



Sustainable Freight Initiatives in India – State of Play



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Foreword



The freight and logistics in India is a constantly evolving sector and one of the major contributors to the economic growth of the country. At the same time, it causes negative externalities on account of emissions, which undermine the objective of sustainable and efficient transportation. Globally, the policymakers while acknowledging the need for green freight initiatives have wrestled with the choice of policy tools which capture the substantial environment, cost, and social benefits and thus signal a change towards greener freight options.

In India, green freight options suffer from a disadvantage due to a number of issues, the most important of which are poor intermodal infrastructure, lack of national policy supporting green freight, outdated vehicle standards and lack of awareness about appropriate policy tools and the capacity to implement these policies. However, the Government of India in the National Urban Transport Policy 2016 and the NITI Aayog in its released paper acknowledge the need for creating a policy ecosystem for the green urban freight. However, a clear vision for this is still evolving.

We, at TERI, are delighted to collaborate with EDF in the preparation of this paper, which discusses sustainable freight strategies that avoid unnecessary freight activity by improving the utilization of freight fleets, shift the movement of goods to more efficient modes of transport such as rail and battery-powered vehicles, and improve freight vehicles to reduce their fuel consumption and impact on the environment. TERI is working on setting up a platform on sustainable freight with an aim to promote and demonstrate innovative ways to improve the sustainability through partnerships and experience sharing. We look forward to working with the stakeholders in this sector to accelerate progress towards making urban freight cleaner and more efficient.

A handwritten signature in black ink, appearing to read 'Ajay Mathur', with a horizontal line underneath.

Ajay Mathur
Director General, TERI

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Sustainable Freight Initiatives in India – State of Play

Background

The freight and logistics sector in India is at a crossroads. It is a vital and growing economic sector in India but with a disproportionately large economic, social, and environmental burden. The Indian logistics industry provides direct employment to more than 22 million people and is estimated to be worth USD 160 billion (The Economic Times 2018a). It directly contributes to about 6% of India's GDP (gross domestic product). The Indian government launched the Make in India initiative on September 25, 2014 with the primary goal to make India a global manufacturing hub and raise the contribution of the manufacturing sector to 25% of the GDP by the year 2025 from its current 16% (Make in India n.d.). However, at the same time, freight transport activity also generates high external costs that undermine sustainability objectives such as economic efficiency, social inclusiveness, and environmental protection. Freight and logistics stakeholders are under growing pressure from regulators, shareholders, and customers to reduce their energy consumption and emission footprint and also reduce operational costs, congestion, and road accidents from the movement of freight. The primary challenge confronting freight and logistics stakeholders in India is how to improve the “economic” performance of the freight transport while ensuring a healthy, livable environment. Globally, several green freight opportunities are proven to be cost-effective and deliver substantial environmental and social benefits. The number of initiatives to support greener freight is growing globally, most importantly UNCTAD's sustainable freight initiative, Smart Freight Initiative in Europe and China, Lean & Green in Europe, SmartWay in the United States and Canada, Green Freight Asia for road freight; Clean Cargo Working Group and Environmental Shipping Index for marine transportation; and the Air Cargo Carbon Footprint for airfreight. National green freight programmes in various other countries and regions, such as the China Green Freight Initiative and GMS Green Freight Initiative, further supplement these global and regional initiatives. In India, over the past decade, there have been multiple attempts by several organizations to develop a national green freight initiative. However, such actions have not been a significant success. This paper takes stock of green freight efforts in India over the last decade, compiles lessons learned, and proposes a unique platform to scale up sustainable freight opportunities.

In this document, **sustainable freight**¹ broadly refers to a set of strategies, policies, and practices targeted at the movement of goods with minimal environmental, climate, and public health impacts (Gota, Sehleier, Imboden, *et al.*, 2017). At a national level, sustainable freight strategies include: (a) avoid

¹ In this document, sustainable freight and green freight are used interchangeably though there exist some fundamental differences in the definitions.



unnecessary freight activity by improving the utilization of freight fleets, (b) shift the movement of goods to more efficient modes of transport such as rail, and (c) improve freight vehicles to reduce their fuel consumption and impact on the environment.

Sustainable Freight Rationale for India

The freight sector in India has grown over the last decade, with the magnitude of surface freight transport growing at an annual rate of 7% annually, that is, from 1.9 to 2.8 trillion ton-kilometres between 2010 and 2016. This rapid rise in freight transport has accompanied increases in trade. From 2010 to 2018, merchandise exports from India increased from \$226 billion to \$325 billion per year (WTO n.d.). However, trade in India suffers from high logistics costs. India's logistics cost as a percentage of GDP (~13%) is higher compared to OECD countries (less than 10%). Freight movement is the primary driver of logistics costs with a share of 35–60% (UNCTAD Framework for Sustainable Freight Transport n.d.).

Despite high logistics costs, India is making steady progress in improving overall logistics performance. Since 2007, growth in logistics performance in India has outperformed their income group peers and the global average (Jaramillo, Freund, Reis, *et al.* 2018). The improvement over the last decade was mainly due to enhancements in infrastructure (e.g., ports, roads, information technology) and cross-border transport facilities, including customs (port and border post improvements); ability to track and trace consignments; and reduction in physical checks and controls leading to the advancement of the timeliness of shipments in reaching the destination within the scheduled or expected delivery time. As per the Economic Survey 2017–18, improving the efficiency of the freight and logistics sector will facilitate a 10% decrease in indirect logistics cost, leading to the growth of 5–8% in exports.

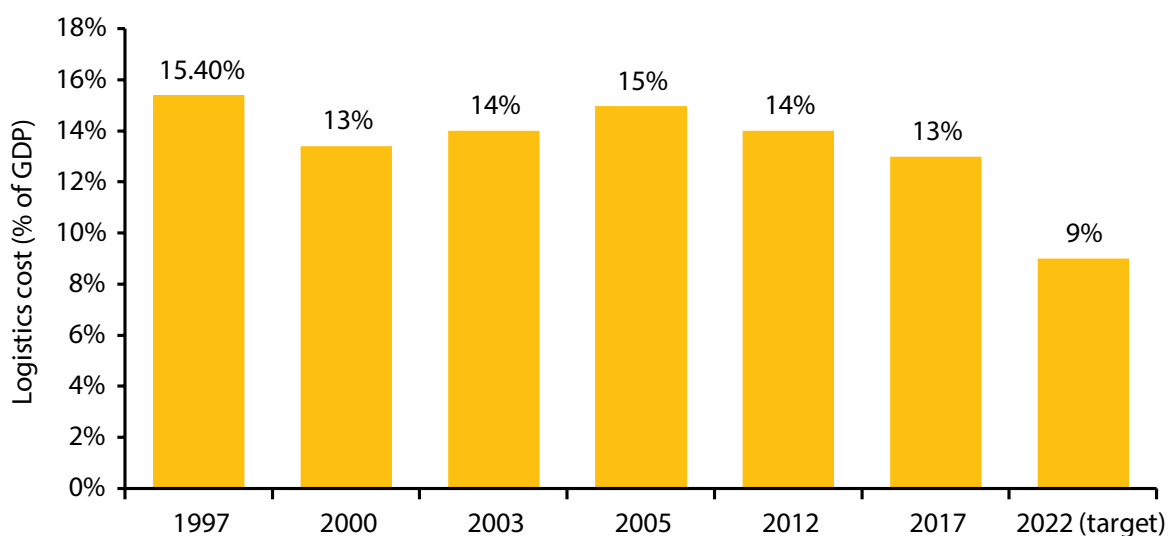


Figure 1: Logistics cost in India (as a share of GDP)

Source: Multiple sources, including NITI Aayog



While developed economies spend less on transport as they not only operate more efficient transportation systems but also have more flexibility in terms of mode choice, India is more dependent on road freight systems, which often results in higher costs for long-haul movements. Increasing globalization is leading to changes in production and consumption patterns and changes in the commodity mix. The demand for speed in freight transport in India with shrinking inventory levels due to “just in time” delivery creates difficulties for non-road modes and poses a challenge to the development of intermodal transport in India. Currently, close to 78% of freight movement is along the road network creating high congestion, air pollution, accidents, energy consumption, and carbon emissions. The share of road mode is higher compared to that of major economies such as the United States and China (45–50%) and has been growing in India over the last three decades, that is, from 38% in 1990 to 78% in 2016. Besides, since freight is concentrated along a few national highway corridors, India’s freight vehicle fleet is subscale and highly inefficient. For example, most trucks in India are under 26 tons, and amongst them almost 50% are less than 16 tons (World Bank n.d.).

