i. The vehicle owner deposits copies of Registration Certificate (RC), Insurance of the old vehicle and Proof of Identity either electronically or through a physical visit to the collection center (extension of Recycling and Shredding Centre)
- ii. The collection center uses VAHAN database to validate owner's name, registration number, engine number and chassis number of the old vehicle. Additionally, the vehicle is also checked against NCRB database to validate if the vehicle is not stolen or has been used for any crime.
- iii. After document validation, the customer is informed to deposit his old vehicle and collect the V-VMP certificate.
- iv. The owner brings the vehicle and actual documents to the collection center and is informed of the scrap value for his old vehicle. The scrap value would be driven by market forces, with clear transparent mechanism to be decided by Recycling and Shredding Centers (RSCs) in advance.
- v. If the owner agrees to the scrap value offered by collection center, the owner hands over the old vehicle and the collection center issues the V-VMP certificate with corresponding discount amount to the owner. Post this step, the responsibility of vehicle shredding will lie solely with the collection and shredding center. These details would be updated in the central database (detailed in the next section) by the collection center.
- vi. The customer goes to the dealer, selects the replacement vehicle and gives the V-VMP certificate and the Proof of Identity to the dealer.
- vii. The dealer verifies the authenticity of the V-VMP certificate. If the certificate is verified, dealer uses the certificate and enters details of the new vehicle against the V-VMP certificate and the central database is updated.
- viii. The dealer transfers the physical V-VMP certificate and invoice copies to the vehicle manufacturer and claims credit against the discount disbursed. The new vehicle manufacturer maintains physical copies for government audit.
- ix. The new vehicle manufacturer will adjust his book of accounts for payment of Excise Duty to the Central Government by paying lower excise duty on new vehicles sold through this scheme.

- x. In parallel, post vehicle deposit, the collection center transfers the old vehicle to their central scrapyard for shredding of vehicles. The vehicle is made inoperable as per defined guidelines and disposed in an environment friendly manner as detailed in “Guidelines for Environmentally Sound Management of End-of-Life Vehicles (ELVs)” published by Ministry of Environment Forests and Climate Change and Central Pollution Control Board⁵ to be finalized.
- xi. The old vehicle’s registration is cancelled as per process laid down in the Motor Vehicles Act, 1988. The recycling and shredding center maintains physical & electronic proof of shredding for government audits.

4 Implementation Enablers

V-VMP would need some critical enablers such as robust IT infrastructure and setting up of Recycling and Shredding Centers (RSCs) to ensure successful implementation.

4.1 Robust IT infrastructure

A robust IT infrastructure will need be designed to enable end-to-end V-VMP process management from Service Request creation, document validation, and V-VMP certificate issuance to redemption. This would also ensure measurement of program effectiveness through MIS generation.

4.2 Recycling and Shredding Centers

Vehicle recycling and shredding industry in India is primarily unorganized and hence unregulated from environmental norms. It is proposed to setup organized recycling and shredding centers with authorization from Government of India to ensure environment-friendly recycling and shredding of old vehicles. These centers would follow defined guidelines with regards to storage, processes and equipment as detailed in “Guidelines for Environmentally Sound Management of End-of-Life Vehicles” published by Ministry of Environment Forests and Climate Change and Central Pollution Control Board. It would be the responsibility of these centers to

⁵ Guidelines for Environmentally Sound Management of End-of-Life Vehicles (ELVs), Ministry of Environment Forests and Climate Change, Central Pollution Control Board

ensure complete physical destruction of high-emitting engine by puncturing the engine block with minimum 6" diameter hole, including oil pan rail. In addition, they would be governed by existing policies on hazardous waste disposal such as Hazardous Wastes (Management, Handling and Transboundary Movement) Rules 2008; Batteries (Management and Handling (M&H)) Rule 2001; Plastic Waste (M&H) Rules 2011; and E-waste (M&H) Rules 2011. The recycling and shredding companies are also expected to preserve necessary proofs for any future audits.

The following section details environmentally sound depollution, dismantling, shredding, material recovery and disposal of old vehicles:

4.2.1 Depollution

As per the guidelines, the liquids and hazardous substances will be removed from the old vehicle to ensure further processing becomes safe. The specific depolluting sequence and equipment requirements have been clearly indicated in the guidelines as well. Regulations on recycling and disposal of both liquid hazardous substances (i.e. waste oil, transmission oil, brake fluids & cleaners, fuel & fuel filters and coolants) and solid hazardous substances (i.e. lead acid batteries, air filter, oil filter, hot tank solutions, mercury switch, brake shoe clutch plates/ discs, rubber, glass, electronics parts, refrigerant gases, airbags and catalyst) have been detailed in the guidelines.