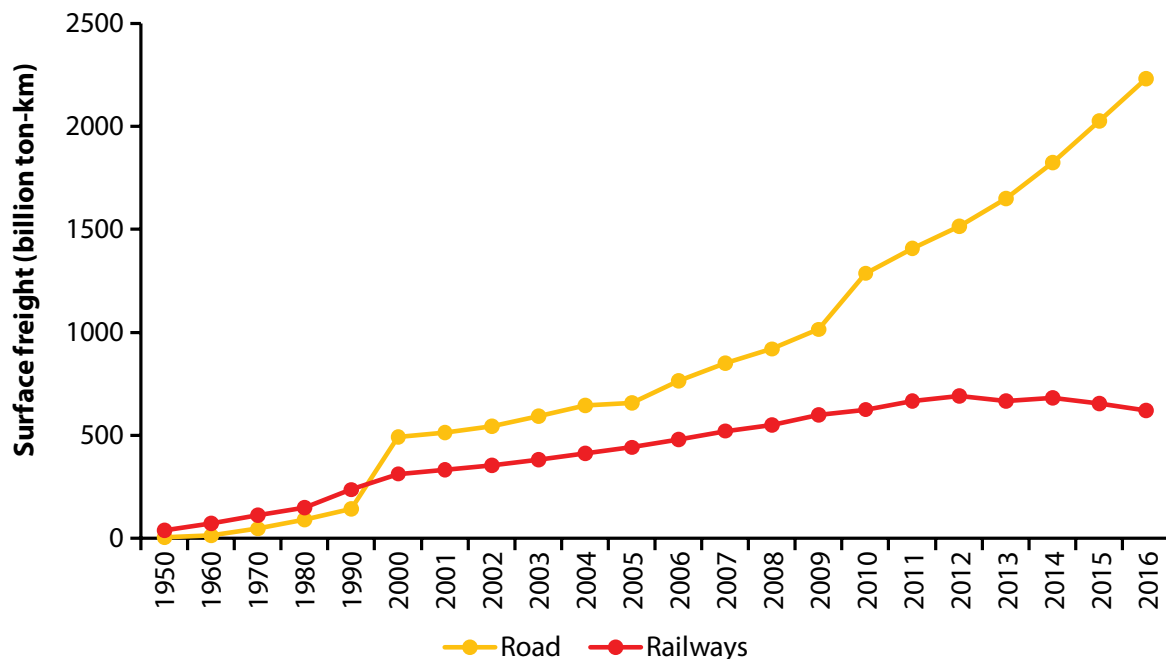


Figure 2: Surface freight activity in ton-kilometre

Source: NITI Aayog and the World Bank

Freight vehicle ownership is growing faster than the GDP and freight activity. Its annual growth rate has been 8.5% since 2010. However, a significant share of the truck fleet comprises old trucks. Estimates suggest that 34% of freight vehicles registered are older than 10 years (Roychowdhury and Nasim 2016). Generally, big operators buy new trucks with easy access to finance. The large truck operators usually take a loan for 3–5 years to purchase vehicles (and hence interested in low purchase costs). Since the freight transport demand is seasonal, unidirectional based on commodities and competition high, the main priority is to keep trucks moving rather than looking for ways to drive more efficiently. The primary emphasis is to pay back loans within 3 years and to generate profits. This emphasis on short-term ownership prevents any plans for long-term preventive maintenance. Smaller operators purchase these trucks at reduced prices. Small operators buy these trucks and try to maximize their usage while reducing expenditures on maintenance. Since vehicles have short ownership cycles, the primary emphasis is on low investment in preventive maintenance. The majority of



the trucking fleet consists of small enterprises; that is, 67% of the road transport operators in India are small operators (CRISIL 2018).

Fuel consumption is one of the most significant expenditures of a truck operator. In a 2014–15 study carried out by Transport Corporation of India and Indian Institute of Management Calcutta, fuel accounted for 42–53% of the expenses (including and excluding overhead, respectively). There is a lack of penetration of technologies that promote fuel efficiency and reduce air pollutant emissions due to high investment costs despite significant savings and short payback periods, resulting in a disproportionate contribution to air pollution, greenhouse gas (GHG) emissions, and other transport-related externalities as indicated below. However, at the heart of this discussion is a lack of availability of data. Despite the importance of freight transport emissions, surprisingly little is known about it. There exist no publicly available officially verified data on fuel consumption, fuel efficiency, or carbon efficiency of different modes in different states and cities of India to determine adequate and practical policy solutions. All these challenges have a myriad of economic, social, and environmental consequences resulting in a complex and cross-cutting agenda that requires the coordination of actions across city, state, and national governments and private sector stakeholders.

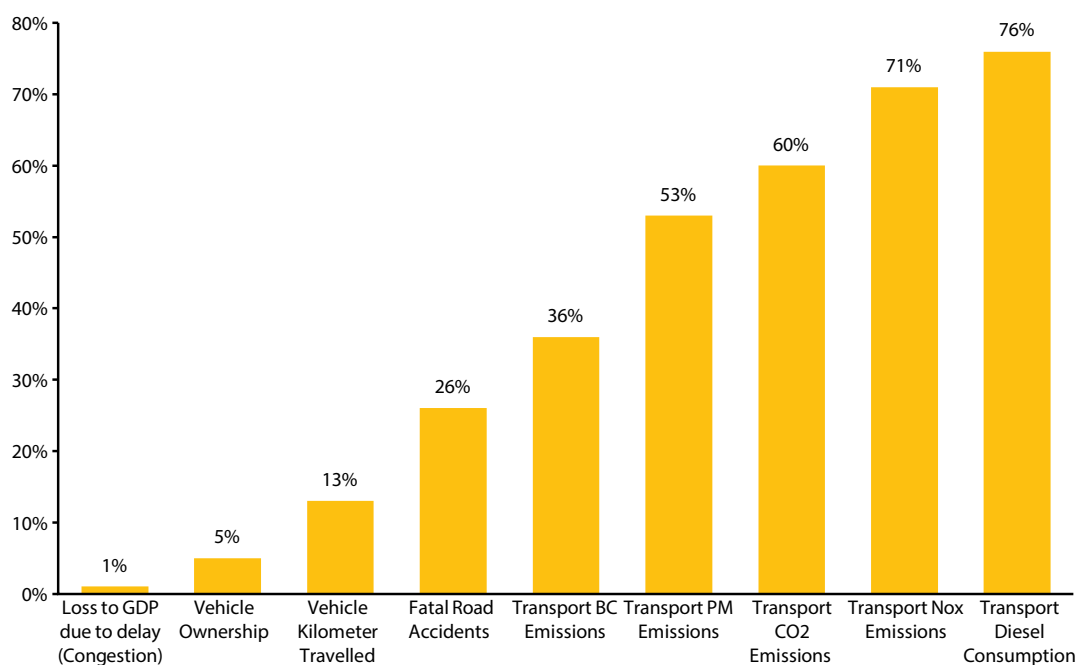


Figure 3: Road freight share in vehicle ownership, activity, and traffic externalities

Source: NITI Aayog, the World Bank, ICCT Roadmap, and IIM Calcutta

Current business-as-usual projections reveal that from 2017 to 2047 the freight activity (in ton-km) would increase by more than 500%, resulting in about 400% increase in freight CO₂ emissions. In the absence of significant mode shift policies, most of the freight would continue to be transported by emission intensive trucks (97% of surface freight mode share) (India Energy Security Scenarios, 2047 n.d.).

Growing freight transport activity has enabled India's economic progress; however, it has also threatened environmental sustainability. The freight transport sector is currently at the intersection of several global processes, such as 2030 Sustainable Development Goals, Global Decade of Action on Road Safety 2011-2020, Paris Agreement, The New Urban Agenda, and Sendai Framework for Disaster Risk Reduction 2015-



Box 1: Green freight challenges in India – stakeholder consultations (2010–19)

- » Poor intermodal infrastructure (railways, waterways connectivity with highways)
- » Fragmented industry with a large number of small owners/operators
- » Lack of development of green freight strategy across national, urban, company, and corridor levels
- » Lack of stakeholder consultations before policy decisions
- » Poor enforcement of policies and regulations
- » Absence of sustainability related recognition schemes among the private sector companies
- » Aged trucks and lack of periodic maintenance
- » Lack of affordable finance for small enterprises
- » Lack of interest in fuel efficiency improvements and urban freight
- » Major lack of monitoring among companies, and many do not track fleet/fuel use
- » No dedicated green freight training course available to improve awareness and capability across a diverse set of stakeholders
- » Lack of awareness on “green” freight
- » Lack of platform to discuss and share insights on green freight initiatives and challenges

2030. Freight transport can play a pivotal role in the required transformation. There exist several unexploited opportunities to reduce freight externalities and generate immense economic and social benefits.

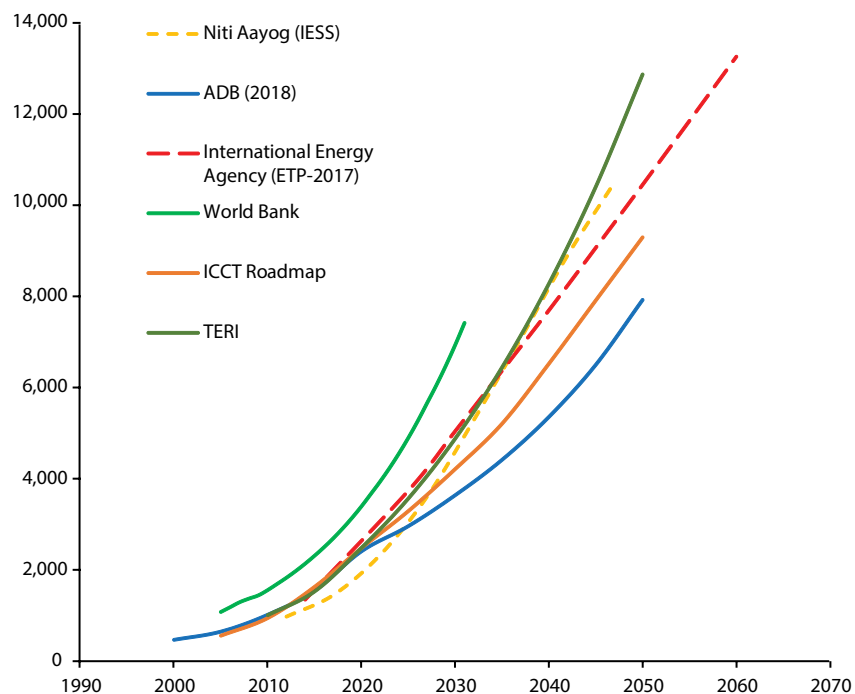


Figure 4: Road freight activity growth in business-as-usual scenario (India)

Source: NITI Aayog, the World Bank, ADB, International Energy Agency, ICCT, and TERI



State of Play – Sustainable Freight in India

Sustainable freight is defined as a set of strategies, policies, and practices targeted at the movement of goods with minimal environmental, climate, and public health impacts (Gota, Sehlleier, Imboden, *et al.*, 2017). At a national level, green freight strategies include: (i) avoid unnecessary freight activity by improving the utilization of freight fleets, (ii) shift the movement of goods to more efficient modes of transport such as rail, and (iii) improve freight vehicles to reduce their fuel consumption and impact on the environment (Gota 2015).

Box 2: Green freight in India

The concept of Green Freight was first formally introduced in the Indian national policy related discussions at the 6th EST Forum and Urban Mobility India workshop jointly organized by Ministry of Urban Development (India) and United Nations Center for Regional Development (UNCRD) in December 2011. The following were the main conclusions of the workshop:

- » Green freight is essential for a green economy. In Asia, road freight transport is expected to increase eightfold between 2000 and 2050. An integrated approach employing *avoid* (reduce travel), *shift* (to other modes), and *improve* (energy efficiency and reduced emissions) strategies is needed covering technologies, logistics solutions, and modal shift initiatives. Asian governments can facilitate the application of these strategies through policies and regulations, investments in freight infrastructure, and establishment of national green freight programmes, which can build on existing programmes such as US SmartWay.
- » At the 6th Regional EST Forum, private sector companies, including shippers, freight carriers, third-party logistics providers, and industry associations, announced the “Private Sector Declaration on Green Freight in Asia towards a Green Economy,” acknowledging private sector responsibilities and lending support to governments for green freight initiatives and programmes that reduce fuel dependency and air pollutant and CO₂ emissions while maintaining economic growth.
- » Delegates recommended that national programmes should be established and they should focus on raising the awareness of government agencies and stakeholders, expanding the knowledge base through research and studies, investing in infrastructure for efficient freight movement, and improving coordination between relevant government agencies through an institutional framework. There is unanimous support for featuring freight transport more prominently in future EST forums. A recommendation is to consider developing a regional agreement or convention to collectively address freight issues under the framework of the Regional EST Forum.

Government Plans, Policies, and Regulations

The public sector institutions in India suffer from a lack of ambitious strategic national planning failing to identify and prioritize the highest impact green freight priority projects, policies, and investments. There are hardly any overarching vision, objectives, and targets developed for green freight at the national or urban level. However, there is some recent momentum due to the new logistics policy. The draft Logistics Policy of India (Ministry of Commerce (Logistics Division) 2019) encourages for the adaptation of green freight transport and logistics in



the country. It targets the reduction of logistics cost and improvement in the efficiency of freight and logistics operations. The key objectives of the policy are to reduce logistics costs from 14% to 10% of GDP and create additional 10–15 million jobs in the sector. However, the policy does not directly set any vision, objectives, or targets for reducing freight and logistics emissions.

The National Urban Transportation Policy (NUTP), launched in 2006 and revised in 2014, recognizes the need for improving the efficiency of urban freight operations and ensuring that the freight movement should not affect passenger movement, thereby prioritizing passenger mobility over freight mobility in cities. The policy does not acknowledge the need for reducing urban freight emissions due to health impacts resulting from air pollution. The National Urban Transport Policy (Aggarwal 2014) advocates the use of off-peak passenger travel times to move freight, build bypasses, and facilities for the parking of freight vehicles outside city limits, such as truck terminals. A review of comprehensive mobility plans in cities such as Amritsar, Jaipur, Nagpur, Pune, Puducherry, Greater Mumbai, and Surat confirms that freight is not well integrated into the city vision and mobility targets and there is hardly any reference to green urban freight deliveries. None of the cities in India has developed urban green freight plan, set urban freight sustainability related targets, collected and reported urban freight indicators, and established a dedicated single window system for freight that provides a single point of reference for information that the freight industry requires to operate in an urban area or region and for policy and regulation consultation.

Reduction of transport greenhouse gas emission is considered as a political priority under the Paris Agreement (UNFCCC n.d.). India has targeted a reduction in the economy-wide emissions intensity of its GDP up to 35% by 2030 from the 2005 level. Considering the high emission intensity of the freight sector, several actions have been proposed to lower emission intensity in the automobile and transport sector. The freight-related mitigation measures, which are on priority, are the dedicated freight corridors and the energy-efficient railways. It is proposed to establish an integrated waterways transportation grid to connect all existing and future national waterways with the road, rail, and ports (intermodal infrastructure). This will stimulate manufacturing and use of hybrid and electric vehicles, improve fuel standards (BS-VI), vehicle fuel efficiency programme, 20% blending of biofuels (biodiesel and bioethanol), and reduction in subsidies on fossil fuels, including diesel.

NITI Aayog and Rocky Mountain Institute have found that trucking costs are the key drivers in the transportation component of total logistics cost, accounting for more than 65% of that cost, and addressing operational causes of low productivity and efficiency in trucking segment could create economies of scale. Some of the solutions proposed for improving efficiency and reducing costs (NITI Aayog and Rocky Mountain Institute n.d.) are highlighted in Figure 5.