4.2.2 Dismantling and segregation

In the next step, the depolluted vehicle will be dismantled into various components and then segregated for further processing. The guidelines specify various components which cannot be sold in the after sales market and need to be disposed of in an environmentally friendly process.

4.2.3 Shredding and Processing Residues

Post dismantling and segregation, the main body of the vehicle will be shredded which needs to be segregated into four fractions of residues: ferrous metals (using magnetic separation), non-ferrous metals (using mechanical separation), heavy shredder residue and the light fraction, which is separated by air suction. Ferrous

metals can be directly used as raw material feedstock in various industries such as steel mills, electric arc furnaces etc.

4.2.4 Treatment of Automobile Shredder Residue (ASR)

The last stage is treatment of Automobile Shredder Residue (ASR) which contains materials not recovered by any of the processes. This material needs to be disposed of as per draft guidelines laid down by Ministry of Environment Forests and Climate Change⁶.

5 Policy Benefits

The V-VMP program is expected to have significant benefits across environment pollution reduction, energy efficiency benefit and import substitution benefit as detailed below:

5.1 Environmental benefit

Replacement of the old fleet (>10 years old) with BS IV emission fleet would result in 25-30% reduction in air pollutants across CO, HC+NOx and PM emissions.

Implementation of scheme for Medium & Heavy Commercial Vehicles (MHCVs – Trucks and Buses) would result in 17% reduction in CO emissions, 18% reduction in HC+NOx emissions & 24% reduction in PM emissions as detailed in Figure 5 below

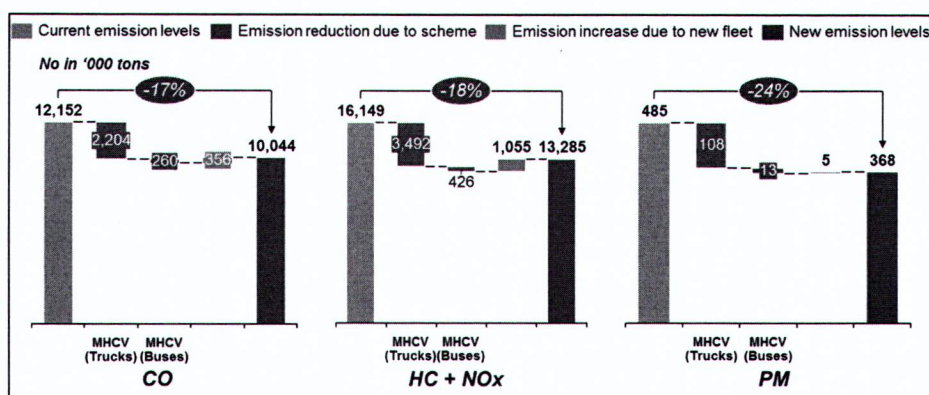


Figure 5: MHCV (Trucks and Buses) emission reduction from scheme

Source: MoRTH VAHAN database, CPCB emission norms, A.T. Kearney analysis

⁶ Guidelines for Environmentally Sound Management of End-of-Life Vehicles (ELVs), Ministry of Environment Forests and Climate Change, Central Pollution Control Board

Implementation of scheme for Light Commercial Vehicles (LCVs – Trucks and Buses) would result in 4% reduction in CO emissions, 1% reduction in HC+NOx emissions & 3% reduction in PM emissions as detailed in Figure 6 below.

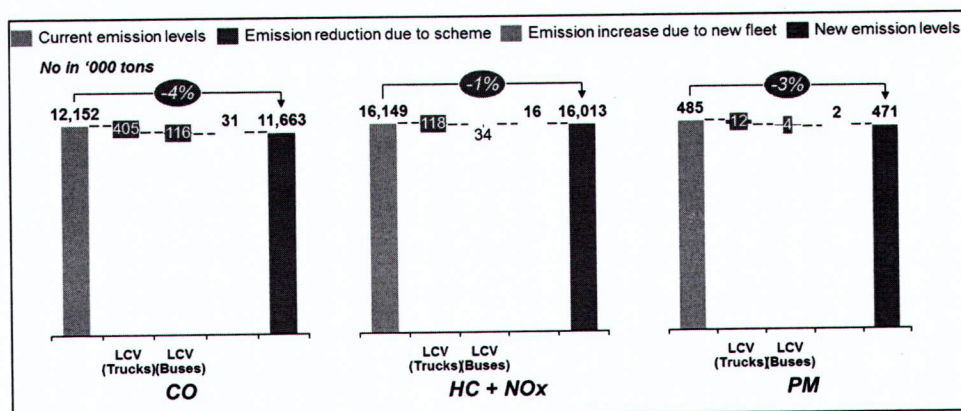


Figure 6: LCV (Trucks and Buses) emission reduction from scheme

Source: MoRTH VAHAN database, CPCB emission norms, A.T. Kearney analysis

Implementation of scheme for Passenger Vehicles (Cars) would result in 2% reduction in CO emissions, 1% reduction in HC+NOx emissions & 2% reduction in PM emissions as detailed in Figure 7 below.