Some of the targets set by the public sector in India that are relevant for sustainable freight in various infrastructure master plans and declarations include the following:

1. India has also set a road safety target; that is, in 2015, India signed the Brasilia Declaration and committed to reducing road accident deaths by half by 2020 (PIB 2016a)
2. In case of railways, the target is to ensure near zero accident fatalities by 2022, 100% electrification of broad gauge track from current 40%, and rail freight mode share to increase to 40% from current 33%. By 2030, Indian Railways (IR) has set a target to reduce its emission intensity by 32% over the base year 2005 (The Economic Times n.d.)
3. Coastal shipping cargo movement to double by 2025 (Behera 2017)
4. To reduce logistics cost from 14% to 10% of GDP and create additional 10–15 million jobs in the sector (Ministry of Commerce (Logistics Division) 2019)



Table 1 summarizes some of the priority policies, regulations, and projects proposed or being implemented across India by the public sector agencies.

Box 3: Urban freight in India

The International Energy Agency in 2013 estimated urban freight activity in India to be about 72 tonne-km/capita (ETP 2014 n.d.). The traditional approach of solving urban freight challenges in India was to relocate wholesale markets to the urban periphery (Gupta and Garima 2017), build bypass and ring roads which leads to increased traffic as goods (and passengers) shift to roads to cater new markets, restrict freight movement during peak hours and manage traffic flow across main corridors, and develop parking facilities and truck terminals at city suburbs (Guttikunda et al. 2019). The National Urban Transport Policy (Aggarwal 2014) released in 2014 advocates the use of off-peak passenger travel times to move freight, build bypasses and provide facilities for the parking of freight vehicles outside city limits, such as truck terminals. However, these measures lead to temporary relief, and often over a long period, increased logistics cost forces cities to look for innovative green freight solutions. City and regional level projects for the freight sector can be successful and sustained if an integrated policy is in place nationally (Gota 2015). However, the draft logistics policy of India (Logistics Division, Ministry of Commerce 2019) does not even make a single reference to urban freight – one of the most costly and emission intensive segments of the supply chain (Gota, n.d.). To reduce emissions from urban freight, many cities are considering electric vehicle freight deliveries. There are some efforts by cities such as New Delhi and Bengaluru to increase electric vehicle fleet in the freight distribution by developing electric vehicle policies. Some examples are as follows:

1. Bengaluru has targeted light commercial vehicle sales to be completely electrified by 2030 and to regulate e-commerce companies to use 100% electric two- and three-wheelers for commercial deliveries by 2030 (Commerce and Industries Department, Government of Karnataka, n.d.).
2. In Telengana, intra-city goods delivery services (sub 2T category) are to switch to EVs by 2030 in a phased manner and all app-based and e-commerce delivery services are encouraged to migrate 25% of their vehicles fleet to EVs by 2022 and 100% by 2030.
3. In Delhi, first 5000 three-wheeler goods vehicle registered will get an additional purchase incentive equivalent to 50% of the incentive offered under FAME India.
4. In Kerala, 1000 electric goods vehicles are to be registered by 2022.



Table 1: Government led green freight measures

Public sector initiatives/ plans/projects/policies/ infrastructure	Description/example/source
Intermodal infrastructure improvement	Dedicated freight corridor, Sagarmala project, port improvement projects, road improvement projects, freight economic corridors, inter-corridors and feeder routes are being identified for improvement
Logistics optimization	Logistics Efficiency Enhancement Programme (LEEP) aimed to enhance the freight transportation in India by improving cost, time, tracking, and transferability of consignments through infrastructure, procedural, and information technology (IT) interventions (PIB 2016b)
Overloading/axle norms	The new axle load norms rolled out in August 2018 increased the average rated payload of trucks by about 20% and barred operators from overloading (CRISIL 2018)
Logistics hubs	The Government of India recently kicked off a programme to develop multi-modal logistics parks. These parks aim to reduce logistics costs; improve freight aggregation, distribution, storage, and warehousing; and create various value-added services, including labeling, packaging, tagging, and crating (Business Standard n.d.)
Fuel efficiency standard	On August 16, 2017, the government of India, in consultation with the Bureau of Energy Efficiency (BEE), published final fuel efficiency standards for heavy-duty commercial vehicles (HDVs) (Garg and Sharpe 2017)
Fuel and vehicle standard	India is set to leapfrog from the conventional BS-IV to directly adopt BS-VI emission norms in 2020 as the next level for a regulatory framework in India
Scrappage policy	The first draft of the new vehicle scrapping policy was released in 2016 by the Ministry of Road Transport and Highways. However, this draft was not implemented, and a new proposal is being developed by the Ministry of Road Transport and Highways, Ministry of Environment, Forest and Climate Change, and Ministry of Steel under NITI Aayog (CNBCTV18 n.d.)
Electric vehicle	To promote manufacturing of electric and hybrid vehicle technology and to ensure sustainable growth of the same, Department of Heavy Industry is implementing FAME India Scheme Phase I [Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India] from 1st April 2015 (PIB 2018)



Table 1: Government led green freight measures

Public sector initiatives/ plans/projects/policies/ infrastructure	Description/example/source
Biofuels	The primary goals of the National Policy on Biofuels (announced in December 2009) are development and utilization of indigenous non-food feedstock raised on degraded or wastelands, thrust on research and development on cultivation, processing and production of biofuels, and a blending mandate of 20% ethanol and biodiesel by 2017 (MNRE n.d.)
Vehicle restrictions	Truck traffic is restricted on certain roads and during specific periods across all major urban areas
Green warehouses	Logistics policies of Haryana and Jammu and Kashmir propose GRIHA III norms and Green Norms Incentives (LEEDS ratings) be applied for warehouses
Institutional	The Logistics division in the Department of Commerce was created on 7th July 2017 to ensure “integrated development of logistics sector”. The division is headed by a Special Secretary to Government of India and has been given the mandate to develop an action plan for the integrated development of the logistics sector in the country by way of policy changes, improvement in existing procedures, identification of bottlenecks and gaps, and introduction of technology in this sector (Ministry of Commerce (Logistics Division) 2019)
Motor Vehicles (Amendment) Bill, 2019	The Motor Vehicles (Amendment) Bill, 2019 is based on the recommendations of the Group of Transport Ministers (GoM) of states constituted by the Ministry of Road Transport and Highways to address the issue of road safety and improve the facilitation of citizens while dealing with transport departments
Capacity building	Ministry of Urban Development (MoUD), Government of India has financed development of a toolkit on “Urban Freight Transport Planning & Management” under Sustainable Urban Transport Project (SUTP) jointly initiated with the support of Global Environment Facility (GEF), United Nations Development Programme (UNDP), and World Bank (Ministry of Urban Development, 2016, n.d.)



Agency (ETP-2017) Improved quality, digitization, and automation of warehousing	Intermodal logistics parks	Improved infrastructure for coastal shipping and railways	Continued investment into the road network	Standardization of logistics practices
Parking and loading bays	Truck routes	Urban logistics spaces	Consolidation centres	Pack stations
Deploying big data in distribution	Lean supply chain management	Digitization of intermodal infrastructure	Digitization of loading information	Digitization of truck routing and dispatch
Intelligent transportation systems (ITS)	Digitization of parking/unloading	Electric delivery vehicles	Digital enforcement	Zoning and land use for logistics
Zoning for logistics sprawl	Nighttime deliveries	Congestion feebates	Interoperable transport data	Metropolitan planning councils
Networked city-level innovation and incubation centres	Feebates	Limit the high-mileage polluting vehicles on the road	Strengthen pollution under control regime	Bioethanol and Biodiesel

Figure 5: NITI Aayog recommended solutions for freight and logistics

Private Sector and Civil Society Initiatives

Freight and logistics networks feature a large variety of stakeholders, often with diverse characteristics and interests. While the scope of the public sector stakeholders is to establish regulations and provide necessary infrastructure, transport operations and other logistics activities are primarily of a private nature. In India, the stakeholders are incredibly fragmented, with limited awareness of green freight (Gota 2014). Thus, only a few projects and initiatives have been established by the private sector and development agencies.

The origin of the Green Freight India Initiative concept could be traced back to the first Green Freight India workshop held on 9 January 2012 in New Delhi along the sidelines of the 11th Auto Expo. This workshop was jointly organized by the Clean Air Initiative for Asian Cities Center (NGO) and the Society of Indian Automobile Manufacturers (SIAM) with the support of Ashok Leyland towards conceptualizing the scope and potential benefits of making the freight sector green. The workshop received keen interest from truck manufacturers and other private sector companies and willingness to collaborate on green freight and logistics in India. Stakeholders of the freight industry, such as goods manufacturers, experts, original equipment manufacturers (OEMs), truck operators, and academics, participated in this event.



Box 4: What is the role of public sector in sustainable freight and logistics?

Public sector agencies connected with the freight and logistics industries are under growing pressure to reduce externalities from the movement of goods and materials. Some of the actions public sector agencies could take include the following:

1. Craft sustainable freight and logistics policies and strategies to support the development of the transport and logistics industry
2. Develop comprehensive sustainable freight and logistics vision and targets
3. Assist national, state/regional, and municipal comprehensive transport departments in green freight and logistics development planning
4. Support the construction of intermodal hubs, including the development of network linkages and hubs connecting different modes (e.g., seaports and river ports, airports, or transloading facilities), and enhance the capabilities of existing facilities and prioritize modal shift infrastructure investments
5. Government financial support for greener transport modes
6. Foster the growth of “modern logistics providers” that apply state-of-the-art logistics management models and advanced technologies (digitization, big data) and development of asset-based carriers
7. Introduce experiments with proven operational models such as “technology retrofits”, “drop and pull” and “cross docking”
8. Development of unified (harmonized) technical standards and regulations; harmonizing equipment and IT standards to improve interoperability between modes and carriers
9. Construct an effective system to regulate the transport market and to strengthen the technical capacity of transport enterprises
10. Impose differential tax rates on freight transport modes
11. Set stringent fuel quality, vehicle emission standards, and fuel efficiency standards
12. Incentivizing scrappage of older vehicles
13. Run advisory, benchmarking, and promotional programmes to exhort companies to improve the efficiency; encourage the formation of voluntary sustainable/green freight partnerships and recognition scheme

Subsequently, GIZ and Deutsche Post DHL held stakeholder consultation workshops with national freight stakeholders during May and July 2012 in Mumbai and New Delhi, respectively. The former workshop was intended to provide an outline of similar Green Freight programmes initiated globally. It gauged the general interest and specific requirements for a similar initiative in India. The second workshop contributed to defining the vision and objectives by disseminating key inputs arrived by interviewing people within the freight sector. It also mapped the stakeholders for green freight and discussed the possibility of launching a *national Green Freight India Initiative with a formal organizational set-up*.





Figure 6: Stakeholders at the GFI workshop in October 2014

As part of the consultations, a stakeholder workshop was held in New Delhi on 15 October 2014. This consultation was organized by the GIZ, EBTC, and Clean Air Asia and was attended by more than 50 diverse stakeholders such as World Bank, SIAM, Mahindra Logistics, HP India, Petroleum Conservation and Research Organization, Steinbeis India, KPMG, ICLEI, and Embarq. A *green freight methodology* developed by Clean Air Asia with support from GIZ was discussed. Following several internal discussions and consultations with a variety of stakeholders, the **GFI Working Group (GFIWG)** was set up in **2014**. The GFIWG was proposed to consist of members from various backgrounds, such as private sector, government, research, academia, industry associations, and its role will be to deliberate on the policy issues on road freight and make suitable representations to the relevant ministries. The main objective of the working group was to establish a national **Green Freight Initiative** in India. Based on the detailed consultations, priority areas were identified for further actions to scale up green freight in India (Table 2).

Table 2: Identified priority areas and objectives for Green Freight India in 2014 (no progress since 2014)

Green Freight India focus area	Identified objectives based on stakeholder consultations
Awareness across the supply chain	Prepare stakeholder overview and mapping
	Create and build the Green Freight India Brand to give public orientation on what is considered Green Freight
	Develop awareness campaign with the related tools and communication materials on Green Freight in India geared towards crucial target groups, consumer, retailer, manufacturer, and logistics, and broaden the Green Freight India community



Table 2: Identified priority areas and objectives for Green Freight India in 2014 (no progress since 2014)

Green Freight India focus area	Identified objectives based on stakeholder consultations
Policies, governance, compliance	Analyze public stakeholder landscape and concepts to engage government stakeholders
	Analyze current national and urban freight policies in terms of gaps and potentials to embed sustainability aspects
	Develop a proposal to link with sustainable urban transport policies and financing mechanisms
Standards, methodology, transparency	Define the Green Freight India Fuel Efficiency Index and how it translates into the Green Freight Brand
	Create the scoring model and database concept
	Develop the data collection concept including its evolution from basic to advanced
Technologies and Infrastructure	Research the critical constraints in the process of adopting Green Technologies
	Develop an overview of key strategies to overcome current constraints
	Create transparency on the main infrastructural issue and challenges
Skill development	Develop an overview of the skill profile needed to support the development of Green Freight India on long term
	Research currently existing programmes and initiatives and to what extent they would cover the skill and capacity requirements
	Create a concept to develop the required skills and capacity requirements

The second meeting of the GFI Working group was held on 5 November 2015 at the National Institution for Transforming India (NITI) Aayog in New Delhi (Clean Air Asia 2015). Based on the discussions, GFIWG was tasked to carry out consultations with leading public and private enterprises, governmental or government appointed authorities, financial institutions, technology providers, and academic institutes and develop concept papers on technology, measurement, driver training scaling up as recommendations for the government. The NITI Aayog agreed to consider supporting the activities, including funding them. However, due to lack of funding and interest among various stakeholders, the GFIWG carried out only limited consultations; this initiative could not be sustained because of any further activities.

In parallel, development agencies and civil society launched several green freight related pilot projects and initiatives in India.

- » The GIZ “sustainable supply chains for Indian cities” project (2014–17) was intended to develop innovative approaches for the planning and implementation of sustainable supply chains for cities. The project targets the entire regional supply chain, from producer to consumer. It aims to use existing resources more efficiently, thus reducing the dependency on imports. The project was focused on Karnataka’s perishable commodities.
- » In 2016, Shakti Sustainable Energy Foundation (SSEF) with Madras Chamber of Commerce and Industry in association with IIT Madras organized consultation workshop in Chennai. The workshop resulted in





Figure 7: Stakeholders at the second GFIWG focused group discussion

the launch of the Chennai Freight Partnership, which will be handled by the Centre of Excellence in Urban Transport at the IIT Madras (DTNext 2016).

- » ICLEI's EcoLogistics project "low carbon freight for sustainable cities" assists cities Kochi, Shimla, and Panaji to develop a low carbon action plan for urban freight, support implementation of demonstration projects in cities, and highlight national policy recommendations for the urban freight sector. The German Federal Ministry supports the project for the Environment, Nature Conservation, Building and Nuclear Safety (BMU) through its International Climate Initiative (IKI) programme.
- » GIZ – Green Logistics and Road Freight Transport (2019–22): The main objective of the project is to support national and state-level partners to make the Indian freight and logistics sector climate-friendly and efficient, thereby contributing to the implementation of India's Nationally Determined Contributions (NDCs).
- » TERI has been working on the Urban Freight Cost Emission Reduction Guidance Facility (UFCERGF) in Surat and Bengaluru, which is part of a national initiative to form a Sustainable Urban Freight (SUF) group. The SUF group is a consortium of all stakeholders of urban freight, including state and local governments, central government agencies, OEMs, research institutions, and other civil society and industry members. The SUF group aims to create a national support structure for cost and emission reduction from urban freight in India. It is being supported by the EDF.
- » TERI has also recently completed a study "Roadmap for Electrification of Urban Freight in India" with the support of SSEF.² The study was conducted by TERI with an objective to assess the operational and financial feasibility of EVs in the urban freight segment by undertaking a survey-based analysis of five sectors across three cities, namely, Delhi, Bengaluru, and Surat.

Private sector stakeholders have undertaken the following initiatives:

- » IKEA India has committed to source 100% renewable energy by 2020 and to transition to electric vehicles across its entire global fleet by 2030 (IKEA Group's Corporate Climate Action in India 2018).