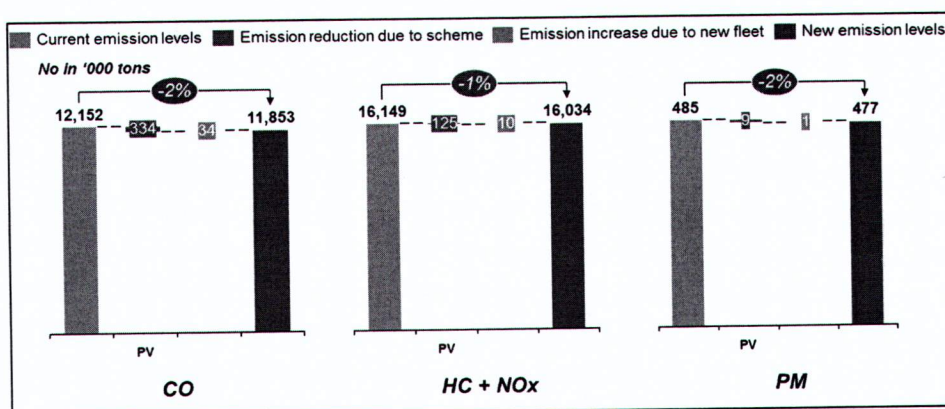


Figure 7: PV emission reduction from scheme

Source: MoRTH VAHAN database, CPCB emission norms, A.T. Kearney analysis

Implementation of scheme for 2W & 3W would result in 17% reduction in CO emissions, 18% reduction in HC+NOx emissions & 24% reduction in PM emissions as detailed in Figure 8 below.

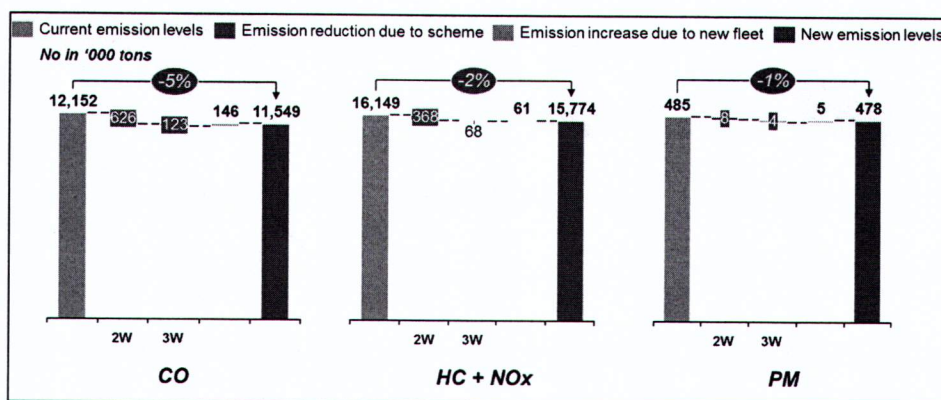


Figure 8: 2W & 3W emission reduction from scheme

Source: MoRTH VAHAN database, CPCB emission norms, A.T. Kearney analysis

In addition, the program can support India's COP-21 targets by contributing up to 2% of the intended CO₂e reduction due to lower CO₂ emissions from new vehicles.

5.2 Energy efficiency benefit

The new vehicle replaced will have higher fuel efficiency which would lead to lower oil consumption to the tune of 3.2 billion liters per year, supporting the government's energy efficiency drive. This translates to crude oil import savings of ~INR 7,000 crores. MHCVs (buses and trucks) will account for bulk (~55%) of fuel savings.

5.3 Import substitution benefit

In addition to environmental and energy efficiency benefits, the scheme would be able to generate steel scrap worth ~INR 11,500 crores domestically every year with the setup of organized shredding centers of which ~50% would be generated by MHCVs (buses and trucks). This will help in reducing India's import burden and hence improving India's foreign-exchange reserves.

6 Conclusion

Given the rising levels of pollution in the country, it is felt there is a need to upgrade current fleet voluntarily. This would not only help in reducing air pollutants, but also help in improving energy efficiency and generation of scrap steel domestically which would contribute towards reducing India's import bill.