² <https://www.teriin.org/project/roadmap-electrification-urban-freight-india>



- » Logistics companies DHL Express India and Blue Dart have made a significant improvement in logistics efficiency, thereby reducing emissions (DHL n.d.).
- » A new start-up “Dot” provides green logistics services for the first and last-mile connectivity, that is, urban freight. The company uses only electric vehicles for deliveries using a swappable battery system.
- » Coca-Cola India has established an emission target to reduce carbon emissions associated with the “drink in your hand” by 25% by 2020. They are mainly trying to introduce sustainable packaging and “lightweighting” their products to reduce logistics and manufacturing emissions (Journey Staff 2017).
- » Pepsi India has started using inland waterways for transporting containers from Kolkata to Varanasi (The Economic Times 2018b).
- » Unilever in India has improved truck loading by right-sizing and reorganized supply chains (Reducing Transport Emissions n.d.).
- » Reckitt & Benckiser India (RB India) reduced logistics and freight costs by 2% and the annual carbon emissions by 1000 metric tons by introducing a transport management system (including truck-placement-efficiency and Carrier Scorecard (CS)) designed to bring in transparency across functions and resolve conflicts amongst stakeholders. This tool enables a process-driven transportation management cycle (Ganwani 2016).
- » Rivigo (which owns about 3000 trucks) has devised a relay model which ensures that drivers are at the wheels for 4–5 hours at a stretch, do not clock over 12 hours, and reach home the same day, thus reducing road accidents. GoBOLT company uses two drivers in a long distance truck to reduce transport costs and accidents (Das n.d.).
- » Indian Oil Corporation has transformed 900 of its 27,000 fuel stations into a driver rest place. The resting area has toilets, sleeping rooms with mattresses, TV, kitchen, and safe parking (Times of India n.d.).
- » Flipkart aims to replace nearly 40% of its fleet of last-mile delivery vehicles with electric vehicles by 2020 (Flipkart’s Electric Vehicles Zoom towards Sustainability 2019). Grofers, a start-up, plans to deploy 500 electric three-wheelers for last-mile deliveries across its 13 operational markets by the end of 2019.
- » Non-banking finance company Magma Fincorp has taken up a driver training programme under the corporate social responsibility in association with the Petroleum Conservation Research Association. The target is to train about 150,000 drivers over 3 years (Business Standard 2015).

Current Experiences with Urban Freight Policy/Regulation Instruments

Freight transport and logistics require interventions of the government and the private sector, and thus no single decision-maker can transform the freight sector without adequate support from other stakeholders. The public sector is generally responsible for planning, owning, and maintaining infrastructure. In contrast, the private sector makes supply chain related operating decisions as well as company-specific investment decisions. Thus, the successful introduction of green freight solutions requires the acceptability and receptivity of involved stakeholders. Further, since the freight movement is across states, countries, and continents, the major influencing factors are largely beyond the control of any city government.

The root causes of urban freight challenges in India lie in a combination of several factors, such as lack of planning, freight missing in the long-term transport vision, missing link to urban spatial and land use development, lack of partnerships, lack of data and modeling, ineffective governance, and lack of integration between passenger and freight transport systems.



The traditional approach of solving urban freight challenges in India was to relocate wholesale markets to the urban periphery, build bypass and ring roads which lead to increased traffic as goods (and passengers) shift to roads to cater new markets, restrict freight movement during peak hours and manage traffic flow across main corridors, and build parking facilities and truck terminals at city suburbs. The National Urban Transport Policy released in 2014 advocates the use of off-peak passenger travel times to move freight, build bypasses, and provide facilities for the parking of freight vehicles outside city limits, such as truck terminals. However, these measures lead to temporary relief, and often over a long period increased logistics cost forces cities to look for innovative green freight solutions. City and regional level projects for the freight sector can be successful and sustained if an integrated policy is in place nationally. However, the draft logistics policy of India does not even make a single reference to urban freight, which is one of the most costly and emission intensive segments of the supply chain.

Desktop review of transport comprehensive mobility plans in Amritsar, Jaipur, Nagpur, Pune, Puducherry, Greater Mumbai, and Surat confirms the urban freight challenges as discussed previously, that is, lack of planning, freight not integrated in city vision, missing link to urban spatial and land use development, lack of partnerships, lack of data and modelling and sustainability targets, ineffective governance, and lack of integration between passenger and freight transport systems.

None of the cities in India has developed urban freight plan, set urban freight sustainability related targets, collected and reported urban freight indicators, and established a dedicated single window system for freight that provides a single point of reference for information that the freight industry requires to operate in an urban area or region and for policy and regulation consultation. Most municipality authorities have traffic or municipal planning departments that will take responsibility for answering queries on infrastructure, public transit, traffic management, walking, and cycling infrastructure, but there is no dedicated person responsible for freight or logistics issues.

The regulatory approach in Indian cities is becoming increasingly difficult through access restrictions to the city centres – time windows, vehicle weight and size restrictions, load factor, commodity type, engine type, etc. Virtually all big cities in India restrict truck movement. The increasing severity of air pollution and traffic congestion is leading to the increase in restrictions. In fact, in Delhi, during air pollution emergency period from 7 November 2017 to 14 November 2017, there was complete restriction on entry of freight vehicles (excluding perishable commodities).

Further, among different vehicle technologies, electric freight vehicles offer ample scope for substantial improvements in air quality and reductions in GHG emissions, translating into significant economic savings in health benefits and abatement costs. However, evidence suggests that electric vehicle use in the Indian logistics sector, especially in cities, has been constrained by several barriers, including high capital expenditures, limitations concerning range, payload and volume restrictions, constraints around charging, and policy-related barriers. There are some efforts by cities such as New Delhi and Bengaluru to increase electric vehicle fleet in the freight distribution by developing electric vehicle policies.



City	Target related to urban freight
Bengaluru	Bengaluru has targeted light commercial vehicle sales to be entirely electrified by 2030 and to regulate e-commerce companies to use 100% electric two- and three-wheelers for commercial deliveries by 2030
Telangana	Intra-city goods delivery services (sub 2T category) to switch to EVs only by 2030 in a phased manner and encourage all app-based and e-commerce delivery services to transition 25% of their vehicle fleet to EVs by 2022 and 100% by 2030
Delhi	First 5000 three-wheeler goods vehicle registered will get an additional purchase incentive equivalent to 50% of the incentive offered under FAME India

In capacity building, MoUD, Government of India has financed the development of a toolkit on “Urban Freight Transport Planning & Management” under Sustainable Urban Transport Project (SUTP) initiated with the support of Global Environment Facility (GEF), United Nations Development Programme (UNDP), and World Bank (Ministry of Urban Development, 2016, n.d.). However, no information is available in the public domain regarding the number of people being trained using the toolkit.

In terms of data and indicators, the Ministry of Commerce and Industry, Government of India, with support from Deloitte, has developed a LEADS framework, which is a perception-based assessment of international trade logistics across Indian states. This framework measures the logistics performances of different countries in India. However, the evaluation based on the World Bank’s Logistics Performance Index is mainly focussed on economic parameters and does not apply to cities directly (Ministry of Commerce (Logistics Division) 2019).

Sl. No.	Policy/ regulation	Freight targets	Urban freight measures
1	National Urban Transport Policy, 2014	No targets	To use off-peak passenger travel times to move freight. Many cities have earmarked late-night hours for the movement of cargo and restricted the entry of heavy vehicles into towns during the daytime. Several cities have bypasses to avoid city traffic. Facilities for the parking of freight vehicles outside city limits, such as truck terminals, would also be encouraged through public–private partnerships
2	Amritsar Comprehensive Mobility Plan	No freight transport-related targets proposed; only passenger transport targets are proposed	Infrastructure improvement; development of integrated freight complex, parking policy, intelligent transport system; restrict heavy goods vehicles and allow light commercial deliveries within the city
3	Jaipur Comprehensive Mobility Plan	No freight transport-related targets proposed; only passenger transport targets are proposed	Truck traffic will be restricted on certain roads and during specific time periods; for example, goods delivery time in the core city will be restricted during peak periods (from 9 a.m. to 9 p.m.); implementation of ring roads; truck terminals have been proposed; infrastructure improvement



Sl. No.	Policy/ regulation	Freight targets	Urban freight measures
4	Nagpur Comprehensive Mobility Plan	No freight transport-related targets proposed; only passenger transport targets are proposed	Infrastructure improvement – developing a network of roads identified as freight corridors; intelligent transport system; implementation of ring roads; improvement of existing <i>transport nagar</i> , movement restrictions of heavy vehicles in the city (from 09:00 a.m. to 07:00 p.m.); complete ban on all animal carts used for goods movement; truck terminals
5	Pune Comprehensive Mobility Plan	No freight transport-related targets proposed; only passenger transport targets are proposed	Implementation of ring roads, infrastructure improvement, hawker management, parking policy
6	Puducherry Comprehensive Mobility Plan	No freight transport-related targets proposed; only passenger transport targets are proposed	Infrastructure improvement, development of truck terminal, access to fish landing areas and fishing harbour, parking policy, intelligent transport system
7	Greater Mumbai Comprehensive Mobility Plan	No freight transport-related targets proposed; only passenger transport targets are proposed	Infrastructure improvement, development of truck terminal, parking policy, intelligent transport system
8	Surat Comprehensive Mobility Plan	No freight transport-related targets proposed; only passenger transport targets are proposed	Regulated loading and unloading hours, shift obnoxious industries from the city centre, develop the “textile corridor”, time restrictions for freight vehicles (HCVs and MCVs) from 7:00 a.m. to 10:00 p.m., planning of logistics park on proposed textile corridor, promote ITMS facilities by freight transporters, infrastructure improvement

Proposed Roadmap

The aim of the stakeholders involved in this sector (government, industry, logistics service providers, OEMs, etc.) should be to promote and demonstrate innovative ways to improve the sustainability of urban freight transport and logistics in India through partnerships and sharing experiences. Initiatives should be made to help Indian cities accelerate progress towards making urban freight cleaner and more efficient, measured in terms of fuel use, CO₂ and air pollution, and other co-benefits (e.g., impact on traffic congestion, freight delivery times).

- » Partnership with cities
- » Knowledge management, capacity building, and networking
- » Policy development



Cities should be helped to strengthen policies on urban freight, review plans such as comprehensive development plans and low carbon transport plans, and provide quality feedback. Cities should be assisted in packaging urban freight measures in future comprehensive mobility and master plans, air quality plans, and city development plans and align freight policies with national objectives. Understanding current and future movement patterns, and commodity-wise supply/demand, will be essential to frame viable urban freight policy framework/guidelines for the city. The proposed urban freight policy framework can have incentive mechanisms, sustainable urban freight metrics, and stakeholder responsibility sharing. This component would allow programme stakeholders to work with other stakeholders in actively including freight in urban transport policies and effectively scale up the city experience to national transport policies.

Freight and Logistics India Platform for Sustainability (Flips)

Sustainable freight and logistics sector in India will be critical for achieving economically efficient, socially viable, and environmentally friendly transportation and logistics services. Freight and logistics operations enable economic growth, enhancing the competitiveness of the industry, connecting producers with consumers, supporting the integration of domestic freight and logistics activity with global supply chains, and contributing to social progress and inclusive development. At the same time, however, the freight and logistics sector also generate significant economic, social, and environmental burden. Currently, the freight and logistics sector in India is at a crossroads.

The Indian logistics industry provides direct employment to more than 22 million people, is estimated to be worth USD 160 billion, and directly contributes to about 6% of Indian GDP. The Indian government launched the Make in India initiative on September 25, 2014, with the primary goal of making India a global manufacturing hub and raising the contribution of the manufacturing sector to 25% of the GDP by the year 2025 from its current 16%. This will necessitate a robust, efficient, and well-functioning freight and logistics network in India. However, at the same time, freight and logistics stakeholders are under growing pressure from regulators, shareholders, and customers to reduce their energy consumption and emission footprint and reduce operational costs, congestion, and road accidents from the freight and logistics operations.

The research indicates that sustainable freight activities in India in the past have taken place in a vacuum. There is a wide gap between freight transport policy aspirations and performance reality. There has been little integrated action with regard to connecting economic, environmental, and social objectives of freight transport to guide stakeholders to priority action. The primary challenges behind the failure of past sustainable freight and logistics initiatives to transform the supply chain were the lack of awareness, collaboration, and partnerships among stakeholders. Sustaining sustainable freight initiatives over the long term requires a comprehensive transformation of the policy, institutional, technological, collaborative, and financial instruments supported with strong partnerships. Partnerships allow stakeholders to gain a better understanding of their respective constraints and obligations as they provide a forum where experiences, views, information, data, and good practice in the field of sustainable freight transport could be shared. Such discussions allow stakeholders to work together to address common issues faced when addressing the sustainability of the freight transport sector. Thus, a new platform that allows public–private engagement and intellectual capital and investments to accelerate deployment of new ideas, technologies, and logistics concepts to improve sustainability is being proposed.



Value Proposition: FLIPS would connect and enhance coordination, information exchange, and cooperation among freight and logistics practitioners, government officials, and academia to enable stronger collective action on sustainable freight and logistics in India.

FLIPS promote and demonstrate innovative ways to improve the sustainability of freight transport and logistics in India through partnerships and sharing experiences. FLIPS would bring together government (local, state, and national) and development agencies, the private sector, and civil society members to develop innovative policies, technologies, and projects for scaling up sustainable freight and logistics practices in India. The FLIPS would also support the exchange of experiences, facilitate peer-to-peer network opportunity and transfer of knowledge, foster collaboration, cooperation and partnerships, and ensure quality data, research and innovation are easily accessible to Indian stakeholders. This approach is combined with the use of different and useful communication tools to improve public recognition and customer perception.

The benefits of FLIPS are as follows:

- » Improved fuel efficiency and reduced fuel costs, CO₂ and air pollutant emissions and road accidents for carriers and shippers
- » Higher penetration of innovative technologies and strategies within the supply chain
- » Public recognition through the association with a credible brand for shippers and carriers that achieve specific improvements and adopt a certain number of technologies

Major FLIPS objectives are as follows:

- » Accelerate the use of innovative solutions
- » Build consensus among public, private, scientific, and other civil society communities
- » Collect and disseminate freight transport and logistics efficiency and emissions related data and indicators and recommend streamlined and consistent methods for fuel consumption and emissions measurement and reporting
- » Demonstrate innovative, replicable solutions and case studies
- » Enhance collaboration, cooperation, and partnerships among civil society, development agencies, and private sector companies
- » Foster open peer-to-peer learning and exchange, including sharing and collaborating on the development of standardized methodologies and tools and delivery of training and technical assistance
- » Improve public recognition and customer perception through involvement in the sustainable freight movement, that is, secure a public commitment for sustainable freight and logistics from stakeholders

Criteria for Membership

FLIPS will be a non-legal and non-binding platform. The sole criteria for membership of the FLIPS are an active commitment to work towards sustainable freight and logistics system in India. The Latimer House Principles provide a guiding structure for activities of the members of the platform. Stakeholders could join the platform after endorsing a voluntary declaration of intent on sustainable freight and logistics India platform (non-legal and non-binding). Members are expected to make their best efforts to contribute to the objectives of the platform (on a non-binding basis), including sharing of information, participating in dialogue, and cooperating with other members where appropriate. There are *no legal or financial obligations* connected to the membership, though members are encouraged to financially support the mission of the platform.



Coordination Mechanism: The essence of FLIPS is the belief that collaboration, cooperation, and partnerships will achieve outcomes that no single stakeholder could achieve working independently. Freight and logistics sector involves thousands of stakeholders with varied objectives. It is beyond the reach of the platform to include and integrate all these stakeholders. It is focusing, therefore, on leading organizations from the public, private, scientific, and other civil society communities to make freight and logistics systems more sustainable. The primary scope of the platform is on freight transport with limited focus on logistics operations. Though it has a multimodal approach (road, rail, inland waterways, sea, air, pipelines, transshipment centres, and warehouses), the primary focus is on reducing externalities and improving the efficiency of the road freight operations. Although it is a non-legal and non-binding platform, it is crucial to have some form of governance in place that can help shape the coordination mechanisms among the partners in the platform. It is proposed that the partners in the platform will meet once a year to review the progress of the platform. The governance of the platform is managed by a steering committee consisting of a few leading organizations which provide in-kind or financial support to achieve the mission of the platform.

The proposed platform structure would be revised after the initial phase of 2 years. However, it is expected that putting in place a strong partnership in the initial years among concerned stakeholders in India will enable these stakeholders to develop continued sustainability efforts (GHG, air pollution, road accidents, etc.) themselves after the end of the initial phase.

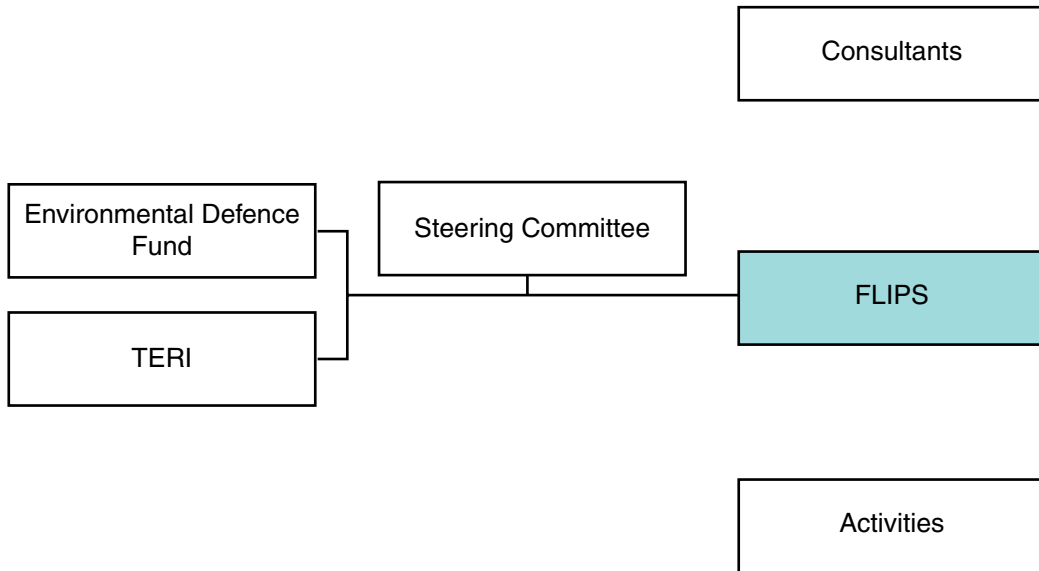


Figure 8: FLIPS conceptual framework



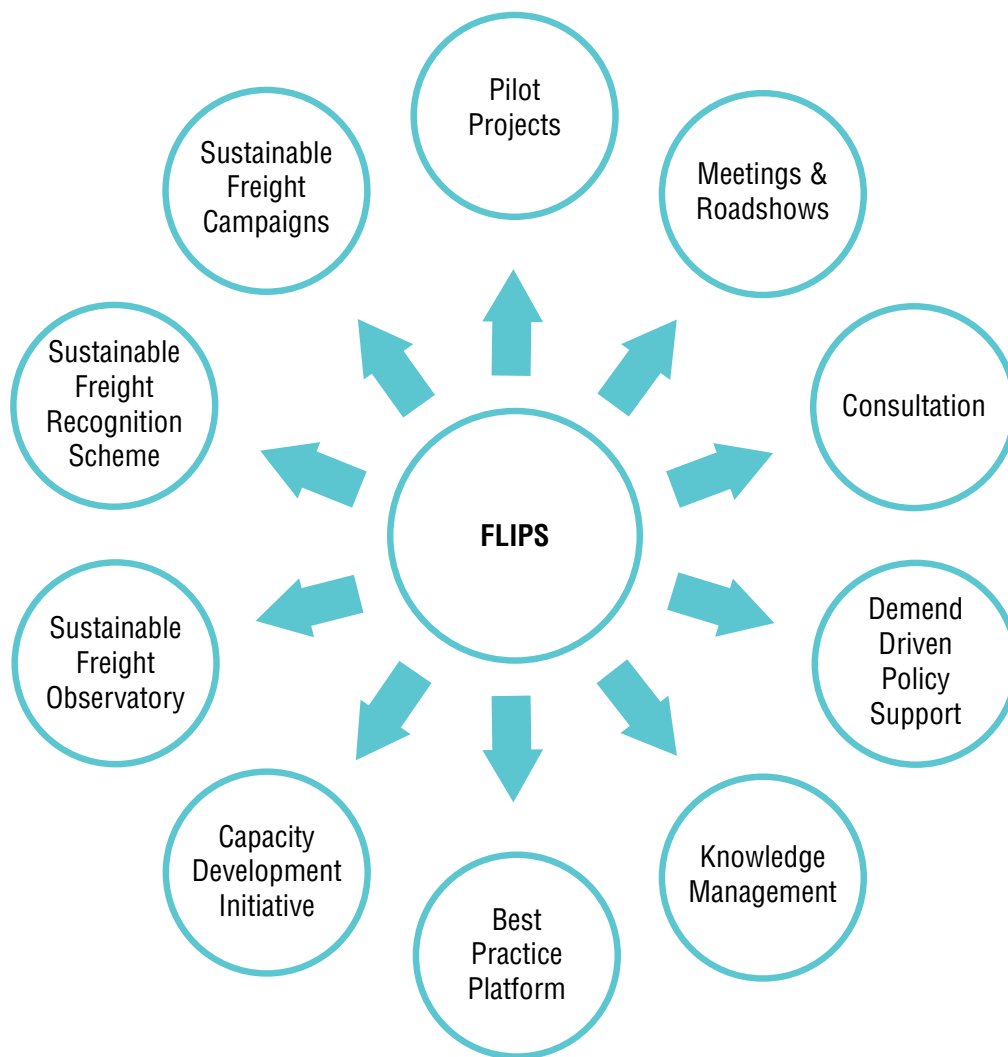


Figure 9: FLIPS priority action



Pilot Projects

- Support development of a demonstration project involving electric vehicles. This urban project could include components involving new business concepts, innovative logistics concepts around freight consolidation, including an adaptation of existing logistics planning software, affordable financing options and relevant supportive policy instruments for limiting access to city centre to polluting diesel vehicles.
- A demonstration project on retrofits for improving fuel efficiency and reducing emissions could be initiated.

Annual Meetings, Roadshows, Develop and manage Urban Freight Partnerships

- Annual forum on sustainable freight and logistics
- Steering committee meetings
- Develop and manage urban freight partnerships
- Help organize technical study tours to innovative international freight transport projects
- Consultations for establishing a Centre of Excellence in Logistics (COE)
- Participate in international Green freight discussions

Consultations

- Consultations with stakeholders
- Organizing policy dialogues
- Organizing urban freight forums
- Participate in multi-sectoral sustainability consultations and policy forums

Demand Driven Policy Support

- There is an urgent need for the development of national, urban, and company sustainable freight strategies. These strategies could be developed based on global best practices (UNCTAD Framework for Sustainable Freight Transport n.d.). Stakeholders include Logistics Ministry, Ministry of Urban Development, Confederation of Indian Industry, and so on.

Knowledge Management

- Developing a stakeholder information database
- Developing a green freight technologies database
- Fact sheets and newsletters
- Annual knowledge reports on sustainable freight (at least three)
- Research hub linking university research with practitioners



Best Practice Platform

- To develop, disseminate, and enhance the utilization of best practices and innovations in freight logistics that contribute to meeting Indian freight and logistics policy objectives with regard to economic, social, and environmental impact.
- Primary focus areas are urban freight, green corridors and modal-shift, e-freight, labelling schemes.

Capacity Building

- Globally, dedicated training courses exist for government agencies, private sector stakeholders, and city officials. For example, UNCTAD has developed a global training course on sustainable freight and this training has been piloted in East Africa, Caribbean and GMS countries. Smart Freight Center has developed a Smart Transport Manager Training module.
- Capacity building is needed along four dimensions, that is, government, private sector, urban, and driver training.

Sustainable Freight Observatory

- Sustainable freight observatory could be developed in India. The proposed observatory will focus on the collation and dissemination of freight and logistics information, developing methodologies and indicators, harmonization of definitions, the process of data collection and calculations, and improving the capacity of stakeholders.
- Shippers and carriers would be encouraged to pilot GLEC emission methodology.

Sustainable Freight Recognition Scheme

- The aim of the scheme is to drive up standards in an innovative way by awarding and celebrating freight operators and shippers that provide an example of best practice in their operations. In the proposed scheme, the freight stakeholders could be requested to report specific minimum information about their practices, and then the extent to which they meet the predefined criteria will allow them to achieve between one and three "stars" (or bronze/silver/gold ratings or stars or leaves) as part of certification. Alternatively, Green Freight Asia's labelling scheme could be piloted.

Sustainable Freight Campaigns

- Develop a communication strategy for mainstreaming sustainable freight and logistics practices using traditional media and social media campaigns

Figure 10: FLIPS priority action description



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